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Factors Affecting Consumer Intention to Use E-Grocery Shopping in Saudi Arabia

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ABSTRACT

Saudi Arabia owns the 29th largest E-commerce market in the world, however, grocery is considered the smallest Saudi E-commerce market based on its revenue. This study aims to investigate the effects of various factors on consumers' intention to use E-grocery shopping in Saudi Arabia. Primary data were collected through a self-completion questionnaire that was completed by 189 participants from across Saudi Arabia. The data was analysed using Partial Least Squares Structural Equation Modelling. The results indicate that perceived benefits have significant positive effect on the intention to use E-grocery shopping. On the other hand, none of the examined perceived risk variants (e.g. time risk, financial risk, product performance risk, social risk, and delivery risk) nor the social norm factor had significant effect on intention to use. Finally, theoretical and practical implications were provided as well as limitations and future research direction.

KEYWORDS

E-Commerce, E-Grocery, Intention to Use, Online Grocery Shopping, Perceived Risk, Saudi Arabia

The advancement of information and communication technology (ICT) has largely contributed to introducing a new method to conduct commercial transactions, which is known as e-commerce. According to ECDB (n.d.), Saudi Arabia has the 29th largest e-commerce hobby and leisure, electronics, fashion, furniture and home ware, care products, DIY, and grocery. The hobby and leisure market is considered the largest e-commerce market, and it accounts for 24.6% of Saudi e-commerce revenue, while the grocery market is considered the smallest, and it accounts for only 6.4% of revenue. Although e-commerce in Saudi Arabia started to accelerate in late 2000s with a 60% annual growth (Ansari, 2016), the e-grocery market has not expanded as expected.

Despite the many benefits associated with e-grocery shopping, there are many variables that affect the adoption of online grocery shopping (OGS). Previous studies have revealed that consumers placed more value on the quality of the provided services over price and discounts (Kindra et al., 2014). In regards to gender classification, Gong et al. (2013) found similarities between male and female consumers in the intention to use e-grocery shopping. In addition, their study showed that older consumers are less likely to use online shopping compared to the younger generations. Moreover, consumers with higher income are more willing to shop online, and finally, consumers who are married and have children are more likely to shop online than non-married consumers or those who do not have children (Gong et al., 2013). As for the selection of the e-groceries, Saphores and Xu (2021) found that when consumers decide to use e-grocery shopping, they will more likely use the online store of their preferred offline grocers, as they are more familiar with the type and quality of products available with them.

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When discussing the different shopping channels, it is important to acknowledge that the adoption of e-grocery shopping is discretionary, which means whenever the main trigger that caused the consumer to adopt OGS vanishes, the consumer will abandon e-grocery shopping (Hand et al., 2009). Such triggers, for example, could be having some health issues or having to take care of someone with a disability. Hanus (2016) also stated that among the groups of consumers who opt to use e-grocery are parents of young children because this shopping channel will allow them to buy only what they need without having to bring their children with them and impulsively buy additional products, such as sweets, or arrange for someone to look after their children while shopping. In addition, Hanus (2016) concluded that consumers with a physical disability seem to adopt e-grocery as it enables them to shop without having to worry about how to carry the products home. Although some of these triggers are temporary, it is possible that the consumer will adopt e-grocery shopping again if the same trigger or a different one occurs. Also, it is important to note that adopting e-grocery shopping does not mean the consumers will abandon shopping in the traditional grocery stores (Hand et al., 2009; Robinson et al., 2007).

E-commerce studies conducted in Saudi Arabia have rarely focused on the factors affecting consumers' intention to adopt e-grocery shopping. Therefore, this study aims to address this research gap and investigate the variables affecting the adoption of e-grocery shopping in Saudi Arabia. The paper will be organized as follows. First, the review of relevant literature will be presented. After that, the hypotheses as well as research questions will be stated. Furthermore, the research methodology (sampling and data collection, research instrument, analytical method) will be described. Next, the data analysis and results will be presented and discussed followed by the discussion and conclusion of the study. Finally, practical implications, limitations, and future research directions will be provided.

LITERATURE REVIEW

Factors Affecting E-Grocery Behaviour

Several studies have explored the factors affecting OGS in different contexts. Brand et al. (2020), identified five segments that each has a different attitude towards OGS: intensive urbanites, online omnivores, uncaring multitude, willing but struggling, and resisting and responsible. The results indicate that consumers' decision to adopt online shopping is affected by several factors, which are convenience, perceived benefits (PBs), costs and risks, technology effect, perceived behavioural control, and personal norms and beliefs. Even though people mostly start OGS due to a life event (a trigger), convenience is considered to be the biggest motivator to continue using OGS (Hand et al., 2009; Robinson et al., 2007). Shoppers tend to constantly re-evaluate their need to continue using this service based on the existence of the initial trigger or facing service problems. In addition, most participants did not view OGS as an alternative to traditional grocery shopping; rather, they viewed it as complementary to the other. On the contrary, Hand et al. (2009) and Robinson et al. (2007) emphasised the importance of situational factors in adopting OGS. Hand et al. (2009) found that convenience and flexibility have a significant impact on shoppers' decision to adopt OGS. Also, households with young children are more likely to adopt OGS (Van Droogenbroeck & Van Hove, 2017).

Moreover, it seems that households that have a high relative number of full-time working adults are more likely to adopt OGS. These findings emphasise the importance of situational factors, as in both of these situations the customers prefer to shop online as it is more convenient and saves their time (Al Nawayseh & Balachandran, 2012; Morganosky & Crude, 2000). In addition, subjective norm and attitude had a strong influence on the intention to purchase groceries online (Piroth et al., 2020). The study also revealed that previous experience with OGS had a significant positive impact on shoppers' attitude towards OGS.

In contrast Piroth et al. (2020) found that none of the five personality traits (i.e., neuroticism, agreeableness, extraversion, conscientiousness, and openness) had significant influence on the attitude towards on-line grocery shopping. However, subjective norm had a significant effect on attitude, while both subjective norm and attitude could reliably predict the intention to purchase groceries online.

Also, consumers with previous experience with OGS have more positive and significant attitudes towards OGS. Customers are motivated to use OGS due to its time saving potential; however, the uncertainty of product quality is hindering its adoption (Al Nawayseh & Balachandran, 2012).

In Finland, Eriksson and Stenius (2024) conducted a study while utilizing cluster analysis in order to identify the different shopping styles of Finnish online grocery shoppers. The study identified three segments, which were defined as quality-oriented, price-oriented, and novelty-oriented. The quality-oriented group consisted of older consumers who have higher income, and they tend to focus more on the quality of the products they intend to purchase while also having high brand loyalty. In addition, Eriksson and Stenius (2024) found that quality-oriented consumers prefer to buy locally produced food. This is similar to the finding concluded by Braun and Osman (2024) in their study which was conducted in Germany on the adoption and non-adoption of OGS among the age group of 50 years old and older. The study found that the availability of regional products forms a motivator for adopters and non-adopters alike to use OGS. Moreover, Braun and Osman (2024) found that the lower prices available through e-grocery shopping was not a main motivator to adopt OGS by the elderly in Germany. This is most likely related to the brand loyalty that the target group had, as a study by Cahyono (2023) revealed that consumers will be less concerned about price changes once they become loyal to a certain brand. This is in line with the findings of Eriksson and Stenius (2024), who have identified a segment of online grocery shoppers that was described as price-oriented. This segment was characterized as mostly consisting of women and single households with a low income. Members of this group tend to seek bargains, and they are the least loyal to OGS.

The last group identified by Eriksson and Stenius (2024) is called the novelty-oriented. This group includes younger consumers who are busy and looking for different ways to do their grocery shopping more conveniently. Although this group has an average income, the members have an impulsive shopping style as they are more interested than the other groups in buying trendy food items and seeking enjoyment in food related tasks. The characteristics of the novelty-oriented group are similar to those of the intensive urbanite segment, which was identified by Brand et al. (2020). Although members of the novelty-oriented group tend to be more impulsive in their shopping, they still care about product quality, which is similar to the finding of the study conducted by Suhartanto et al. (2024) on young customers' experience with e-grocery service in Indonesia. Suhartanto et al. (2024) found that young consumers care about the quality of the products they purchase through e-grocers. In addition, the food quality factor turned out to be a significant factor that affects loyalty.

Most e-commerce adoption studies conducted in Saudi Arabia have focused on different categories other than the online grocery market. A study by Thabit et al. (2016) examined the service performance factors that affect customer satisfaction of e-groceries. The study focused on the consumers in only one city in Saudi Arabia and concluded that tangibles, reliability, and assurance have a significant effect on customer satisfaction, while responsiveness and empathy do not have a significant impact. Since the research on the adoption of OGS in Saudi Arabia is very scarce, and since it is not possible to apply the outcomes and recommendations of the studies conducted in other countries to e-grocery adoption in Saudi Arabia due to the economic, cultural, and information technology (IT) infrastructure differences, studying the factors affecting the adoption of e-grocery shopping in Saudi Arabia was identified as a research gap. This study will address the research gap by investigating the factors that have a significant impact on the intention to use e-groceries in Saudi Arabia through evaluating the existing literature and developing and examining a research model in order to answer the main question:

What are the factors that affect the intention to use e-grocery shopping in Saudi Arabia?

PBs and Intention to Use E-Grocery

A PB is a belief about potential positive benefits from an online commerce transaction. Based on the literature, the PB of e-grocery shopping can be in the form of product quality, price fairness

availability, and delivery service. The study conducted by Monoarfa et al. (2023) showed that out of the various factors they examined, the attractiveness of e-grocery has the most significant influence on switching costs, while perceived ease of use has the largest contribution to the attractiveness of e-grocery services. Moreover, convenience is often evaluated as a factor that can affect the adoption of online shopping. The convenience of using e-grocery shopping can refer to how much time and effort were saved just by using online shopping and not being restricted by the working hours and locations of traditional stores (El-Deeb & Hamed, 2019). Convenience is also perceived as the advantage consumers will gain from using online shopping based on their estimation of its ease of use, riskiness, product variety, and price compared to the traditional shopping channel (Chowdhury, 2023). Previous researchers have noted that there are multiple types of convenience, such as access, search, evaluation, transaction, and possession (Chowdhury, 2023; Hanus, 2016). In her study, Hanus (2016) noted that convenience is considered one of the main decisive factors of OGS, while Chowdhury (2023) concluded that perceived convenience has a significant positive effect on consumer's attitude and behavioural intention. This is similar to the conclusion drawn by Nakano (2023). Therefore, PBs play a large role in affecting consumers' intention to use e-grocery shopping, as they include the availability of larger varieties of products, discounted offers, time savings, and convenience (Akhtar & Farooqi, 2022). Thus:

H1: PB has a significant effect on intention to use e-grocery shopping.

Perceived Risk and Intention to Use E-Grocery

A perceived risk is defined as a belief about possible negative effects that result from conducting an online commerce transaction (Han & Kim, 2017). Some researchers view perceived risk as a multidimensional concept that is composed of personal risk, product risk, financial risk (FR), performance risk, privacy risk, security risk, social risk (SR), psychological risk, physical risk, and some other risk variants (Han & Kim, 2017). Others look at the perceived risk as inevitable in e-commerce, as consumers cannot examine the product before purchasing it online (Kim et al., 2008). Gupta and Kumar (2023) found that perceived risk negatively influences trust as well as repurchase intentions.

E-commerce benefits its users by erasing time and location constraints, which allows the consumer to purchase products online at any time and from any place. It also provides consumers with other benefits such as ease of access and convenience. On the other hand, there are some disadvantages associated with online shopping, such as possible losses related to time, money, security, or the product itself (Chen & Dubinsky, 2003). Risk associated with time encompasses the potential loss of opportunities incurred while engaging in activities such as searching for products, comparing alternatives, waiting for package delivery, or replacing a defective product. Forsythe and Shi (2003) have examined different variants of perceived risk and have found that financial, product, and time risks all have a negative influence on the amount of time spent online. Therefore:

H2: Time risk has a significant effect on intention to use e-grocery shopping.

FR is the perception of losing money. FR in online shopping takes various forms. It occurs when the buyer does not receive the purchased product, cannot return a product that does not perform well or meet their expectations, is incorrectly charged more than the due amount, is being sold the product for a much higher price compared to other online of offline stores, or is stolen from through an online transaction (Dai et al., 2014). The perception of FR can make the consumer reluctant to complete the online transaction; this creates a hindrance to the adoption of online shopping (Forsythe & Shi, 2003).

In the study conducted by Forsythe and Shi (2003), the researchers found that financial, product, and time risks have a negative effect on the amount of time spent online. Thus:

H3: FR has a significant effect on intention to use e-grocery shopping.

SR is defined as "the likelihood of the purchase resulting in others thinking of the consumer less favourably" (El-Deeb & Hamed, 2019, p. 37). The terms SR and psychological risk have been used interchangeably (Han & Kim, 2017). The concept of SR pertains to the potential occurrence of a situation where a product does not align harmoniously with an individual's self-perception. Han and Kim (2017) defined psychological risk as the potential loss of self-esteem, since consumers might feel ashamed and less confident when others find out they were scammed or bought a defective product. Therefore, the concept of SR pertains to the perception and opinion that others hold towards an individual when they make a purchase of a specific brand or product. This implies that the consumers' intention to purchase online is likely to be affected by the extent to which the transaction will negatively impact how the consumers are perceived by others. Therefore:

H4: SR has a significant effect on intention to use e-grocery shopping.

Consumers' intention to use online shopping usually is not affected by web security. However, when the consumer has to complete the payment online or wait for the product to be delivered, he/she will start worrying about the website's security (Shih, 2004). Moreover, consumers prioritize factors such as the quality of products, the return policy, and the punctual delivery of their orders when he/she purchases groceries online. Suvagiya and Sharma (2022) found the major constraints facing consumers when e-grocery shopping were hidden charges on products/delivery, difficulty in returning products, and a lack of security. Huang and Oppewal (2006) stated that delivery charge affects the perception of cost which influences the intention to use online shopping. Thus:

H5: Delivery risk has a significant effect on intention to use e-grocery shopping.

Product performance risk describes the situation where a product's performance does not meet the expectation of the buyer (Dillon & Reif, 2004). There is always some degree of risk associated with online shopping, especially with physical products, since the consumer cannot thoroughly examine the product before buying it (Kim et al., 2008). Due to the nature of online shopping, previous researchers have concluded that some products are more suitable to purchase online based on the product's characteristics (Han & Kim, 2017). When the consumers purchase products online, they expect the performance of the products to be above or equal to that of other products available via traditional shopping. Hanus (2016) stated that the consumers' decision to purchase grocery online is affected by their fear of the selection and handling processes of the perishable products, especially since the consumer cannot personally choose and examine the product and its expiry date. Therefore, many studies view perceived value of a product as a compromise between the benefits received and the risks taken by the consumer in order to obtain the product (Alaimo et al., 2020; Nguyen et al., 2019). Thus:

H6: Product performance risk has a significant effect on intention to use e-grocery shopping.

Social Norm (SN) and Intention to Use E-Grocery

The evidence from evolutionary studies indicates that humans possess the capacity to adjust their behaviour in response to the social environment they inhabit. People tend to imitate behavioural

patterns and desire to behave in a way that is considered socially and ethically acceptable (Van Vugt et al., 2014). SNs have a significant power that can change one's attitude and behaviour towards societal welfare (Andrighetto & Vriens, 2022). SNs can affect people's behaviour through setting an example or implying that it is generally acceptable to act in a certain way (Lehner et al., 2016). According to Neff and DiCosola (2020), SN interventions can be successfully utilized to change buying behaviour if they are used for social comparison. Demarque et al. (2015) found social influence to be effective to encourage pro-environmental shopping behaviour when it was utilized in an e-grocer. Thus:

H7: SN has a significant effect on intention to use e-grocery shopping.

RESEARCH METHODOLOGY

Sampling and Data Collection

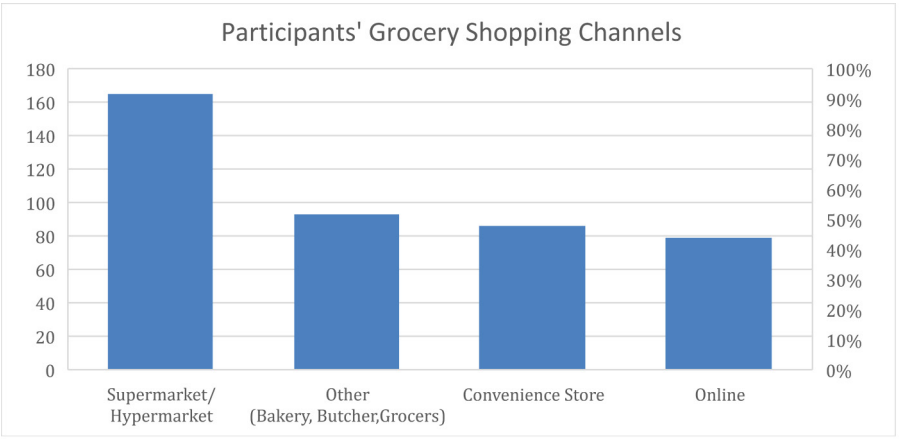
This quantitative research utilized the survey method and the non-probability sampling approach, where individuals have an unequal opportunity to be a selected respondent. The data were collected through online distributed self-administered questionnaire on social media. The respondents for this study were Saudi and non-Saudi residents in Saudi Arabia regardless of whether they had previously bought groceries online or not. A non-probability self-selection convenience sampling method was employed to collect the sample. As the exact population of e-grocery users in Saudi Arabia is unknown, the required sample size for this study was determined by utilizing the recommendation of J. F. J. Hair et al. (2016). Since the number of independent constructs used in this study are seven, and a significance level of 5% was selected with a minimum R^2 of 0.25, the required sample size should be 51 in order to achieve a statistical power of 80% (J. F. J. Hair et al., 2016).

The initial step involved creating the questionnaire in English; then it was translated into Arabic, as it is the native language in KSA. To maintain consistency, the questionnaire was then back-translated into English. The beginning of the questionnaire included two questions about where the participants shop for groceries and their preference regarding grocery shopping. For these questions, the participants were instructed to select all of the choices that apply to them. The total number of participants in the study was 189. As for gender, 58.7% of the participants were male and 41.3% were female. The study included both Saudis and non-Saudis, as the aim was to find what factors affect the adoption of e-grocery shopping in KSA. Based on the results, most of the respondents in the study were of Saudi nationality; only 6% were non-Saudi. Most of the respondents had a bachelor's degree and were between 45 and 54 years old. Table 1 summarizes the socio-demographics characteristics of the sample.

According to the data collection, for the first question, it seems that the majority of the participants, about 87%, are shopping for groceries in supermarkets or hypermarkets, while 41.8% of the participants have selected online shopping as one of the methods they use to buy groceries. Figure 1 displays the statistics regarding where the participants shop for groceries.

As for the question regarding the shopping preference and habits of the participants, it appears that 59.3% of the participants prefer to buy their groceries from one store and not go to several stores to buy all of the items on their grocery list. These participants make good candidates for OGS as it allows them to shop for all of the items in their list with a simple click. On the other hand, 53% of the participants stated that they like to touch and examine the products before buying, which is considered an e-grocery shopping hindrance as usually the consumers worry that the grocery store staff will pick substandard produce (Menon & Georgia, 2009) or the selected items, such as produce or refrigerated and frozen goods, might not be in their optimal condition when delivered due to the long time it takes to make the delivery (Mortimer et al., 2016). Table 2 summarizes the shopping habits and preferences of the participants.

Figure 1. The Participants' Grocery Shopping Channels



Research Instrument

In this study, self-administered questionnaires were utilized as a data gathering instrument. The questionnaire was organized into two categories. The first section included four items to classify the

Table 1. Socio-Demographic Profile of the Respondents

Category	Frequency	Percentage
Nationality		
Saudi	177	94%
Non-Saudi	12	6%
Gender		
Male	111	59%
Female	78	41%
Age		
<18	1	1%
18-24	36	19%
25-34	36	19%
35-44	21	11%
45-54	42	22%
55-64	39	21%
65+	14	7%
Education Level		
High School	23	12%
Diploma	16	8%
Bachelor's	122	65%
Master's	19	10%
PhD	9	5%

Table 2. Shopping Habits and Preferences

Statement	Count	Percent
Prefer to shop from one store	112	59.3%
Prefer to haggle	61	32.3%
Prefer to shop early in the day (before noon)	69	36.5%
Always in a hurry when grocery shopping	30	15.9%
Prefer to touch and examine the product before buying	101	53.4%
Consider grocery shopping a recreational activity	69	36.5%
Consider grocery shopping a routine task	73	38.6%

characteristics of the socio-demographic profile of the respondents, such as nationality, gender, age, and education level. The second section measured consumer intentions to use e-grocery shopping and included a total of 47 items, which were modified and adapted from previous research in the same field. The questionnaire included several measuring items for each proposed variable and asked participants to assess each item using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In addition, the questionnaire included several questions regarding the individual characteristics of the participants, such as shopping habits and shopping preferences.

Analytical Method

The data of this study were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM), which is a type of Structural Equation Modelling (SEM) that is suitable to use to identify main factors and examining extensions of existing structural theories. In addition, PLS-SEM does not have high restriction on the sample size, does not assume normal data distribution, and allows the use of constructs that were measured using one of two constructs. On the other hand, Covariance Based SEM (CB-SEM) is more suitable to use for theory confirmation, and it is only suitable to use on large samples. Moreover, when utilizing CB-SEM, the construct included in the structural model should be measured using at least three measuring items and the data should adhere to specific assumptions (J. F. Hair et al., 2011; J. F. J. Hair et al., 2016). Therefore, based on the purpose of this research, it was decided to use PLS-SEM to examine the proposed relationships between the latent variables through the utilization of SmartPLS software. Furthermore, the significance of the proposed relationships between the constructs was measured by evaluating the path coefficients. The path coefficients were calculated by using a two-tailed bootstrapping resampling procedure with 5,000 samples and a bias corrected confidence interval. The measurement model was assessed through confirming the reliability and validity of the model. First, the internal consistency reliability was examined. This ensures that all of the indicators associated with a specific construct are in fact measuring it (Pallant, 2010). The internal consistency is most commonly measured by using Cronbach's alpha; however, despite its popularity, it is criticised for its assumption that all of the indicators have equal outer loadings (J. F. J. Hair et al., 2016). Moreover, the number of indicators affects the calculation of Cronbach's alpha so that fewer items produce lower values (J. F. J. Hair et al., 2016; Pallant, 2010). Therefore, the internal consistency was evaluated using the composite reliability, which considers that each indicator has a different outer loading. All of the constructs had acceptable composite reliability values of 0.70 or higher.

Data Analysis and Result

In this study, the convergent validity was evaluated using both the Average Variance Extracted (AVE) and the outer loadings of the items. The result of AVE shows that all of the constructs had higher scores than the acceptable threshold of 0.50 (J. Hair et al., 2010; J. F. J. Hair et al., 2016). As

Table 3. Reliability and Validity of the Constructs

Construct	Item	Factor Loading	AVE	Composite Reliability
DR	DR2	0.91	0.61	0.82
	DR3	0.71		
	DR4	0.70		
FR	FR1	0.76	0.63	0.84
	FR3	0.79		
	FR5	0.84		
IU	IU1	1.00	1.00	1.00
PB	PB1	0.78	0.64	0.90
	PB2	0.76		
	PB4	0.81		
	PB5	0.88		
	PB7	0.78		
PPR	PPR1	0.77	0.65	0.90
	PPR2	0.80		
	PPR3	0.80		
	PPR4	0.86		
	PPR5	0.81		
SN	SN2	0.78	0.68	0.81
	SN3	0.87		
SR	SR1	0.82	0.61	0.82
	SR2	0.78		
	SR4	0.74		
TR	TR1	0.77	0.62	0.83
	TR2	0.76		
	TR4	0.83		

for the outer loadings, the minimum significant value was 0.70. Moreover, the composite reliability scores for all of the variables were among the accepted values, which are between 0.60 and 0.90 (J. F. J. Hair et al., 2016). Table 3 presents the results of the reliability and validity tests of the constructs.

The discriminant validity was examined using the heterotrait-monotrait ratio of correlations (HTMT). The acceptable value for HTMT for any two conceptually similar constructs is below 0.90, while this value should be less than 0.85 for any two constructs that have more difference in their concepts. The results presented in Table 4 show that the obtained HTMT values are less than 0.85.

To evaluate the structural model, first, the Variance Inflation Factor (VIF) values were examined to ensure that no co-linearity exists. The results presented in Table 5 revealed that all of the VIF values are well below the specified threshold of five (J. F. J. Hair et al., 2016); therefore, there is no co-linearity issue.

The proposed hypotheses were examined through calculating the path coefficient values using a two-tailed bootstrapping resampling technique that has also yielded both t and p-values for the path coefficients. The significance of the causal relationship between variables is established when the

Table 4. Heterotrait-Monotrait Ratio of Correlations (HTMT)

	DR	FR	IU	PB	PPR	SN	SR	TR
DR								
FR	0.623							
IU	0.047	0.193						
PB	0.138	0.389	0.667					
PPR	0.513	0.669	0.251	0.36				
SN	0.105	0.181	0.568	0.798	0.184			
SR	0.292	0.343	0.178	0.154	0.196	0.177		
TR	0.553	0.638	0.297	0.343	0.355	0.222	0.612	

Table 5. Co-Linearity VIF

	IU
DR	1.463
FR	1.913
PB	1.678
PPR	1.535
SN	1.467
SR	1.266
TR	1.55

p-value is less than 0.10 for a significance level of 10%, 0.05 for a significance level of 5%, or 0.01 for a significance level of 1%. The f^2 values were also evaluated to examine whether an exogenous construct has a substantial effect on the endogenous construct. According to J. F. J. Hair et al. (2016), exogenous constructs with f^2 results of 0.02 are considered to have a small effect, while constructs with values of 0.15 and 0.35 are considered to have medium and large effects, respectively, on the endogenous construct. Table 6 displays the hypotheses testing results. After assessing the results of the analysis, it appears that only one of the proposed hypotheses (H1) was supported. The study has concluded that PB has a significant positive effect on IU (PB → IU = 0.539 at $p \leq 0.001$). Therefore, H1, which states that *PB has a significant effect on intention to use e-grocery shopping* is supported. The effect size f^2 of PB on IU is 0.296 medium. However, the other hypotheses that were proposed were not supported. Therefore, the hypotheses H2, H3, H4, H5, H6, and H7 were rejected based on the empirical results. That is to say, none of the evaluated risk constructs, nor the SN, has a significant effect on the intention to use e-grocery in Saudi Arabia.

The model's predictive power was evaluated using the R^2 value, which is known as the coefficient of determination. The R^2 value of the endogenous construct IU in the evaluated research model was 0.416, and the adjusted R^2 value was 0.393. The adjusted R^2 is utilized when comparing the predictive power of different models since it is not affected by the number of paths pointing towards an endogenous construct. According to J. F. J. Hair et al. (2016), an R^2 value of 0.20 is considered high in the research field of consumer behaviour. Therefore, the R^2 value of IU is significant. Multi-group analysis was run using Partial Least Square Multi Group Analysis (PLS-MGA) that is based on the results of PLS-SEM bootstrapping and a non-parametric significance test for the difference of group specific results. The groups in the sample were created based on gender, age, education level, and nationality. However, there was no significant difference between the groups.

Table 6. Hypotheses Testing Results

Hypothesis	Path	Path Coefficients	P-values	f^2 Values	Supported?
H1	PB -> IU	0.539	0.000	0.296	Yes
H2	TR -> IU	-0.107	0.161	0.013	No
H3	FR -> IU	0.1	0.183	0.009	No
H4	SR -> IU	-0.066	0.287	0.006	No
H5	DR -> IU	0.05	0.565	0.003	No
H6	PPR -> IU	-0.094	0.158	0.01	No
H7	SN -> IU	0.094	0.166	0.01	No

DISCUSSION AND CONCLUSION

This study has examined the effects of several factors on the intention to use e-grocery shopping in Saudi Arabia. The study has concluded that PB has significant positive effect on IU. This result supports H1: *PB has a significant effect on intention to use e-grocery shopping.* This finding emphasizes the importance of the benefits from using e-grocery shopping. The result is in agreement with the findings of several previous studies. Driediger and Bhatiasevi (2019) conducted a study in Thailand on the acceptance and usage of OGS and found that perceived usefulness has a significant positive effect on intention to use. Similarly, other studies that were conducted in different countries have reached the same conclusion regarding the relationship between PB and IU (Frank & Peschel, 2020; Hansen, 2005; Human et al., 2020; Kasuma et al., 2020; Wang & Somogyi, 2018).

Although perceived risk (i.e., time risk, FR, SR, delivery risk, and product performance risk) play a dominant role in the intention to use online channels for purchasing (Faqih, 2013; Gupta & Kumar, 2023; Ryadi et al., 2021), the outcome of this study shows that perceived risk does not have significant influence on consumers' intention to use e-grocery in Saudi Arabia. Interestingly, several previous studies in various countries have reached the same conclusion (Frank & Peschel, 2020; Hansen, 2005; Ventre & Kolbe, 2020; Wang & Somogyi, 2018). Recently, the number of e-commerce and e-government transactions has increased compared to previous years. This indicates that the citizens and residents of Saudi Arabia are more comfortable using online transactions, which affects their perception of risk associated with conducting online transactions. Moreover, most e-grocery markets in Saudi Arabia provide the consumers with the option to pay for their groceries upon delivery using cash or card. This also reduces the perception of risk associated with OGS.

The study also concluded that SN does not have significant influence on IU; therefore, the proposed hypothesis H7 was rejected. This result opposes what was found in previous studies (Hansen, 2005; Madinga et al., 2023). On the other hand, a study conducted by Vatanasakdakul et al. (2023) on the adoption of social commerce revealed that social influence does not have a significant positive effect on consumers' attitude. Similarly, a study conducted in Jordan by Alalwan et al. (2018) to study the factors affecting customers' adoption of Internet banking has also concluded that social influence does not have a significant effect on behavioural intention. One possible explanation for this finding is that people nowadays are highly familiar with how to shop online, and they also know what product brands they prefer; therefore, they are not affected by the ideas of others as they can make their decisions independently. It is suggested that future research focus on identifying the types of grocery products often purchased online.

Managerial Implication

This study has examined the factors that affect e-grocery adoption in Saudi Arabia, which is a subject that is seldom addressed in the literature. The shopping habit of the participants in this study

indicates growing interest in OGS, as 41.8% of the participants use e-grocery shopping besides the traditional form. Based on the findings of this study, it is recommended that e-grocers prioritize enhancing the quality of their applications and guaranteeing an interactive, user-friendly experience that allows easy navigation of the various categories in the e-grocery application and compare different products. In addition, e-grocery applications and websites should provide the consumers with detailed information about the product and show several photographs of the product to assist the consumer in making faster decisions regarding which products to buy.

Despite the finding of this study, which revealed the insignificant effect of perceived risk on the intention to use e-grocers, it is still recommended that one adopt various security measures and promote them in order to decrease consumers' perception of risk and encourage them to continue using e-grocery shopping. However, this does not mean the consumers will abandon shopping in traditional stores, as it was previously concluded that online and offline grocery shopping are considered complementary rather than alternative ways of grocery shopping (Robinson et al., 2007).

Although this study has used rigorous methods to examine the effect of different factors on the intention to use OGS and presented the findings and managerial implications, it still has limitations that can act as guidance for future research. First, the results of the study cannot be generalized as the data were collected using a non-probabilistic sampling method as it was not possible to know the exact members of the population in order to use a probabilistic sampling method. Second, there are many factors that affect the adoption and usage of e-grocery shopping; however, this study has examined the effects of only some of these factors. Out of the various factors that were examined in this study, it was concluded that only PBs have a significant positive influence on the consumers' intention to use e-grocery shopping. Therefore, it is highly recommended that e-grocers focus on increasing the consumers' PBs using different methods such as displaying consumers' reviews of the service and the purchased products. Multiple studies on the effect of consumers' reviews on purchasing intention have concluded that consumers' reviews significantly affect the intention to purchase (Park et al., 2007; Qiu & Zhang, 2023; Rosania & Wilujeng, 2023). Additionally, PBs can be increased through enhancing the quality of after-sales services such as product delivery, customer support, and replacements, which in turn can increase customer satisfaction (Taufiq-Hail et al., 2023).

Limitation, and Future Research Direction

Although this study has focused on examining the factors affecting the intention to use e-grocery shopping in Saudi Arabia, not all factors mentioned in the previous literature were examined in this study, as this would have affected the length of the questionnaire. As a result, this would have affected the response and completion rates. Therefore, it is recommended that future studies focus on examining other possible factors that can influence the adoption of e-grocery shopping in Saudi Arabia. Moreover, there are other attributes that can assist in understanding the type of consumers who are more likely to adopt e-grocery shopping, such as income, family size, taking care of someone with a disability at home, and having younger children. This study did not examine such attributes in order to limit the length of the questionnaire, as it would have affected the percentage of questionnaire completion. Therefore, future studies should focus on examining the effect of these factors.

In addition, since the effect of SN on the intention to use was not significant in this study, it is highly recommended that future research focus on finding whether the insignificance of this relationship still exists in other research settings. It is also recommended that future research collect more data regarding the type of grocery products the consumers often buy online as it could be related to the insignificance of the SN effect. Moreover, the relationship between perceived risk and the frequency of online shopping should be studied in order to understand how the perception of risk changes in online consumers. Finally, since the Gulf Countries have a similar culture and environment, it would be interesting to compare the adoption of OGS in these countries.

CONFLICTS OF INTERESTS

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