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Consumer intention toward online grocery shopping during the post-pandemic (Covid-19)**D.U.S. Wijeratne**

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ABSTRACT

Purpose: The study investigates the factors that influence consumers' online grocery purchase intention during the post-pandemic of Covid-19 in Sri Lanka.

Design/methodology/approach: Primary data was collected using a pre-tested structured questionnaire. Data was gathered based on 5 variables and the Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were applied to analyze the empirical data of 200 respondents. And twenty-five indicators were used to measure the five variables. Further, the study uses Statistical Package for the Social Sciences (SPSS 25) and Analysis of Moment Structures (AMOS 26) to conduct the analysis.

Findings: The study found significant factors that affect consumers' online grocery purchase intention. The results revealed that Perceived Ease of Use and Perceived Usefulness have a positive and significant impact on the online Purchase Intention of consumers while Perceived Risk represents a negative and insignificant effect on the online grocery purchase intention of consumers. Further, Hedonic Motivation did not affect the online purchase intention of consumers.

Originality: This study represents the online grocery purchase intention among consumers by investigating consumer behavior during and after the Covid-19 pandemic by using the technology acceptance model as a guiding theory.

Implications: The research is based on the expansion of the Technology Acceptance Model (TAM). Besides, the variable "perceived risk" is added to identify the factors that affect consumers' online shopping intentions. The study confirmed the significant influence of perceived usefulness, perceived ease of use, and hedonic motivation on the continuance usage of online grocery purchasing during the post-pandemic of Covid-19. Moreover, online retailers should improve their online platforms to address the consumers' increasing demand for online grocery purchasing.

Keywords: Online grocery shopping, Post pandemic, Structural equation modeling, Technology acceptance model

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INTRODUCTION

The outbreak of Covid-19 followed by lockdowns led to a significant shift in the shopping behavior of people. Online shopping is changing the way of purchasing. Whether it is fashion, cosmetics, electronics or food online shopping is dominant in the global market. Online grocery shopping can be denoted as a method of purchasing foodstuffs and other household supplies through websites or mobile applications (Galati et al., 2016). Online shopping is more convenient than in-store shopping as it offers several advantages like time-saving, cost-saving, less physical effort, easy access to a wide range of products, etc. The recent Covid-19 pandemic situation has influenced consumers to shift more toward online purchasing. However, some respondents had already made some purchases online, but the crisis forced consumers to increase their online purchases while encouraging most of them to move into electronic commerce (e-Commerce) for the first time.

A large number of consumers in the USA and Australia are engaged in online purchasing of groceries in their everyday life using advanced technological platforms. In Sri Lanka, there were 10.9 million internet users in January 2021. The number of internet users in Sri Lanka increased by 800 thousand (7.9%) between 2020 and 2021. Internet penetration in Sri Lanka stood at 50.8% in January 2021 (Kemp, 2021). The pandemic situation has brought many people to online platforms, with 31% of new users (aged 15 and above) in 2020 and 2021 showing that they came online due to a need brought by the pandemic (The Island, 2021).

Despite the growing demand for online grocery shopping, there are few past studies conducted to examine consumer intention toward online grocery purchasing. It is important to analyze the characteristics that affect the decision of consumers to continue online grocery shopping even after the Covid-19 pandemic. Further, it leads retailers and producers to understand consumers' behavior while engaging in online shopping.

In order to fill this research gap in the academic literature, this study aims to investigate the factors that affect consumers' behavior in adopting online grocery shopping during the Covid-19 outbreak and the intention to continue based on the consumers' perception. Moreover, the study assists online retailers and stakeholders to retain their consumers and attract new consumers to increase their online sales.

LITERATURE REVIEW

Online shopping can be referred to as a method whereby consumers buy products or services via the internet using a website or mobile app. Shopping intention is one of two factors that affect the shopping behavior of consumers. It is a factor that can be used to estimate the likelihood of future behavior (Blackwell et al., 2001). People engaged with online purchasing of products and services such as computers, mobile phones, electrical items, air tickets, clothes and fashion accessories, foods and groceries, etc. Among them, online grocery shopping has become more popular these days. Due to the need brought by the Covid-19 pandemic consumers shifted more towards online grocery shopping to buy foodstuff and other household items through online platforms as traveling is restricted across

the country. This is observed from their shift from the conventional shopping method, in which they are involved instead of visiting shops directly, they shop for products online through electronic devices which are connected to the Internet (Fihartini *et al.*, 2021).

According to several studies, consumers reduced their frequency of shopping trips during the pandemic and have increased online purchasing with social distancing measures (Ellison *et al.*, 2020; Melo, 2020). This pandemic has forced consumers to adopt new behaviors which are attached to personal and family safety and public health (Mehta *et al.*, 2020), such as, for instance, wearing face masks, social distancing, avoiding shopping in public places, and online shopping (Al-Hattami, 2021).

Meanwhile, retailers (supermarkets, local malls, etc.) have developed online platforms where consumers can place their orders through the internet. They have improved their websites in a way that consumers can easily access and collect the needed information. In addition, retailers have introduced technological improvements to manage online orders and home delivery services to meet the increasing demand of consumers. The use of modern technologies can be identified as a significant predictor of online shopping and the intention to continue using the tools for buying food items (Alaimo *et al.*, 2020). According to empirical evidence, online grocery shopping is affected by the characteristics of consumers and their perceptions of risks and benefits connected to acceptability (Hansen, 2005). As reported by the earliest theoretical models, consumers' acceptance and continuance intention to buy food items online is the Technology Acceptance Model (TAM). TAM explains that individual behavior is affected by perceived usefulness and perceived ease of use, which means that using technology would enhance job performance and efficiency (Davis, 1989).

Technology Acceptance Model (TAM)

The Technology Acceptance Model theory was developed by Davis in 1989 with the purpose of predicting the acceptance and behavior of consumers when using the system. TAM explains that individual behavior is affected by perceived ease of use and perceived usefulness when using a system (Davis, 1989). Usually, a website can be considered as an information system that provides the necessary information to its users (Shih, 2004). Thus, online purchase intention can be considered a suitable approach to address the consumer intention to use a website, and this has to be explained as a part of the technology acceptance model (Dachyar and Banjarnahor, 2017).

Theoretical Model and Hypothesis Formation

Figure 1 denotes the conceptual framework, which was developed based on the review of the literature and five hypotheses were formulated to explain the relationship among constructs.

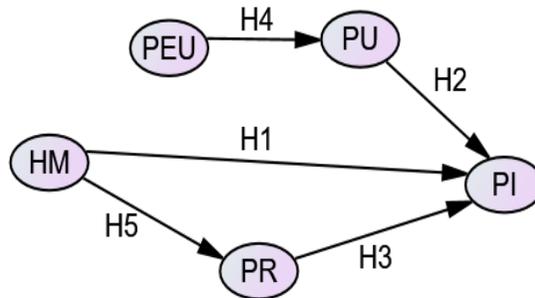


Figure 1: Conceptual Framework

HM: Hedonic Motivation, PEU: Perceived Ease of Use, PU: Perceived Usefulness, PR: Perceived Risk, PI: Purchase intention

Hedonic motivation on purchasing can be referred to as the pleasure the consumer expects from online shopping. Since shopping online contains more benefits than in-store shopping consumers are motivated to buy groceries via online platforms. Also, consumers are motivated to continue online grocery purchasing after the pandemic due to the associated benefits. Thus, the study hypothesized that:

H 1: Hedonic motivation positively affects consumer purchase intention

Perceived Usefulness is defined as the degree to which a person believes that using a particular system would enhance his/her job performance (Davis, 1989). Accordingly, the more customers find online shopping useful, the more they tend to find advantages over in-store shopping. Moreover, online purchasing enables customers to shop anywhere, at any time they need, and get the groceries delivered to their doorstep. Hence, the study hypothesized that:

H 2: Perceived Usefulness of consumers positively affects their purchase intention

Perceived risk refers to consumers' perception of uncertainty and negative consequences connected with the online shopping process. Perception of risk can be identified as the most influential factor for online purchasing intention. And this risk is associated with both the quality of the product delivered and the payment method (Alaimo *et al.*, 2020). Since consumers are more familiar with buying products after touching and checking, it is somewhat difficult for them to observe the same product through imagines from an online website or mobile applications; it may give the feeling that online purchasing contains potential risks. Another factor is that most of the online platforms request a pre-pay as consumers are afraid of losing their money without receiving the products (Ha *et al.*, 2021). Therefore, the study hypothesized that:

H 3: Perceived Risk of consumers negatively affects their purchase intention

The research study includes two factors of TAM which are perceived ease of use and perceived usefulness. Perceived ease of use is referred to the extent to which a

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user experienced a particular website as easily operated and free of effort when using the website (Chen and Ching, 2013). And usefulness is perceived when the websites are useful and user-friendly. Previous studies have suggested that perceived ease of use and perceived usefulness share a positive relationship with purchase intention in technology acceptance. When the website interfaces and mobile applications are easy to use consumers may find useful information easily, which leads to improving the perception of usefulness (Dachyar and Banjarnahor, 2017). Thus, the study hypothesized that:

H 4: Perceived Ease of Use positively affects the Perceived Usefulness of consumers.

Consumers are motivated to buy groceries online despite some of the risks associated with online purchasing. If the websites are developed in a more user-friendly and secure manner consumers may not hesitate to shop online using websites and mobile applications. Hence, the study hypothesized that:

H 5: Hedonic motivation of consumer positively affects the Perceived Risk in online grocery shopping

METHODOLOGY

The study used a pre-tested structured questionnaire as the instrument to test the proposed hypothesis. The questionnaire consists of two main parts. The first part was designed to cover the socio-demographic characteristics of the respondents such as age, gender, educational level, employment status, and monthly income. The second part focused on assessing the constructs proposed in the model. Twenty-five indicators were used to evaluate five constructs. All indicators were measured using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5).

Data Collection

The finalized questionnaire was programmed into the web-based application system (Google Forms) to facilitate electronic data collection using hand-held electronic devices. The questionnaire was distributed randomly among Sri Lankan consumers who have shopped for groceries online during the Covid-19 pandemic. Preliminary pilot testing of the questionnaire was conducted among 10 respondents to test the clarity and understandability of the questions.

Data Analysis

Data collection was done using compatible android devices which automatically fed into excel sheets and then checked for logical consistency, skip patterns, and non-eligible outliers. Data analysis was done using Statistical Package for the Social Sciences (SPSS 25). The results were presented in tables, charts, and descriptive format.

The present study performed a Confirmatory Factor Analysis (CFA) to assess and develop the validity of the constructs and the measurement model. Then it adopted

Structural Equation Modeling (SEM), which was used to estimate complex causal relationships among variables (Williams *et al.*, 2009). The study utilized Analysis of Moment Structures (AMOS 26) to conduct SEM analysis.

FINDINGS AND DISCUSSIONS

Demographic Characteristics

Among 200 respondents, the majority (64%) were females. Among the community, 92% of the respondents were between the age of 20 to 29 years and 4% were between the age of 30 to 39 years. It is suggested that the younger generation was mostly engaged in online grocery shopping since they are more familiar with and spent more time on electronic devices. Respondents demonstrated a very high level of education. Interestingly, 82% of respondents were undergraduates or graduates and 6% of them declared to have masters or above qualifications. With respect to employment status, 65% were unemployed and were currently reading for their degree/diploma programs while 36% of them were employed. Moreover, in accordance with the monthly income, 71% of the sample indicated that they are having an income above LKR 25,000 and 29.5% of them declared that their income is above LKR 75,000. The study considered respondents from all nine provinces of the country.

Descriptive Analysis and Reliability Statistics

Reliability is the measure of the internal consistency of the constructs. A construct is reliable if the Alpha value is higher than 0.7 (Hair *et al.*, 2010). Construct Reliability was assessed using Cronbach's Alpha. Reliability analysis was performed by SPSS 25. The results revealed that the Hedonic Motivation scale with 8 items ($\alpha=0.794$) and the Perceived Usefulness scale with 3 items ($\alpha= 0.738$) was found reliable. Similarly, the Perceived Ease of Use scale with 5 items ($\alpha= 0.834$) and Perceived Risk with 5 items ($\alpha= 0.727$) was also reliable. Also, the Purchase Intention scale with 3 items was found reliable ($\alpha= 0.731$). One indicator of the last construct was dropped and proceeded with three indicators were in order to improve reliability. The mean values of the constructs range from 3.18 to 3.51. Table 1 presents the results of the descriptive and reliability analysis. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's tests were performed based on Principal Component Analysis (PCA) to measure sample adequacy. The obtained KMO value is 0.811, which indicates the sample is adequate according to the rule of thumb. Bartlett's test of sphericity is significant at the 95% confidence level. The above results provided an insight that the variables are correlated and the data is applicable for the factor analysis.

Table 1: Descriptive and reliability statistics

Construct	No: of items	Mean	Alpha (α)
Hedonic Motivation	8	3.407	0.794
Perceived Usefulness	3	3.363	0.738

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Perceived Ease of Use	5	3.513	0.834
Perceived Risk	5	3.272	0.727
Purchase Intention	3	3.183	0.731

α : Cronbach's Alpha

Structural Equation Modelling (SEM)

SEM was used to analyze the structural relationship between the measured variables and latent constructs. SEM comprises measurement and structural models, which were developed to estimate the validity of the constructs and the significance of paths respectively (Statistics solutions, 2021). The Goodness of Fit Indices was used for the analysis. Among the Goodness of Fit (GOF) measures, the chi-square index, RMSEA (Root Mean Square Error of Approximation), and GFI (Goodness of Fit Index) can be categorized as absolute fitting indices. Then, incremental fit indices used in the study are CFI (Comparative Fit Index), and TLI (Tucker and Lewis Index). Chi-square/df or CMIN/df (chi-square normalized by degree of freedom) is coming under the Parsimonious fitting index category. The model is considered a good fit when CMIN/df value is less than three and values of GFI, CFI and TLI were all above 0.90. Further RMSEA value should be less than 0.08. GOF indices were used in order to estimate both measurement and structural models.

Measurement Model

The measurement model defines the relationship between constructs and indicator variables. As reported by the study, there are five latent constructs Hedonic Motivation (HM), Perceived Ease of Use (PEU), Perceived Usefulness (PU), Perceived Risk (PR), and Purchase Intention (PI). All the mentioned constructs were correlated with each other.

In accordance with the output of the measurement model, the obtained chi-square value was 466.177, which was significant at <0.001 probability level. CMIN/df value indicates 2.220 and RMSEA is 0.078, which denotes the model as an absolute fit. Although GFI = 0.838, CFI = 0.864, and TLI = 0.836 which were slightly less than the recommended value of 0.90, the overall fitness of the measurement model satisfies the acceptance level of good fit which is required to assess the structural model hypotheses.

Composite Reliability (CR) is measured to determine the reliability of the model. The desirable value of CR should be greater than 0.70 to achieve reliability. The validity of the model was examined utilizing Convergent Validity (CV). CV can be evaluated in two methods, Average Variance Extracted (AVE) and Factor Loadings. The acceptable AVE value requirement is higher than 0.50 (Fornell and Larcker, 1981). Indicators with low factor loadings, which are less than 0.5, were discarded

to improve the validity of the model (Gefen and Straub, 2005). Two indicator items (HM7 and PI2) were removed from the analysis due to low factor loading. CR values are in the range of 0.725 to 0.843, and AVE values are in the range of 0.503 to 0.557, which are in the acceptable range. Moreover, the Factor Loadings of the constructs are higher than 0.5, which represents acceptable convergent validity. Furthermore, the Factor Loadings are significant at the 0.001 level of confidence. However, the overall fitness of the measurement model was sufficient to estimate the proposed hypotheses.

Structural Model

Once the construct's reliability and validity have been measured, proposed causal relationships and hypothesis testing were continued employing the structural model. The structural model is illustrated in Figure 2. Accordingly, structural paths are drawn among the constructs. In this model, no arrow can enter an exogenous construct (independent variable). Single-headed arrow is used to present a hypothesized structural relationship between one construct to another. Double-headed arrow indicates the covariance between exogenous variables. According to the structural model, HM and PEU can be identified as exogenous variables while PU, PR, and PI are endogenous variables. In the present study, each hypothesized relationship uses one degree of freedom. The structural model is recursive.

As the outcome of the fitting indices for the structural model, the chi-square value of 635.765 was statistically significant with 259 degrees of freedom (df). Further, CMIN/df = 2.455, RMSEA = 0.085, GFI = 0.801, CFI = 0.814 and TLI = 0.784. The structural model has achieved a good fit since the fitting indices meet the predetermined criteria.

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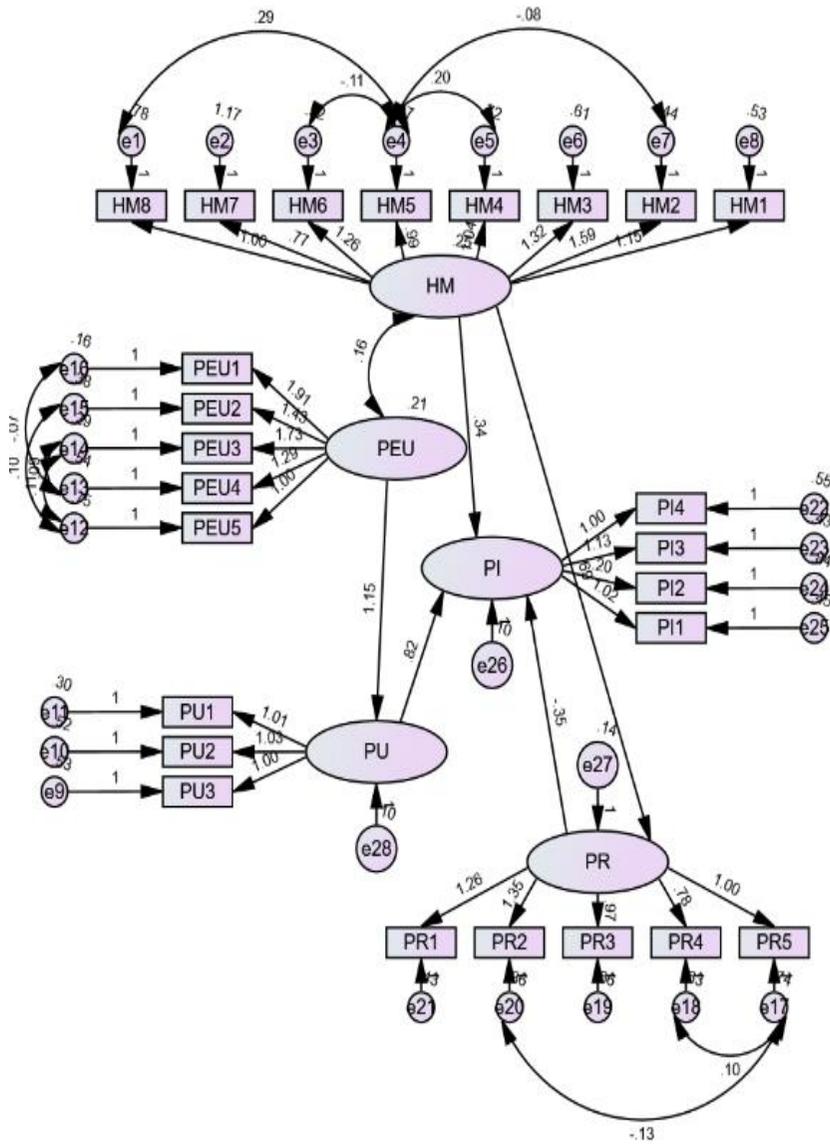


Figure 2: Structural model

HM: Hedonic Motivation, PEU: Perceived Ease of Use, PU: Perceived Usefulness, PR: Perceived Risk, PI: Purchase intention

Table 2, denotes the result of the hypothesis test where three hypotheses are significant and two hypotheses are not significant.

Table 2: Hypothesis test

Hypothesis	β	T-value	P-value
H1: PI <-- HM	0.339	1.917	0.055
H2: PI <-- PU	0.820	5.788	***
H3: PI <-- PR	-0.350	-2.375	0.018
H4: PU <-- PEU	1.153	5.702	***
H5: PR <-- HM	0.690	4.479	***

β : Standardized path coefficients, SE: Standardized Estimates, <--: hypothesis direction, HM: Hedonic Motivation, PEU: Perceived Ease of Use, PU: Perceived Usefulness, PR: Perceived Risk, PI: Purchase intention

The results of the hypothesis test provided insight into how Hedonic Motivation, Perceived Ease of Use, Perceived Usefulness, and Perceived Risk factors influenced Purchase Intention. The effect of Hedonic Motivation on consumer purchase intention is positive, but not significant ($\beta=0.339$, t-value=1.917, p-value=0.055), hence H1 was not supported. Perceived Usefulness has a positive and significant effect on consumers' purchase intention ($\beta=0.820$, t-value=5.788, p-value < 0.001), hence H2 represents direct support. Perceived Risk denotes a negative and insignificant impact on consumer purchase intention ($\beta=-0.350$, t-value=-2.375, p-value=0.018), hence H3 is not supported and therefore rejected. The TAM factors which are Perceived Ease of Use directly and significantly affected the Perceived Usefulness of consumers, thus supporting H4 ($\beta=1.153$, t-value=5.702, p-value < 0.001). Finally, the impact of Hedonic Motivation on Perceived Risk is positive and significant ($\beta=0.690$, t-value=4.479, p-value < 0.001), hence H5 is supported. Here, the H1 and H3 were rejected from the model due to insignificant values. On the whole, Perceived Usefulness has a positive and direct impact on consumers' Purchase Intention while Perceived Ease of Use has a positive and indirect effect.

In this context, Perceived Usefulness can be recognized as easy searching for grocery products, useful website content, and a comparatively fast shopping process. Perceived Usefulness comes from factors like ease of use. Usefulness will be perceived by the consumer when he or she experienced a particular website that is easy to use.

Perceived Ease of Use represents a higher effect on Perceived Usefulness. Perceived Ease of Use is achieved when the website is easily operated by the

consumers. When the interfaces of websites are easy to use, consumers are capable of finding important information without much effort, which improves their perception of usefulness.

Even though Perceived Ease of Use has an indirect impact on consumers' purchase intention, it represents a significant impact on Perceived Usefulness, which express a direct and significant effect on consumer purchase intention.

Besides, the Hedonic Motivation of consumers indicates a positive influence on the Perceived Risk of consumers engaging in online grocery shopping during the post-pandemic of Covid-19. This means that the riskier the customer feels, the less they make online shopping (Ha *et al.*, 2021). Risks in online shopping can be categorized as financial risks or loss of money, product risk or unexpected products, the risk from sellers, risks of privacy, and risks of security. Therefore, some consumers may be discouraged to purchase groceries online since they cannot touch and check the quality of the grocery items. Moreover, many respondents had faced consequences while shopping online, the most common being delays in delivery and cheap quality of products.

While online shopping was happening before the start of the Covid-19 outbreak, grocery shopping is not more popular among Sri Lankan consumers. With the lockdown resulting from the pandemic, online grocery shopping came into being and it attracted consumers more easily. Retailers competitively develop their websites not only to retain their consumer base but also to attract new consumers. At the same time, retailers introduce payment and delivery options so that consumers might get their groceries delivered to their doorstep without any physical contact.

The present study aimed to investigate the factors affecting consumer intention toward online grocery shopping during the post-pandemic of Covid-19. The findings of the current study confirmed that perceived ease of use and usefulness significantly affected consumer purchase intention. According to the results obtained, 30% of respondents preferred online shopping over traditional shopping and 40% of them were willing to continue online shopping during the post-pandemic. Accordingly, the study suggested that retailers must give good consideration by providing good customer service when making prospects online. Providing quality products, meeting the consumer's requirements, and shortening the order processing time are some of the few steps to improve the service. Further, retailers need to develop user-friendly, safe platforms and faster delivery systems for consumers for a better shopping experience.

THEORETICAL IMPLICATIONS

The purpose of the study is to provide an understanding of consumer perception towards online grocery shopping during and after the Covid-19 outbreak. However, the study has identified several factors that affect customers' purchasing intention. Moreover, the paper has proposed a conceptual model concerning these influencing factors. And all the elements of the proposed concept have been tested as confirmed in the study.

PRACTICAL IMPLICATIONS

The study area is limited to Sri Lankan consumers' purchasing intention for online grocery shopping regarding the selection between online and offline shopping. The findings of this study have revealed that there is a considerable shift towards purchasing groceries online, as the obtained results of the study confirm that 30% of respondents switched to online shopping after the Covid-19 pandemic. And 40% of them were willing to continue online shopping during the post-pandemic. These outcomes will be valuable for retailers to develop their online channels to meet the increasing demands. Moreover, an understanding of consumers' online grocery purchasing intention will assist retailers in gaining a competitive advantage in the industry and addressing the changes in the market wisely.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The study focuses more on the younger generation who are more familiar with electronic devices. And the study limited findings to the number of participants. Further studies are recommended to evaluate the factors that affect consumer intention. And the study suggests discovering if there are any additional factors that affect for consumer intention toward online grocery shopping.

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COMPETING INTERESTS

The authors declared no competing interests.

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