

The online grocery shopper's dilemma: Understanding the role of mediating risk on customer satisfaction**Imran Ali^a and Mohammad Naushad^{b*}**^aAssistant Professor, NOIDA Institute of Engineering and Technology, Greater Noida, India^bAssociate Professor, Department of Management, College of Business Administration, Prince Sattam Bin Abdulaziz University, Alkharj, Saudi Arabia**CHRONICLE***Article history:*

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*Keywords:**Convenience**Risk**Product Quality**Perceived Value**Customer Satisfaction***ABSTRACT**

Online grocery shopping has emerged as a prominent choice, significantly accelerated by the COVID-19 pandemic. This study delves into the factors impacting customer satisfaction in the realm of online grocery shopping, focusing on the mediating influence of perceived risk. The research, conducted with a sample size of 462, employed a convenience sampling technique for data collection. The data analysis was performed using Excel, SPSS, and Structural Equation Modeling (SEM) through AMOS. The findings reveal that perceived product quality plays a pivotal role in positively and significantly influencing customer satisfaction within the online grocery shopping sphere. Conversely, perceived convenience, while positively correlated, exhibits insignificance in impacting customer satisfaction. Furthermore, this study highlights the existence of full mediation between perceived convenience and customer satisfaction, mediated by a variable, as evidenced by the non-zero values in the range of .040 to .105. This research underscores the importance for businesses engaged in online grocery retail to prioritize convenience as an essential element to enhance customer satisfaction.

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1. Introduction

Traditionally, customers would purchase groceries from local markets where they could personally inspect the quality and content of products before making a decision (Ramus & Nielsun, 2005). Shoppers valued the ability to ensure the quality, pricing, and ingredients of their purchases and had ample time for comparing products on various parameters, including price, quality, and performance. However, over the past few years, there has been a significant shift in consumer buying behavior, particularly when it comes to groceries. A gradual but consistent preference for online grocery shopping has emerged. This shift was accelerated during the COVID-19 pandemic when governments worldwide mandated stay-at-home orders, leading customers to turn to online platforms for their grocery needs. Recognizing this evolving consumer preference for online grocery shopping, many companies have made substantial expansions in their online operations, offering groceries through both online and offline channels. Online grocery sales have become a pivotal contributor to overall organizational revenues. Additionally, various factors, such as low-interest rates, government policies, delivery efficiency, order fulfilment rates, and increased internet penetration, have significantly propelled the growth of the online grocery industry (Melis et al., 2016).

Consumers are increasingly relying on e-grocery stores to fulfil their everyday needs. In response, businesses in the online grocery sector are investing heavily to enhance their supply chain efficiency, ensuring timely order fulfilment. Both multinational corporations and Indian firms have ambitious plans to expand their cold storage and logistics capabilities to meet the growing demand. While the Indian e-commerce industry is currently in its initial growth phase, it is expected to experience

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exponential expansion in the future, primarily due to the catalysing effect of digital transformation on the industry's growth trajectory.

This significant shift in consumer behaviour, driven by the availability of a multitude of shopping alternatives, has led to discernible changes in the way customers make buying decisions (Teller et al., 2016). Nowadays, online shopping has gained prominence, and customers enjoy the flexibility of choosing between online and offline grocery stores for their purchases. In light of these transformative shifts, this study seeks to explore the underlying motivations driving customers to opt for online grocery shopping. The objectives of this study are threefold: (i) to identify the key factors motivating the purchase of groceries online, (ii) to examine the primary determinants of customer satisfaction in the context of online grocery shopping, and (iii) to analyse the mediating role of risk in shaping customer satisfaction within this domain. The following sections of this study are structured as follows: the subsequent segment will delve into a comprehensive review of the relevant literature to identify gaps in existing research. The subsequent section will provide an in-depth explanation of the research methodology employed in this study. The subsequent segment will present a detailed analysis of the data and discuss the results obtained. Finally, the concluding section will report the managerial implications drawn from the research findings and offer overall conclusions.

2. Literature Review

Online grocery shopping, driven by the unique perishable and diverse nature of grocery items, holds a central role in our daily lives and finances. Customer satisfaction is the linchpin for the profitability and loyalty of online grocers, anchored in product quality and service alignment. In India, despite the rapid growth of e-commerce, the online grocery market is in its early stages, with retailers expanding into underserved areas, despite challenges like poor connectivity and low computer literacy (Ramus and Nielsen, 2005; Tsydybey, 2014; Seitz, 2013; Zaini et al., 2011).

Within this dynamic landscape, a fundamental question emerges: what are the key factors significantly impacting customer satisfaction in online grocery shopping? This question is not merely of academic interest; it's the key to success and sustainability, particularly in the Indian market. In this intricate landscape, several influential factors come to the fore, encompassing perceived value, product quality, convenience, service quality, information quality, and risk. These factors collectively shape the online grocery shopping experience. This study delves into these determinants comprehensively, providing profound insights into customer satisfaction in this domain. As we navigate the literature, our exploration will uncover the nuanced relationships between these factors, their individual impacts, and how they converge to illuminate the broader framework of customer satisfaction. Our journey also delves into the complex dynamics surrounding perceived risk, a pivotal element in the online grocery shopping landscape. Through this literature review, we aim to reveal the underlying drivers and complexities underpinning customer satisfaction in this rapidly evolving field, guiding both businesses and academia (Ramus and Nielsen, 2005; Tsydybey, 2014; Seitz, 2013; Zaini et al., 2011).

2.1 Customer Satisfaction

Customer satisfaction serves as a vital gauge for assessing an organization's performance. It's widely acknowledged that customer satisfaction not only contributes to increased profits but also enhances an organization's reputation among customers, within society, and even among competitors (Barsky & Labagh, 1992). Satisfied customers exhibit higher levels of loyalty, fostering long-term relationships and improving overall operational performance. Such customers obviate the need for excessive expenditure on acquiring and retaining new ones (Oliver, 1997). While numerous studies have delved into customer satisfaction, there is no universally accepted definition. Several researchers, including Cardozo (1965), Oliver (1977), and Giese & Cote (2000), have equated customer satisfaction to the pleasurable feeling experienced after consuming a product. It's important to note that satisfaction is a measure that can only be assessed post-consumption, whether it's a product or a brand.

In the realm of online grocery shopping, customers who opt for digital platforms tend to report higher levels of satisfaction compared to traditional store shoppers. This preference is often attributed to factors like lower prices, convenient home delivery, time savings, and the mitigation of transportation issues (Tauber, 1972). However, it's crucial to recognize that not all customers are homogenous in their preferences; some prioritize product quality while others are more price-conscious. Grocery retailers are acutely aware of this diversity and are focusing on key elements such as product quality, pricing, and even recreational amenities to enhance customer satisfaction. This dedication to understanding the core determinants of customer satisfaction is paramount, especially in the context of online grocery shopping.

2.2 Perceived Value

Perceived value, a cornerstone of consumer decision-making, encapsulates the delicate equilibrium between the benefits reaped and the financial investment made by customers. In essence, it signifies that customers view the product as a worthwhile investment when the benefits they derive surpass the cost incurred (Heskett, 1977). Conversely, if the prices paid outweigh the benefits received, customer dissatisfaction inevitably ensues. Extensive research resonates with the profound impact of perceived value on customer satisfaction (Sirohi et al., 1998). Within this paradigm, product quality emerges as a critical dimension, with researchers gauging it as the delicate ratio between product quality and the corresponding price. Understanding these dimensions is paramount for businesses seeking to enhance customer satisfaction and build enduring relationships.

2.3 Perceived Product Quality

Perceived product quality is the bedrock of customer satisfaction, a testament to a product's ability to meet customer specifications and demands. It goes beyond mere adherence to specifications; it's about the product's capability to align with and exceed customer expectations. Quality products foster unwavering loyalty among customers and significantly boost customer retention, an invaluable asset for any business (Helgesen, 2006). Customers are not only drawn to quality but are also thrilled to find it at competitive prices, emphasizing the pivotal role of product quality in customer satisfaction (Baltas & Papastathopoulou, 2003). It stands as one of the foremost determinants of customer satisfaction, loyalty, and retention. In this intricate web of factors shaping customer loyalty, product quality emerges as a linchpin. It doesn't just affect the customer's choice of where to shop but also influences their purchasing decisions. A commitment to delivering quality ensures customer retention and fosters a strong bond between the customer and the company (Baltas & Papastathopoulou, 2003). The hypothesis that follows delves deeper into the impact of perceived product quality on customer satisfaction, shedding light on this critical relationship.

2.4 Perceived Convenience

Perceived convenience is the linchpin of the modern shopping experience, epitomizing the ease and efficiency of procuring products and brands. Today's shoppers yearn for seamless transactions that save them time, money, and energy. This is precisely where online shopping excels, offering a plethora of conveniences and shopping alternatives. With just a click, customers can swiftly purchase multiple products, a feat that proves exceedingly challenging in traditional offline grocery shopping (Aylott & Mitchell, 1998; Cassill et al., 1997). Online platforms have revolutionized price comparison, enabling customers to effortlessly assess and compare products from various competitors. Moreover, online grocery shopping provides an extensive array of product choices, allowing customers to select the items that best align with their needs. Payment flexibility further enhances convenience; customers can choose to pay online or opt for cash transactions. In this dynamic landscape, convenience translates into an experience that demands minimal time and effort, a paradigm aptly embodied by online grocery shopping. The impact of perceived convenience on customer satisfaction is a crucial facet, one that merits further exploration as we frame our hypothesis.

2.5 Perceived Risk

Risk weaves its way into every business transaction, creating a spectrum of uncertainty where some ventures entail high risk while others are relatively low in their inherent uncertainties. This holds true even in the realm of online transactions, heavily reliant on technology's intricacies (Bart et al., 2005; Yang et al., 2015). In online transactions, the dynamics are distinct; the interactions between customers and sales professionals tend to be impersonal, creating a unique set of challenges. Research findings underscore the reservations of customers when purchasing online, stemming from concerns over divulging confidential information that may be misused by companies (Bhatnagar et al., 2000; Black et al., 2010). It's evident that the security of personal and financial data plays a pivotal role in assuaging these concerns, influencing customers' willingness to embrace online shopping. Moreover, shoppers are inherently mindful of product quality, especially in the absence of physical examination. The inability to physically inspect products has instilled a desire among customers to ensure product quality before placing an online order. The nuances of perceived risk in online shopping warrant deeper exploration to understand its intricate impact on customer satisfaction and consumer behavior.

2.6 Research Gap

In this intricate landscape, several influential factors take center stage, including perceived value, product quality, convenience, service quality, information quality, and risk. These factors collectively shape the online grocery shopping experience. However, a notable research gap exists concerning the interplay and individual impacts of these factors on overall customer satisfaction. The study at hand aims to address this gap comprehensively. As the existing literature is explored, it endeavors to unveil the nuanced relationships between these determinants, elucidate their distinct effects, and provide a holistic understanding of what drives customer satisfaction in the realm of online grocery shopping. Moreover, the research delves into the intricate dynamics of perceived risk, a crucial yet often overlooked element in the online grocery shopping landscape. The main objective of this research work is to identify the major determinants of customer satisfaction with risk as a mediating variable with reference to online grocery shopping. The following hypotheses can be devised for the study. Moreover, Fig.1 depicts the research model for the study.

H1: *There is a positive and significant relationship between perceived value and risk.*

H2: *There is a positive and significant relationship between perceived product quality and risk.*

H3: *There is a positive and significant relationship between perceived convenience and risk.*

H4: *There is a positive and significant relationship between risk and customer satisfaction.*

H5: *There is a positive and significant relationship between perceived value and customer satisfaction.*

H6: *There is a positive and significant relationship between perceived product quality and customer satisfaction.*

H7: *There is a positive and significant relationship between perceived convenience and customer satisfaction.*

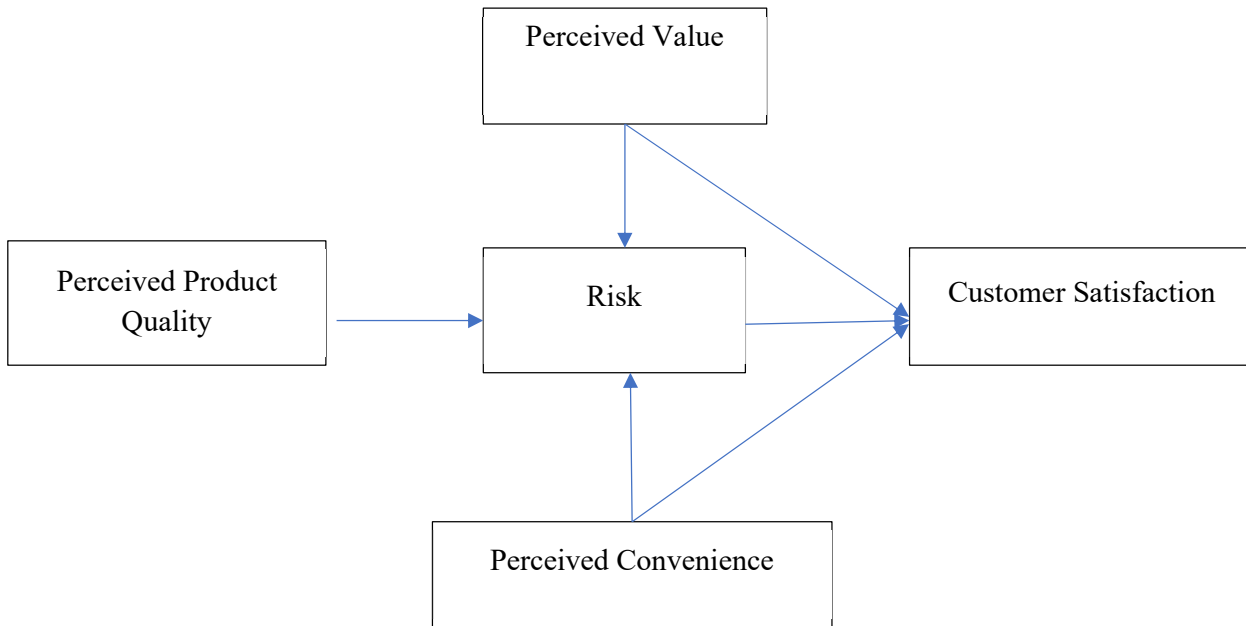


Fig. 1. Proposed Research Model

3. Research Methods

The primary survey method stands out as a favored approach among researchers for data collection, known for its ease of use and convenience (Preibusch, 2013; Amin & Ahmad, 2012; Nagengast et al., 2014). Its primary objective is to gauge respondents' attitudes, opinions, and knowledge regarding a selected topic. For this study, a structured questionnaire was employed (Monette et al., 2005). This questionnaire featured two distinct sections: the first focused on demographic information such as gender, marital status, education, and income, while the second delved into the constructs central to the research. In order to ensure unbiased and impartial responses, surveys were administered in a free environment (Auka, Bosire & Matern, 2013). This research follows a quantitative approach and aims to identify the key determinants of customer satisfaction in the context of online grocery shopping. Five constructs, including three independent, one dependent, and one mediating variable, were selected for the study. Seven hypotheses were tested as part of this research. The research encompassed both male and female respondents residing in Delhi and the National Capital Region (NCR) of India who had made at least one online grocery purchase in the past six months. This region was chosen due to its high levels of internet usage, education, and awareness of online grocery shopping benefits, with a population primarily consisting of individuals aged 18 and above (Marshall & Rossman, 2016; Yin, 2018). To maintain the integrity of the study, only individuals with prior online shopping experience were included in the sample. A sample size ranging from greater than 30 to less than 500 is considered suitable for research (Abranovic, 1997; Sekaran, 2003). Data collection spanned from March 2023 to May 2023, with approximately 500 questionnaires distributed to the target audience via platforms such as WhatsApp, E-mail, and social media. After careful examination, 462 appropriately completed questionnaires were retained for analysis. Convenience sampling was the chosen method for data collection, enabling the inclusion of a diverse pool of respondents in the study.

4. Data Analysis

In this research, an array of statistical tools, including Excel, SPSS, and AMOS, were harnessed for comprehensive data analysis. The study embarked on an exploration of respondent profiles, employing advanced Excel and SPSS techniques. Further, the intricate structural equation modeling (SEM) methodology, facilitated through AMOS, was engaged to unravel the research and structural models. Structural equation modeling consists of two integral stages. The initial stage entails the validation of the research model to assess the compatibility of the data with the proposed framework. Subsequently, in the second stage, the structural model dissects the relationships between dependent and independent variables. An additional layer of sophistication was introduced through the application of bootstrapping techniques to scrutinize the effects of the mediating variable. The study's primary focus was to dissect the influence of perceived value, perceived convenience, and perceived product quality on customer satisfaction, with risk serving as a mediating variable. The subsequent analysis delves into the profiles of the respondents.

Table 1
Demographic Profile

	Particular	Frequency	Percentage	Particular	Frequency	Percentage	Particular
Gender	Male	308	66.66	Marital Status	Single	374	80.95
	Female	154	33.34		Married	88	19.05
	Total	462	100.0		Total	462	100.0
Age	18-30	360	77.92	Experience	Less than 5	288	62.33
	31-40	74	16.02		5-10 Years	155	33.55
	41-50	14	3.03		11-15 Years	6	1.30
	51-60	14	3.03		16-20 Years	13	2.82
	More than 60	0	0		More than	0	0.00
	Total	462	100.0		Total	462	100
Annual	Less than 3 Lakh	154	33.33	Education	Under Grad-	0	0
	3-5 Lakh	200	43.29		Graduate	230	49.79
	5-20 lakh	78	16.88		Post Gradu-	220	47.61
	More than 20 Lakh	30	6.50		Any Other	12	2.60
	Total	462	100		Total	462	100

Table 1 offers an insightful glimpse into the demographic composition of the respondent pool. The study comprised 66.66% male and 33.34% female participants. Furthermore, 77.92% of respondents fell within the age bracket of 18-30 years, while 16.02% belonged to the 31-40 years category. In terms of marital status, a striking 80.95% of respondents were single, with the remaining 19.05% being married. Regarding annual income, the data revealed that 33.33% of total respondents earned less than 3 lakh, 43.29% had an annual income ranging from 3 to 5 lakh, 16.88% earned between 5 to 20 lakh, and 6.50% reported an annual income exceeding 20 lakh. In the realm of educational qualifications, most respondents, 49.79%, were graduates, while 47.61% held postgraduate degrees, with a smaller percentage of 2.60% possessing other qualifications. Lastly, the study unveiled insights into the work experience of respondents. A significant 62.33% of the participants reported having less than 5 years of work experience, followed by 33.55% with 5-10 years of experience, a mere 1.30% having 11-15 years of experience, and 2.82% boasting 16-20 years of work experience.

4.1 Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) is highly used by the industry practitioners and academic researchers to reduce the large data and explore the underlying factors in the dataset. EFA allows the researchers to determine the most appropriate factors for the on-going research work. Table 2 reveals the value of Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity. The statistical value of Kaiser-Meyer-Olkin (KMO) determine the adequacy of data for the present study. The accepted criteria for the KMO value are that it should be more than 0.6. In case of present study, Kaiser-Meyer-Olkin (KMO) is .851 which is excellent and much more than the minimum accepted criteria. This value also indicates that data is sufficient for conducting further study. Furthermore, table 2 also exhibits the value of Bartlett's Test of Sphericity (.000) which is statistically significant and justifies that data is sufficient for the purpose of analysis and interpretation.

Table 2
KMO and Bartlett's Test

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.851
Bartlett's Test of Sphericity	Approx. Chi-Square	15173.774
	df	561
	Sig.	0.000

Originally, the structured questionnaire had 28 items under five constructs, three independent, one dependent and one mediating variable. Based on exploratory factor analysis result, five items were dropped due to poor factor loading. Therefore, only 23 items were selected for further research work.

4.2 Reliability and Validity

It is inevitable to have a reliable research questionnaire so that the researcher can collect correct data for the analysis to improve the quality of research and to develop confidence in the quality of quantitative research. Here, the term 'reliability' refers to the capability of the research questionnaire to produce consistent and quality results. A statistical technique called Cronbach's alpha is applied by the researchers to measure the internal consistency of the research questionnaire. Cronbach's alpha value examines whether the questionnaire can measure what it is intended to measure. In order to measure the scale reliability, Cronbach's alpha value must be greater than 0.6 (Hair et al., 2021). In this research work, all values of Cronbach's alpha are more than the set criteria (>0.6). Therefore, all these values specify that the research questionnaire is capable of measuring as desired by the research objectives and the research questionnaire is capable enough to produce accurate and consistent results. Cronbach's alpha value for risk construct is .952, for perceived value is .791, for perceived product quality is .929, for customer satisfaction is .922, and for perceived convenience is .883. Furthermore, convergent validity is used to measure how closely each item of a construct is and is capable of measuring each construct. Average Variance Extracted (AVE) is calculated and used to measure convergent validity. As per the set criteria, a score of AVE value of more than 0.5

exhibits adequate convergent validity (Babin & Zikmund, 2016). The study has found that all AVE values are more than 0.5. AVE value of risk is 0.787, of perceived value is 0.791, of perceived product quality is 0.714, of customer satisfaction is .706, Of perceived convenience is 0.661.

Table 3
Construct Reliability and Validity

Variable	Indicator	Loading	Cronbach's Alpha	AVE	CR
RISK	RF4	.934	.952	0.787	0.95
	RF2	.886			
	RF3	.885			
	RF5	.878			
	RF1	.851			
Perceived Value	PV4	.918	.942	0.791	0.95
	PV3	.905			
	PV2	.900			
	PV5	.866			
	PV1	.857			
Perceived Product Quality	PPQ3	.907	.929	0.714	0.93
	PPQ4	.877			
	PPQ2	.873			
	PPQ1	.804			
	PPQ5	.757			
Customer Satisfaction	CS2	.877	.922	0.706	0.92
	CS5	.858			
	CS4	.831			
	CS1	.827			
	CS3	.806			
Perceived Convenience	PC2	.886	.883	0.661	0.91
	PC3	.830			
	PC6	.814			
	PC4	.778			
	PC1	.751			

4.3 Discriminant Validity

It is good in research work that each construct selected for the study must be different from each other because every construct aims to measure a different thing. Discriminant validity is highly used to measure how different they are from each other. The set criteria to meet discriminant validity requirement is that the square root of the factor of AVE should be greater than the inter-factor correlation (Fornell & Larcker, 1981). Table 4 exhibits that the square root of AVE is greater than the inter-factor correlation. Therefore, it is proved that discriminant validity exists.

Table 4
Discriminant Validity (Fornell-Larcker Criterion)

	PV	PPQ	PC	Risk	CS
PV	.889				
PPQ	.064	.845			
PC	.327	.049	.813		
Risk	.004	0.41	.066	.887	
CS	.026	0.449	.068	0.349	.840

4.4 Model Fit

Confirmatory Factor Analysis (CFA) was used to test the fitness of data against the proposed research model. CFA intends to minimize the difference between the observed and estimated metrics. In order to check the suitability of the CFA model, a set of fitness indices is used. These indices determine whether the data fits well in the hypothesized model. Fit indices or fit measures provide crucial information for evaluating the research model. Furthermore, model fits are classified into three categories (i) absolute (ii) incremental (iii) parsimony. An absolute fit measures how well data fits into the hypothesized model. On the other hand, incremental fit indices measure how much a specified model fits against some alternative models. Lastly, parsimony fit indices examine the overall fitness of the research model and intend to correct any over-fitting of the model. Some of the popular fit indices are CMIN/df, Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI) and Parsimonious Normal Fit (PNFI).

Table 5
Fit Indices Confirmatory Factor Analysis

Fit Index	Symbol	Calculated Values	Fit Index	Results
Chi-Square Minimum Discrepancy Function	CMIN/DF	2.78	1 to 3	Acceptable
Goodness of Fit Index	GFI	.907	≥ 0.9	Acceptable
Adjusted Goodness of Fit Index	AGFI	.877	≥ 0.80	Acceptable
Comparative Fit Index	CFI	.960	0.8-0.9	Acceptable
Parsimonious Normal Fit	PNFI	.776	> 0.5	Acceptable
(Root Mean Square Error of Approximation)	RMSEA	.062	Less than 0.08	Acceptable

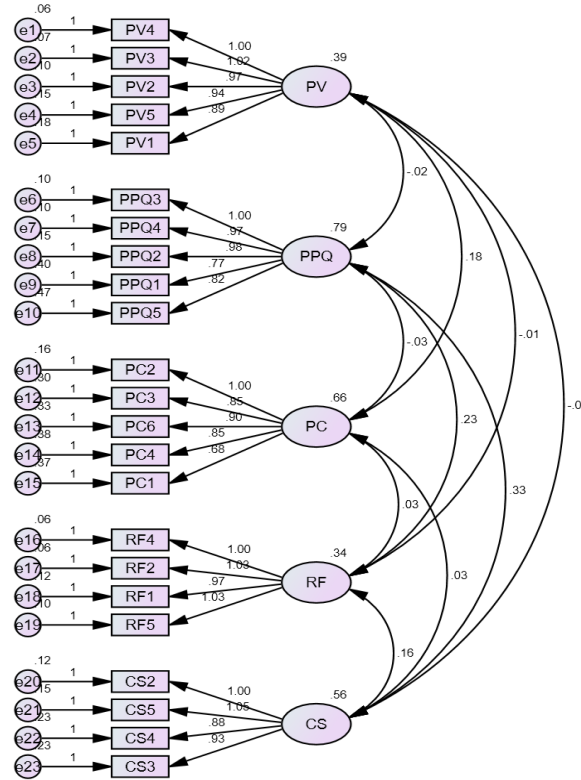


Fig. 2. Model Fit

4.5 Structural Model

Structural equation modeling (SEM) is intensively used in research studies to test the relationship between dependent variables and independent variables. SEM is highly recommended when the research model has more than one dependent variable (Shiau & Chau, 2016; Hair et al., 2021; Khan et al., 2020; Shiau et al., 2019). SEM can test all hypotheses simultaneously even when the dependent variables are two or more. One of the main features of structural equation modelling is that it can be administered even when the sample size is very small (Shiau and Chau, 2016; Hair et al., 2021; Khan et al., 2020; Shiau et al., 2019). The following table exhibits various values of structural equation modelling.

Table 6
Hypotheses Conclusion

Relationship	Estimate	S.E.	C.R.	P
Risk ← PV	-0.028	0.042	-0.663	0.507
Risk ← PPQ	0.289	0.03	9.649	***
Risk ← PC	0.067	0.033	2.035	0.042
Customer Satisfaction ← Risk	0.231	0.063	3.698	***
Customer Satisfaction ← PV	-0.037	0.052	-0.721	0.471
Customer Satisfaction ← PPQ	0.346	0.041	8.351	***
Customer Satisfaction ← PC	0.066	0.041	1.61	0.107

Table 6 exhibits that there is an insignificant relationship between perceived value and risk ($\beta = -0.028$, $t = -0.663$ and $p = > 0.507$). Thus, the hypothesis (H1) is rejected. Further, there is a significant relationship between perceived product quality and risk ($\beta = 0.289$, $t = 9.649$ and $p = < 0.05$). Therefore, hypothesis (H2) is accepted. On the other hand, there is a significant relationship between perceived convenience and risk ($\beta = 0.067$, $t = 2.035$ and $p = 0.042 < 0.05$). Thus, hypothesis (H3) is accepted. Furthermore, there is a positive and significant relationship between risk and customer satisfaction ($\beta = 0.231$, $t =$

3.698 and $p < 0.05$). Therefore, hypothesis (H4) is accepted. There is an insignificant relationship between perceived value and customer satisfaction ($\beta = -0.037$, $t = -0.721$ and $t = 0.471 > 0.05$). Thus, hypothesis (H5) is rejected. But there is a positive and significant relationship between perceived product quality and customer satisfaction ($\beta = 0.346$, $t = 8.351$ and $p < 0.05$). Therefore, hypothesis (H6) is accepted. On the other hand, there is a positive and insignificant relationship between perceived convenience and customer satisfaction ($\beta = 0.066$, $t = 1.61$ and $t = 0.107 > 0.05$).

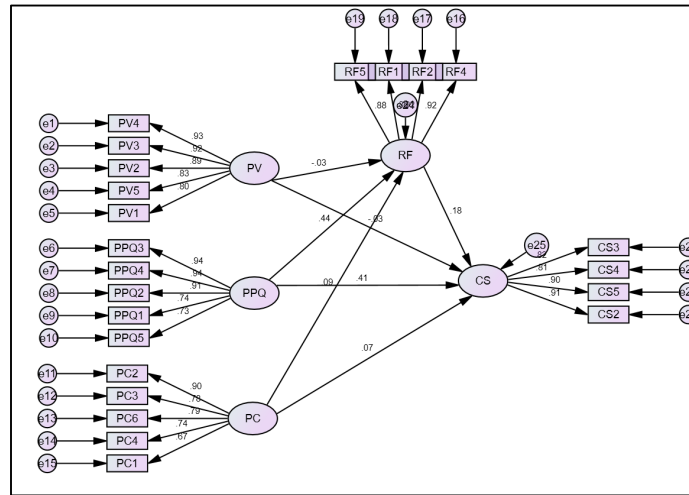


Fig. 3. Structural Model

4.6 Mediation Analysis

The present study investigates the mediating role of risk on the relationship between perceived value and customer satisfaction, perceived product quality and customer satisfaction, and perceived convenience and customer satisfaction.

Table 7
Mediation Analysis

Relationship	Direct Effect	Indirect Effect	Confidence Interval		P Value	Conclusion
			Lower Bound	Upper Bound		
PV→RF→CS	-0.037 (0.471)	-0.006	-0.030	.015	.536	No Mediation
PPQ→RF→CS	0.346 (0.000)	.067	.035	.001	.001	Partial Mediation
PC→RF→CS	0.066 (0.107)	.015	.105	.040	.042	Full Mediation

Table 7 revealed an insignificant indirect relationship between perceived value and customer satisfaction via risk since the lower bound value is -.030 and upper bound value is .015 and there is a zero in-between. Since both direct and indirect relationships are insignificant, no mediation exists. In addition, there is a significant indirect relationship between perceived product quality and customer satisfaction via risk since lower bound value is .035 and upper bound value is .001 and there is no zero in between. Since both direct and indirect relationships are significant, partial relationships exist. On the other hand, there is a significant indirect relationship between perceived convenience and customer satisfaction via risk because lower bound value is .105 and upper bound value is .040 and there is no zero in between. Full mediation exists here because direct relationship is insignificant and indirect relationship is significant.

5. Discussion

The primary objective of this study was to explore the mediating role of risk in the context of customer satisfaction, considering three independent variables: perceived value, perceived product quality, and perceived convenience. The research framework comprises three constructs: one mediating construct, risk, one dependent construct, customer satisfaction, and three independent constructs, namely perceived product quality, perceived value, and perceived convenience. In assessing the relationship between perceived value and risk, the study found an insignificant and negative association ($\beta = -0.028$, $t = -0.663$, and $p < 0.507$). This outcome aligns with previous research (Bhatnagar et al., 2000; Black et al., 2010) which highlights that not all customers perceive online grocery shopping as valuable, as some still prefer to physically inspect products or shop in traditional markets. Concerns regarding online transactions and data security contribute to this perceived risk (Bart et al., 2005; Yang et al., 2015). The investigation into the relationship between perceived product quality and risk uncovered a significant and positive link ($\beta = 0.289$, $t = 9.649$, and $p < 0.05$). Quality assurance plays a pivotal role in determining customer satisfaction; when products fall short of expected quality standards, customers perceive higher risk, thereby affecting their satisfaction levels. Similarly, the study revealed a positive and significant connection between perceived convenience and

risk. Moreover, there is a positive and significant relationship between risk and customer satisfaction ($\beta=0.231$, $t=3.698$, and $p<0.05$). These findings are consistent with previous studies (Bhatnagar et al., 2000; Black et al., 2010), emphasizing that perceived risk influences satisfaction. The study also observed a non-significant relationship between perceived value and customer satisfaction ($\beta=-0.037$, $t=-0.721$, and $t=0.471>0.05$), which differs from some prior research (Heskett, 1977). In contrast, there was a positive and significant association between perceived product quality and customer satisfaction ($\beta=0.346$, $t=8.351$, and $p<0.05$). This finding echoes the importance of product quality in shaping customer satisfaction (Helgesen, 2006; Baltas & Papastathopoulou, 2003). Conversely, the analysis revealed a positive yet insignificant relationship between perceived convenience and customer satisfaction ($\beta=0.066$, $t=1.61$, and $t=0.107>0.05$), which contrasts with some previous findings (Aylott & Mitchell, 1998; Cassill et al., 1997). This suggests that online grocery shopping convenience may not be universally embraced, especially among individuals who are less familiar with the online purchasing process.

Additionally, the study employed mediation analysis to explore the role of risk as a mediating variable. It established that no mediation exists between perceived value and customer satisfaction in the presence of risk. However, partial mediation was identified between perceived product quality and customer satisfaction in the presence of risk, while a full mediation was observed between perceived convenience and customer satisfaction in the context of the mediating variable risk.

6. Managerial Implications

This study carries several implications for both businesses and individuals within the domain of online grocery shopping. In an era where online shopping has become an integral part of daily life, the quest for the most convenient and efficient way to procure groceries is paramount. With time being an increasingly precious commodity, individuals gravitate toward avenues that minimize time expenditure. The findings of this study offer valuable insights for businesses. First, online grocery platforms serve as arenas for price and product information comparison. Therefore, companies must strategically position their pricing to outperform competitors and attract a larger customer base. Second, the online grocery shopping sector presents substantial business opportunities. Companies must capitalize on these opportunities to connect suppliers and customers digitally, enhance service quality, and foster stronger customer relationships. Third, online grocery shopping is often a cost-effective alternative to traditional methods. It presents an opportunity for firms to operate efficiently, reduce costs, and tap into previously underserved markets. In the context of India, with its vast rural and semi-urban markets, online shopping can be a gateway to profitable expansion. Lastly, the study underscores the significance of product quality in determining customer satisfaction. Businesses must place paramount importance on maintaining and delivering quality products to ensure customer satisfaction and loyalty.

7. Conclusion

In summary, this study has delved into the intricate relationships between perceived value, perceived product quality, perceived convenience, and customer satisfaction, with risk acting as a mediating variable. Notably, the research has unearthed a positive and significant association between perceived product quality and customer satisfaction, underlining the paramount importance of quality management for companies. Quality remains a coveted attribute in the eyes of customers, and it plays a pivotal role in shaping their satisfaction. Moreover, this investigation has affirmed the presence of full mediation between perceived convenience and customer satisfaction when risk is introduced as a mediating variable. Customers place high significance on convenience, spanning the purchasing process, payment procedures, and delivery methods. Recognizing and optimizing these aspects of convenience are crucial for online grocers, as customer satisfaction profoundly influences the profitability of the firm.

8. Limitations and Future Scope of Research

While this research contributes valuable insights, it is not without limitations. Factors such as time constraints, resource limitations, and data quality presented challenges during the research process. The questionnaire completion rates were affected by respondent reluctance, leading to the exclusion of some inadequately filled questionnaires. Additionally, the study's geographical scope was confined to the National Capital Region (NCR), limiting its generalizability to the broader Indian context. For future research endeavors, there is ample room for expansion and improvement. Subsequent studies could consider broader national samples that offer a more comprehensive representation of India's diverse demographic and cultural landscape. Researchers might explore additional constructs and extend their investigations to other metropolitan areas such as Mumbai, Chennai, Hyderabad, and Lucknow. Furthermore, future studies could explore the interplay of multiple mediating variables, offering a more comprehensive understanding of the complexities at play in the online grocery shopping domain. Alternative mediating variables like trust and attitude could also be incorporated into future research, providing a more nuanced perspective on the dynamics influencing customer satisfaction.

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