



## DOES CUSTOMER TRUST MEDIATE THE IMPACT OF E-SERVICE QUALITY DIMENSIONS? LESSON DURING COVID-19 PANDEMIC

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**Abstract:** e-groceries is probably is an effective way to contain the current epidemic to avoid personal contacts and maintain the social distance within the face of the Covid-19 Pandemic. The purpose of this study is to gain insight on the impact of e-service quality dimensions and customer satisfaction of e-groceries with the role of customer trust as a mediating variable during the Covid-19 pandemic. Research adopted the quantitative approach where the empirical data gathered from 300 e-grocery shoppers in Western province, Sri Lanka, selected by adopting multi-stage sampling method. Data collected through a field survey conducted during the first wave of Covid-19 pandemic in year 2020. As analysis methods, Regression analysis adopted whereas the Barron and Kenny mediator analysis model and the Sobel test adopted for mediation impact. According to the findings, *e-service quality* dimensions strongly impact on the *customer satisfaction* of e-groceries during the Pandemic. Further, *customer trust*, partially mediates the e-service quality and customer satisfaction of e-groceries. The research indicates that e-grocery service providers have to distinct on revamp of customer trust parameters and e-service quality dimensions that mentioned throughout to enhance the customer satisfaction, customer trust and attract more customers for e-grocery shopping.

**Keywords:** customer satisfaction, customer trust, e-groceries, e-service quality

### INTRODUCTION

The *e-grocery* or *Online grocery* is one of the segments within the e-commerce. Accordingly, e-grocery is either a supermarket or grocery store that allows ordering the goods via online. E-groceries are a rising movement for marketers to promote their products in a wide geographical area. Sri Lanka access to the modern and newest information technology in the present. According to the Department of Census and Statistics of Sri Lanka, the

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internet penetration rate of Sri Lanka is stood at 47% in January (2020). Internet usage in Sri Lanka has been growing in the past years, by enhancing the use of the internet for shopping goods and services simultaneously. As recorded by Asia Securities Report (2019), online retail space currently is US\$ 85-90 million and online retail penetration is less than one percent in Sri Lanka. The e-grocery concept is still novel to the Sri Lankan e-business industry and customers are slowly adopting to use the e-groceries. With the surged of e-groceries, customers are seeking service quality through e-groceries same as the physical grocery store. In this context, electronic service quality has emerged as an area of strategic importance. As e-groceries have grown during the outbreak, e-service quality has to turn out to be an increasing factor to survive within the online grocery businesses. Moreover, to influencing customers' online shopping experience and customer satisfaction, identifying and understanding the e-service quality dimensions is more important. (Yang, 2001). After began the Covid-19 outbreak, Sri Lankan e-groceries have flowed and it becomes an opportunity for e-grocers and customers have encouraged online purchasing as an alternative to the physical store. The most effective way to avoid personal contacts and keep social distance e-grocery become an important e-service.

### RESEARCH PROBLEM

The electronic service quality concept is a newly emerging area of research that has strategically importance for businesses to attempt to address customers in the electronic marketplace (Asadpoor, 2017). Rather than the customer who uses traditional grocery stores, online customers expect a high or equal level of service quality (Lee & Lin, 2005). Therefore, studying the dimensions that use to measure e-service quality is important to marketers. Related studies on e-service quality have been researched on the SERVQUAL scale to measure services in a various online context such as internet retail (Kaur, 2018; Santouridis, 2009; Akter, 2016) and electronic banking (Zavareh *et al.*, 2012). Nevertheless, there have few kinds of research that conducted to measure the e-service quality in e-groceries (Mortimer *et al.*, 2016). Moreover, customers are always seeking service quality from e-grocery stores the same as the traditional physical grocery stores. To gain a competitive advantage and to enhance customer satisfaction from the e-services, businesses have to pay more attention to the e-service quality. Hence, the e-service quality concept still an interesting researchable area, and e-grocery is still a new experience to the Sri Lanka context, these identity as gaps of the study.

Therefore, research questions and have been developed as,

- What is the impact of e-service quality dimensions on customer satisfaction of e-groceries?

- What is the impact of customer trust as a mediator between e-service quality dimensions and customer satisfaction of e-groceries?

Align with research gap, objectives of the paper have been developed;

- Investigate the impact of e-service quality dimensions on customer satisfaction of e-groceries
- Assess the mediator impact of customer trust as a mediator between e-service quality dimensions and customer satisfaction of e-groceries.

The paper targets the time period of first wave of the Covid-19 pandemic during 2020, whereas the e-groceries have been massively promoted due to the safety of the method.

## LITERATURE REVIEW

### E-service Quality

Electronic service quality is un-dimensional although there are many dimensions published by the researchers and on the realization of electronic service quality and customer satisfaction and on the procurement process and decision making the readiness of the technology is impact (Zithaml, 2002). This concept has strategic importance for businesses to address the customers in the electronic marketplace (Saeedeh *et al.*, 2017). In past decades most of the researches has been focus on service quality in the traditional service contexts but in recent few years, the interest in e-quality also increased due to the well-acknowledged relationship between service quality and performance of the business (Rowley, 2006). Zeithaml (2002) mentions that the effectiveness and the efficiency of shopping, purchasing goods, and delivery time facilitate by a web site is the e-service quality. Marketers need to know how customers perceived and evaluate e-service to provide valuable and quality service via online. (Parasuraman *et al.*, 2005). Surround all aspects of customer's interactions with a web site also refer as e-service quality by Parasuraman *et al.*, 2005.

### E-service Quality Dimensions

Electronic service quality is un-dimensional although there are many dimensions published by the researchers and on the realization of electronic service quality and customer satisfaction and the procurement process and decision making the readiness of the technology is impact (Zeithaml, 2002). There are ten dimensions mentions as reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customers, and tangibility (Parasuraman, 1988). Later on, these turn in to five as tangibility, reliability, responsiveness, assurance,

and empathy or SERVQUAL. But all these dimensions may not be able to anticipated to imprison all the subtitles of the estimation of commercial website's service quality (Parasuraman, Zeithamal *et al.*, 2005).

**Table 1: Dimensions of electronic service quality**

<i>Researcher</i>	<i>Dimensions</i>
Lee & Lin, (2005)	Reliability, Responsiveness, Website design, Trust, personalization
Madu & Madu,(2002)	Performance, Features, Structure, Credibility, Aesthetic, storage capacity, Serviceability, Security, System Integrity, Trust, Responsiveness, Differentiation, Customization, Assurance,
Meuter <i>et al.</i> , (2000)	Efficiency, Flexibility, Security, Personalization, Convenience
Long & McMellon, (2004)	Reliability, Responsiveness, Assurance, Empathy, Tangibility, Communication
Iliachenko, (2006)	Reliability, Efficiency, Responsiveness, Credibility, tangibility, Communication

### **Customer Satisfaction**

Scholars mention that customer satisfaction provides an advantage to the business organizations to enhance the profitability, influence for customer repurchase intention (Kitapci *et al.*, 2013), satisfaction occurs when customer get what they expect from a service or commodity (Kotler, 2003), feeling caused after comparing the service that customer gets and what customer expect from that service (Kotler & Keller, 2006). Customer satisfaction is defined by Kotler (2000) as about customer expectation and the positive and negative feelings arising from comparing the product's perceived performance Hsu (2008) found the factors like e-SQ, perceived value, and trust significantly affect customer satisfaction and suggested American Customer Satisfaction Index (ACSI) to evaluate online customer satisfaction.

### **E-service Quality and Customer Satisfaction**

The interrelation between customer satisfaction and electronic service quality is an argument concept, electronic service quality is preceding of customer satisfaction (Oliver, 1980). Electronic service quality is an attitude towards the excellence of the service and customer satisfaction is associated with a specific transaction (Parasuraman *et al.*, 1988). Therefore, customer satisfaction is depending on the quality of the service provided by the service provider (Lee *et al.*, 2000). Electronic service quality positively impacts on consumer satisfaction and attitude towards website (Carlson & O'cass, 2010). To survive within the rivalry industry competition, marketers need to pay attention to e-services to attract more prospective customers and retain the

current customers (Zeithaml, 2002). The customer intention to shop in the future and customer satisfaction of e-groceries could be influenced by the service quality of online stores and e-service quality can attract potential customers (Cai & Jun, 2003).

### **E-service Quality Dimensions and Customer Satisfaction**

To reinterpret the e-service quality, e-service quality dimensions are needed for electronic service providers (Zavareh, *et al.*, 2012), dimensions of e-service quality affect on customer satisfaction and overall service quality (Lee & Len, 2005). There is no exact number of electronic service quality dimensions when evaluating e-service quality by the customers (Zeithaml & Parasuraman, 2000; Sirinivasan *et al.*, 2002). Most of the studies view e-service quality dimensions antecedent of e-customer satisfaction (Szymanski & Hise, 2000). Due to the lack of financial security and privacy, lack of human contact, and poor design of the interface of the website could reduce the customer satisfaction on e-service quality (Meuter *et al.*, 2000). Kim & Stoel, (2004) found that customer satisfaction can be anticipated through the website quality dimensions such as reliability of the information, response time, transaction capability, and website attributes. Web site service quality, service convenience, and risk are affected by e-service discovered that consumers' satisfaction and intention (Zhang & Prybutok, 2005).

*H1: E-service quality dimensions have a positive significant effect on customer satisfaction of e-groceries.*

### **Reliability**

Reliability is the capability of the websites to fulfill the customer's orders correctly, delivered properly, and keep personal information secure (Parasuraman *et al.*, 1988; Janda *et al.*, 2002; Kim & Lee, 2002). To provide a reliability service, marketer should provide the service as promised and reliably (Al-Dmour, 2005). Correct technical recruitments and promised services such as the delivery of customer order, delivery time, advertising, and product information should include in reliable e-service (Parasuraman *et al.*, 2005). Reliability has been mostly emphasized by information technology-based services (Lee *et al.*, 2005).

### **Efficiency**

This can be defined as the ability to access and use the web sites easily and quickly (Mummalaneni & Meng, 2009), and ease of use web site and no need much of information to answer customer interventions (Zeithaml, 2005). And also, to provide efficiency e-service, the website should be

designed properly and appropriately (Parasuraman, 2005), electronic service efficiency is differing from the traditional service efficiency due to the traditional services are based on the service provider's skills, knowledge, and ability (Al-Dmour, 2005). To provide superior electronic service quality to customers, the organization should ensure order accuracy, delivery timeliness, complete delivery conditions, and order fulfillment (Rita *et al.*, 2019).

### **Information**

Valuable information and high-quality content of the online stores' website help to improve the satisfaction of the shoppers (Kim & Lim, 2001). There should be a provision for additional and delivery time information, detailed, description of the exterior of products and all that information should be easy to understand (Cho & Park, 2001). Provided information should be understandable, reliable, well organized, and presented attractively (Yang, 2007), and also customers should be allowed to interact with the websites to receive tailored information (Kim & Stoel, 2004). There is a significant positive impact of information and user interface quality of e-commerce on customer satisfaction according to the determinants of the B2C e-commerce customer satisfaction (Eid, 2011).

### **Responsiveness**

Providing instructions for using the web site and assist when problems occur in the service and the degree of assistance received while search the information and guidance for taking the service is responsiveness (Griffiths & Brophy, 2005), meet all the customer requirements and respond quickly for service requests, desire to help the customer also reflects as responsiveness (Al-Bakri, 2005). According to Parasuraman *et al.*, (1988) responsiveness is how frequently online stores voluntarily provide electronic services that important for customers such as customer inquiries, information retrieval, and navigation speed. Prompt response for the inquiries expects by the customers from the online stores (Liao & Cheung, 2002).

### **Assurance**

Security of use online financial service (Montoyo *et al.*, 2000), both online customers and other customers worry about the acquisition and dissemination of the personal data through websites (Lociacano *et al.*, 2000). Security in a variety of payment options such as credit card and PayPal, guarantee against credit card fraud, the security of the transaction should ensure in online businesses (Limbu *et al.*, 2011). To assess the service quality

of the online store, privacy and website security important, and customers are always paying attention to whether the website would protect customers after the transactions against frauds (Rita *et al.*, 2019).

### **Customer Trust**

Past literature described different dimensions and indicators for the concept of customer trust. Wang *et al.*, (2006) has revealed that trust is deal with the integrity (honesty and keeping the promise by the suppliers), competence (supplier's capability to accomplish what customer needs), predictability (behavioral consistency of supplier's), and benevolence (supplier's motivation and caring to act like the customer's interest). Another indicator for the customer trust mentioned as create confidence in customers, sending products as promised by suppliers, return back when products get damaged, treats honestly in every transaction (Sundaram *et al.*, 2017). Lack of trust in business-to-consumer services is the main reason for customers not willing to buy the products through the internet (Grabner-Kraeuter, 2002). Customer trust is interconnected with the information that provides to online consumers (Zeithaml *et al.*, 2002). An online trust may depend on the previous experiences that customers received from online stores such as service quality, the sign from the website, or the others' recommendations (Codina *et al.*, 2011).

*H2: E-service quality dimensions have a positive significant effect on trust.*

*H3: Trust has a positive effect on customer satisfaction of e-groceries.*

### **E-service Quality Dimensions, Customer Trust and Customer Satisfaction**

Convey the trustworthiness of the site and the system to consumers by using the quality dimensions of the e-services is the main way to represent the customer trust in online stores (Kundu & Datta, 2015). Trust has been linked with online customer satisfaction in the e-commerce context (Santouridis, 2009) and the development of trust can depend straightly on customer satisfaction (Singh & Sirdeshmukh, 2000). Gefen, (2000) applies the SERVQUAL model to examine the impact of e-service quality dimensions on customer trust and identifies dimensions as tangibility, empathy, assurance, reliability, and responsiveness, which have a significant impact on customer trust. Moreover, e-service quality dimensions of user-friendliness and efficiency also have a significant effect on customer trust (Kundu & Datta, 2015). There is a positive relationship between customer satisfaction and customer trust (Ganesan & Hess, 1997). Online customer satisfaction can improve significantly by having a high influence on e-service quality (Kassim & Abdullah, 2010). Customers ready to except any services provided by the web hosting service provider if the customer feels the trust

and also previous studies mention that e-service quality had a direct positive and significant effect on customer trust (Chenet *et al.*, 2010). To succeed in the business relationship trust give more contribution to the online stores (Anderson & Srinivasan, 2003; Mukherjee & Nath, 2007). In building a long-term relationship with the customers, trust becomes a key mediating variable (Mukherjee & Nath, 2007).

*H4: There is a relationship between e-service quality dimensions and customer satisfaction of e-groceries through the customer trust.*

### E-grocery Shopping

Due to the perishability and variability of the products and frequency of shopping electronic grocery shopping is different from other types of online shopping (Lynda *et al.*, 2016). General online shopping differs from online grocery shopping where the e-grocery shoppers report the convenience and ease of use as positive drivers of adoption to e-groceries (Sin *et al.*, 2002). Products that fall into see, touch, and smell categories such as meat, fresh products and bake goods (Huang & Oppewel, 2006) are considered as a challenge in online grocery environment (Citrin *et al.*, 2003). Customer may resist with risk and that product purchased may slump prior to the delivery even though the quality and freshness of goods can be claimed online (Tsiros & Heilman, 2005).

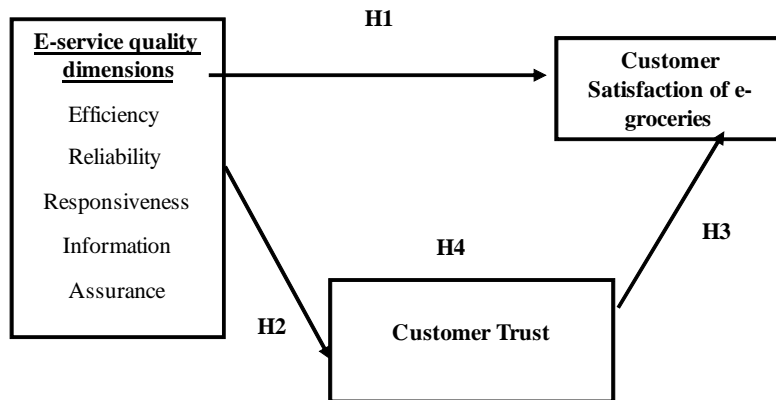


Figure 1 Conceptual Framework

Source: Develop by referring past literature (Kundu & Datta, 2015)

## METHODOLOGY

### Population and Sample

The research is measuring the impact of e-service quality dimensions on customer satisfaction of e-groceries in Sri Lanka. Therefore, all the Sri Lankan



customers' who consume goods via online groceries which can be either supermarket or other groceries that allow to ordering goods via online are considered as the population of this research. According to the report of the fitch rating of world bank (2017) the modern online grocery penetration is about 18% in Sri Lanka. e-grocery shoppers in Colombo district has been selected as the sample based on the highest percentage distribution of Internet (44.9%) and E-mail (20.4%) household population in (2018) compare to other districts in Sri Lanka (Department of Census and Statistics of Sri Lanka,2018). Further, as a representative sample, three Divisional Secretariats were selected, Colombo, Dehiwala and Kotte, Division, based on high population density of more than 20,000 square miles in Colombo District and also e-groceries are highly available and actively delivery happen in these three areas. The sample has calculated under confidence level 95% and confidence interval 5.

### Sampling Technique and Framework

The study will be conducted through multistage sampling, which is divide large population in to stages to make the sampling process more reliable and practical.

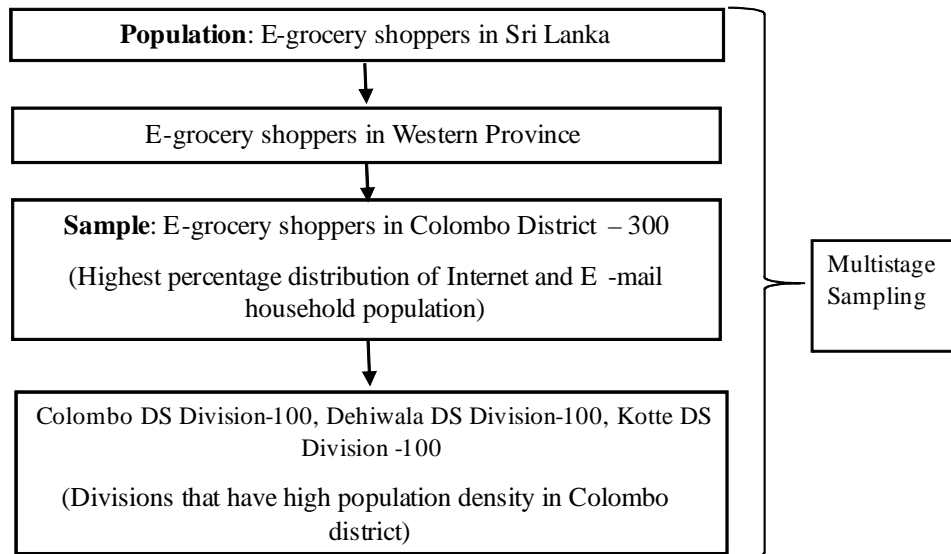


Figure 2 : Sampling frame

### Data Collection

Questionnaire was administered to data collection consisted with close-ended multiple-choice questions and scale questions. All the dimensions

used to measure the variables in the proposed model described in the operationalization. Pilot test was conducted by using 30 e-grocery shoppers randomly selected by the sample and reliability of the questionnaire was tested by the Cronbach's Alpha value based on that pilot survey.

**Table 2: Cronbach's Alpha Reliability Test**

<i>Variable</i>	<i>Dimension</i>	<i>Cronbach's Alpha</i>
E-service quality dimensions	Efficiency	0.860
	Information	0.727
	Reliability	0.743
	Assurance	0.793
	Responsiveness	0.736
Customer Trust		0.787
Customer Satisfaction		0.873

**Table 3 Reliability Statistics for Overall model**

<i>Cronbach's Alpha</i>	<i>Cronbach's Alpha Based on Standardized Item</i>	<i>No of Items</i>
.749	.747	30

Source: SPSS output from field information

## Operationalization

To measure the theoretical constructs indicators have developed and operationalization of the study done according to the variables that have identified in the conceptual framework.

**Table 4: Operationalization of variables**

<i>Variables</i>	<i>Dimensions</i>	<i>Indicators</i>	<i>Measurements</i>
<b>E-service quality dimension (Independent Variable)</b>	Efficiency	Quickly delivered service	5-point Likert Scale
		Easy ordering, payment and cancellation (user friendly).	
		Easy to find customer need on the website.	
	Information	Quickly browse the website	
		Quickly order the goods through website	
		Accurate and understandable	
	Responsiveness	Provide timely information	
		Allow to received tailored information	
		Prompt response for requests and inquiries	
		Quickly resolve ordering problems	
		Promising services	

contd. table 4

<i>Variables</i>	<i>Dimensions</i>	<i>Indicators</i>	<i>Measurements</i>
<b>Customer Trust (Mediator Variable)</b>	Reliability	Accurate service delivery	5- point Likert Scale
		Complete service orders	
	Assurance	Accurate order taking service	
		Frequent update of website	
		Secure customer information	
		No customer information provides too thers	
		Secure credit card information	
		Taking care about the customers	
		Return back when get damaged	
		Sending products as promised	
<b>Customer satisfaction (Dependent Variable)</b>		Treats in an honest way in every transaction	5-point Likert Scale
		Create confidence in customers	
		Satisfaction with e-grocery shopping	
		Recommend to others	
		I regularly use the e-grocery service	
		E-grocery shopping is providing the expected services	

## DATA ANALYSIS

### Descriptive Statistics

The descriptive techniques used by the researcher for analyzing the demographic characteristics of 300 e-grocery customers in Sri Lanka to identify the overview of the sample. The following tables show the statistics of the distribution of age, distribution of gender, distribution of division, distribution of occupation, hours spend in internet, e-grocery use, amount spent, frequency use e-grocery, delivery time.

### Findings of Descriptive Statistics

**Table 5: Summary of Findings of Descriptive Statistics**

<i>Descriptive</i>	<i>Main Finding</i>
Distribution of age	Most e-grocery users age between 35-44 years
Distribution of gender	Female customers mostly use e-groceries
Distribution of occupation	Government employees mostly used e-groceries
Hours spent on internet	Most of the e-grocery uses spent on internet about 1-3 hours per day
Often use of e-grocery	Customers order goods from the e-groceries between 1-3 weeks during the pandemic
Amount spend for e-grocery	Spend between Rs.3000-5000 for e-groceries
Most frequently used e-grocery	Most customers order via Keells Super Online Grocery and Cargills Online Grocery
E-grocery delivery time	Most of e-grocery service providers deliver goods within 24 hours

*Source:* SPSS output from field survey

### Correlation Analysis

The correlation between independent variable e-service quality dimensions and dependent variable customer satisfaction is 0.649 (64.9%), which implied that there was a strong positive relationship between e-service quality dimensions and customer satisfaction of e-groceries. Correlation between the independent variable e-service quality dimension and mediating variable customer trust is 0.704 and it comprehended that there was a strong positive relationship and correlation between mediating variable customer trust and dependent variable customer satisfaction of e-groceries is 0.664 and it donated that there was a strong positive linear relationship.

The P-value was at zero level ( $0.000 < 0.05$ ). therefore, it rejected the null hypothesis ( $H_0$ ) and accepts the alternative hypothesis ( $H_1$ ) at 95% confidence level. All the null hypothesizes were rejected and  $H_1$ ,  $H_2$ ,  $H_3$  and  $H_4$  were accepted. Furthermore, there is a strong positive relationship between dependent variable, independent variable and mediator variable.

**Table 6: Summary of hypothesis and correlation**

		<i>P- value</i>	<i>Pearson Correlation</i>	<i>Alternative Hypothesis (<math>H_0</math>)</i>	<i>Relationship</i>
H1-E-service dimensions and customer satisfaction of e-groceries	quality customer	0.000	0.649	Accepted	Strong positive
H2-E-service dimension and trust	quality	0.000	0.704	Accepted	Strong positive
H3-Customer trust and customer satisfaction of e-groceries		0.000	0.664	Accepted	Strong positive

### Regression Analysis

**Table 7: Regression analysis of ESQD and CS**

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>T value</i>	<i>Sig.</i>
	.216	.252		.854	.394
	.866	.059	.649	14.712	.000

a. Dependent variable: Customer Satisfaction

$$CS = 0.216 + 0.866ESQD + \varepsilon$$

Source: SPSS output from field information

According to the regression equation the constant value is 0.216 and it implies that the value CS when the ESDQ is equaled to the zero level. Moreover, the coefficient of e-service quality dimensions is 0.866. it implies when ESQD was increased by one unit, CS increase by 0.866 approximately 0.5 times. Other than that, it is also suggested that there is a positive relationship between CS and ESDQ.

### Model Summary

**Table 8: Model summary for linear regression analysis**

Figure	R	R Square	Adjusted R Square	Std. Error of the Estimate
Value	.649 <sup>a</sup>	.421	.419	.42435

Source: SPSS output from field information

The  $R^2$  value was 0.421 according to the linear regression model summary. It implies as 42.1% of the total variation of customer satisfaction is explained by the e-service quality dimension and also 57.9% of the total variation in customer satisfaction is unexplained by the linear regression model. Due to the unexplained variation is greater than the explained variation the model is fitted in an unfair manner. According to the study adjusted  $R^2$  value was 0.419 and it implies how data derived from the fitted line of regression and moreover standard error of the estimate was 0.42435.

### Overall Significance of the Model

**Table 9: ANOVA**

ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	38.978	1	38.978	216.456	.000 <sup>b</sup>
Residual	53.662	298	.180		
Total	92.641	299			

a. Dependent Variable: Customer satisfaction

b. Predictors: (Constant), E-service quality dimensions

Source: SPSS output from field information

To significant the overall model F value condition should be greater than the F table value. It can be illustrated as a significant level of 0.05 ( $\alpha = 0.05$ ). F value of this study is 216.456 according to the above table and it is greater than the F table value. Furthermore, P-value is 0.000 in this study and model is overall significance at 95% significance level.

## Mediator Analysis

**Table 10: Summary table of mediator analysis**

<i>Path</i>	<i>B (unstandardized coefficient)</i>	<i>Standard Error</i>	<i>β (Standardized coefficient)</i>	<i>P-value</i>
c	.866	.590	.649	.000
a	.590	.034	.704	.000
b	.743	.048	.664	.000
c'	.460	.064	.411	.000

*Source:* SPSS output from field survey

All the four paths of the mediator model are significance with coefficients of 0.866, 0.590, 0.743, 0.460 at the 0.05 significance level. According to the unstandardized coefficient between e-service quality dimensions and customer satisfaction of e-groceries identified that there is strong positive relationship between two variables and it implies coefficient of 0.866 at the p-value of 0.000. Therefore, it is significance at 0.05 level. Hence, it can be concluded, without having mediator there is a strong positive relationship between independent and dependent variables. According to the Barron and Kenny mediator model c path is significance.

The unstandardized coefficient between e-service quality dimensions and customer trust was 0.590 and it suggest weak positive relationship between independent variable and mediator variable. Accordingly, a path of the Barron and Kenny mediator model also significance at the 0.05 level (P value < 0.05).

Moreover, unstandardized coefficient between customer trust and customer satisfaction of e-groceries was 0.743 that illustrate there is a strong positive relationship between mediator variable and dependent variable. With reference to the Barron and Kenny mediator model path b also significance with 0.000 P-value (P- value < 0.05).

When analyze the independent variable and mediating variable in predicting dependent variable there is a statistically significance relationship (P < 0.05) between variables according to the supported data. Its implied unstandardized coefficient as 0.460. Hence, there is weak positive relationship between variables and mediator is in the model. Therefore, the c' path also significance and when compare the c path and c' path there is a significance difference between unstandardized coefficient of the two paths.

$$c \text{ path} - c' \text{ path} = 0.866 - 0.460 = 0.406$$

Based on the above difference, when mediator is in the model, the effect of independent variable on dependent variable is reduce. Unstandardized coefficient difference of 0.406 implies that customer trust partially mediates the relationship between e-service quality dimensions and customer satisfaction of e-groceries at 0.05 significance level.

### Sobel Test

Input:		Test statistic:	Std. Error:	p-value:
a	0.590	Sobel test: 11.55129759	0.03794985	0
b	0.743	Aroian test: 11.54063116	0.03798492	0
s <sub>a</sub>	0.034	Goodman test: 11.56199365	0.03791474	0
s <sub>b</sub>	0.048	Reset all	Calculate	

Figure 3: Sobel Test

(Source: <http://quantpsy.org/sobel/sobel.htm>)

$$Sab = \sqrt{(Sb \cdot a)_2 + (Sa \cdot b)_2}$$

$$\text{Sobel's SE} = \sqrt{(Sb \cdot a)_2 + (Sa \cdot b)_2} = 0.03794$$

The test statistics value of the Sobel test 11.55 at 95% significant level (< 0.5), therefore, mediation of customer trust is extremely statistically significance.

$$\text{Sobel Test Value} = 11.55129$$

$$\text{Portion of } (X \rightarrow Y) \text{ due to } M = (c - c') / c = 0.468822$$

The results of Sobel test imply that 46.88% controllability is with the mediating variable customer trust to the relationship between e-service quality dimensions and customer satisfaction of e-groceries.

### CONCLUSION

This research enlightens the knowledgebase of e-service quality of e-groceries in Sri Lankan context. Based on the health recommendations the effective way to contain the current epidemic of Covid-19 is to avoid personal contacts and maintain the social distance. Therefore, e-services as online groceries will reduced the movements of the people and increase the time they spent at home. Customer trust become more influencing factor for e-services specially during this pandemic period due to the perception of spreading virus but the payment methods that e-groceries use such as credit cards and debit cards will enhance the trust between customers during this Covid-19 period. There is direct relationship between the mediating variable of customer trust and dependent variable of customer satisfaction

of e-groceries. The regression output demonstrates strong positive relationship (0.743) between the coefficient of customer trust and customer satisfaction of e-groceries. The results suggest that conventional caution should be taken to satisfy the customer by providing high responsiveness with promised service of e-groceries and assurance for customers when delivering during the pandemic will influence the customer trust significantly.

The research findings reveal that most of the customers tend to use e-groceries after the Covid-19 pandemic and it became 84.3% from the sample. This implies that although e-grocery concept is not a new to the world but in Sri Lankan context this becomes surged with the initiation of the pandemic. Accordingly, customers were satisfied about the delivery time of the e-grocery service providers as market leaders of e-grocery services deliver goods within 24 hours but also there were some service providers who take more than 2 days for deliver the goods. The regression impact of the e-service quality dimensions on customer satisfaction of e-groceries is high (0.866) with significant P value, and indicates e-service quality dimensions has influence on customer satisfaction of e-groceries. Other than that electronic service quality of e-groceries has major influence on customer trust with high mediation effect on e-service quality dimensions and customer satisfaction on customer trust in e-groceries. Moreover, when consider the detailed regression on e-service quality dimensions information and efficiency are major two influencers for customer satisfaction of e-groceries but all the five dimensions have low regression weight with P values.

Therefore, e-grocery service providers should take more care of efficiency of the service, providing accurate and timely information, provide promised service to their customers to fulfill the requirement of customers, maintain the personal privacy of transactional information and responsive for the customer requirements and complaints. Based on the results of analysis authenticate that e-service quality dimensions, customer trust and customer satisfaction of e-groceries are significantly associated to one another and *customer trust* partially mediates the alliance of *electronic service quality* of e-groceries and *customer satisfaction*.

### **Managerial Implications**

The proposed research work model provides e-grocery service providers understand exhaustively the factors necessary to achieve high electronic service quality that will significantly impact on customer satisfaction and customer trust. As the e-service quality dimensions influence the customer trust significantly e-grocery service providers must understand the



importance of the e-SQ dimensions and try to improve those dimensions to retain the customers and attract new customers for online grocery shopping. Moreover, e-grocery service providers can be able to formulate and implement strategic plans for improve the e-service quality and e-grocery service providers can get better understand about the dimensions of electronic service quality and how customers assess the quality of the service of e-groceries through customer trust by referring the research model that interprets in this study. According to the present situation of Sri Lanka e-grocery is more trending and applicable concept.

- There are delay delivery in some e-grocery shops except the popular e-groceries and most of them not willing to return the damaged goods, therefore, e-grocery service providers have to create a mechanism for solve this issue of return goods to provide more effective service to the customers unless customers trust might decay.
- Some of the customers are hesitating to provide their credit card details and personal information because they may have less trust about the e-grocery service providers. Therefore, service providers can create trustworthy system with combine the online banking system.
- Most of e-grocery service providers not willing to deliver prompt response for inquiries and not provide quick response for ordering problems. Therefore, e-grocery service providers have to build a standard mechanism and policies for provide better responsiveness to the customers to build up customer trust and customer satisfaction regarding the e-grocery shopping.
- When considering the reliability of the electronic service providers, they not frequently update the websites. Due to that customer satisfaction about the reliability of the service quality can be reduced. To overcome that issue e-grocery shoppers have to update the description about goods daily and remove the outdated information in the website.
- There is no any legal background provide by the government for the online grocery services. If government can impose better legal policy for electronic services it will be enhance the customer trust about the e-service quality.

### **Direction for Future Researches**

Throughout this study assessed about the effect of e-service quality dimensions on customer satisfaction with mediating effect of customer trust. And also, this conducted with reference of the pandemic situation which is

an external environmental factor that influenced the Sri Lankan e-businesses. Therefore, future researchers can be conducting a research by focus on other external environment factors that can be influence the online business context in Sri Lanka. Future research studies can be conducting a study on e-groceries with different variables and mediators such as customer attitude, purchase intention and behavior. Moreover, the smaller number of people are using e-grocery shipping normally, therefore, future research suggest that find out what are the reason for that and cultural difference for online grocery shopping.

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