

Determinant Attributes of Online Grocery Shopping In India - An Empirical Analysis

Dr. Ch. Jayasankara Prasad¹, Yadaganti Raghu²

¹(Department of Business Administration, Krishna university, India)

²(Department of Business Administration, Krishna university, India)

Corresponding Author: Dr. Ch. Jayasankara Prasad

Abstract: The purpose of these paper is to identify the attributes of online grocery shopping which has been the motivational factors of customers buying groceries online. To meet the objectives of the study, semi structured formal interviews were conducted with online grocery consumers, who are aware and purchase grocery products from online stores in and around Bangalore City in Karnataka. Convenience sampling techniques was used to collect primary data from online grocery consumers who were happened to be the employees, who are aware, use and purchase grocery products from online grocery stores, working in seven software companies by administering a structured non-disguised questionnaire to online grocery consumers. The data analysis and results were based on 183 usable questionnaires duly filled up by the online retail grocery consumers who actively participated in marketing survey. Descriptive statistical tools (Mean, Standard Deviations and cross tabulations), exploratory factor analysis and inferential statistical techniques such as Chi-square analysis, Correlation, multiple Regression were applied to test the formulated hypotheses from conceptual framework. The seven determinants are convenience, security, trust, service support, flexible transaction, personalized attention, price promotions are having significant influence on consumers online grocery buying behavior.

Keywords: Attribute, Bangalore, Convenience sampling, Online grocery products, Shopping behaviour

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I. Introduction

Over the past few years, India's grocery shopping pattern is shifting from traditional shopping to online shopping¹ with the advent of internet and e-commerce which led to the phenomenon called—online grocery shopping behaviour². Electronic grocery (e- grocery) is the process of ordering groceries from home in an electronic way and either having them ordered at ones house or collecting them at a store or at a pick up point (Anna, 2016). As a result, internet shopping has been widely accepted as a way of purchasing grocery products. It has become a more popular means in the Internet world (Bourlakis et al., 2008). It also provides consumer more information and choices to compare product and price, more choice, convenience, easier to find anything online (Butler and Peppard, 1998). Online shopping has been shown to provide more satisfaction to modern consumers seeking convenience and speed (Yu and Wu, 2007.)

The online grocery market constitutes a niche market subject to overall food and grocery market in India. Nevertheless, online grocery shopping is a relatively new environment that is rapidly gaining popularity in the country owing to rise in e-commerce industry, growing urbanization, changing lifestyle of the consumers and tech-savvy young generation who prefers to buy grocery products through online. Given the phenomenal growth in e-commerce market, increasing consumer awareness, rising disposable income and emergence of various technological advancements, the online grocery stores are rapidly replacing physical stores across India. Yet, online food and grocery penetration is less than 1 per cent. While the market on the online platform is still in its nascent stage, India's online grocery market is estimated to grow at a compounded annual growth rate of 62 per cent during 2016-2022 (IBEF, 2015; 6Wresearch, 2015). Further, the online sales are expected to reach around 2 per cent of the overall grocery market by 2020, creating a potential market size of around US\$ 10

¹ Online shopping is a mode of purchasing products and services by ordering them via the Internet-based stores, which provides consumers with an easy access to products and price information, and facilitates product comparison (Chu, Arce-Urriza, Cebollada-Calvo, & Chintagunta, 2010).

² Online grocery shopping refers to ordering grocery products via the Internet and the subsequent delivery of the ordered goods at home (Burke, 1998). It is also defined as a number of experiences including information search, web site browsing/navigation, ordering, payment, customer service interactions, delivery, post-purchase problem resolution, and satisfaction with every purchase (Ha/Stoel 2009).

billion (Rs 60,000 crore), and is projected to reach \$17.39 billion by 2022 following the surge in number of players operating in the industry (IBEF, 2015). The key reasons for this growth would include growing mobile internet penetration, increasing usage of smart devices, time convenience and increasing purchasing power (Padmaja and Mohan, 2015; Gopal and Jindolia, 2016). According to PwC's annual global total retail survey (2016), the Indians buy online primarily because of convenience (65%), followed by price (31%).

In recent times, high adoption of digital transactions has significantly altered the shopping behaviour of Indians, especially urban India with an estimated population of 444 million already has 269 million (60%) using the Internet (IAMAI-IMRB report, 2017). The report also points out that 77 percent of urban users and 92 percent of rural users consider mobile as the primary device for accessing the Internet, largely driven by availability and affordability of smart phones. Thus, internet retailing gives consumers more ways to shop and more access to products and services than ever before. While these measures show more sales going online, the actual consumer behaviour is a little more complicated. The lines between online and off line channels continue to blur (Nielsen, Report, 2017). Moreover, some consumers still feel uncomfortable to buy grocery products from online stores. Lack of trust, for instance, seems to be the major reason that impedes consumers to buy online. Also, consumers may have a need to examine and feel the products and to meet friends and get some more comments about the products before purchasing. Such factors may have negative influence on consumer decision to shop grocery products from online portals. As shoppers increasingly move seamlessly between off line and online channels, purchase habits are changing significantly. Consequently, consumer behaviour towards online shopping is a field of interest for both scholars and practitioners because internet has greatly influenced the preferences and buying pattern of consumers.

II. Statement of the Problem

Shopping for food and grocery products has witnessed a revolution in Indian retail market with the conspicuous changes in the consumer buying behavior driven by strong income growth, changing lifestyles and cost effective and efficient online and mobile technologies. As consumers allocate less time to shopping and more to other endeavors, their desire for convenience has mounted and their attention has been frequently diverted to virtual shopping as an alternative medium. Thus the rapid evolution of internet is changing the way customers shop and buy products and services and has rapidly evolved into a global phenomenon. So the shopping convenience has been one of the principal motivations underlying customer inclinations to adopt online purchasing. Online grocery, although still quite small, is gaining traction and becoming increasingly integrated into the daily life of Indian consumers, especially in urban areas. Despite the growth and importance of online grocery, little is known about how people shop online for groceries. Previous studies identified factors influencing on-line buying behavior; challenges faced by on-line retailers but could not identify the purchase behavior of Indian grocery consumers.

Over last few years different online consumer behavior models have been developed to understand and predict the wide range of decisions that consumers make based on the background of customer profile, online shop profile, and other intervening factors. Moreover, some studies have been conducted to investigate the determinants of customer intentions for online grocery shopping. Till now, there is no consensus on what are the factors that actually influencing people to shop grocery items through Internet. However, researchers have suggested that as compared to traditional consumer behavior, online behaviors of consumers are subtly different in nature because of unique characteristics and interplay of technology, culture and differences in diffusion of e-commerce (Chau et al., 2002). While online shopping has attracted an abundance of research interest, examinations of online grocery shopping behavior are only now emerging in Indian context.

Therefore understanding the behavioral intentions of online grocery customers become critical in order to know whether customers will remain with or defect from the company. Increasing customer retention, or lowering the rate of customer defection, is a major key to the ability of a company to survive and sustain in intense competitive retailing environment since shopping online for groceries differs considerably from general online shopping due to the perishability and variability of the product, and frequency of the shopping activity. Having the comprehensive knowledge of how and what grocery consumers do online is a fundamental step towards understanding the online channel, and more knowledge in this arena will benefit academic researchers and retailers in food and grocery. Moreover, a search of the literature revealed no prior studies in Indian online grocery context that have explored and examined the key factors affecting consumers shopping behavior to provide a seamless experience across many channels of purchase. Further to this, the adoption and usage of online channels by the buyers has been different for different product categories. In order to realize the market potential of online grocery retail, it is necessary to understand the buyers' characteristics that impact the online grocery shopping behavior.

III. Identification Of Research Gaps

The comprehensive literature review has helped the researcher to identify the research gaps in the area of the current research. The summary of important research gaps pertinent to the present study are as follows:

1. In the last five years, online grocery retailing has, with its exponential growth, become the most fascinating area for scholars and practitioners in India food and grocery retailing. However, the market penetration is still at the nascent stage in the domestic market. Further, buying groceries from online store/web stores is rather a new concept in developing countries like India in comparison to developed counterparts, so it would be interesting to study various factors affecting consumers' buying behaviour towards online grocery.
2. As a whole, literature review indicates that existing consumer research has investigated consumers' different choice behaviour when shopping online versus in-store (Degeratu et al., 2000), the relationship between demographic characteristics and the usage of online grocery service (Hiser et al., 1999), and the attitude of existing online grocery shoppers (Morganosky and Cude, 2000; Raijas, 2002). Only limited empirical research has been conducted into the measurement of determinant attributes of online grocery buying behaviour in a rapidly changing e-commerce market and rapidly increasing internet and usage of internet enabled smart phones.
3. Literature review shows the conflicting and inconsistent results about direct affect of consumer's attitudes towards online grocery shopping on buying behaviour. Thus, the present study attempts to investigate the direct effect of attitudes towards online grocery shopping on buying behaviour.
4. Moreover, there has been no comprehensive investigation of the wide-range of factors including flexible transactions, security, trust, convenience, personal attention, service support, and price promotions and their influence on buying behaviour towards online grocery, a few studies in Indian context attempted to examine the influence of consumers' personal characteristics on online grocery buying behaviour.

In the light of abovementioned research gaps, this dissertation endeavours to address these notified gaps by developing and examining a conceptual model in the context of Indian online grocery retailing.

IV. Research Questions

The broad research questions that formed the basis of this exploratory research are:

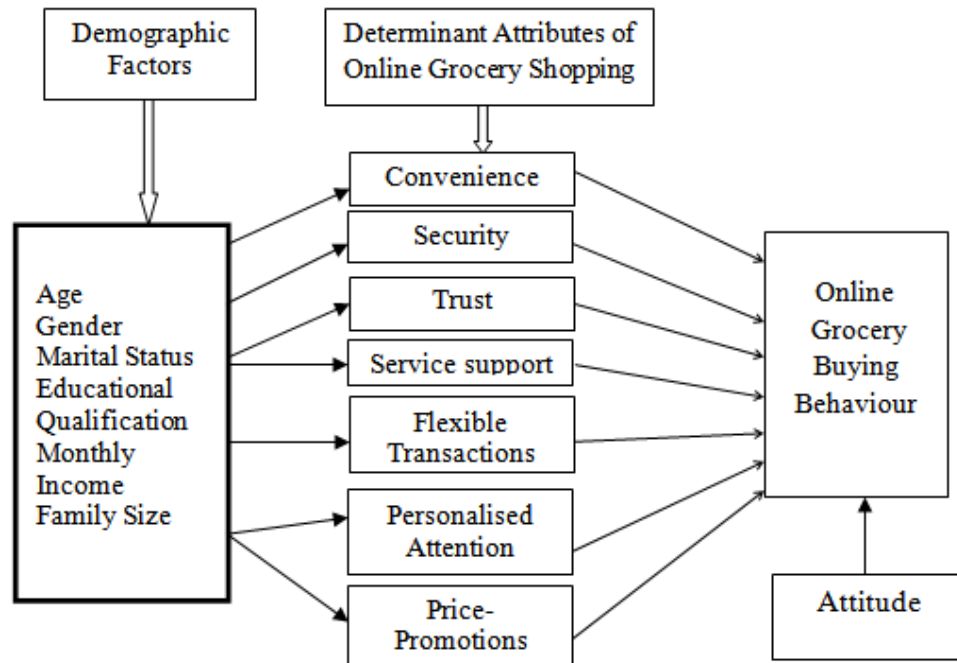
- 1). What are the salient attributes on which consumers evaluate online shopping for grocery products?
- 2). How do identified factors (i.e., convenience, security, trust, service support, flexible transactions, personalised attention, and price-promotions) impact consumers' buying behaviour via online grocery stores?
- 3). How do consumers attributes (demographics) affect their online grocery buying behaviour?
- 4). Do consumers' attitudes toward online grocery shopping affect their online grocery buying behaviour?

V. Objectives Of The Study

The overall objective of this study is to present a better understanding on factors influencing shopper behaviour towards purchase of grocery products online. The specific objectives for this study are:

1. To identify the critical factors affecting consumers' online grocery shopping behaviour,
2. To study and develop a conceptual model on online grocery buying behaviour,
3. To examine the influence of identified factors (i.e., convenience, security, trust, service support, flexible transactions, personalised attention, and price-promotions) on consumers' buying behaviour;
4. To examine the effect of shopper attributes (demographics) on online grocery buying behaviour,
5. To examine the effect of consumers attitude toward online grocery shopping with respect to online grocery buying behaviour, and
6. To derive marketing implications from the information gathered.

VI. Conceptual Framework For Online Grocery Buying Behaviour



VII. Hypotheses Of The Study

The following hypotheses have been formulated to achieve the objectives of the study. Since the study is an exploratory in prime, the hypotheses have been formulated in null form.

H1₀: Identified critical factors of online grocery shopping will not have positive and direct influence on consumers' online grocery buying behaviour in relation to:

H1_{0a}: Convenience; H1_{0b}: Security; H1_{0c}: Trust; H1_{0d}: Service support; H1_{0e}: flexibility Transactions; H1_{0f}: Personalised Attention; and H1_{0g}: Price-promotions.

H2₀. Consumers' personal characteristics will not have positive and direct impact on consumers' online grocery buying behaviour in relation to:

H2_{0a}: Age; H2_{0b}: gender; H2_{0c}: marital status; H2_{0d}: educational qualification; H2_{0e}: monthly household income; and H2_{0f}: family size

H3₀. Consumers' attitude toward online grocery shopping will not positively influence their (consumers) online grocery buying behaviour.

VIII. Overview Of Methods Of Analysis

To meet the objectives of the study, semi structured formal interviews were conducted with online grocery consumers, who are aware and purchase grocery products from online stores in and around Bangalore City in Karnataka. Academic expert's opinions and suggestions were also sought to develop a conceptual framework and survey instrument. Convenience sampling techniques was used to collect primary data from online grocery consumers who were happened to be the employees, who are aware, use and purchase grocery products from online grocery stores, working in seven software companies by administering a structured non-disguised questionnaire to online grocery consumers. The survey was conducted during Jan, 2017 - Mar, 2017. The data analysis and results were based on 183 usable questionnaires duly filled up by the online retail grocery consumers who actively participated in marketing survey. Descriptive statistical tools (Mean, Standard Deviations and cross tabulations), exploratory factor analysis and inferential statistical techniques such as Chi-square analysis, Correlation, multiple Regression were applied to test the formulated hypotheses from conceptual framework.

IX. Data Analysis

Respondents Socio-economic and Demographic Attributes

All respondents were adult male and female online grocery consumers consisted of 116 male (63.4%) and 67 female (36.6%). It is interpreted that the male respondent are using online to buy groceries more for themselves and for their families compare to female respondents which shows female respondents are giving

less preference to online grocery shopping. The 25 percent of the respondents are in the age group of 25 to 35, followed by 48 percent of the respondents in the age group of 35 to 45 years, and 27 percent of the respondents belong to the age group of 45-55 are the online grocery shoppers. It is interpreted that respondents from the age group of 35-45 prefer to shop groceries items through online compared to other categories. This may be due to less interest towards online groceries. The majority of the respondents (52.5%) were married and a meagre 47.5 per cent were Un-married. it interpreted that majority of respondents who are using online go for purchasing groceries items are married people. The major chunk of the respondents (40.5) had Post graduation as their educational qualification, post-graduate degrees (39.9) and least 19.6 percent had diploma as their minimum qualification. Hence, it is interpreted that the respondents overall were well educated. The sample included software employees of various positions. In regard to income, most of the respondents (40.4%) earned between Rs 1,00,000 – Rs 2,00,000 while (25.4%) of respondents had an income between Rs 2,00,000- Rs 3,00,000 and (21.7%) of respondents had income less than Rs 1,00,000 and (12.5%) of respondents had income between Rs 3,00,000 - Rs 4,00,000 and (5.49%) of respondents had income is more than Rs 5,00,000. Majority of the respondents (53.0%) indicated that their family size is 1-3 members, and (42.6%) indicated family size is 3-5 members, 95.6. per cent of them belonged to higher socio-economic class. Thus, the present study has a composition similar to the target market for the online grocery shopping. The detailed demographic characteristics of the respondents were presented in Table

TABLE .1 Distribution of Results for Respondents’ Demographic Profile

Variable	Description	Frequency	Percent	Mean	S.D
Gender	Male	116	63.4	-	-
	Female	67	36.6		
Age	25-35 years	45	24.6	41.1	8.10
	35-45	88	48.1		
	45-55	50	27.3		
Marital Status	Married	96	52.5	-	-
	Un-married	87	47.5		
Education	SSC/Diploma	36	19.6	-	-
	Degree	73	39.9		
	PG & above	74	40.5		
Occupation	Employment	183	100	-	-
Monthly Household Income	Upto Rs.1 Lakh	82	21.7	Rs 2.65 Lakh	Rs 45,000
	Rs 1-2Lakh	66	40.4		
	Rs 2-3 Lakh	5	25.4		
	Rs. 3-4 Lakh	27	12.5		
	More than Rs.4 Lakh	3			
Family size	1-3	97	53.0	3.4	0.912
	3-5	78	42.6		
	5 & more	8	4.4		

Source: Primary data

X. Inferential Statistics

The previously described descriptive statistics and factor analysis results were used to further analyse determinant attributes of consumers’ online grocery buying behaviour. Inferential statistical techniques like t-test, ANOVA, Simple regression, and multiple regressions were used for testing the formulated hypotheses. The results were described in the following paragraphs and tables.

H1₀: Identified critical factors of online grocery shopping will not have positive and direct influence on consumers' online grocery buying behaviour in relation to:

H1_{0a}: convenience; H1_{0b}: Security; H1_{0c}: Trust; H1_{0d}: Service Support

H1_{0e}: Flexible Transactions; H1_{0f}: Personalised Attention; and

H1_{0g}: Price-Promotions.

To test the above hypothesis, multiple linear regressions analysis (MLRA) was used. The resulting regressing model and its significance including distinct predictors at varying ‘ α ’ levels were presented in the following paragraphs. The regression model has shown in **Table.2** contributed significantly and predicted 65.7 percent variation (adjusted R²) by, convenience, security, trust, flexible transactions, service support, personalised attention, and price-promotions towards online grocery shopping behaviour. The evolved regression model shown in **Table.3** for online grocery shopping behaviour yielded a significant statistic (F=50.835, p=0.000) with the independent variables such as, convenience, security, trust, service support, flexibility transaction, personalised attention, and price-promotions.

TABLE 2 Model Summary for R Square

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	.819 ^a	.670	.657	2.48921

TABLE 3 Model Summary for ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2204.893	7	314.985	50.835	.000 ^b
	Residual	1084.331	175	6.196		
	Total	3289.224	182			
a. Dependent Variable: Online grocery buying behavior						
b. Predictors: (Constant), others, Convenience, Security, Trust, Service Support, Flexible Transactions, Personalized Attention, and Price-Promotions						

The coefficient summary for regression models shown in **Table 4** revealed that Convenience ($\beta=0.564$, $t=3.838$, $p=0.000$), security ($\beta=0.397$, $t=2.925$, $p=0.05$), trust ($\beta=0.277$, $t=2.566$, $p=0.000$), and service support ($\beta=0.267$, $t=2.375$, $p=0.049$), flexible transactions ($\beta=0.153$, $t=1.790$, $p=0.000$), personalised attention ($\beta=0.145$, $t=1.660$, $p=0.000$), and price-promotions ($\beta=0.102$, $t=1.505$, $p=0.000$) are proved to be the significant predictors of online grocery behaviour, shown in **Table 5** It indicated that independent variables such convenience, security, trust, service support, flexible transaction, personalised attention, and price-promotions were related to dependent variable i.e., online grocery buying behaviour. The positive and high value of beta (β) which depicts that determinant attributes of online grocery shopping explains online grocery buying, and generates the following regression equations:

$$Y = 2.109 + 0.564X_1 + 0.397X_2 + 0.277X_3 + 0.267X_4 + 0.153X_5 + 0.145X_6 + 0.102X_7$$

Whereas, Y= online grocery buying behaviour; X₁=Convenience; X₂= security; and X₃= Trust; and X₄= Service support; X₅= Flexible transactions; X₆= Personal attention, and X₇= Price-promotions.

Results: Null hypotheses: H1_{0a}, H1_{0b}, H1_{0c}, H1_{0d}, H1_{0e}, H1_{0f}, H1_{0g} were disproved. Therefore, alternative hypotheses- convenience (H1_a), security (H1_b), trust (H1_c), service support (H1_d), flexible transactions (H1_e), personalised attention (H1_f), and price-promotions (H1_g) were proved to be the significant predictors of online grocery buying behaviour.

TABLE 5 Predictor effects and Beta Estimates (Unstandardized) for Consumers' Online grocery Buying Behaviour associated with convenience, security, trust, flexible transactions, service support, personalised attention, and price-promotions

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.109	1.090	-	4.736	.084
	Convenience	.564	.116	.317	3.838	.000
	Security	.397	.210	.100	3.125	.050
	Trust	.277	.234	.380	2.566	.000
	Service support	.267	.215	.031	2.375	.049
	Flexible transactions	.153	.241	.343	1.790	.000
	Personalized Attention	.145	.298	.220	1.660	.000
	Price Promotions	.102	.517	.787	1.505	.000
a. Dependent Variable: Online Grocery Buying Behavior						

H2₀. Consumers' personal characteristics will not have positive and direct impact on consumers' online grocery buying behaviour in relation to:

H2_{0a}: Age; H2_{0b}: gender; H2_{0c}: marital status; H2_{0d}: educational qualification; H2_{0e}: monthly household income; and H2_{0f}: family size

To examine the significant mean difference in the online grocery buying behaviour among the age groups of respondents, one- way ANOVA test was applied. Findings shown in **Table .6** reveals that respondents' age ($F=2.742$; $Sig. = 0.045$), had the significant influence on the online grocery buying behaviour. Therefore, H2_{0a} was failed to be accepted, and H2_a was supported. Moreover, the findings of LSD Test for respondent's age group shown in **Table.7** the age group of 45-55 years group had statistically significant higher score on online grocery buying behaviour than others age groups.

TABLE 6 Differences in the respondents' online grocery buying behaviour with respect to their Age

Online grocery shopping behavior	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.493	3	4.164	2.742	.045
Within Groups	271.835	179	1.519		
Total	284.328	182			

Note: p<0.001

TABLE 7 LSD Test for Respondents' Age Group

Dependent Variable: Online grocery Buying Behavior					
Respondents' age		Mean Difference (I-J)	Std. Error	Sig.	
(I) age	(J) age				
25-35	35-45	.342	.242	.159	
	45-55	.741*	.300	.014	
35-45	25-35	.342	.242	.159	
	45-55	.725*	.294	.015	
45-55	25-35	.741*	.300	.014	
	35-45	.725*	.294	.015	

* The mean difference is significant at the 0.05 level.

To test the significant mean differences in the levels of online grocery buying behaviour between male and female respondents, independent-samples t-test was used. Results shown in **Table 8** reveal that the P- value (0.05) of the Levene's Test for gender status was less than 0.05 which implies that the variance is heterogeneous. Therefore, t-test for equal variance not assumed was applied. As a rule of thumb, 2-tailed significance (0.083) that is greater than 0.05 suggests that the variance is not statistically significant. According to the equal variance not assumed, the variances in the mean of 2.104 and 1.900 with the standard deviation of 0.895 and 0.786 for both male and female on online grocery buying behaviour was insignificant. Thus, it can be said that both male and female have insignificant mean differences in their online grocery shopping behaviour. Thus, H1_{ob} was proved to be accepted. The findings implied that male and female have equal and similar online grocery buying behavior

TABLE 8 Differences in the Respondents' Online grocery shopping Behaviour with respect to their gender

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	1.190	0.05	1.034	181	0.083	0.204	0.095
Equal variances not assumed			1.012	130.9	0.058	0.204	0.086

To examine the significant mean differences in online grocery buying behaviour between married and unmarried respondents, independent-samples t-test was applied. Findings shown in **Table 9** reveal that the P- value (0.011) of the Levene's Test for marital status was less than 0.05 which implies that the variance is heterogeneous. Therefore, t-test for equal variance not assumed was applied. As a rule of thumb, 2-tailed significance (0.054) that is greater than 0.05 suggests that the variance is not statistically significant. According to the equal variance not assumed, the variances in the mean of 2.286 and 2.121 with the standard deviation of 0.883 and 0.792 for both married and un-married on purchase intention was insignificant. Thus, it can be said that both married and un-married have insignificant mean differences in their intention to purchase online grocery products. Thus, H1_{oc} was proved to be accepted. The findings implied that married and unmarried customers have equal and similar online grocery buying behaviour.

TABLE 9 Differences in the Respondents' Online Grocery Buying Behaviour with respect to their Marital Status

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	6.627	0.011	1.964	181	0.0543	0.321	0.162
Equal			1.987	181	0.058	0.321	0.167

variances not assumed							
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To investigate the significant mean difference in online grocery buying behaviour among education of respondents, ANOVA test was applied. Findings shown in **Table 10** reveals that respondent's education ($F=13.967$; $Sig. = 0.000$), had the significant influence on the online grocery buying behaviour. Therefore, $H1_{od}$ was failed to be accepted, and $H1_d$ was supported. Furthermore, the findings of LSD Test for respondents' education level shown in **Table 11** revealed that respondents who hold degree, master's degree and above had statistically significant higher score on online grocery buying behaviour than respondents who possess diploma qualification. Meanwhile, diploma holders had statistically significant higher score on online grocery buying behaviour than of other group of respondents.

TABLE 10 Differences in the Respondents' online grocery buying behaviour with respect to their Education Level

Purchase intention	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.412	2	18.706	13.967	.000
Within Groups	239.736	179	1.339		
Total	277.148	181			

TABLE 11 LSD Test for Respondents' Education Level

Dependent Variable: Online Grocery Buying Behaviour				
Respondents' Education Level		Mean Difference (I-J)	Std. Error	Sig.
(I) Education	(J) Education			
Diploma	Degree	1.213*	0.236	0.000*
	Post Graduate	1.022*	0.236	0.000*
Degree	Post Graduate	0.192	0.192	0.318
	Diploma	1.213*	0.236	0.000*
Post Graduate	Degree	0.192	0.192	0.318
	Diploma	1.022*	0.236	0.000*

*. The mean difference is significant at the 0.05 level.

To examine the significant mean difference in the levels of online grocery buying behaviour among monthly household income of respondents, one-way ANOVA test was applied. Findings shown in **Table 12** reveals that respondent's monthly household income ($F=1.168$; $Sig. = 0.328$), had the insignificant influence on the online grocery buying behaviour. Therefore, $H1_{of}$ was proved to be accepted.

TABLE 12 Differences in the Respondents' online grocery buying behaviour with respect to their monthly household income

Purchase Intention	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.246	4	1.811	1.164	.328
Within Groups	277.082	178	1.557		
Total	7.246	4	1.811	1.164	.328

Note: * $p < 0.05$

To examine the significant mean difference in the levels of online grocery buying behaviour among family size of respondents, one- way ANOVA test was applied. Findings shown in **Table 13** reveals that respondent's family size ($F=3.744$; $Sig. = 0.026$), had the significant influence on online grocery buying behaviour Therefore, $H1_{of}$ was failed to be accepted, and $H1_f$ was supported.

TABLE 13 Differences in the Respondents' online grocery buying behaviour with respect to their Family Size

Purchase Intention	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.300	2	4.650	3.744	.026
Within Groups	223.563	180	1.242		
Total	232.863	182			

Note: * $p < 0.05$

Based on the results of LSD Test for respondent's family size shown in **Table 14** the family size of all groups had significant differences with respect to online grocery buying behaviour.

TABLE 14 LSD Test for Respondents' Family size Groups

Dependent Variable: Online grocery buying behaviour				
Respondent's family size		Mean Difference (I-J)	Std. Error	Sig.
(I) Family Size	(J) Family Size			
1-3	3-5	.515*	.240	.033*
	5 & Above	.075	.235	.750
3-5	1-3	.515*	.240	.033*
	5 & Above	.440*	.181	.016*
5 & Above	1-3	.075	.235	.750
	3-5	.440*	.181	.016*

*. The mean difference is significant at the 0.05 level.

XI. Results

The results mentioned in the aforesaid paragraphs revealed that there were significant mean differences in the respondents' online grocery buying behaviour with respect to their demographic characteristics such as gender, age, education, and family size while there was no mean difference found between married and unmarried respondents as well as monthly household income categories towards their online grocery buying behaviour.

H3₀. Consumers' attitude toward online grocery shopping will not positively influence their (consumers) online grocery buying behaviour.

To test this hypothesis, simple Regression technique was used to examine the effect of respondents' attitudes towards online grocery shopping on their buying behaviour. The regressing model for dependent variable was presented in the following paragraphs.

The regression model for online grocery buying behaviour had shown in **Table 15** contributed significantly and predicted with an adjusted R² value of 17.8 percent variation by attitude toward online grocery shopping. For a good model fit, the difference between R² and adjusted R² should not be more than 0.05. It has been achieved (Adjusted R² = 0.001, < 0.05) for this study. An 42.7 percent (R = 0.427) of correlation exists between the observed and predicted values of dependent variable. Autocorrelation was checked by using Durbin-Watson test and the value was found 2.008 which were equal to 2 indicating that there is no autocorrelation in the model. The ANOVA results generated (as shown in **Table 16**) in this test also revealed a significant probability value (p = 0.000) and signifies that the independent variable is related to dependent variable with a significant statistic F (1, 448) = 40.323, p=0.000. The results confirmed that the relationship between consumers' attitude towards online grocery shopping and buying behaviour is significant.

TABLE 15 Regression model summaries for attitude towards online grocery shopping on consumers' buying behaviour

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	ANOVA Results			
					F-Value	df1	df2	Sig.
1	.851 ^a	.725	.724	.55926	1179.730	1	448	0.000

a. Predictors: (Constant), Attitude towards Online Grocery Shopping

TABLE 16 ANOVA Statistics for Regression Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	161.944	1	161.944	40.323	.000 ^b
	Residual	726.920	181	4.016		
	Total	888.863	182			

a. Dependent Variable: Online Grocery Buying Behavior
 b. Predictors: (Constant), Attitude toward Online Grocery Shopping Behavior

The coefficient summary for regression models shown in **Table 17** revealed that positive attitude towards online grocery shopping (β=0.660, t=6.350, p=0.000) was the significant predictor for online grocery buying behaviour.

TABLE 17 Predictor effects and Beta Estimates (Unstandardized) for Consumers' Attitude toward online grocery buying behaviour associated with the online grocery shopping

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	Std. Error	Beta		
1	(Constant)	.580	.914		.635	.526
	Attitude toward online grocery shopping behavior	.660	.419	.427	6.350	.000

a. Dependent Variable: Consumers' Online Grocery Buying Behavior

The positive and high value of beta (β) which depicts that consumer's attitude towards online grocery shopping with respect to online buying behaviour, and generates the following regression equation:

$$Y = 0.580 + 0.66 X$$

Y= Online Grocery Buying Behaviour, X= Attitude towards Online Grocery Shopping

Results: Alternate hypothesis H3 was supported and attitude towards online grocery shopping was proved to be the significant predictor of online grocery buying behaviour.

XII. Academic Implications

1. The findings of this study has contributed to the literature by being the distinctive one providing comprehensive framework from which to assess the importance and influence of determinant attributes of consumer' online grocery buying behaviour in the Indian context.
2. Another assertion is that the lack of empirical knowledge about the influence of flexible transactions, personalised/customised attention and price-promotions on consumers' online grocery buying behaviour.
3. The dissertation also highlighted some empirical considerations of consumers' personal characteristics on online grocery buying behaviour.
4. This dissertation furthers theory on consumers' online grocery shopping behaviour by focussing on consumer's attitudinal dimensions and online grocery buying behaviour.
5. Finally, given the absence of published academic literature (empirical nature) relating to consumers' online grocery buying behaviour, this study may serve as a departure point for future research in this area of concern.

XIII. Managerial Implications

The findings from this dissertation are also relevant to online grocery retail managers. Consistent with previous research and most obvious, this study showed that the importance of convenience, security, trust, service support, flexible transactions, convenience, personal attention, price promotions, and attitude towards online grocery shopping positively influenced online grocery buying behaviour. Information from this study can help online grocery retailers and marketers respond to the ever changing needs and wants of consumers in the Indian grocery retailing. The findings of the study offer significant practical insights for online grocery retailers who intent to develop and manage their online grocery retail business. The important implications are drawn from this research for retail industry as follows:

- 1) The results underscore the importance to recognize that online consumers' demographic characteristics have significant influence on grocery buying via internet and other web connected devices. Except gender, marital status and monthly household income, all other characteristics have positive impact on consumers' online grocery buying behaviour. The demographic results would certainly help online grocery retailers in developing marketing strategies such as targeting, segmenting and positioning. The results would also help online retailers to better understand and satisfy the specific needs and wants of online grocery consumers.
- 2) The results clearly indicate that convenience is found to highly influencing (direct effect) consumers' online grocery buying behaviour as customers leave their shopping halfway due to lengthy procedures or issues like money transfer or non-acceptance of money cards. It is implied that online grocery stores should offer familiar shopping experience by taking advantage of rich information, easy access and convenience of the internet (Li et al., 1999). Therefore, increasing access and choice are most important facets of online grocery shopping. Online grocery site should be made more convenient for standard or repeat purchases, for example, one click purchase approach by Bigbasket, Amazon, etc. Hence, online grocery stores should stress themes like time saving, convenience, fast service and inconvenience aspects of traditional shopping in their communication (Karayanni, 2003).
- 3) Findings indicate that inadequate security and risk of online grocery shopping coupled with doubt regarding truthfulness of online grocery retailer may prevent internet non-purchasers from becoming internet purchasers. There have been studies which confirmed that transaction security can exert a negative effect on

willingness and online consumer become reluctant to share credit information if risk increases (Liao and Cheung, 2001). Therefore, online retailers need to offer multiple payment options, data encryption during transactions and display security seals to reassure customers products should be easily searchable (Raijas and Tuunainen, 2001).

4) Findings indicate that personalised and customised attention plays the most critical role in consumers' online grocery buying behaviour. This factor was expected because several researchers argue that online grocery buyers are highly attentive towards customisation of products and services. Therefore, retailers need to determine personalization and access for retaining and attracting customers, as these factors significantly affect assessment of overall online service quality (Yang and Jun, 2008). In addition, e-retail firms need to tailor their services so as to better cater to consumer's online grocery consumers behaviour.

5) The direct and positive influence of perceived price related promotions on online grocery buying behaviour indicates that online grocery consumer prefer price promotions over every-day low pricing because it gives them greater sense of economic control and gain since price of the grocery products being an important factor affecting online buying behaviour. E-grocery retailers may offer discounts, cashback, rebates and offers to online grocery consumers since there have been evidence by previous researchers where internet shoppers don't prefer to buy online if the prices are higher (Vrechopoulos et al., 2001). E-grocery retailers need to offer customers new promotions and give a new total cost of the transaction. The results also underscored the need to offer frequent price promotions to bring in changes in online grocery consumers' behaviour so that they are attracted and made them loyal to the e-website of grocery store. Therefore, online grocery retailers need to identify the promotional levers that work best for the online grocery retailing. So that, the price promotions can be designed as an impulse purchase or a planned purchase towards online grocery purchase.

6) The results of this study confirm that a positive attitude toward online grocery shopping, affected by perceived trust, security and quality service support, personalised attention, and price-promotions which are important predictors of consumers' online grocery buying behaviour. The results implied that set of emotions (saving money), beliefs, and behaviours toward online grocery stores influencing consumers' online grocery purchase intentions since attitude is a key factor predicting behavioural intentions (adoption and post adoption).

XIV. Conclusion

Online grocery shopping is an entirely novel means of buying preferred grocery goods for household consumption. In today's highly competitive Indian grocery retailing, developing a successful and sustainable online grocery retailing has become a top priority for many online grocery companies although shopping online for groceries differs considerably from general online shopping due to the perishability and variability of the product. The perceived benefits of online grocery retailing provide retailers a competitive advantage in several ways as this channel will continue to grow exponentially in the coming years. Thus, grocery online retailing remains both an area of opportunity and of significant managerial challenge to multi-channel and pure-play grocery e-retailers. While online shopping has attracted an abundance of research interest, examinations of online grocery shopping behaviour are only now emerging. In this milieu, the study examined the relationships among the constructs underlying consumers' online grocery buying behaviour in India. In this context, this study attempted to provide an important insight in to the perspective about determinant attributes of online grocery shopping that consumers hold. Thus, the study focuses on the following five questions: 1) What are the salient attributes on which consumers evaluate online shopping for grocery products?, 2) How do identified factors (i.e., convenience, security, trust, service support, flexible transactions, personalised attention, and price-promotions) impact consumers' buying behaviour?, 3) How do consumers attributes (demographics) affect online grocery shopping behaviour?, and 4). Do consumers' attitudes toward online grocery shopping affect their online grocery buying behaviour?

On being answered these questions, the findings provide better understanding about consumers' online grocery buying behaviour in Indian grocery market, an area that has received scant attention within the academic literature. The overall results of this study are consistent with previous studies and extend them as well. The findings proved that online grocery buying behaviour is influenced by consumers demographic characteristics (age, gender, marital status, education, monthly household income, and family size), determinant attributes of online grocery shopping (convenience, trust, security, support services, flexible transactions, personalised attention and price promotions), and positive attitudes towards online grocery shopping.

The findings indicated that demographic profile of online grocery shoppers reveal that there are no significant mean differences exists between male and female, married and unmarried, and levels of monthly household income with respect to online grocery buying behaviour. Consumers aged between 35-45 shows the highest frequency in the purchase of grocery products via internet. The level of education among consumers have influence on online grocery buying behaviour due to Knowledge of and awareness about the potential benefits of online grocery buying is differed among the educational groups. The survey results also show that households with children are more likely to purchase grocery products through web stores. Thus, practitioners

could use these results as a basis to develop strategic marketing plans concerning the most effective communication message to promote online grocery shopping behaviour.

The results emphasise the significant influence of critical factors affecting online grocery shopping on consumers' online grocery buying behaviour. The findings indicated that the conveniences of doing shopping for groceries through online and consequent time saving are the critical factors affecting online grocery buying behaviour. Given the consumer demand for richer experiences and greater convenience, online retailers need to rethink their marketing strategy. The direct and positive influence of trust, reliability and security concerns in online purchase of grocery products on consumers' online grocery buying behaviour indicates that there is a need to focus on dimensions and sub-dimensions of safety and security of financial transactions and personal information about online grocery consumers.

The results underscore the importance of service support, personalised attention and price promotions in online grocery buying behaviour. The results emphasise that internet retailers need to ensure timely delivery of ordered items via well-managed inventory, offer an order-tracking tool to customers, and provide appropriate customer support. It is also worth mentioning that retailers need to develop abilities to deliver a complete shopping experience that is seamless, differentiated and ultimately personal since it is acknowledged that consumers are calling for more effective personalization.

The results revealed that online grocery shopping attitudes are influenced by various needs including functional, financial, psychological and physical benefits of online grocery shopping. It means that consumers worry about perceived importance of negative consequences in the case of poor choice when they purchase grocery products through internet. It is imperative for the online retailers to create high brand awareness among consumers to ensure they feel confident and sure about the grocery products purchased from online grocery stores.

Lastly, the consumers appear to be more satisfied with online grocery shopping. This leads to consumers' increased level of familiarity with the online grocery stores and therefore increased positive perceptions and favourable attitudes and purchase behaviour towards online grocery.

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