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The effects of COVID 19 on consumer mobile and online purchase behaviour

Edphan Peter Chanetsa

0503934E

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in Strategic Marketing (MMSM)

Wits Business School

Johannesburg, 2023

ABSTRACT

There obtains an acute paucity of research on the how Covid-19 impacted consumer online and mobile application purchase behaviour in South Africa. Much of the work done on the impact of the pandemic on consumer behaviour has primarily focused on one aspect: online purchase behaviour. This study sought to assess the effects of the restrictions of the novel Covid-19 virus on consumer mobile and online purchase behaviour. The main objective was to understand the impact of Covid-19 related restrictions on mobile application purchase intention in grocery shopping. Similarly, the study also sought to understand the impact of Covid-19 related restrictions on online (desktop/laptop) purchase intention in grocery shopping.

An online survey was conducted wherein 345 responses were obtained. The study employed a mixed methodology approach with the primary analysis being done quantitatively employing path analysis to establish the existence of causal links between Covid-19 restrictions and consumer behaviour in terms of both direction and magnitude. Regression analysis was further carried out to corroborate the findings of the path analysis. The qualitative aspect of the analysis was primarily employed to buttress the results of the quantitative analysis. The results showed that Covid-19 had a significant and positive impact on mobile and online consumer behaviour in South Africa. The advent of the pandemic caused an increase in the uptake of alternative means of making grocery purchases. Specifically, the institution of Covid-19 restrictions produced a substitution effect wherein digital purchase platforms were preferred to in-store purchases of groceries. Consequently, all the hypotheses developed by the study proved to be robust as they were confirmed by the results.

Keywords: South Africa, Covid-19, purchase intent, mobile and online purchase behaviour, digital marketing, social media, habits, mobile strategy.

DECLARATION

I, Edphan Peter Chanetsa, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Strategic Marketing (MMSM) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Edphan Peter Chanetsa

Signed at ……Johannesburg……

On the 20th day of November 2023

DEDICATION

To everyone who encouraged me to keep going when I struggled for motivation during and after the Covid-19 pandemic, I thank you.

ACKNOWLEDGEMENTS

To my supervisor Dr Yvonne K. Saini, for being resolute and steadfast in keeping me focused on this journey. Your feedback and guidance have been invaluable throughout this process. My sincere gratitude also goes out to all the respondents, including my fellow Witsies and friends who have supported me in this endeavour. I also want to acknowledge the administration staff at the Wits Business School who were always there to assist when called upon. Last and certainly not least, my family, who found creative ways to support and encourage me to keep going when I thought about ending this journey prematurely, you have my eternal gratitude.

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

The advent of the Corona virus or Covid-19 has occasioned an unmistakable shift in consumer behaviour and purchasing habits as the movement and contact restrictions, ancillary to public health containment measures, necessitated drastic behavioural adjustments (Bareja-Wawryszuk et al., 2022). While there is a robust body literature on the growth of online shopping in response to the restrictions, (see Strotmann et al., 2022; Gu et al., 2021; Bareja-Wawryszuk et al., 2022;), behavioural differences between mobile application and desktop purchasing platforms are seldom analysed. As the world has moved on from the worst of Covid-19, there is limited research that explains how Covid-19 impacted consumer mobile and online purchase behaviour, particularly in relation to the purchase of groceries (Kokkonen & Laukkanen, 2019).

The Covid-19 pandemic and its inherent restrictions has had telling implications for both business and consumer behaviour. Movement and personal contact restrictions meant input sourcing, sales distribution, marketing and consumption of goods and services had to evolve. Shifts in producer and consumer behaviour were an investable end from this process of evolution.

Advances in technology, operating through the acceleration of the digitalization of traditional business processes, has seen businesses gradually shift to online sales (Pollák et al., 2022). Consequently, the demand side of the market profited from the opportunities provided by online technologies wherein consumers benefited in terms of lower prices of goods and the comfort of shopping from their homes (Štefko et al., 2011). The movement and contact restrictions adopted by most countries following a surge in cases worldwide accelerated to the use of online shopping services for both essential and non-essential goods. To this end, the current study seeks to understand the impact of the Covid-19 induced restrictions on consumer mobile and online purchase behaviour in the South African context.

1.2 Background of the study

The novel Coronavirus disease or Covid-19 was first discovered in the city of Wuhan, in the Hubei Province of China in January 2020 (Ciotti et al., 2020). The Coronavirus disease which was termed Covid-19 by the World Health Organisation in February 2020 (Ciotti et al., 2020) is a potentially fatal disease that targets the human respiratory system and is easily spread by person to person via direct contact or through droplets by coughing or sneezing from an infected person (Rothan & Byrareddy, 2020). The rapid spread of Covid-19 globally forced the World Health Organization (WHO) to declare the virus a global pandemic on the 11th of March 2020 (Ibn-Mohammed et al., 2020) and by the 18th of April 2020, the virus had infected 2,164,111 people, killing 146,198 people in over 200 countries around the world (Chakraborty & Maity, 2020). To contain the rapid spread of the virus, many countries around the world instituted a lot of measures to contain the virus. The type of measures instituted included mass testing and treating of individuals, contact tracing, placing in quarantine affected persons, placing in isolation infected persons, restricting large gatherings, maintaining partial or full lockdown of countries to prevent the movement of people and thereby prevent the potential spread of the virus (Chakraborty & Maity, 2020). According to Donthu & Gustafsson (2020), Covid-19 has had a dramatic effect on how both businesses and consumers behave, and South Africa, like other countries in the world impacted by this virus, has experienced such changes to behaviour.

In South Africa, the first case of Covid-19 was reported on the 5th of March 2020 and the rapid spread of the disease forced the South African government to declare a national state of disaster on the 15th of March 2020 and shortly thereafter to declare an indefinite national stay at home order or lockdown which took effect on the 27th of March 2020 (Arndt et al., 2020). The conscious and deliberate decision by the South African government to break existing forms of economic and social contact led to both supply side and demand side shocks (Arndt et al., 2020). According to Sheth (2020), the effect of lockdown and social distancing measures implemented across countries, ultimately impacted consumer behaviour as the changes disrupted consumer habits of buying as well as shopping.

Consumers in South Africa just like those in other countries across the world were faced with a reality that forced them to learn new ways of shopping as the lockdown and social distancing measures restricted the consumers' choice of the place to shop (Sheth, 2020). According to Wang et al., (2020) during the Covid-19 crisis consumers' demands and purchase behaviours have been changing necessitating innovation in companies marketing strategies to survive.

As consumers were forced to stay at home and self-isolate, companies had to find ways to reach these consumers therefore making it a business imperative for companies to develop and strengthen their online businesses while also innovating their marketing practices (Wang et al., 2020). One such marketing innovation practice during Covid-19 was the reconfiguration of offline marketing channels to online channels to address the changing consumer purchase patterns that had emerged because of Covid-19 (Wang et al., 2020).

The shift from offline to online marketing channels meant a change from traditional means of communication such as print, radio and television to digital channels such as emails, display advertisements and social media to reach customers (Kannan, 2017). The use of such new digital channels for customer communications and promotions are helpful to companies to be able to provide value to consumers as well as enable them to better target and acquire the right consumers and deliver increased value to these consumers (Kannan, 2017). Such online promotions fall under the umbrella of Digital Marketing, which is considered the most important part of the marketing mix as it allows for better individual targeting of customers, better campaign management, better product, marketing design and execution (Mandal & Joshi, 2017). Therefore, when looking at how Covid-19 has changed consumer behaviour in South Africa, it is important to identify how this has impacted consumer mobile and online purchase behaviour of groceries. These changes then pose questions to businesses that now must consider how they can effectively reach consumers who are not easily accessible and identify what role Digital Marketing can play in influencing changing consumer consumption habits.

The purpose of this research, therefore, is to assess the effects of the restrictions of the novel Covid-19 virus on consumer mobile and online purchase behaviour in South Africa and what this means for individuals, companies, and the broader

society. The enactment of the national lockdown regulations in South Africa on the 27th of March 2020, resulted in consumers practicing social distancing and having restricted movement. This resulted in a shift in consumer behaviour. Individuals who would ordinarily go to physical stores to purchase goods and services were now confronted with a reality that saw them having to minimize their movements and to seek alternative means towards shopping for the goods and services that they needed. Companies that relied on servicing consumers through their physical stores found themselves scrambling to make sense of this new normal and trying to establish how they could serve their consumers through non-physical channels yet continue to create demand for their products. Companies that used traditional forms of advertising such as print, radio and television, were faced with the challenge of reaching consumers from all walks of life, who would now be confined to their homes. Digital Marketing and more specifically mobile and online advertising took on greater importance as companies were faced with the challenge of trying to reach consumers and promote products to consumers who were more restricted in terms of their physical movements but who were accessible through their mobile phones and other alternative digital channels.

This study will therefore explore the effects of the Covid-19 restrictions on consumers in South Africa with a focus on retail food purchases, specifically groceries. The study will investigate how consumer purchase intention has shifted towards digital channels during the Covid-19 pandemic and what the implications are for companies who are now operating in this new normal, where Covid-19 is part of our daily lives. The South African population has adapted and consumer expectations have potentially been reframed to expect remote fulfilment of their retail food requirements through technology's ability to offer the convenience of shopping for their goods remotely and having goods and services delivered to their home.

1.3 Problem statement

Recent research on the impact of the Covid-19 pandemic on consumer behaviour in South Africa cites an increase in online purchases as one of the prominent responses of consumer behaviour to Covid-19 related restrictions (see Deloitte, 2022; Department of Trade, Industry & Competition, 2021; McKinsey, 2022). However, this

study is not aware on any published work focusing on a differentiated impact of the pandemic wherein online shopping is disaggregated into desktop purchases and mobile application purchases and assessed independently. Therefore, this study is of the view that there currently exists an acute paucity of studies articulating the effect of the pandemic on consumer purchase behaviour in the aforementioned manner, particularly in South Africa. Therefore, this study constitutes a unique contribution to consumer behaviour literature in South Africa in this regard.

According to Gillwald et al. (2018), only 11 percent of South African households had fixed internet access while 43 percent used mobile phones to access the internet. This underscores the need to understand how the dynamics differ among desktop and mobile phone application users. Establishing this is important because it enables this study to provide concise recommendations for business strategy, particularly in the area of digital marketing.

Vazquez-Martínez et al. (2021) point out that the unparalleled characteristics of the Covid-19 crisis, with respect to impact, media coverage and public interest, opened a research venue that was yet to be explored. Most impact assessments on the adaptation and evolution of consumer behaviour in response to the pandemic have been situated in settings which do not have the characteristics and dynamics of the descriptive of the South African consumer (*see* Pollák et al., 2022; Vazquez-Martínez et al., 2021; Valaskova et al, 2021). The study, therefore, seeks to address this literature gap with important implications for business marketing strategy.

1.3.1 Main problem

The extent of the Covid-19 pandemic on mobile and online consumer purchase intention in South Africa remains unknown (Arndt et al., 2020). With more South Africans accessing the internet through mobile phones than desktop/laptop computers (Gillwald et al., 2018), there is a need to understand the impact of Covid-19 related restrictions on mobile application purchase intention in grocery shopping. Similarly, the study seeks to understand the impact of Covid-19 related restrictions on mobile application and online (desktop/laptop) purchase intention in grocery shopping.

1.3.2 Sub-problems

i. The impact of the requirement for social distancing on mobile application purchase intention for groceries in South Africa is unknown.
ii. The impact of the requirement for screening at shop entrance on mobile application purchase intention for groceries in South Africa is unknown.
iii. The impact of limited shopping hours on mobile application purchase intention for groceries in South Africa is unknown.
iv. The impact of the fear of infection on mobile application purchase intention for groceries in South Africa is unknown.
v. There is little known about the impact of the requirement for social distancing on online purchase intention for groceries in South Africa.
vi. There is little known about the impact requirement for screening at shop online purchase intention for groceries in South Africa.
vii. There is little known about the impact of limited shopping hours on online purchase intention for groceries in South Africa.
viii. There is little known about the impact of the fear of infection on online purchase intention for groceries in South Africa.

1.4 Research questions

1.4.1 Primary research question

What is the impact of the Covid-19 pandemic restrictions on mobile application and online consumer behaviour in the retail sector in South Africa?

1.4.2 Secondary research questions

i. How has the requirement for social distancing impacted mobile application purchase intention for groceries?
ii. How has the requirement for screening at shop entrance impacted mobile application purchase intention for groceries?
iii. How has the institution of limited shopping hours impacted mobile application purchase intention for groceries?

iv. How has the fear of infection impacted mobile application purchase intention for groceries?
v. How has the requirement for social distancing impacted online purchase intention for groceries?
vi. How has the requirement for screening at shop entrance impacted online purchase intention for groceries?
vii. How has the institution of limited shopping hours impacted online purchase intention for groceries?
viii. How has the fear of infection impacted purchase intention for groceries?

1.5 Significance of the study

The study will provide insight on the effects that Covid-19 has had on consumer purchase behaviour in South Africa's food retail market with specific focus on groceries and how the pandemic has more specifically increased or decreased mobile and online purchase behaviour of groceries, as indicated by the intention to buy. The restrictions on movement and enforcement of social distancing measures imposed by the South African government in March 2020 and other governments across the world have had a profound impact on both consumer and business behaviour (Donthu & Gustafsson, 2020). This therefore has inspired this study to take a closer look at the impact and resultant effect on consumer behaviour specifically in the South African context. Globally, research has been done to show how Covid-19 has impacted consumer behaviour, however a key question which remains unanswered is whether consumers will permanently change their consumption behaviour due to lockdown measures instituted to prevent the spread of the virus or whether consumers will revert to their old consumption habits once the Covid-19 pandemic is over (Sheth, 2020).

South Africa has had research done on the effects of Covid-19 on the South African economy at a Macro-level (Arndt et al., 2020) but not much research has been published regarding the impact of Covid-19 on consumer behaviour due to the recency of this global pandemic and that we are now living with the pandemic which is no longer claiming lives as it did in its first two years of discovery. This research

will therefore seek to identify how Covid-19 has impacted consumer purchase behaviour.

As South Africa bears the uncomfortable distinction of being classified as the world's most unequal society in terms of income inequality (Carlitz & Makhura, 2020), it is important to understand whether the changes to consumer behaviour have been largely universal across the entire population or if the changes have been more significant in the more economically affluent segments that can more easily access alternative channels.

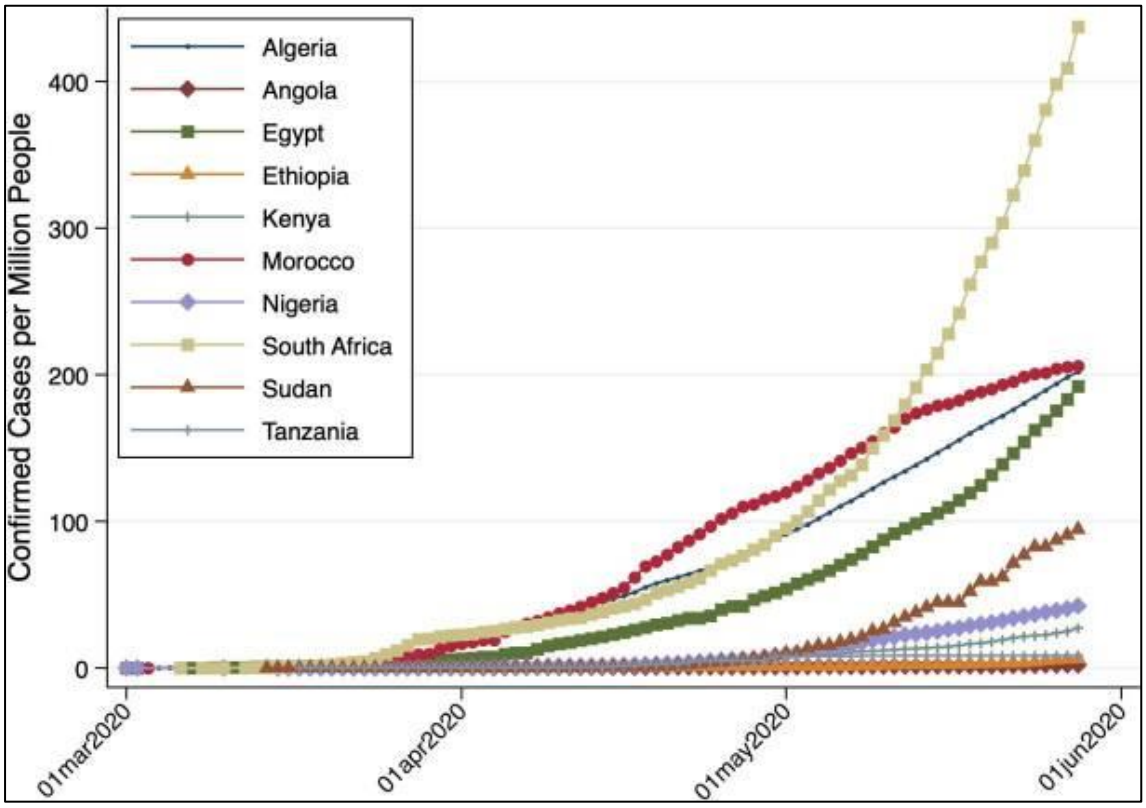


Figure 1. Confirmed cases per million people, Africa's 10 largest economies. Adapted from "Life under lockdown: illustrating tradeoffs in South Africa's response to COVID-19" by Carlitz, R. D., & Makhura, M. N. (2020). *World development*, 137, 105168.)

As highlighted in Figure 1 above the rapid increase in people diagnosed with Covid-19 in South Africa led to the imposition of lockdown measures in the country. Companies that could easily target consumers using traditional forms of marketing now had to quickly adapt and take advantage of the ability of Digital Marketing to

effectively market products and services to their intended target markets (Mandal & Joshi, 2017). The ability to effectively utilise digital technologies to segment, target and position products and services to identified consumers, will ultimately enable companies to create long-term value for both consumers and the companies that use these technologies as they will shape the marketing strategies that those companies employ (Kannan, 2017).

Therefore, the study will also look at two specific components of Digital Marketing namely web design and mobile strategy due to their focus on utilizing digital channels in reaching and positioning products and services to consumers. These two types of digital marketing are effective in reaching consumers in South Africa and we need to understand during the pandemic how these have been utilized by companies in reaching consumers to influence their purchase behaviour. According to Piana (2004), the basic choice affecting a customer is whether to purchase a good or not. But the process of making that consumer decision according to Mothersbaugh & Hawkins, (2020) is not necessarily based on a consumer evaluating a product based on several attributes to then rationally come to the most cost-efficient choice that addresses their need. But it comes about because of addressing a single problem, which in a Covid-19 world is about how to best go about procuring goods and services while not putting oneself at risk. Therefore, it is important that companies use newer forms of promotional tools to target customers to achieve positive marketing outcomes such as increased customer satisfaction, improved sales, profit and growth rates (Kannan, 2017).

This research study will contribute to Marketing science by identifying in an emerging market context such as South Africa, whether the impact of a global pandemic such as Covid-19 can permanently change, modify, or make no impact to consumer purchase behaviour. It will also explore the importance of web design and mobile strategy, which are components of Digital Strategy in being able to effectively reach consumers during a pandemic and enable mobile and online purchases by consumers. This study may benefit management teams of companies operating in South Africa and other emerging economies by providing insights regarding the effectiveness of digital marketing in both reaching and influencing consumer behaviour during a pandemic. In doing so it can assist these management teams in

evaluating whether digital marketing components such as web design and mobile strategy should form part of their marketing mix when confronted with a pandemic or any other naturally occurring catastrophe and how best to allocate its capital to marketing initiatives that may yield a superior marketing return on investment. We now live in an age of pandemics and catastrophes, and these are no longer considered random events but events which will most likely continue to occur into the future (Donthu & Gustafsson, 2020). Businesses therefore must understand how best to target, access, and convert consumer demand in the absence off or limited physical interaction with consumers.

1.6 Delimitations of the study

i. The study will target consumers from across the South African population who are economically active to understand what changes, if any, they have undergone regarding their mobile and online consumption patterns since the onset of Covid-19 in South Africa.

ii. Consumers will be sourced primarily from the Gauteng and Western Cape Provinces within South Africa, utilizing both professional and social networks of the researcher along with targeting fellow students currently pursuing studies at the University of the Witwatersrand and the University of Cape Town.

iii. The study will seek to get input from consumers to assess how they have changed their behaviour during Covid-19 and get their input as to whether their change in mobile and online consumption behaviour, if any, was influenced by web design or mobile marketing strategies employed by Food Retailers during the lockdown measures instituted by the South African government.

iv. The study will primarily focus on consumer consumption habits as they pertain to the purchase of groceries.

v. Digital Marketing strategy has five components which include website design, search engine optimization, social media strategy, email marketing strategy and mobile strategy. However, for purposes of this research the components of web design and mobile strategy will be analysed to assess

their impact in influencing consumer purchase behaviour since the onset of the Covid-19 pandemic in South Africa in March 2020.

1.7 Definition of terms

i. Covid-19

This is the name given to the novel coronavirus disease which was discovered in December 2019 in the city of Wuhan which is in the Hubei Province of China. It is caused by SARS-COV2 and represents the causative agent of a potentially fatal disease that attacks the human respiratory system (Rothan & Byrareddy, 2020).

ii. Consumer Behaviour

Consumer behaviour is defined as a complex process that comes about because of the impact of external and internal factors as well as lifestyle needs that drive individual purchase decisions of products and services that satisfy their needs (Mothersbaugh & Hawkins, 2020).

iii. Habits

Habits are consistent actions that people develop over time in stable conditions (Verplanken & Roy, 2015).

iv. Digital Marketing

Digital Marketing is a process of using digital technologies to acquire and retain customers through building customer preferences, promoting brands and increasing sales (Kannan, 2017).

v. Web Design

Web design encompasses the various elements needed to engage website and mobile application users. There a several web design elements which include navigation, graphical representation, organization, content utility, purpose, simplicity and readability (Garett et al., 2016).

vi. Mobile Strategy

Mobile marketing strategy is a set of practices which enables companies to engage and communicate with an audience in an interactive and relevant manner through a mobile device or network (Amirkhanpour, Vrontis & Thrassou, 2014).

1.8 Assumptions

It is assumed that:

i. There will be enough responses from a statistically relevant sample of consumers.

ii. All consumers targeted would have experienced a degree of change to their consumption behaviour during the Covid-19 imposed lockdown in South Africa.

iii. Consumers will have familiarity or exposure to navigating through the website of a food retailer and been exposed to the mobile strategies employed by these companies and thereby have a perspective to share on whether the digital marketing components have been effective in influencing their purchase behaviour.

iv. Responses will be provided by consumers who represent different age groups and that the data will not be skewed by responses from consumers from a specific age group.

v. Consumers would have purchased groceries since the onset of the Covid-19 lockdown measures in South Africa using a mobile or online channel.

vi. All respondents to this research will provide honest and truthful responses based on their lockdown experiences in South Africa.

1.9 Summary

This chapter introduced the topic by demonstrating the magnitude of the impact of the COVID-19 pandemic of the global consumer behaviour trends. This was then funnelled down to the South African context wherein the adjustment of consumer

purchase behaviour was discussed. The problem statement regarding establishing the impact of the pandemic on mobile and online consumer behaviour was then discussed along with the ancillary objectives and research questions. Finally, delimitations, definitions and assumptions of the study were presented.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the current status of what we know about consumer behaviour in times of crises. Initial focus is on the COVID-19 pandemic and consumer behaviour which is then followed by considerations of the impact of the pandemic on business. Drivers of consumer mobile and online purchase behaviour are then discussed and the chapter concludes with the conceptual framework and a chapter summary.

2.2 Covid-19 effect on Consumer Behaviour

Covid-19 is a global health crisis like health crises the world has experienced in the past such as Ebola, swine flu, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and dengue (Hesham, Riadh & Sihem, 2021). These past health crises have impacted consumer purchase behaviour as consumers purchase behaviour changed to mitigate the health risk (Hesham, Riadh & Sihem, 2021). Consumer behaviour according to Oana (2020) is a continuous decision-making process whereby consumers search, evaluate, purchase, use and consume products and services. The health risks associated with Covid-19 has made risk attitude and risk perception to be important factors driving consumer behaviour (Hesham, Riadh & Sihem, 2021). According to Hesham, Riadh & Sihem (2021), risk attitude is a consumers actual interpretation of the risk and being exposed to it, which during Covid-19 has limited consumer visits to shops and redirecting their shopping activities to online commerce. Risk perception on the other hand is defined as the subjective evaluation of a risk situation by an individual based on the perceived risk's features and severity (Rogerson & Rogerson, 2021).

Since the onset of Covid-19 the lockdown strategies implemented by governments have seen businesses close due to limited operating hours and opportunities for consumers to go and shop (Pantano et al., 2020). According to Laato et al., (2020) the changes in consumer purchase behaviour during Covid-19 have impacted groceries, convenience stores, cafeterias and restaurants as consumers could not ordinarily access these businesses due to the restrictive measures put in place to

curtail human movement but also due to health risks associated with Covid-19. According to Hesham, Riadh & Sihem (2021), previous research conducted has shown that there have been changes to consumer shopping, as a lot of sales for products and services have gone online to cater for consumer demands and mitigate against the restrictive lockdown measures instituted by governments. It is therefore important to understand these changes and confirm if these changes are a short-term response to this health crisis or whether it will result in a permanent change to consumer online purchase behaviour.

2.2.1 Types of changes to consumer behaviour during Covid-19

As the Covid-19 pandemic has impacted economies and industries on a global scale it has greatly impacted consumer uncertainty which in turn has affected the consumer decision making and consumption process (Loxton et al., 2020). As Covid-19 has been a global shock event with the rate of infections globally being on an upward trajectory, it has stoked fears for consumers which has led to irrational consumer behaviour manifesting such as panic buying, herd mentality behaviours and changes to the discretionary spend of consumers (Loxton et al., 2020). Sheth (2020), has highlighted that in the United States of America consumer behaviour has shifted but that it is unknown whether the changes to consumer behaviour are temporary or will become permanent and continue even after the end of the Covid-19 pandemic. Sheth (2020), highlights that consumers develop habits over time about what to consume, where and when and that this consumption is both habitual and contextual. According to Sheth (2020), there are four contexts which govern and disrupt consumer habits and these include a change to the social context such as getting married, the second context being the emergence of new technologies which break old habits, the third context being the enactment of rules and regulations pertaining to public and shared spaces and the fourth context being the onset of ad-hoc natural disasters such as Covid-19, which we are currently experiencing. In the United States of America, Sheth (2020), highlighted eight different effects that had an immediate impact on Consumer behaviour which are highlighted in Figure 2 below. These changes to consumer behaviour need to be analysed in the South African context to determine whether such changes are also applicable here or whether they are geographic or nation specific.

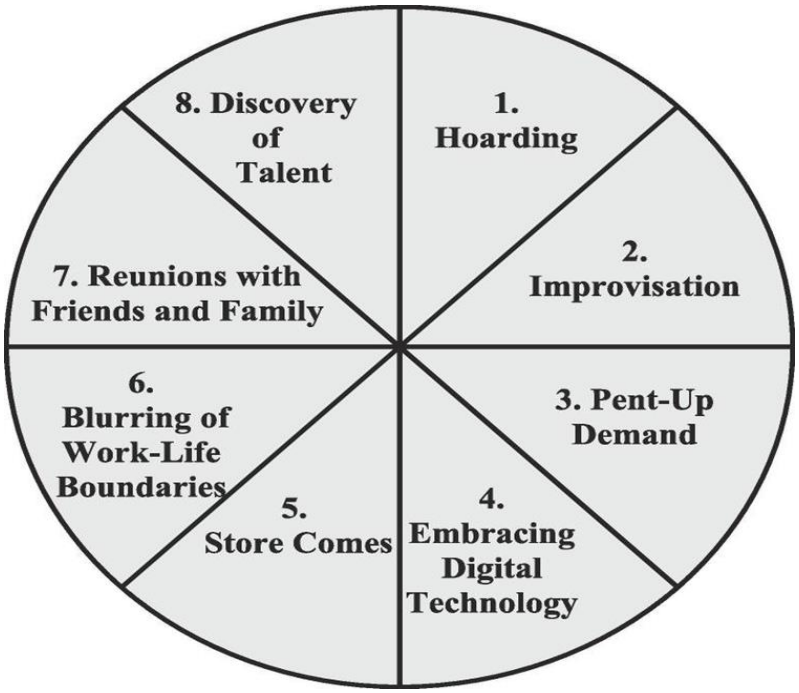


Figure 2. Eight Immediate Effects of Covid-19 on Consumption Behaviour. Adapted from “Impact of Covid-19 on Consumer Behavior: Will the Old Habits Return or Die? “. Sheth, J. (2020). *Journal of Business Research*.

According to Sheth (2020), the first effect on consumer behaviour is “Hoarding” which is the stockpiling of products such as toilet paper, bread, water and cleaning products. The hoarding of such products could also be classified as panic buying which is viewed as the unusually large purchase of products in anticipation of, during and or after a disaster or perceived disaster, or in anticipation of large price increases or shortages of certain products (Loxton et al, 2020). Such behaviour was witnessed in South Africa prior to the country going into a nationwide lockdown on the 27th of March 2020. The second effect is “Improvisation” which Sheth (2020), defined as consumers finding new ways to consume. So, for example, due to restrictions being put on large gatherings of people such as at funerals, consumers had to use digital technologies such as Zoom video services (Zoom) to attend these location centric events. In the South African context, the use of Zoom was widely used to enable people to virtually attend funerals which they could not do in person due to the restrictions on mobility and public gathering imposed by the South African

government. The third effect according to Sheth (2020), was “Pent-Up Demand” which is the suspension of the purchase and consumption of discretionary products or services such as cars, homes and appliances, with that demand being shifted from the present to the future. In the South African context, there has been a surge in demand for properties in the first-time home buyer market by individuals who are taking advantage of historically low interest rates that have made owning a home much more affordable for most South Africans (Ooba, 2020).

The fourth effect on consumer behaviour according to Sheth (2020), is “Embracing Digital Technology”. As consumers have had to deal with restrictions to mobility and social gathering, the use of digital technologies such as Zoom has allowed individuals to keep in touch with family, friends and conduct work meetings in the safety of their own homes. In South Africa many companies have adopted use of such technology to conduct work meetings and individuals have used the technology to meet their social needs in terms of interacting with family and friends. The fifth effect according to Sheth (2020), is the “Store Comes Home”. The delivery of streaming services and groceries to people’s homes has reduced the need for consumers to physically go to stores to buy any products that they may need. In South Africa consumers also ordered groceries online and retailers such as Checkers, Pick ‘n Pay and Woolworths offered clients the ability to shop online. This followed a similar strategy to the strategies performed by retailers in the UK and France who gave consumers alternative channels to use to buy their groceries (Pantano et al., 2020). According to Zwanka & Buff (2021), the shift to online purchasing of food will remain at a higher percentage of the population than before the onset of Covid-19, highlighting an increasing use of digital channels to conduct shopping for food. The sixth effect is the “Blurring of Work-Life Boundaries” as consumers have been forced to work from home, the home is no longer the proverbial place of rest but a place of working, socializing, shopping, and resting. In the South African context, it was noted that for many consumers, staying indoors and the lack of outdoor and social activity was noted as being particularly taxing (Stiegler & Bouchard, 2020).

The seventh effect on consumer behaviour according to Sheth (2020), is “Reunions with Friends and Family”. The use of digital technologies such as Zoom and social

media has enabled consumers to schedule regular meetings with family and friends to keep in touch and support one another during the Covid-19 pandemic. In South Africa such technologies have been growing in popularity as consumers find new ways of interacting and staying in touch. The eighth and final effect on consumer behaviour is “Discovery of Talent” which has come about as consumers have used the social isolation to try new activities and share dormant talents they may have with a global audience. An example of this is demonstrated through the digital platform TikTok which has become a content creators’ platform with sharing of videos by users going viral and increasing the platforms popularity with teenagers and Millennials (Knowledge, 2019). South Africans have also discovered this platform with many videos of consumers dancing and just having fun going viral on social media.

It is therefore important to assess whether similar changes with particular emphasis on grocery online purchase behaviour, which has been noted in the United States of America, has also been experienced by South Africans. It will also be interesting to observe if there will be any changes to consumer mobile and online purchase behaviour across different age categories across the South Africans who will be surveyed in this research.

2.2.2 Effects of Covid-19 on Consumers in South Africa

South Africa apart from carrying the distinction of being the world’s most unequal society, is also one of the world’s most culturally and ethnically diverse countries with eleven official languages. The country’s mid-year population estimate for 2019 saw the country’s population estimated to be 58,8 million people that was segmented according to age to give four distinct segments which comprise the total of 58,8 million people (StatsSA, 2019). According to StatsSA (2019), the four segments that comprise the South African population include Children aged from 0-14 years, Youth aged from 15-34 years, Adult aged from 35-59 years and the Elderly aged 60 years and over. Children comprise 17 million or 28,8 percent of the total population, Youth comprise 20,6 million or 35,1 percent of the total population, Adult comprise 15,9 million or 27,1 percent of the total population and the Elderly comprise 5,3 million or 9 percent of the total population (StatsSA, 2019). Figure 3 below gives a

diagrammatical reference to the mid-year estimate of the South African population for 2019.

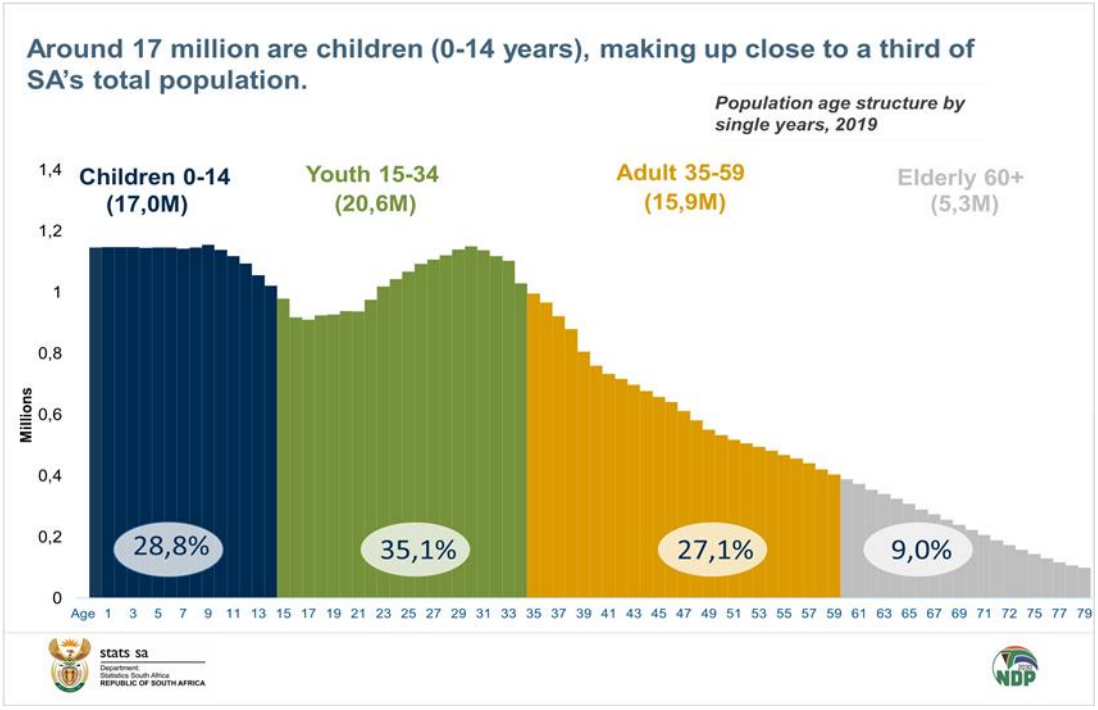


Figure 3. South African Mid-Year Population Estimate 2019. Adapted from [https://www.statssa.gov.za/?p=12362]

In South Africa since the onset of Covid-19 there was a shift in buying behaviour which was stimulated by fear and uncertainty and according to Dobbelstein & Naidoo (2020) these changes in purchase behaviour could be identified according to different consumer segments. According to De Groot & Lemanski (2021), Covid-19 influenced how people within different consumer segments chose to purchase products. Consumers with higher income stockpiled food and other essential services to avoid leaving their homes and being potentially exposed to Covid-19 whereas consumers with lower incomes had limited capacity to access food shops due to their limited income which prevented them from stockpiling food but also limited them in terms of travel costs due to their limited financial means (De Groot & Lemanski, 2021).

According to Zwanka & Buff (2021), generational cohorts are assigned based on shared traits that define them. Demographic segmentation is commonly used to group consumers and is based on defining a group of consumers based on factors

such as their age, sex, income, occupation, education, and race (Sun, 2009). A popular classification of demographic segments has consumers grouped into the following segments, “Baby boomers” are a segment of people born between 1944-1964, “Generation X” are people born between 1965-1979, “Millennials” are people born between 1980-1994 and “Centennials” are people born between 1995-2015 (Zwanka and Buff, 2021). Millenials in South Africa were studied due to their high purchasing power to see how their purchase behaviour had changed since the onset of Covid-19. According to Dobbelstein & Naidoo (2020) they identified that food was an essential item required by millennials, but the fear of contracting Covid-19 made them resort to stockpiling of certain foods as online sales were not as widely available to them to purchase the products they needed. To capitalise on the spending power of this economically active consumer segment it was suggested that they needed to be provided with more online shopping options as they are techno-savvy (Dobbelstein & Naidoo, 2020).

According to Berezka, Rebiazina & Muravskaia (2021), across many countries that have instituted lockdown measures during Covid-19, consumers have been more willing to make digital decisions when it comes to shopping, learning and entertainment activities, with South Africa not being an exception. According to Arora et al., (2020), there has been a more than ten percent growth across many categories in online customer base since the onset of Covid-19 with many consumers saying they will continue to shop online even when brick and mortar shops reopen. In South Africa, consumer surveys were conducted by McKinsey and Company to gain insight as to how restrictions imposed by the government had led to changes in consumer behaviour. The survey results showed that since the onset of Covid-19 the increased usage of services such as Tik Tok, Grocery delivery, Quick-service restaurant drive through, Restaurant curbside pickup, Store curbside pickup, Buy online for in-store pickup, Remote learning for children, Telemedicine for physical and medicine, has come largely from new users who collectively account for at least 50% of new users of these services (Arora et al., 2020). The results of this survey would suggest that in South Africa, Covid-19 has accelerated the use of online shopping to procure goods and services as consumers cope with restrictive measures imposed by the government to mitigate the spread of Covid-19.

2.3 Covid-19 impact on Businesses

Covid-19 has caused short and medium-term disruptions to the operations of businesses operating in countries around the world (Pantano et al., 2020). The negative economic effects of the pandemic have caused damage to national economies, businesses, and individual jobs, with some emerging economies being particularly devastated by the pandemic (Pantano et al., 2020). According to Craven et al., (2020) companies that are better at navigating disruptions often succeed as they consciously decide to invest in their core consumer segments and anticipate their behaviours to meet their demands more readily. This however was very challenging to businesses who had to deal with the effects of Covid-19 which included:

i. Restrictions in operating hours – Businesses have been forced to operate under government-imposed restrictions to business operating hours, while trying to provide excellent service to maintain and attract new customers who in turn have had their mobility restricted has created a tough operating environment that demands businesses need to adapt to address shifting consumer demand (Pantano et al., 2020).
ii. Reduction in consumer demand – As Covid-19 first impacted China leading to a decline in economic activity and a reduction in consumer demand, according to Craven et al., (2020), the demand did not disappear, but that consumers shifted their spend to online shopping for all types of goods, including food and produce delivery.
iii. Need to invest in digital channels – A key lesson coming out of the Chinese example was that companies need to invest in online channels to enable them to have an omnichannel capability so that they can sell and deliver quality goods online as well (Craven et al., 2020). Consumers changing preferences which were accelerated by the disruption caused by Covid-19 are estimated to not return to pre-pandemic levels (Craven et al., 2020), which would suggest that to remain relevant and satisfy the needs of consumers, businesses will have to adapt their business models to cater for e-commerce.

2.3.1 Implications for South African Business operating during Covid-19

Most businesses operating in South Africa, specifically 98,5%, are classified as small and medium-sized enterprises (SMEs) and these are defined as businesses which have a turnover of more than R15 million but less than R500 million per annum (Rajagopaul, Magwentshu & Kalidas, 2020). These businesses generally do not have the ability to survive severe shocks to the economy as was witnessed during the global financial crisis of 2008, as SMEs bore the brunt of job losses and revenue declines (Rajagopaul, Magwentshu & Kalidas, 2020). Most of these businesses operate in the services sector and during the South African government's strict lockdown measures enacted in March 2020, most of these businesses could not operate, suffered massive fluctuations in consumer demand and reduced revenues (Rajagopaul, Magwentshu & Kalidas, 2020).

In South Africa the challenges businesses are facing during Covid-19 would suggest that these businesses must adapt if they are to remain relevant and continue as going concerns. According to Pantano et al., (2020) businesses need to develop new dynamic capabilities to respond to new consumer demands and shorten the lead time between consumer demands and the responses made by businesses in meeting those demands. Due to the risk perceptions created by Covid-19, businesses need to be aware of consumers vulnerability, special needs and health hazards created by visiting their physical stores and would therefore need to take measures that highlight that consumers wellbeing is top of mind for businesses and institute measures that safeguard consumers safety and health when they shop in their physical stores (Pantano et al., 2020). Businesses also need to communicate to consumers measures they have taken regarding safeguarding consumers personal safety, provide information around the availability of products to manage consumer expectations and provide new technologies which will provide more convenient means to shop (Pantano et al., 2020). According to Rajagopaul, Magwentshu & Kalidas (2020), SMEs should leverage technology to reach new customers or provide distinctive client value propositions which create opportunities for them to enhance their reach, reduce operating costs and overcome the scale disadvantage they have relative to larger businesses. Further ways identified for

SMEs to survive and grow during this pandemic included having clearer market access strategies to increase market share, driving efficiency as well as sales to drive business competitiveness, and developing team skills, capabilities, and empowering leadership to grow leadership capacity to ensure the businesses sustainability into the future (Rajagopaul, Magwentshu & Kalidas, 2020).

2.3.2 Measures taken by South African Businesses to combat Covid-19

As conducting business through normal physical channels during Covid-19 became a challenge for most businesses as consumers could not easily access those businesses facilities due to lockdown restrictions, businesses were forced to look at alternative channels to reach consumers. In that regard, Technology platforms have taken on a more prominent role in reaching consumers, creating awareness, offering a means to transact and retain consumers (Mehta, Saxena & Purohit, 2020). According to Bhatti et al., (2020) Covid-19 has changed the nature of business and resulted in an increase in e-commerce in both developed and developing countries. According to Mehta, Saxena & Purohit (2020), since the onset of Covid-19, there has been a greater use of digital platforms when shopping by consumers, who use the official site of products, social media and mobile platforms to conduct their shopping compared to visiting shopping malls due to social distancing rules.

In South Africa, the adverse impact of the Covid-19 pandemic forced companies to implement measures to counter the impact of the pandemic such as pursuing e-commerce, adopting new ways to sell, laying off workers temporarily, reducing working hours, decreasing maintenance cost, changing the methods of producing goods and services (Anakpo & Mishi, 2021). In assessing the different approaches businesses took to combat the effects of Covid-19, Anakpo & Mishi (2021) highlighted that a focus on e-commerce was associated with a favourable business outcome, as social distancing regulation forced businesses to reach consumers through the internet. The enactment of lockdown measures in South Africa also saw a spike in demand for Internet demand and traffic affirming a view that doing online business will be the new normal to maintain businesses as going concerns (Anakpo & Mishi, 2021).

2.4 Drivers of Consumer Online and Mobile Purchase Behaviour

A cornerstone in the field of Marketing is understanding a consumers purchase journey (Li & Ma, 2020). A lot of research has been done on consumers decisions and behaviours along their path to purchase (P2P) and is highlighted in the awareness-interest-desire-action (AIDA) model, which states a consumer first becomes aware of a product, develops interest in it, does research to narrow down their options and then they finally make a purchase (Li & Ma, 2020). According to Srinivasan, Rutz & Pauwels (2016), consumers do not necessarily follow that sequence as consumers can exit the path to purchase at any time. Figure 4 below shows the consumers path to and off purchase, by linking direct and indirect marketing actions to online consumer activities along the consumers path to purchase.

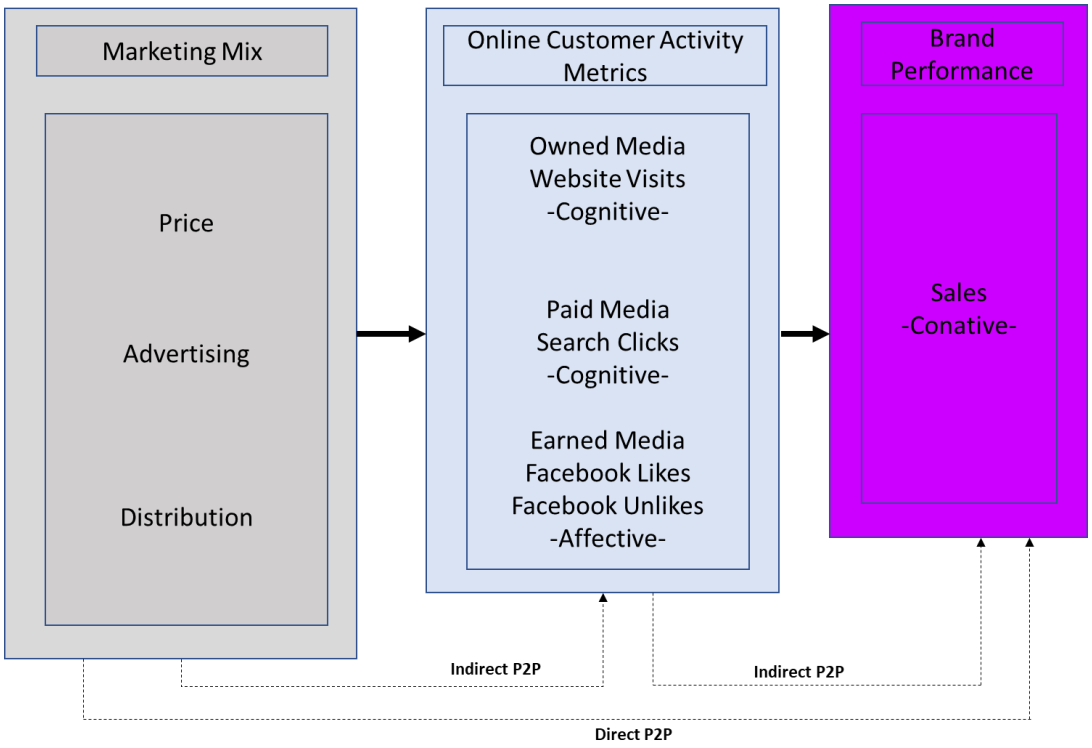


Figure 4. Customer's path to and off purchase**.** Adapted from "Paths to and off purchase: quantifying the impact of traditional marketing and online consumer activity". Srinivasan, S., Rutz, O. J., & Pauwels, K. (2016). *Journal of the Academy of Marketing Science*, 44(4),

The above model highlights the path to and off purchase, by showing the journey a consumer may go through once exposed to marketing stimuli. In the model above, the overt actions taken by a consumer to search and click-through to a specific advert reflect awareness and knowledge-building, with likes and dislikes on social media sites such as Facebook reflecting consumer sentiment towards a brand which influences the brand performance in terms of sales achieved for a particular product (Srinivasan, Rutz & Pauwels, 2016). The proliferation of online marketing channels offers businesses various means to interact with consumers and thereby influence their path to purchase (Li & Ma, 2020).

2.4.1 Importance of Web Design in influencing Purchase Intent

Digital Marketing has transformed the way companies communicate with their audiences as it can reach, engage, interact with, and convert online audiences, making it a powerful tool for companies that want to acquire, grow, and retain customers (Chaffey, 2019). In a world that is currently going through unprecedented change that has been brought about by Covid-19, the use of innovative digital technologies can help companies gain a proper understanding of consumer behaviour so that they can more effectively target their market audience (Nagaraj, 2019). Digital Marketing Strategy has five components which include website design, search engine optimization, social media strategy, email marketing strategy and mobile strategy (Kingsnorth, 2019). As Digital Marketing is very broad, for purposes of this research I will give an assessment of website design and mobile strategy as these are the two digital marketing components that are most likely to provide the biggest impact on consumer mobile and online purchase behaviour.

According to Fulgoni (2014), the advent of digital technologies has created a fast-growing e-commerce channel which has made it easier for consumers to conduct research on products and services that helps better inform their purchase decisions. In a highly globalized world, it is important for companies to have an online presence that can give those companies a platform to engage with current and prospective customers. A company's website design therefore becomes of critical importance as according to Singh & Singh (2015), visitors to a company's website must get what they are looking for in one or two clicks. Enhancing the user experience on a website

is therefore important as it improves online customer engagement and facilitates transactions (Ariff et al, 2013). Cyr (2013) highlights that website design elements of information content and design as well as navigational and visual design are four critical elements that need to be optimally applied to a website to ensure better engagement on a company's website. These four elements speak to the layout and quality of content on a company's website, how the website has a logical design to it, the appropriate use of imagery and text, utilizing the right type of font size and ensuring the correct security protocols are in place (Cyr, 2013). This is very important for consumers who are both comfortable and not familiar with searching for products and services on a company's website. In South Africa, which was put under the most restrictive lockdown conditions, the failure of a company to have a user-friendly website could have resulted in a loss of potential transactions being concluded on the website and customers improvising in order to find the products they need. Therefore, even though the lockdown restrictions in South Africa have ended, and mobility has returned to pre-pandemic levels, it is still important for companies to have well designed websites to better facilitate engagement and transactions with their customers.

Kingsnorth (2019) highlights that for companies selling products on their websites, they will require an e-commerce shopping basket, online payment processing and a robust security system which will ensure the integrity of transactions. Kingsnorth (2019) also highlights that the website should make it easy for consumers to search and buy products. This therefore suggests that for companies such as supermarkets, they need to ensure they make the necessary investments in their company websites to facilitate product search, selection and payment to ensure they can provide an omnichannel experience to consumers, particularly as Covid-19 still exists in South Africa and across the world, albeit less deadly than it was in 2020 and 2021.

2.4.2 Importance of Mobile Strategy in influencing Consumer Purchase Decision

The consumers path to purchase has been significantly impacted by the rapid rate at which mobile devices are being used by consumers to easily obtain price and product information which enables them to purchase products in the channel of their

choice as they can visit a physical store or shop online (Fulgoni, 2014). The ubiquitous nature of smartphones globally has made mobile marketing a vital component of any companies' promotional strategy (Berman, 2016). Most consumers now use mobile devices to access the internet then desktop devices, with the amount of time consumers spend conducting searches and concluding sales transactions on mobile media highlighting to companies that they cannot ignore this medium in reaching consumers (Berman, 2016). According to Kingsnorth (2019), it is important for any companies site to render well on all devices inclusive of laptops, desktops, tablets, and mobile devices, as companies such as Google, push mobile friendly sites up the search rankings, when a mobile device is being used by a consumer.

Mobile Marketing has three main advantages which companies cannot ignore. The first advantage is that consumers move with their devices which are always on and they are always connected. The second advantage being that mobile marketing gives the ability to generate location specific offers and lastly that mobile marketing gives the ability to send targeted personalized messages and offers to consumers (Berman, 2016). Companies therefore must be mobile friendly due to the increase in the use of this type of technology and the purchasing power of consumers (Lopez Garcia et al., 2019). As smartphone penetration rates in South Africa have been largely increasing, it therefore makes sense for Mobile Marketing to be a key component of any digital marketing strategy employed by a company that is trying to reach consumers who have been living under various levels of Covid-19 restrictions imposed by the South African government.

2.5 Hypotheses development

Vinerean et al. (2022) note that measures taken by countries to curb the spread of Covid-19 proliferated to the use of e-commerce for sourcing essentials and entertainment. A similar situation obtained in South Africa wherein the advent of Covid-19 saw a substantial surge in e-commerce purchases by South Africa consumers (McKinsey, 2022). While the literature identifies the shift in consumer purchasing behaviour towards e-commerce in response to Covid-19 (McKinsey, 2022; Abe & Mugobo,2021), a gap still exists in terms of establishing an empirical

causal link between the uptake in e-commerce and the Covid-19 pandemic along with its endemic restrictions.

Furthermore, studies on the subject of the current enquiry focus on e-commerce at an aggregate level wherein e-commerce refers to a combination of both mobile and online (desktop computer or laptop) purchasing platforms (see Zwanka & Buff, 2020; Puspita et al., 2021). The present study disaggregates e-ecommerce by considering the impact of Covid-19 on consumer behaviour with a specific focus on mobile phone application platforms and grocery store websites (online). Alive to the fact that it is actually the restrictions that came with Covid-19 that necessitated adjustment in consumer behaviour, the hypotheses are developed with view of establishing causal links between Covid-19 restrictions, mobile applications and online purchasing platforms.

Legislated restrictions pertinent to grocery stores included screening checks that store entrances, restricted shopping hours and social distancing (Department of Trade, Industry & Competition, 2021). Fear of contact with other people constitutes a self-imposed restriction which also drove South Africans towards e-commerce shopping (McKinsey, 2022).

Purchase behaviour can be assessed through frequency of purchases (Rossolov et al., 2022; Odunitan-Wayas et al. 2018), purchase intention (Shen et al., 2022) or purchase motivation (Vazquez-Martínez et al., 2021). This study specifically examines how covid-19 related restrictions impacted the mobile phone application and online purchase intentions of South African consumers.

2.5.1 Mobile phone application (mobile app) purchase intention hypothesis

H_1: The requirement for social distancing increases mobile app purchasing intention for groceries.

H_2: The requirement for screening at store entrances increases mobile app purchasing intention for groceries.

H_3: Restricted shopping hours increases mobile app purchasing intention for groceries.

H_4: Fear of infection increases mobile app purchasing intention for groceries.

2.5.2 Online purchase intention hypothesis

H_5: The requirement for social distancing increases online purchasing intention for groceries.

H_6: The requirement for screening at store entrances increases online purchasing intention for groceries.

H_7: Restricted shopping hours increases online purchasing intention for groceries.

H_8: Fear of infection increases online purchasing intention for groceries.

2.6 Conceptual framework

A conceptual framework is presented in Figure 5 wherein the envisaged channels of influence of the Covid-19 on consumer behaviour are depicted. According to the South African Department of Trade, Industry and Competition (2021), DTIC henceforth, precautionary measures taken by the government to protect the public at grocery stores along with the fear of infection were enough to dissuade some shoppers from making in-store purchases. However, 42 percent of shoppers still preferred in-store grocery shopping over any form of e-commerce (DTIC, 2021). While giving robust baseline information, the foregoing survey by the DTIC was bound by sampling limitations therefore cannot be generalized for the South African population. This therefore means that a gap regarding a much more general impact of Covid-19 on consumer behaviour still exists.

Socio-demographic factors are included to help explain the dynamics of purchasing intention granted the heterogeneity that obtains in the South African population regarding income, age and education, among other factors (StatsSA, 2019).

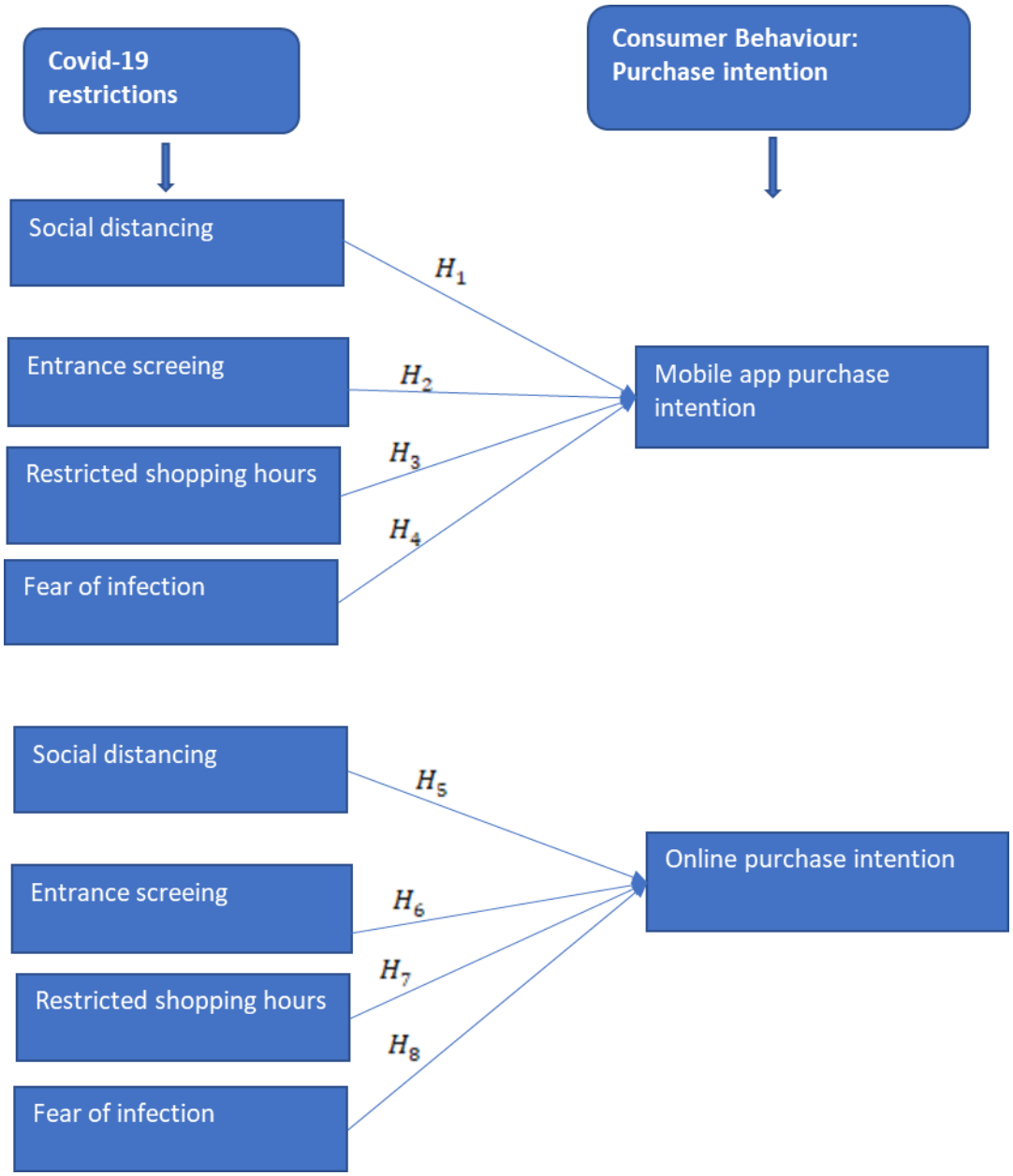


Figure 5. Conceptual framework of the study

2.7 Summary

The foregoing review of literature on the impact of the Covid-19 pandemic on consumer behaviour underscored the sensitivity of consumer behaviour to major shocks like a pandemic. Specifically, the imposition of movement and contact restrictions meant business and consumers alike, had to adapt to these changes. Evaluation of the impact of the pandemic in South Africa, revealed that the stock

piling on essentials observable in many developed countries could not obtain as a vast majority of the population lives under strained financial conditions. Considerations of the drives of consumers behaviour helped to identity the specific areas most affected by the pandemic in the consumer behaviour value chain. Having looked the dynamics of impact, the study signed off in the chapter by developing a conceptual framework and articulating the ancillary research hypotheses.

CHAPTER 3: RESEARCH METHODOLOGY

1.1 Introduction

This chapter presents the research methodology employed by the study to address the research questions. Kothari (2004) distinguished between research methods and methodology wherein the former refers to the techniques the researcher employs while the latter articulates a systematic approach towards resolving the research problem. Therefore, the broader goal of this chapter is presenting a systematic process of establishing the response of consumer behaviour to Covid-19 in the retail space in South Africa.

This chapter is arranged as follows; first, the research methodology is presented, followed by the research design and the population and sample. Thereafter, the research instrument and data collection procedure are discussed. The presentation of the foregoing naturally progresses to data analysis and interpretation. Finally, the limitations of the study along with the reliability and validity are presented.

3.2 Research methodology /paradigm

A paradigm is a fundamental ideation structure and theoretical framework constituted by clearly articulated assumptions, ontology and epistemology (Rehman & Alharthi, 2016). As such, a research paradigm is reflective of the researcher's dispositions about the nature of reality (ontology) and the process of acquiring and processing basic knowledge about the same (epistemology).

Tuli (2010) noted that the choice of research methodology is a derivative of ontological and epistemological considerations. Nested within epistemology are two concepts; positivism and interpretivism (Tuli, 2010). Positivism combines deductive reasoning with exact empirical observations of distinct behaviours with a view of determining and confirming specific probability based causal laws that can guide future inference (Newman, 2003). Interpretivism on the other hand employees the original detailed observations of respondents to systematically examine socially

meaningful actions with a view of establishing how people create meaning (Newman, 2003).

The central aim of positivism is verifying a priori hypotheses, which are typically expressed quantitatively, by developing functional relationships between variables (Park et al., 2020). To this end, Slevitch (2011) states that quantitative research sources from positivism wherein a key postulate of quantitative epistemology is that facts can be detached from values such that if the researcher's work is congruent with the actual nature of how things really are, the truth can be established.

From interpretivism comes the qualitative approach to research which rejects the positivist assertion of the existence of absolute truth and underscores the role of context in how people assign meaning to reality (Slevitch, 2011). In the qualitative paradigm, the subject of interest in the study must be understood from the point of view of the respondent (Slevitch, 2011).

This study adopts a mixed methods approach wherein both quantitative and qualitative methods are used. This is done so that we establish what the facts tell us about the impact of Covid-19 on consumer behaviour (quantitative positivism) and also, how the consumers explain (qualitative interpretivism) the impact of Covid-19 on their shopping behaviour. Adopting a mixed methods approach ensures a comprehensive understanding of the impact of Covid-19 on consumer behaviour. Creswell (2009) points out that, when applied correctly, mixed methods increase the aggregate strength of the study relative to a case where one method is employed.

3.3 Research Design

Research design refers to an outlined strategy of how the study will answer the research questions (Saunders et al., 2007). It gives clear indications of what data is necessary and which methods of data collection and analysis will enable the study to respond to the research questions (Asenahabi, 2019). Understanding the reasons for undertaking research is critical for research design. Saunders et al. (2007) identify three main reasons for undertaking research, namely; exploration, description and explanation of phenomena.

This study employs a descriptive research design guided by the primary objective of the current undertaking which is to understand how the Covid-19 pandemic has impacted consumer behaviour. The primary concern of descriptive research is answering questions on the what, how and when of a phenomenon and not the why of it (Nassaji, 2015). This design, therefore, suits the purposes of this study.

The study employs an online questionnaire survey to establish the impact of the Covid-19 pandemic on the grocery shopping behaviour of South Africans. Evans and Mathur (2005) cite flexibility, ease of follow up, ease of data entry and analysis, global reach, question diversity and controlled sampling as some of the main benefits of online surveys. This approach, therefore, is a good fit for this study on the basis of the aforementioned benefits.

A low response rate is among the chief handicaps of online survey (Evans & Mathur, 2005). Another common handicap of online surveys is that they tend to be biased towards people with internet access, which makes the sample unrepresentative (Ball, 2019). If the sample is not representative of the population, then we cannot make a generalisation based on the survey. This problem, however, is not a hindrance to this study since the focus is people who already make use of internet services to make purchases.

3.4 Population and sample

3.4.1 Population

In the context of a study, population refers to the group about whom the enquiry desires to draw conclusions about (Babbie, 2008). Alternatively, an exhaustive list of all items in a field which is the subject of inquiry constitutes a population or universe (Kothari, 2004). When a survey includes all elements pertinent to a particular field, this is called a census. However, absolute exhaustive enumeration is seldom possible since time, resources and scope may make that a hard task to achieve.

The target population of the current study consisted of registered students at the University of Witwatersrand (Wits hereon) and students registered at the University of Cape Town (UCT hereon) who may be pursuing undergraduate and graduate

degrees at these two institutions. Wits had 42 172 registered students during 2021 (University of Witwatersrand, 2021) while UCT had 30 392 registered students during the same year (University of Cape Town, 2021). This study believes that characteristics of the student body in these institutions in terms of age, gender, occupational status and income dynamics will provide a robust proxy for the typical South African grocery shopper.

3.4.2 Sample and sampling method

Babbie (2008) notes that a critical aspect of research in social sciences is deciding what to observe wherein the course of selecting elements of the population to observe is called sampling. Taherdoost (2016) points out that sampling methodology follows two general paths; probability sampling and non-probability sampling. Probability sampling implies that chances for inclusion in the sample are known and equal for all the units of the population (Taherdoost, 2016). This makes it necessary for the researcher to know the sum total of all elements making up the population. If the foregoing condition is met, sampling can either be simple random, stratified random, systematic, multi-stage or cluster sampling (Taherdoost, 2016). For probability sampling, the optimal sample size is calculable and it functions to ensure that bias is minimized. Selection in probability sampling is guided by probability theory (Babbie, 2008).

In non-probability sampling, the chances of selection for any member of the study universe are unknown and selection is done on the basis of personal judgement, availability of respondents, snowball sampling or a subjective quota (Zikmund et al., 2002). Reliance on available subjects or convenience sampling speaks of sampling done on the basis of members of the population that are accessible to the researcher (Zikmund et al., 2002). This study employs convenience sampling mainly on account of an acute time constraint. Also, the researcher cannot, at this point, access customer records from retail shops on the total number of customers using mobile apps and online facilities before and after the advent of Covid-19. The additional information required, in addition to the foregoing, to pursue an alternative sampling approach necessitates convenience sampling.

Babbie (2008) points out that one of the main criticisms of convenience sampling is that it is questionable when it comes to representativeness. This study mitigates this short coming by further incorporating a snowballing approach wherein professional networks established through being a student at Wits university are leveraged to improve the dynamics of the sample. All participants in the survey must be income earning. This constitutes an exclusion criterion for minors.

Having taken a non-probability approach to sampling, this study makes no distributional assumptions about the target population which implies optimal sample size is not calculable. Sim et al. (2018) argue that in non-probability sampling, the decision on what constitutes an optimal sample size to fulfil the research objects is context dependant and evolves as the researcher understands more. To this end, this study intended to complete between 300 to 350 interviews.

3.5 Research instrument

With the mixed methods approach employed by this study, the questionnaire (research instrument) has both closed-ended and open-ended questions. Zohrabi (2013) observes that while several procedures for data collection exist, the principal instruments employed by mixed method studies contains both open and closed ended questionnaires, classroom observations and interviews.

The survey instrument for the current study is electronic consisting of closed-ended questions that facilitate the profiling of respondents by age, gender, education, income, and purchase behaviour. The purchase behaviour questions employ a Likert scale wherein a = strongly agree and e = strongly disagree. The open-ended aspect of the instruments permits respondents to articulate the impact of the Covid-19 pandemic on their purchasing habits from their point of view. Through this approach, the study hopes to identify themes emanating from the qualitative aspect of the study that can help explain some of the aspects established by the descriptive quantitative side of the study.

3.5.1 Questionnaire pilot test

Pre-testing or piloting presents an opportunity for researchers to measure the efficacy of research questions in assisting the study to meet its objectives prior to making a huge investment in questions that might turn out to be impotent (Bowden et al., 2002).

For purposes of pre-testing the research instrument, 15 participants were approached to participate. These included 8 Wits Business School 2021 cohort classmates and 7 colleagues from researcher's former employer at Nedbank.

3.6 Procedure for data collection

Having ensured that the survey instrument is robust through the pilot exercise, the link to the electronic questionnaire was shared online through emails, WhatsApp and Facebook. The instrument was designed using Qualtrics to ensure that it can be accessed through both desktop and mobile devices. Doing it this way constituted an attempt to increase respondent convenience with a view of generating more completed questionnaires.

According to Harlow (2010), the benefits of online surveys include the fact that they are flexible and easier to administer while cost far less to run relative to alternative methods. It is on the merits of these benefits that this study employed this method.

3.7 Data analysis and interpretation

Descriptive statistics were used to establish a profile of the respondents wherein frequencies of variables like age, gender, income, and education were run. Path analysis was used to establish the existence of any causal links between the awareness of Covid-19 and consumer behaviour in terms of both direction and magnitude. Ordinary Least Squares (OLS) regression was further employed to capture any new dynamics that might escape the path analysis. The qualitative aspect of the analysis examined the responses with a view of establishing themes that help to explain the impact of the pandemic on purchase behaviour. The

qualitative aspect merely functioned to buttress the outcomes of the quantitative aspects with a view of unearthing insights on the relationship dynamics.

3.8 Limitations of the study

i. This study limited itself to consumers who are citizens of South Africa.
ii. The sample was drawn from university students and alumni wherein the study assumes that consumer behaviour of the foregoing groups closely approximates that of the typical income earning South African.
iii. The study focused on the population eligible to be legally employed in income earning activities which leaves children and most teenagers out.

3.9 Validity

In survey research, validity refers to the degree to which the findings of the study among the respondents are representative of the true findings among comparable individuals external to the study (Pinto & Carvalho-Ferreira, 2018). For any research study, validity proceeds from two spheres; external and internal validity (Pinto & Carvalho-Ferreira, 2018).

3.9.1 External validity

External validity essentially attempts to estimate the consistency with which the inferred causal relations in the study can be globalised across alternative measures causality with different subject, contexts and periods (Jiménez-Buedo & Miller, 2010). The goal here is establishing a robust basis for generalising the findings of the study. To ensure external validity, the survey instrument was pretested in a pilot exercise.

3.9.2 Internal validity

Internal validity purposes to approximate the extent to which a causal relationship can be inferred between two variables (Jiménez-Buedo & Miller, 2010). The goal here is to make precise inference about the objects of investigation within the study.

Since the instrument used herein is a questionnaire, the study used of the factor analysis to test for construct validity following Sujati et al. (2020).

3.10 Reliability

According to Ghazali (2016), reliability measures the stability or internal consistency of a research instrument in measuring the concepts in the study. The study used Cronbach alpha to measure the internal consistency of the research instrument. According to Tavakol & Dennick (2011), the acceptable range for Cronbach alpha is 0.7-0.95 wherein higher values are not considered robust.

3.11 Ethical considerations

Ethical considerations were applied in conducting this research and these included:

i. Informed consent of all responders will be sought before they participate in this study.
ii. Demographic and income information will be required from respondents before completing the study.
iii. Respondent information will not be shared; their anonymity shall be guaranteed.
iv. The responses provided will not be traced back to any respondent.
v. This study has no form of coercion and respondents can participate in this study freely and can withdraw if they should so choose with no reprisals or penalties being applied to them.

CHAPTER 4: Data Analysis and Interpretation

4.2 Introduction

This chapter presents the results and findings of the study guided by the research objectives and methods articulated in the preceding section. The first section presents the descriptive statistics of the survey followed by the scale validity and reliability measures and finally, the structural equation model results are presented with the ancillary robustness tests.

4.3 Descriptive statistics

4.3.1 Sample size and data cleaning

The study initially purposed to have a sample size of 300-350 respondents. Acute time limitations constrained the total number of responses to 345, which is well within the targeted sample size. Another aspect of the study design that suffered at the hands of the compressed period for collection was the inclusion of University of Cape Town (UCT) students in the sample wherein the process of securing permission to distribute the survey at UCT required more time than the study had. UCT had initially indicated willingness to permit the researcher to interview their student population however, this was overtaken by events as UCT had changed their requirements for external researchers by the time collection commenced. UCT required that all external researchers co-design, collect and analyze any surveys conducted in their premises with a registered student or staff member.

Qualtrics was used to generate and disseminate the survey via email through an online link accessible by both desktop and mobile devices. Data cleaning primarily consisted of checking for questionnaire completeness and checking for variability in the responses for key scales items in the survey. Incomplete responses were deleted, and the standard deviation was calculated for key scale items wherein the anything below 0.3 was deleted owing to poor variability. Hallett (1968) recommends a threshold hold of $\sigma_{S.D.} \geq 0.186$ for case where the model parameters are more than 5. Consequently, 219 responses were found to be robust for use in the analysis.

4.4 Demographics

4.4.1 Gender

Most of the survey respondents identified as female (61%) while a small proportion identified as non-binary. The results are presented in figure 6.

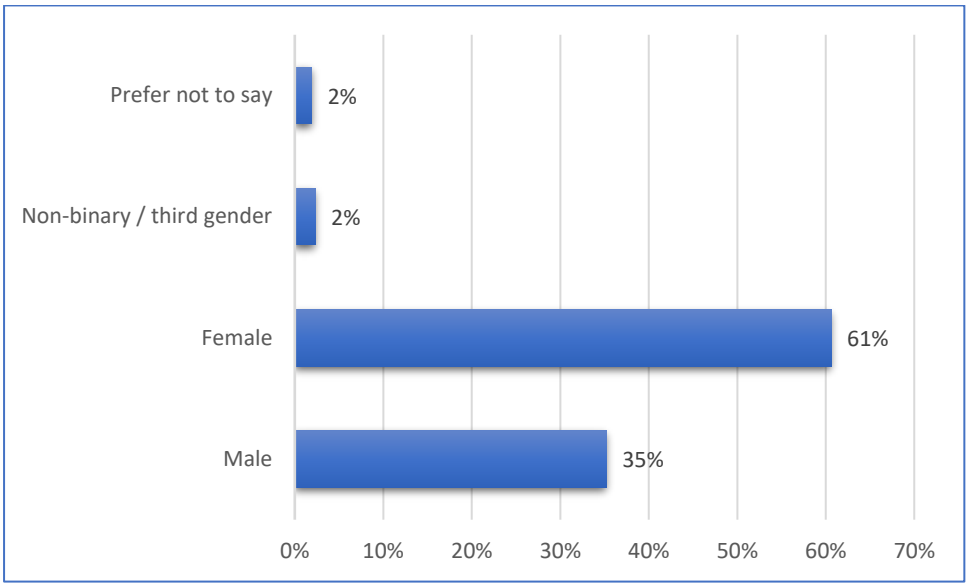


Figure 6. Gender respondent identifies with

4.4.2 Age group by marital status

About 90.9 percent of the respondents were single and aged 18-34 years. This is consistent with *a priori*[1] expectation granted the fact that the study sampled mainly students. Married respondents were predictably in the matured age range of 35 years and older wherein all of those 60 years and above indicated that they were married.

Table 1. Age group by marital status

	Please indicate your marital status?				
Age group	Single/Unmarried	Cohabit	Married	Widow/widower	Total
18 - 34	90.9%	1.8%	7.3%	0.0%	100.0%

[1] A theoretical deductive expectation

35 - 59	32.4%	2.9%	61.8%	2.9%	100.0%
60+	0.0%	0.0%	100.0%	0.0%	100.0%

4.4.3 Education

About 33 percent of respondents indicated that their highest level of education attained was either matric or post high school certificate/diploma, suggesting that they may have been pursuing their undergraduate degrees at the time of the survey. Degree holders constituted 22 percent of total respondents while the remainder had attained post graduate degrees. Figure 7 presents the education level attained breakdown for the respondents.

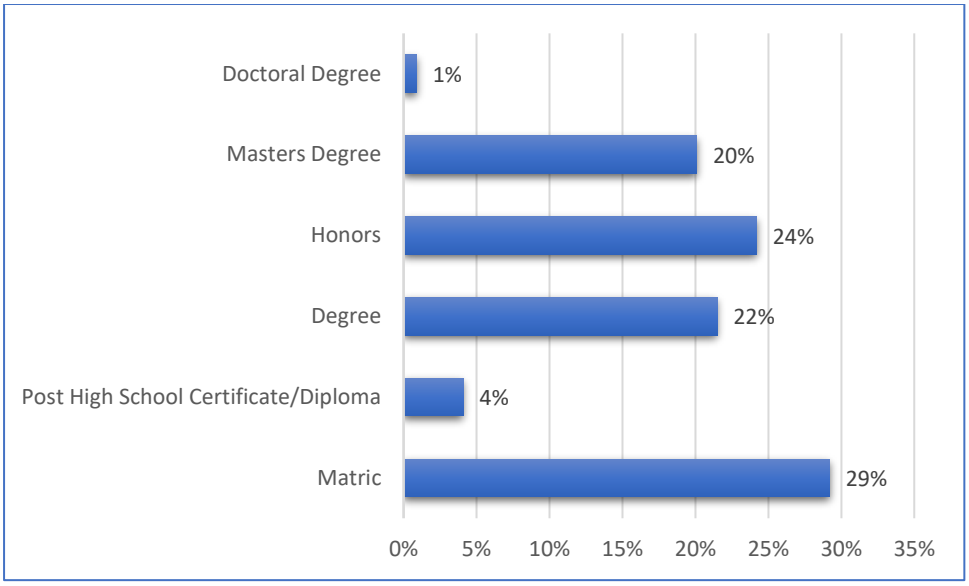


Figure 7. Highest level of education attained

4.4.4 Income

Household income considerations indicated that most (35%) respondents came from households where the gross monthly income was above R50,000, followed by those from households grossing below R10 000 at 29 percent and finally, 20 percent of respondents were from households grossing between R30,001 and R50,000. Figure 8 shows these results in greater detail.

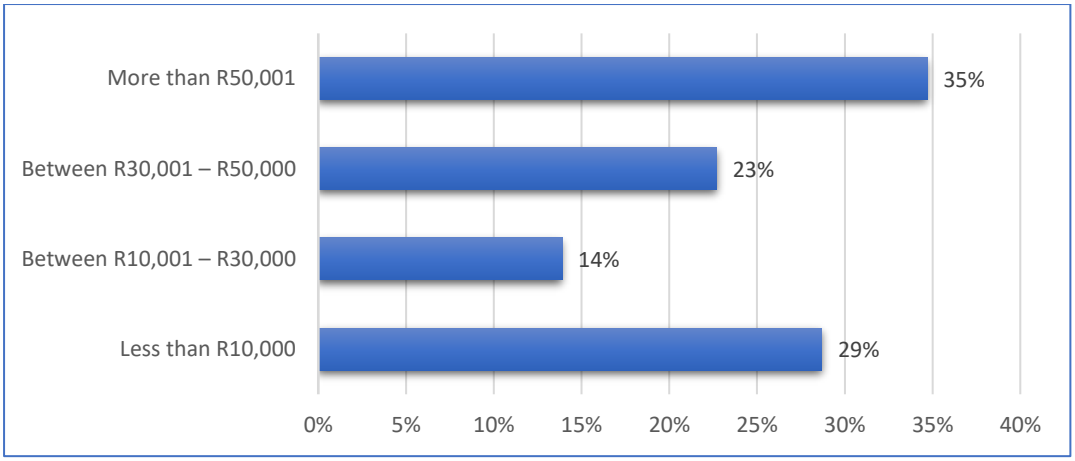


Figure 8. Gross monthly household income

Analysis of household income by employment status indicates that respondents who are self-employed and those in full-time employment were the ones from households grossing above R50,000 monthly. The unemployed and those in part-time employment were the primary constituents of the households grossing under R10, 000 per month. Table 2 shows the crosstabulation of gross household income by employment status.

Table 2. Employment status by income

Employment status	Please indicate your gross monthly household income				
	Less than R10,000	R10,001 – R30,000	R30,001 – R50,000	More than R50,001	Total
Full time employee	3.6%	14.3%	32.1%	50.0%	100.0%
Part time employee	54.5%	18.2%	0.0%	27.3%	100.0%
Independent Contractor	12.5%	12.5%	50.0%	25.0%	100.0%
Self-employed	0.0%	20.0%	20.0%	60.0%	100.0%
Unemployed	63.8%	12.5%	10.0%	13.8%	100.0%

4.4.5 Province of primary residence

Respondents were asked to indicate their province of primary residence and most cited Gauteng (78%) as their province of primary abode. KwaZulu Natal (6%), Mpumalanga (5%) and the Western Cape (3%) followed after albeit with far less proportion relative to Gauteng. Figure 9 shows the results of the question on province of primary residence.

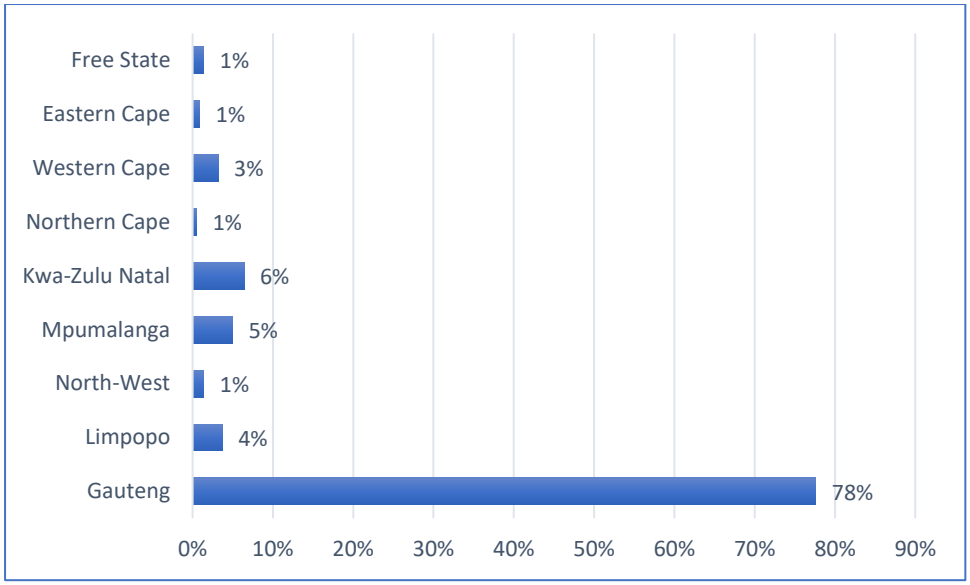


Figure 9. Province of primary residence

4.4.6 Frequently used grocery store

Respondents were asked to indicate the grocery shop they use frequently use for making their groceries and the results are presented in Figure 10. Checkers was the most popular at 36 percent followed by Pick n Pay and Woolworths Foods. Shoprite and Spar were among the least used shops.

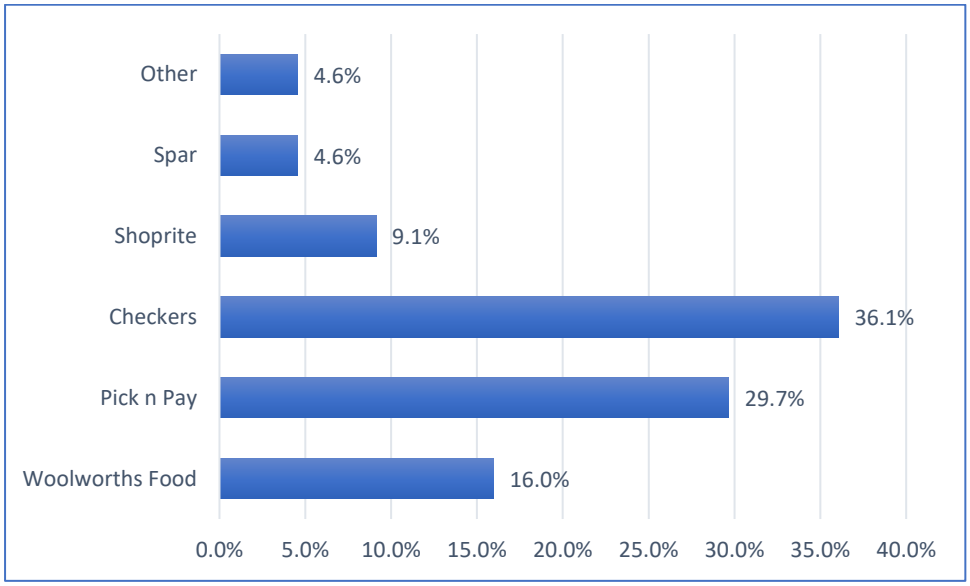


Figure 10. Grocery shop frequently used for groceries

4.4.7 Mobile network and manufacturer

Most respondents had Vodacom (43%) as their primary mobile phone network provider followed by MTN (31%) and Telkom (15%). Cell C had comparatively far less users. On the brand of mobile phone device, Apple was the leading brand followed Samsung, Huawei and Nokia. Table 3 shows these results in detail.

Table 3. Mobile network and manufacturer

Mobile network provider	
Vodacom	43%
MTN	31%
Cell C	9%
Telkom	15%
Other	2%
Total	100%
Mobile phone manufacturer	
Apple	38%
Samsung	35%
Huawei	14%
Nokia	1%
Other	11%
Total	100%

4.5 Correlation matrix

Figure 11 presents the nature of the linear relationships between the variables that are of primary interest to the study. From the table, we observe the existence of statistically significant bi-variate linear relationships at 1 percent and 5 percent. Marketing related aspects like “websites having attractive and good content”, and the “the type of online advertisements I receive on my desktop device from grocery stores encourage me to order food online” displayed low levels of correlation with the rest of the variables. Similarly, prospect related aspects like expectations on shopping options if a new strain were to emerge displayed weak but significant linear associations with other variables in the matrix. For example, the correlation

coefficient between “expectations on shopping options” and “the requirement for social distancing among mobile application users” is relatively weak at 0.244.

		Social distancing-mobile app.	Screening at grocery shop entrances-	Limited shopping hours-mobile	Fear of infection-mobile app.	Social distancing - online.	screening at grocery shop entrances -	Limited shopping - online.	Fear of infection - online.	website visually attractive and	The type of online advertisements	New strain of Covid-19 mobile or	Covid-19 options expectation
Social distancing-mobile app.	Pearson Correlation	1	.501**	.475**	.543**	.710**	.605**	.530**	.579**	.198**	.318**	.347**	.244**
	N	219	219	219	218	216	214	216	214	219	219	219	219
Screening at grocery shop entrances-	Pearson Correlation	.501**	1	.635**	.493**	.611**	.719**	.578**	.550**	.153*	.352**	.293**	.311**
	N	219	219	219	218	216	214	216	214	219	219	219	219
Limited shopping hours-mobile app.	Pearson Correlation	.475**	.635**	1	.488**	.583**	.621**	.811**	.571**	.226**	.287**	.393**	.345**
	N	219	219	219	218	216	214	216	214	219	219	219	219
Fear of infection-mobile app.	Pearson Correlation	.543**	.493**	.488**	1	.677**	.604**	.556**	.841**	.192**	.444**	.443**	.415**
	N	218	218	218	218	215	213	215	213	218	218	218	218
Social distancing - online.	Pearson Correlation	.710**	.611**	.583**	.677**	1	.691**	.622**	.711**	.151*	.370**	.348**	.400**
	N	216	216	216	215	216	214	216	214	216	216	216	216
Screening at grocery shop entrances -	Pearson Correlation	.605**	.719**	.621**	.604**	.691**	1	.701**	.669**	.134*	.395**	.317**	.304**
	N	214	214	214	213	214	214	214	213	214	214	214	214
Limited shopping - online.	Pearson Correlation	.530**	.578**	.811**	.556**	.622**	.701**	1	.644**	.231**	.327**	.402**	.350**
	N	216	216	216	215	216	214	216	214	216	216	216	216
Fear of infection - online.	Pearson Correlation	.579**	.550**	.571**	.841**	.711**	.669**	.644**	1	.208**	.399**	.476**	.475**
	N	214	214	214	213	214	213	214	214	214	214	214	214
website visually attractive and having good content.	Pearson Correlation	.198**	.153*	.226**	.192**	.151*	.134*	.231**	.208**	1	.223**	.257**	.174*
	N	219	219	219	218	216	214	216	214	219	219	219	219
The type of online advertisements encourange	Pearson Correlation	.318**	.352**	.287**	.444**	.370**	.395**	.327**	.399**	.223**	1	.254**	.311**
	N	219	219	219	218	216	214	216	214	219	219	219	219
New strain of Covid-19 mobile or desktop device	Pearson Correlation	.347**	.293**	.393**	.443**	.348**	.317**	.402**	.476**	.257**	.254**	1	.504**
	N	219	219	219	218	216	214	216	214	219	219	219	219
Covid-19 options expectation	Pearson Correlation	.244**	.311**	.345**	.415**	.400**	.304**	.350**	.475**	.174*	.311**	.504**	1
	N	219	219	219	218	216	214	216	214	219	219	219	219

**. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed).

Figure 11. Correlation matrix

Strong correlations (0.711) of note include the positive relationship between the fear of infection and requirement for social distancing among online buyers. Another robust positive correlation (0.701) is between limited shopping hours and the requirement for screening among online buyers. While the correlation coefficients

among the other variables are positive and statistically significant, they are generally weak ($r < 0.7$). This is much more conspicuous among mobile application buyers wherein the correlation coefficient is strong when it's the same variable considered in different purchasing platforms, i.e., fear of infection among mobile application buyer and fear of infection among online buyers.

The existence of robust linear relationships between the variables is important for the study because the framework of analysis employed herein is predicated on multivariate linear relationships. Essentially, the study assumes that the impact of Covid-19 on consumer behaviour has dominant linear structures.

4.6 Descriptive statistics for analysis variables

Table 4 presents the summary of the descriptive statistics of the variables the study employed in conducting the analysis. The objective for exploring the measurement variables this way is to ensure there is sufficient variability at a univariate level so that multivariate analysis is not only possible but also robust.

Table 4. Descriptive statistics

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Social distancing -mobile app	219	3.20	1.261	1.590	-.154	.164	-.999	.327
Screening at grocery shop entrances-mobile app.	219	2.69	1.171	1.371	.505	.164	-.718	.327
Limited shopping hours - mobile app.	219	3.02	1.232	1.518	.001	.164	-1.163	.327
Fear of infection -mobile app.	218	3.34	1.363	1.857	-.226	.165	-1.308	.328
Social distancing - online.	216	3.01	1.298	1.684	.047	.166	-1.239	.330
Screening at grocery shop entrances -online.	214	2.84	1.213	1.471	.302	.166	-1.018	.331
Limited shopping hours - online.	216	3.00	1.263	1.595	.093	.166	-1.179	.330

Fear of infection-groceries online.	214	3.25	1.340	1.795	-.140	.166	-1.304	.331
The type of Online advertisements	219	2.73	1.083	1.172	.192	.164	-.704	.327
Covid-19 expectations	219	3.91	.922	.850	-.996	.164	.951	.327
New strain of Covid-19 shopping options	219	4.26	.878	.771	-1.395	.164	2.110	.327

The descriptive statistics indicate robust levels of variation in the responses for each of the variables as indicated by the variance above 0.3 for all variables. The standard deviation also show robust levels of variation since none of the values are very close to zero. In terms of skewness, the variables are all in the -2 to 2 range which is robust for analysis using a framework predicated on normally distributed data. Regarding kurtosis, the range of the values suggests that the distributions of all the variables are leptokurtic (Kurtosis<3), which is typical of scale variables.

4.7 Reliability and validity

4.7.1 Reliability

Reliability indicates the degree to which research is bias free and thereby ensures the consistency of measurement across time and the observed scores in a research instrument (Mohajan, 2017). The survey had two fundamental latent variables for which measurement scale variables were developed relating to mobile purchase intention and online purchase intention. The Cronbach alpha coefficient was used to measure the internal consistency, extent to which all the items in a test measure the same construct, of the items used to measure the aforementioned latent constructs. Tavakol & Dennick (2011) state that the robust range for Cronbach alpha is 0.7- 0.9 wherein lower values suggest low internal consistency while values higher than 0.9 may suggest that some items are redundant. The Cronbach alpha statistics are presented in table 5 wherein we observe that both are within the robust range.

Table 5. Reliability test

Scale variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Mean
Online purchase intention	0.891	0.892	4
Mobile purchase intention	0.812	0.814	4

4.7.2 Validity

Validity refers to the degree to which a measure precisely captures what it is intended for (Hair et al., 2010). Exploratory factor analysis (EFA) was used to examine the validity of the construct relationships assumed by the study. The manifest variables were put through a factor analysis to check for fit of use in this framework. For sampling adequacy, Hair et al. (2010) recommend that the Kaiser-Meyer-Olkin (KMO) statistic should be greater than 0.6 and the Bartlett's Test of Sphericity (BTS) must be significant at 5 percent. This ensures that the correlation matrix is factorable since it significantly differs from an identity matrix. From Table 6 we observe that both KOM and Bartlett's tests are robust as the KMO statistic is $0.877 > 0.6$ and the BTS test $p = 0.000 < 0.05$.

Table 6. KMO and Bartlett's Tests

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.877
Bartlett's Test of Sphericity	Approx. Chi-Square	1484.871
	df	45
	Sig.	0.000

Having ensured factorability of the correlation matrix, principal component analysis was employed to extract components with Eigenvalues greater than 1. From Table 7 we observe that 2 components satisfied this criterion, explaining 69.48 percent of the total variance in the data. Assessment of the component matrix showed that patterns of the factor loadings demonstrated that the measures of the two latent variables in the study were distinct and unique.

Table 7. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.851	58.506	58.506	5.851	58.506	58.506	4.793	47.935	47.935
2	1.097	10.974	69.480	1.097	10.974	69.480	2.155	21.546	69.480
3	.766	7.660	77.140						
4	.555	5.549	82.689						
5	.510	5.099	87.788						
6	.432	4.321	92.109						
7	.281	2.809	94.918						
8	.224	2.240	97.158						
9	.149	1.486	98.644						
10	.136	1.356	100.000						

Extraction Method: Principal Component Analysis.

4.8 Path analysis

The study employed path analysis to study the causal relationships between Covid-19 restrictions and consumer behaviour pursuant to fulfilling the research objectives. The path model is presented in Figure 12 is predicated on the hypotheses developed by the study pursuant to establishing the impact of each of the Covid-19 restrictions on mobile and online purchase intention.

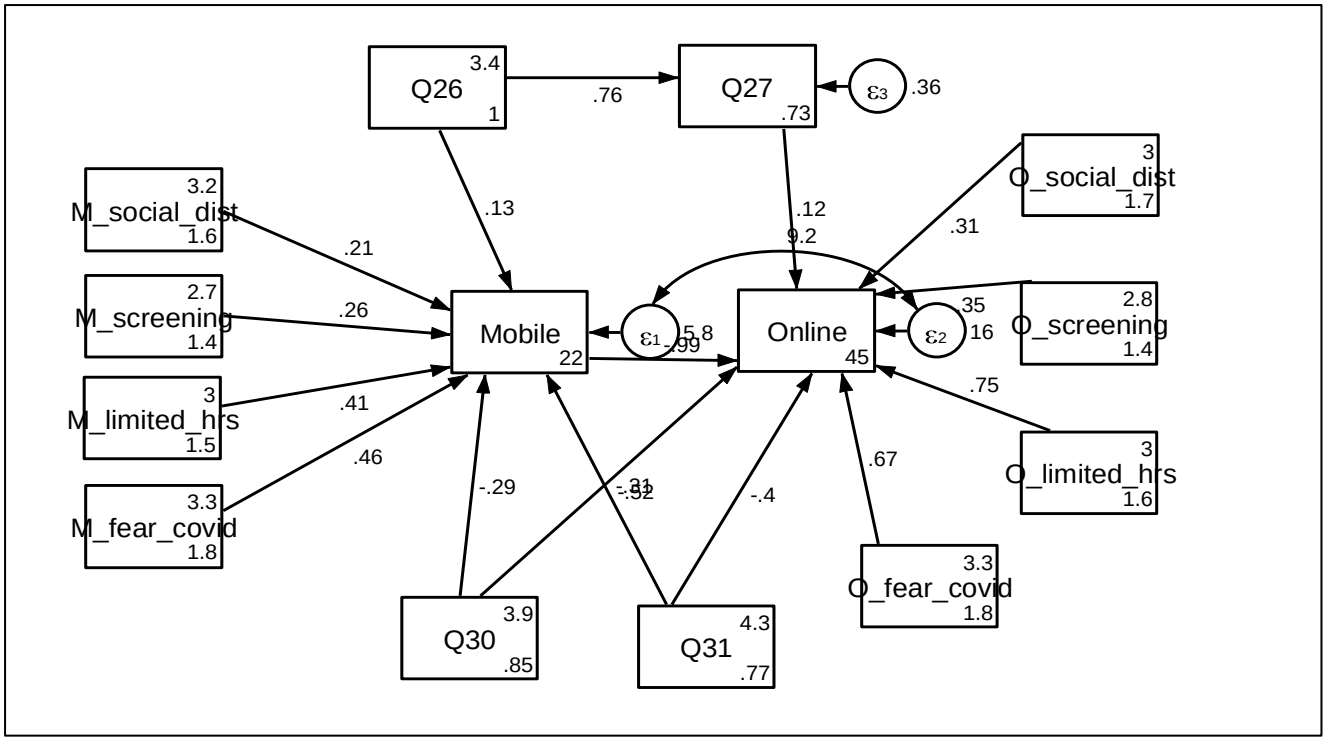


Figure 12. Path analysis

The path coefficients for the all of the variables on assessing the impact of covid restrictions on both mobile and online purchase intention are significant. Marketing related aspects like having an attractive website (Q27)/mobile cite (Q26) with good content had a positive but insignificant impact on purchase intention for both mobile and online platforms. The goodness of fit indices are presented in Table 8.

Table 8. Path analysis goodness of fit indices

Model fit indices	Value	Reference value	Decision
Chi2_ms(19)	p=0.167	>0.05	Good fit
RMSEA	0.037	<0.08	Good fit
CFI	0.987	>0.9	Good fit
TLI	0.976	>0.9	Good fit

Another path model was estimated incorporating household income and education level. Figure 13 presents the structural model wherein the impact of income and education on online and mobile purchase intention is direct.

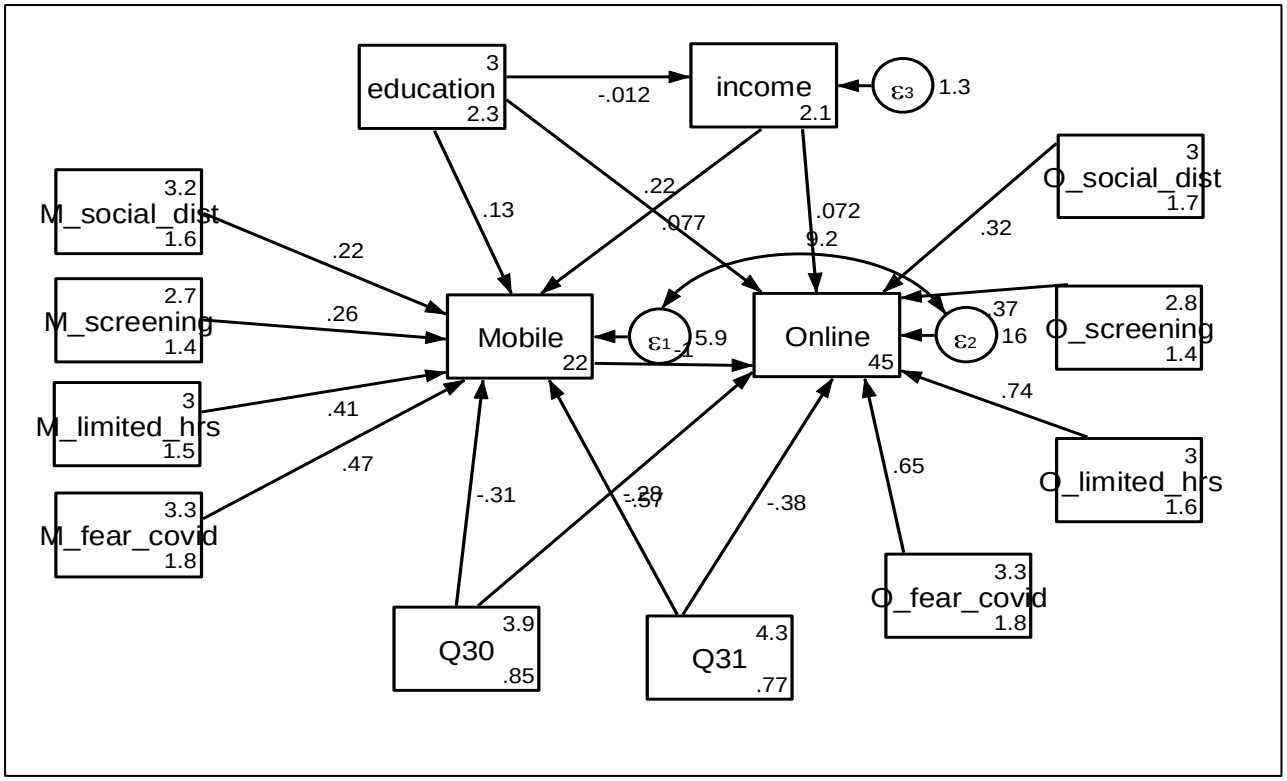


Figure 13. Path model with income and education

The results in Table 9 points a positive relationship between income and mobile application purchase intention with education level also having a positive relationship with online and mobile purchase intention. In both cases, however, the result is not statistically significant.

Table 9. Path model with income and education

Path	**Coef.**	**Std.Err.**	**Z**	$P > \|z\|$
income→Mobile p. intent	0.0768397	0.1443991	0.53	0.595
income→Online p. intent	0.0720047	0.2389185	0.30	0.763
education→Mobile p. intent	0.1284023	0.1092852	1.17	0.240
education→Online p. intent	0. 2159352	0.1821345	1.19	0.236
education→income	-0.0122648	0.0508575	-0.24	0.809

Table 10. Goodness of fit indices for income and education path model

Model fit indices	Value	Reference value	Decision
Chi2_ms(23)	p=0.072	p>0.05	Good fit
RMSEA	0.050	<0.08	Good fit
CFI	0.962	>0.9	Good fit
TLI	0.921	>0.9	Good fit

4.9 OLS Regression

Following path analysis, the study considered a traditional Ordinary Least Squares (OLS) regression approach to the relationship between the Covid-19 restrictions and purchase intention. Two models were estimated; one relating to mobile application purchase intention and the other relating to online purchase intention.

4.9.1 Mobile application purchase intention OLS Regression

The mobile application model was robust with the F statistic statistically significant at 1 percent while also the coefficient of determination indicated that the restrictions explain 82.5 percent of the variation in mobile purchase intention. Table 11 captures the model summary statistics.

Table 11. OLS Model summary for mobile purchase intention

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.829	.825	2.43477	.829	257.298	4	213	.000	2.160

The DW statistic at 2.160 is closer to 2 suggesting the model does not have issues of serial correlation. Furthermore, the histogram in figure 14 shows that the residuals do not violate the bell shape of the normal distribution assumed by OLS.

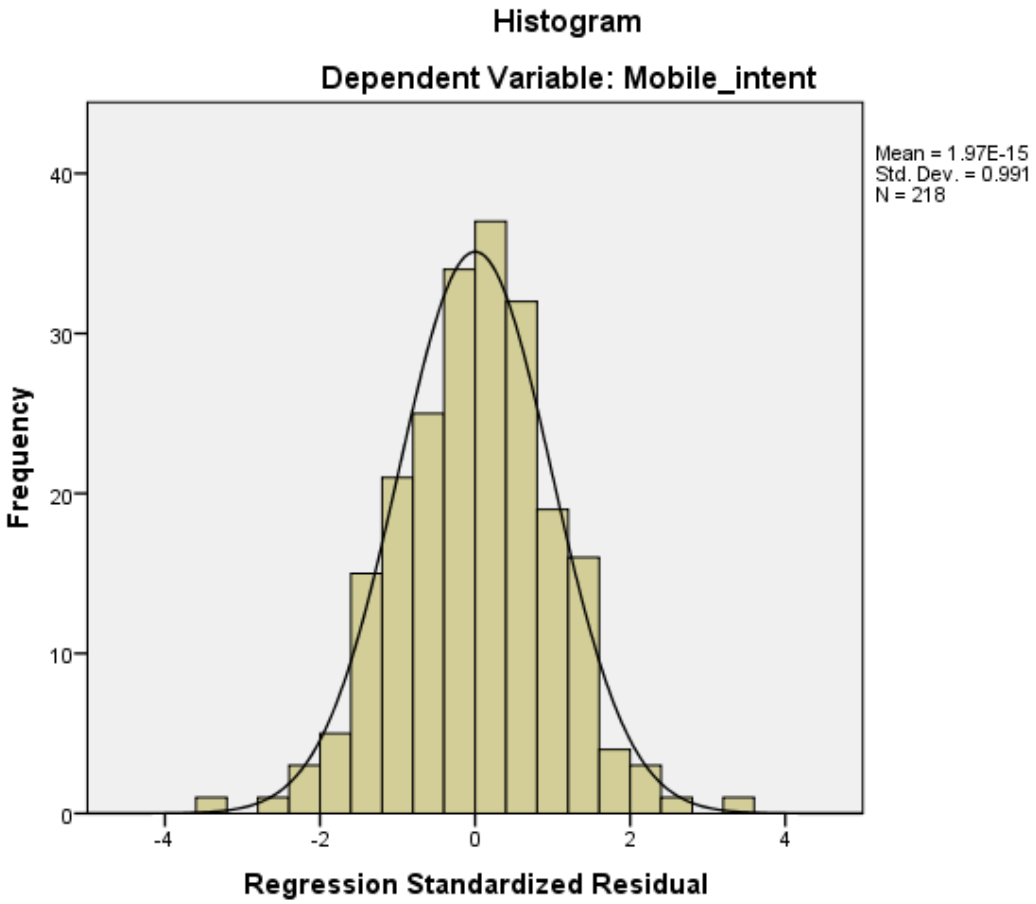


Figure 14. Normality test for mobile application purchase intention OLS

4.9.2 Online application purchase intention OLS Regression

The online model was robust with the F statistic statistically significant at 1 percent while also the coefficient of determination indicated that the restrictions explain 85.1 percent of the variation in online purchase intention. Table 12 captures the model summary statistics.

Table 12. OLS Model summary for online purchase intention

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.854	.851	2.33872	.854	304.675	4	208	.000	2.178

The DW statistic at 2.178 is closer to 2 suggesting the model does not have issues of serial correlation. Additionally, the histogram in figure 15 shows that the residuals do not violate the bell shape of the normal distribution assumed by OLS.

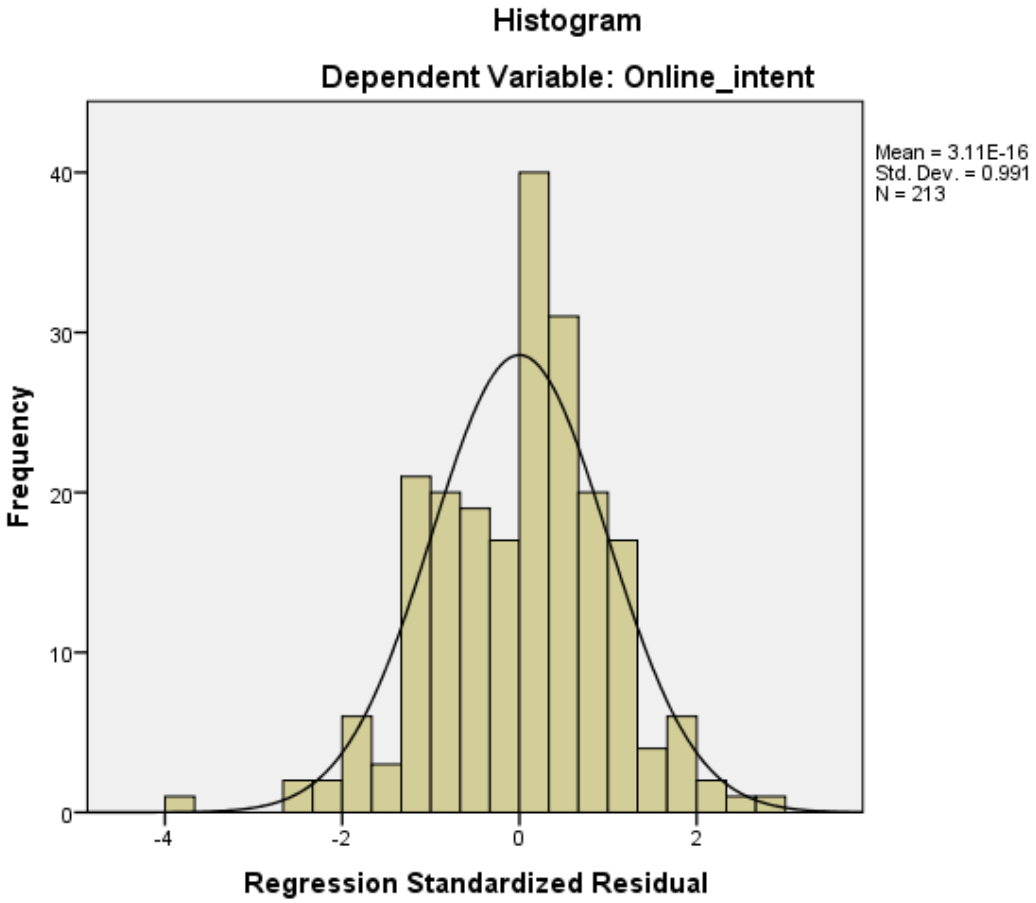


Figure 15. Normality test for online purchase intention OLS

4.10 Hypotheses testing

4.10.1 The relationship between social distancing and mobile app purchase intention for groceries

H_1: The requirement for social distancing increases mobile app purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.2138, p = 0.001$) providing support for the hypothesis that this Covid-19 restriction increased mobile application purchase intention.

Path	Coef.	Std.Err.	Z	$P > \|z\|$
M_social_dist→ Mobile p. intent	0.222073	0.0674505	3.29	0.001

The OLS regression results below also point to a positive and highly significant impact of the requirement for social distancing on mobile purchase intention, providing support for hypothesis 1. The Variance Inflation Factor (VIF)<3, in this regard is also robust.

Predictor	Coef.	Std.Err.	t	$Sig.$	VIF
M_social_distance	1.007	0.166	6.053	0.000	1.616

4.10.2 The relationship between screening at grocery shop entrance and mobile app purchase intention for groceries

H_2: The requirement for screening at store entrances increases mobile app purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.2612799, p = 0.001$) providing support for the hypothesis that this Covid-19 restriction increased mobile application purchase intention.

Path	Coef.	Std.Err.	Z	$P > \|z\|$
M_screening→ Mobile p. intent	0.2612799	0.0801165	3.26	0.001

The OLS regression results below point to a positive and significant impact of the requirement for screening at the shop entrance on mobile purchase intention, providing support for hypothesis 2. The VIF<3, in this regard is also robust.

Predictor	Coef.	Std.Err.	t	$Sig.$	VIF
M_screening	1.166	0.194	6.025	0.000	1.889

4.10.3 The relationship between restricted shopping hours and mobile app purchase intention for groceries

H_3: Restricted shopping hours increases mobile app purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 4119649, p = 0.000$) providing support for the hypothesis that this Covid-19 restriction increased mobile application purchase intention.

Path	**Coef.**	**Std.Err.**	**Z**	$\boldsymbol{P > \lvert z \rvert}$
M_limited_hrs→ Mobile p. intent	0.4119649	0.0948657	4.34	0.000

The OLS regression results below also point to a positive and significant impact of limited shopping hours on mobile purchase intention, providing support for hypothesis 3. The VIF<3, in this regard is also robust.

Predictor	**Coef.**	**Std.Err.**	**t**	$\boldsymbol{Sig.}$	**VIF**
M_limited_hrs	1.412	0.181	7.830	0.000	1.838

4.10.4 The relationship between the fear of infection and mobile app purchase intention for groceries

H_4: Fear of infection increases mobile app purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.4718211, p = 0.000$) providing support for the hypothesis that the fear of infection with Covid-19 increased mobile application purchase intention.

Path	**Coef.**	**Std.Err.**	**Z**	$\boldsymbol{P > \lvert z \rvert}$
M_fear_covid→ Mobile p. intent	0.4718211	0.08449	5.58	0.000

The OLS regression results below point to a positive and significant impact of the fear of infection on mobile purchase intention, providing support for hypothesis 4. The VIF<3, shows no signs of multicollinearity.

Predictor	Coef.	Std.Err.	t	$Sig.$	VIF
M_fear_covid	1.165	0.154	10.641	0.000	1.620

4.10.5 The relationship between social distancing and online purchase intention for groceries

H_5: The requirement for social distancing increases online purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.321102, p = 0.011$) providing support for the hypothesis that this Covid-19 restriction predicts an increased online purchase intention.

Path	Coef.	Std.Err.	Z	$P > \|z\|$
O_social_dist→ Online p. intent	0.321102	0.1269178	2.53	0.011

The OLS regression results below also point to a positive and highly significant impact of the requirement for social distancing on online purchase intention, providing support for hypothesis 1. The VIF<3, in this regard is also robust.

Predictor	Coef.	Std.Err.	t	$Sig.$	VIF
O_social_distance	1.011	0.194	5.215	0.000	2.475

4.10.6 The relationship between screening at shop entrance and online purchase intention for groceries

H_6: The requirement for screening at store entrances increases online purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.371037, p = 0.006$) providing support for the hypothesis that this Covid-19 restriction predicts an increased online purchase intention.

Path	Coef.	Std.Err.	Z	$P > \|z\|$
O_screening→ Online p. intent	0.3710373	0.3710373	2.76	0.006

The OLS regression results below point to a positive and significant impact of the requirement for screening at the shop entrance on online purchase intention, providing support for hypothesis 2. The VIF<3, in this regard is robust.

Predictor	**Coef.**	**Std.Err.**	**t**	$Sig.$	**VIF**
O_screening	0.974	0.213	4.570	0.000	2.597

4.10.7 The relationship between restricted shopping hours and online purchase intention for groceries

H_7: Restricted shopping hours increases online purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.7420392, p = 0.000$) providing support for the hypothesis that this Covid-19 restriction predicts an increased online purchase intention.

Path	**Coef.**	**Std.Err.**	**Z**	$P > \|z\|$
O_limited_hrs→ Online p. intent	0.7420392	0.1376283	5.39	0.000

The OLS regression results below also point to a positive and significant impact of limited shopping hours on online purchase intention, providing support for hypothesis 3. The VIF<3, in this regard is robust.

Predictor	**Coef.**	**Std.Err.**	**t**	$Sig.$	**VIF**
O_limited_hrs	1.334	0.190	7.033	0.000	2.250

4.10.8 The relationship between the fear of infection and online purchase intention for groceries

H_8: Fear of infection increases online purchasing intention for groceries. The path coefficient was positive and significant ($\beta = 0.6469287, p = 0.000$) providing support for the hypothesis that the fear of infection with Covid-19 predicts an increased online purchase intention.

Path	Coef.	Std.Err.	Z	$P > \|z\|$
O_fear_covid→ Online p. intent	0.6469287	0.1509093	4.29	0.000

The OLS regression results below point to a positive and significant impact of the fear of infection on online purchase intention, providing support for hypothesis 4. The VIF<3, shows no signs of multicollinearity.

Predictor	Coef.	Std.Err.	t	$Sig.$	VIF
O_fear_covid	1.674	0.188	8.926	0.000	2.450

4.11 Qualitative analysis

The study adopted a mixed method approach wherein two qualitative questions were incorporated into the instrument. The first question required respondents to state in their own words how the Covid-19 pandemic affected the way they shop for groceries while the other question sought to establish how they decide where to shop for groceries. The results of the emergent themes are presented in Tables 13 and 14, respectively.

For the impact of the pandemic on the way respondents shop for groceries, most (44.7%) cited the transition to online methods of shopping as their primary strategy of adjustment particularly to the restrictions that became endemic to the pandemic. What is worth pointing out in this regard is the fact that even people who were initially skeptical about online purchase of goods and services in South Africa found that the inconvenience occasioned by the restrictions forced them to soften their stance on online purchases of groceries. The fear of infection through touching trolleys or baskets (9.1%) used by others still proved potent regardless of efforts by shops to sanitize shoppers and utensils at the shop entrance.

Table 13. Impact of Covid on how you shop for groceries

Impact of Covid in the way you shop for groceries themes	N	Percentage
Fear to touch trolley or basket	20	9.1%
Restrictions caused transition to online shopping	98	44.7%

Bulk buying	15	6.8%
No effect	39	17.8%
Caused queues so my wasted time	16	7.3%
I'm more price cautious	14	6.4%
I have cut number of shopping trips	12	5.5%
I shop at selected shops and malls	5	2.3%
Total	219	100.0%

About 17 percent of those interviewed felt that Covid-19 did not alter the way they shopped for groceries, while 6.8 percent adapted by bulk buying supplies so that they minimized trips to the grocery store. For some (7.3%), the queues that resulted mainly from limited shopping hours constituted a mere inconvenience as they bemoaned the time wasted queuing to enter grocery shops. This was, in part, due to the fact that retail stores in general, initially fixed the number of shoppers permitted in the shop at a time. Others would be allowed to enter as those who had gone in earlier exited.

The decision on where to purchase groceries is primarily a function of pricing or affordability (26.9%), sales and specials (22.8%) and the quality of the items sold by the shops (18.7%). All of the foregoing are obviously highly subjective judgements by the respondents and herein lies the benefit of a qualitative approach to a phenomenon. Location (13.7%) emerged as another key determinant of where to shop wherein shops located closer to home or located within a shopping mall proved useful.

Table 14. How do you decide where to shop for groceries

How do you decide where to shop for groceries?	**N**	**Percentage**
Affordability	59	26.9%
Quality of items	41	18.7%
Personal preference	19	8.7%
Location	30	13.7%
Specials	50	22.8%
Online adverts	20	9.1%
Total	219	100.0%

4.12 Summary

The chapter began with the descriptive aspects of the survey wherein sample size (345), demographics and other preferences of the respondents were discussed. A challenge of note emerging from the sampling section was the fact that UCT had prohibitive rules for external researchers in their institution. The acute time constraints besetting the study exacerbated the foregoing challenge to data collection. Following the descriptive statistics, the correlation matrix was then presented followed by aspects of validity and reliability testing. Path analysis was the method employed for hypothesis testing and the results confirmed all eight hypotheses of the study. OLS regression was further used to corroborate the results of the path analysis. Finally, the study considered the qualitative aspects articulated in the methodological approach. The shift to online shopping owing Covid-19 restriction emerged as the primary effect on the way respondents shop for groceries. Pricing, specials and quality of items emerged as the leading determinants of where to shop for groceries.

CHAPTER 5: DISCUSSION OF STUDY RESULTS

5.1 Introduction

The primary goal of this study was to understand the impact of the Covid-19 pandemic on the consumer mobile and online purchase intention in South Africa. The study focused on the intention to purchase groceries on both online and mobile platforms. The next sections present a discussion of the results pursuant to articulating a response to the primary objective of this study. Furthermore, the findings on each of the eight hypotheses are discussed with implications and meaning derived from the findings and contextualized by existing literature.

5.2 Descriptive statistics

The sampling frame for the study primarily consisted of the student body at Wits University (Wits). The study believed that the demographic dynamics among the student population at this university provided a reasonably robust proxy of the economically actively population in South Africa. Therefore, the results could be generalized for this demographic in the country. To further enrich the sample, snowball sampling was employed to leverage on the researcher's broad and diverse professional networks. Consequently, this study believes that the 345 total respondents obtained constitute a fair representation of the targeted economically active population.

Regarding gender, the survey results indicated that most of the respondents were female with 61 percent representation, while males accounted for 35 percent. This outcome is generally consistent with the gender statistics of the country wherein males account for 48.9 percent (29.6 million) of the total population while females account for 51.1 percent (30.98 million) (STATS SA, 2022).

Similarly, concerning age by marriage, the survey revealed that most respondents in age group 18-34 (90.9%) were unmarried while those who are 35 years and above generally were married. This is generally congruent will the with national statistics wherein those aged 35 years and above are generally married (STATS SA, 2021).

The findings on the highest level of education attained indicated that 29 percent of the respondents were matric holders, suggesting that they were still pursuing their undergraduate degrees. Post graduate degree holders constituted 45 percent of total respondents. Cross-tabulation of household income by education showed that holders of higher degrees tend to earn higher gross household monthly income. This is consistent with Gustafsson & Mabogoane (2010) who posited a positive relationship between income earnings and years spent in school in South Africa.

Consideration of income by economic activity showed that those in permanent jobs and the self-employed were the primary constituents of the R50,000 plus gross household monthly income group. According to the World Bank (2018), South Africa's level of income inequality is reflective of an extremely polarized society with a small elite group, a relatively small middle class and an extremely large poor group. The respondents herein did not necessarily reflect this position as about 71 percent of them came from households living on more than R10,000 per month. This aspect of the study group is unique, as it cannot necessarily be generalized for the population of South Africa.

On primary mobile network, Vodacom and MTN were by far the most prominent networks. This finding was consistent with a report by Tutela (2020) on the state of mobile networks in South Africa wherein the same companies emerged as the best in terms of excellent consistent quality and core consistent quality. Apple and Samsung were the leading mobile phone manufactures with the former being most popular among those in full time employment while the Nokia score was only used by the unemployed.

Regarding the grocery shop frequently used, the results suggest a preference for Checkers followed by Pick n' Pay, Woolworths Food, Shoprite and Spar. These findings are consistent with the aggregate picture in the actual South African economy wherein Shoprite, who also own Checkers, are the leading supermarket in terms of sales ($7.164 billion) followed by Pick n' Pay ($3.582 billion) in 2021 (Nginani, 2022). About 78 percent of the respondents were from the Gauteng province and did their grocery shopping primarily at Checkers and Pick n' Pay.

5.3 Findings related to the main research problem

The main problem investigated in the current undertaking was the fact that the impact of Covid-19, as indexed by the restrictions thereof, on mobile and online consumer purchase behaviour in South Africa remains unknown. The methods section articulated a research strategy predicated on strong linear associations (correlations) between the variables of interest. Consequently, technical analysis commenced from the evaluation of the correlation matrix of all the variables of analytical significance to the study. All the selected variables relating to mobile application purchase behaviour, online purchase behaviour and Covid-19 restrictions displayed evidence of positive statistically significant correlations. This was important in the context of the study as the expectation of the study developing from the research problem was that the restrictions would have a significant positive impact on purchase intention. That is to say, the study expected the institution of Covid-19 restrictions by the government of South Africa to increase the general propensity to purchase groceries remotely.

The significant co-movement in the measures of online and mobile purchase intention with Covid-19 restrictions is consistent will the findings of Gu et al. (2021) who showed that composite measures of online and mobile purchase behaviour exhibited positive correlation with periods of surges in Covid-19 and the subsequent lockdown restrictions.

Findings concerning the hypotheses developed by the study

The study developed eight Covid related hypotheses which were tested primarily through path analysis and further corroborated by regression analysis. The next section presents a discussion of the results in line with each hypothesis and how it relates to literature.

5.3.1 The relationship between social distancing and mobile app purchase intention for groceries

The first hypothesis on the positive impact of the requirement for social distancing at grocery shops on mobile application purchasing intention was confirmed with robust

positive path and OLS coefficients. This result is consistent with Chandra et al. (2021) who employed the Partial Least Squares Structural Equation modelling to show that the requirement for physical distancing during the pandemic increased smart phone purchase intention using social media applications in Indonesia.

5.3.2 *The relationship between screening at shop entrance and mobile app purchase intention for groceries*

The study hypothesized that the requirement for screening at shop entrances increases mobile application purchase intention. The results provided support for this hypothesis with statistically significant OLS and path coefficients. While the results of this study point to a positive and statistically significant impact, Sukardi & Ismanto (2022) found that health protocols like temperature screening in public spaces had no significant impact on purchase intention. Other factors like fulfilment proved more potent during the pandemic. Context and socio-economic environment play a key role in this regard.

5.3.3 *The relationship between limited shopping hours and mobile app purchase intention for groceries*

The study hypothesized that limited shopping hours increased mobile application purchase intention. The results provided support for this hypothesis with positive and statistically significant path and OLS coefficients. Limited in-store shopping hours constitute a marked inconvenience for shoppers thus an increased uptake of alternative represents natural progression. To this end, Ly et al. (2017) underscore the importance convenience in the physical-digital shopping dynamic.

5.3.4 *The relationship between fear of infection and mobile app purchase intention for groceries*

The fear of infection with Covid-19 was hypothesized to increase mobile application purchase intention. The path results provided support for this hypothesis with $\beta = 4718211$ and $p = 0.000$ indicating that fear of infection predicted an increase in mobile application purchase intention. Rakib et al. (2022) also found a positive impact of

fear on mobile purchase intention, however, their results showed that this impact was not statistically significant. Fear in this case was part of a composite index measuring social influence. Li & Joo (2023) found a positive impact of psychological factors and mobile purchase intention. Similarly, Zhang et al. (2020) found that emotional factors like fear triggered impulsive purchases via mobile applications at the peak of the pandemic in China.

5.3.5 The relationship between social distancing and online purchase intention for groceries

The fifth hypothesis on the positive impact of the requirement for social distancing at grocery shops on online application purchasing intention was confirmed with a robust positive path and OLS coefficients. These findings are consistent with Larios-Gomez et al. (2021) who employed SEM analysis to establish that Covid-19 related restrictions like social distancing caused not only a shift in consumer behaviour towards online purchases of goods but also frustrated the social interaction space vital for Latin societies.

5.3.6 The relationship between screening at shop entrance and online purchase intention for groceries

The hypothesis on the impact of the requirement for screening at the entrance of grocery shops on online purchase intention proved robust with positive path and OLS coefficients. The impact was marginally stronger on online purchasing intention relative to mobile application purchasing intention $\beta_{M_{screening}}(0.257411) < \beta_{O_{screening}}(0.349605)$. OLS results suggested that the requirement for screening at shop entrances had a marginally stronger effect on mobile application purchase intention relative online purchase intention. This outcome is consistent with Pham et al. (2022) who found that policy barriers including the requirement for screening prior to entry in social spaces positively influenced online shopping behaviour. The screening at the shop entrance is perceived by buyers as an impediment to a free and rewarding shopping experience and thus alternatives are considered

5.3.7 The relationship between limited shopping hours and online purchase intention for groceries

According to Aggarwal & Kapoor (2020), time and convenience are key aspects of purchasing decisions that drive the uptake of online purchase behaviour among consumer. The study found that limited shopping hours led to an increase in online purchase intention owing to the adverse effect of this constraint on the convenience and time aspect of the shopping experience. People who had work and other business commitments would find themselves unable to make the limited operating hours of the grocery shops which were required by law to close earlier than usual. Consequently, remote purchase options proved to be a reliable option.

5.3.8 The relationship between fear of infection and online purchase intention for groceries

The fear of infection with Covid-19 was found to be another important factor that increases the online purchase intention within the study group. The hypotheses on this aspect were both found to be supported by the results. Habiboğlu et al. (2021) also found that fear of infection with Covid-19 significantly and positively influenced purchasing intention. Laksmidewi & Gunawan (2020) found that fear of infection with the virus caused people to develop anxiety about going into social spaces and thus people tended to just prefer the safety of online shopping in the comfort of their homes.

5.4 Findings from qualitative analysis

The findings from the empirical aspect of the study were further buttressed by findings of the qualitative analysis, wherein the themes that emerged therein were consistent with the findings of the empirical approach and thereby, confirming all eight hypotheses. Covid-19 restrictions in South Africa did appear to cause a shift in consumer purchase behaviour, specifically leading to an increase in the uptake of online purchase options for groceries. Hu et al. (2022) showed that fear of the Covid-19 epidemic was a powerful driver of the shift in consumer behaviour.

It is important to note that for purposes of this study, the qualitative analysis was merely employed to buttress the main empirical aspect of the study, therefore, there was no need to further analyse the emergent themes to come up with an emergent theory predicated on the experiences of the respondents.

5.5 Summary

This section presented a discussion of the findings and results in line with what is currently know in the relevant literature. Most studies on the impact of Covid-19 on consumer behaviour agree with the hypotheses developed by the study. As indicated in the problem statement, the paucity of research on the impact of Covid-19 restrictions on mobile application purchase behaviour was conspicuous during the discussion. Most of the empirical work merely focused different aspects of online and mobile purchase intention and generally agreed with the position of this study that Covid-19 caused a shift in consumer behaviour.

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The study purposed to provide a response to the question on the impact of Covid-19 on consumer mobile and online behaviour. The fundamental premise of this study, which drove its undertaking, was that this impact remains unknown in the South African context. Subsequent literature analysis revealed that disaggregation of mobile and online/desktop purchase intentions is indeed an aspect that had not been pursued by any published work on Covid-19 and consumer behaviour/purchasing intention in South Africa. Therefore, this chapter presents conclusions based on the research findings and result discussion sections of the study.

6.2 Conclusion of the study

The study used covid restrictions as an indicator for Covid-19 and indexed consumer behaviour with purchase intention following Shen et al. (2022). Consequently, hypotheses were developed relating to the Covid-19 restrictions instituted by government of South Africa which directly impacted grocery shopping. The results provided support for the positive impact Covid-19 restrictions had on online and mobile consumer behaviour thereby confirming all eight hypotheses.

Based on the results, this study concludes that Covid-19 has had a significant and positive impact on mobile and online consumer behaviour in South Africa. The advent of the pandemic caused an increase in the uptake of alternative means of making grocery purchases. Specifically, online and mobile purchase platforms were seen as robust options, particularly at the height of the pandemic. The movement and contact restrictions adopted by the government to curb the exponential growth of incidents of infections caused substantial disutility to shoppers. Consequently, most decided to consider alternatives, pursuant to remedying an unpleasant shopping situation.

The qualitative aspect of the study brought more insight into the apparent substitution effect suggested by the empirical results. The impact of the pandemic on consumer behaviour mainly operated through the psychological channel wherein the fear of infection, displeasure at queuing owing to limited shopping hours, and the constant need for screening at shop entrances dissuaded people from going into stores physically. This study concludes that the Covid-19 restrictions created anxiety among some respondents manifesting through the fear to even touch shopping baskets and trolleys in some cases. The psychological strain occasioned by the pandemic and the obtaining restrictions thereof, proved potent a force to generate motivation to consider other shopping platforms that minimized exposure. Hoekstra & Leeflang (2020) reached a similar conclusion wherein uncertainty and fear of infection saw businesses abandoning traditional methods of marketing and selling and opting to go online.

Results on digital marketing initiatives to stimulate online and mobile purchase intention provided evidence of the former being weak in influencing the latter in a statistically significant manner. Kamel (2021) observed that the speed at which the pandemic was advancing did not give marketing philosophy and the derivative strategy component, time to evolve, adapt and then pronounce a cogent response. That is to say, marketing at the height of the pandemic was mainly reactional and often was void of the full understanding of the key drivers of consumer behaviour since the situation was highly fluid. This reactional nature of marketing strategy during crises was also found by Conway et al. (2007).

6.3 Implications

6.3.1 Theoretical

The primary theoretical implications of the findings of this study relate to marketing strategy during crises. Lies (2021) chronicles the evolution of the philosophy of marketing during a crisis from “marketing 1.0” which is product based to “marketing 4.0” which emphasizes the meaning of digitization. Digitization is underpinned by social media, content creation and mobile marketing initiatives which are all targets of digitized marketing strategies. The cyclical nature of digital marketing during

periods of crises necessitates an understanding of the functional relationship that exists between consumers and products.

The findings from this study contribute to this “marketing during crises” philosophy by drawing robust links between market impulse (Covid-19 regulations related to shopping) and response (the shift to online/mobile purchase platforms) dynamics. To this end, the findings of this study posit a positive relationship between market impulse factors and market response dynamics in the digital marketing space.

6.3.2 Practical

The practical implications of the findings of this study mainly concern business response to ad hoc crises like Covid-19. The pandemic came with unanticipated shifts in both business and consumer behaviour. The supply constraints that emerged in the global economy and also in the domestic economy caught many businesses off guard. The consequent weakening of demand particularly in the services industry resulted in marked job and income losses. Businesses that survived the pandemic had to redesign their business models leveraging on dynamic capabilities to detect and seize new opportunities (Peñarroya-Farell & Maralles, 2022).

The implication for businesses in the retail sector in South Africa is that developing online and mobile purchase platforms is no longer a luxury but an existential necessity. To this end, having the ancillary delivery mechanisms once groceries have been ordered is paramount. Respondents cited distance from where they live as an important determinant of where they shopped for groceries. Having robust online/mobile grocery ordering and delivery systems can eliminate the distance limitation in most instances.

For marketing strategy, there is scope to increase visibility of sales and promotions through digital platforms since the study established that these play a role on deciding where to shop. Such interventions need to be guided by market research to avoid waste. Having a good and attractive web/mobisite did have a significant impact on purchase intention for both mobile and online platforms meaning social media marketing can be a robust strategy to communicate sales and promotions.

6.4 Recommendations

Based on the findings, the study recommends that retail stores, specifically grocery shops, accelerate the development of online and mobile purchase platforms. Pick n Pay has already pioneered this with their “online trolley” innovation that comes with a home delivery service. This recommendation is made cognizant of the socio-economic dynamics of a country like South Africa wherein one would question the point of investing in these technologies when some consumers live in informal settlements and cannot really benefit from a service requiring a residential address. This study would however, argue that while this is true, it constitutes a myopic view because the diffusion of technology takes time and is highly adaptable. Therefore, having the digital purchasing platforms for all major grocery shops in the country can help alleviate the severity of unanticipated shocks like the Covid-19 pandemic. To a certain extent, these platforms function as a hedge against unanticipated threats to the normal way people shop for groceries.

This study also recommends the proliferation of social media marketing particularly for seasons or periods of the month when grocery shops have specials and sales. This can be in the form of boosting social media posts and increasing the frequency of updating the store social media page. This must be guided by an underpinning that social media marketing strategy needs to be developed with the ancillary market research on consumer trends guiding the process. The results suggested that consumers use social media for information on sales and specials in making decisions on where to shop for groceries.

While the impact of the Covid-19 restrictions on consumer behaviour is now something confined to recent history, the learnings thereof should not be confined to history but should be applied to create a resilient grocery shopping environment for all South Africans.

6.5 Limitations of the study

The study was limited in that it could only sample the economically active population primarily in the Gauteng province where Wits University is located. However, this limitation did not constitute a fatal blow to the study since university students come

from all over the country. Also, snowball sampling through the researcher's vast professional networks ensured robust representation of the target population.

Further limitations relate to the fact that consumer behaviour was constrained to grocery shopping and did not include other aspects of the retail value chain. The services sector was the one most adversely impacted by the pandemic and so understanding how consumer behaviour responded to the shock of the pandemic would have been an interesting dynamic for the study to pursue.

The study was also limited in that the focus was on the demand side of the value chain such that the implications for business and marketing strategy are not reflective of any supply side factors. Furthermore, the study did not consider the memory of the shift in consumer behaviour; is the shift permanent, temporal or somewhere in between?

Limitations of the study

6.6 Suggestions for further research

The study would recommend further research to focus on the impact of the pandemic on the services sector. The goal here being to understand the differences, if any, between the response consumer behaviour in the goods sector and in the services sector.

From a technical stand point, the current study employed a linear framework predicated on correlations between the variance and covariance of the key variables. Further research in this regard can adopt a nonlinear approach to investigate the same issues. To this end, the impact of marketing strategy variables like websites/mobile applications that are attractive and have great information being found insignificant maybe due to the fact that this relationship is dominated by nonlinear strains.

6.7 Summary

This chapter presented the conclusion, implications, limitations and recommendations of the entire study based on the research results and findings. The underlying conclusion was that Covid-19 caused a shift in consumer behaviour. Specifically, the advent of the pandemic, as measured by the restrictions, increased the use online and mobile application purchase platforms to source groceries. The principal recommendation was for the proliferation of strategy based social media marketing activities owing to social media's demonstrated potency, as per the findings of the study, to influence where people shop for groceries.

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APPENDIX A

Actual Research Instrument





Dear Sir / Madam,

My name is Edphan P. Chanetsa. I am a Masters student at the University of the Witwatersrand, Johannesburg. My supervisor is Dr Yvonne Kabeya Saini. I am conducting a research study about the effects of COVID 19 related restrictions on the purchase intentions of consumers in South Africa. Specifically, the study purposes to understand how these restrictions have modified purchase behaviour on mobile apps and online platforms. The title of the study is 'The effects of COVID 19 on consumer mobile and online purchase behaviour.

I am inviting you to answer a questionnaire with multiple choice questions. If you decide to take part, your participation in this research study will last about 10-12 minutes. The questionnaire is online so you can complete it, and the submission will be automatic upon completion of the survey.

With your permission, I would like to capture your experiences on the online questionnaire I have prepared. Only me and my supervisor will have access to the data.

During the research activity, I will need to ask for some personal information about you, including your age group, gender, province of primary residence, employment status and gross household income bracket.

The questionnaire will be confidential and anonymous. When I share the results of the research study, I will not include your name or anything else that could identify you. With your permission, other researchers may use the data collected from this

research study, but your name and any personal information will not be used or passed on.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to take part. You can stop being in the study at any time. You do not have to answer any questions if you do not want to. You will not get any direct benefits if you choose to join the research study. You will not lose any services, benefits or rights you would normally have if you decide not to join. Taking part in the research study will not cost you anything. You will not be paid for being in this research study.

The risks for this research study are no more than what happens in everyday life.

This research study will be written up as a research report. The report will be available on the university library website. If you would like to receive a summary of this report, I will be happy to send it to you.

If you have any questions during or afterwards about this research study, feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Edphan P. Chanetsa

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Research Instrument

A. SOCIO-ECONOMOC STATUS

1. What is your highest level of education?
    a. Matric
    b. Post High School Certificate/Diploma
    c. Degree
    d. Honors
    e. Masters Degree
    f. Doctoral Degree
    g. Post-Doctoral Qualification
2. What is your current employment status?
    a. Full time employee
    b. Part time employee
    c. Independent Contractor
    d. Self-employed
    e. Unemployed
3. Please indicate your gross monthly household income.
    a. Less than R10,000
    b. Between R10,001 – R30,000
    c. Between R30,001 – R50,000
    d. More than R50,001
4. Which mobile network provider do you use mainly?
    a. Vodacom
    b. MTN
    c. Cell C
    d. Telkom
    e. Other
    f. None
5. What type of mobile phone manufacturer device do you use mainly?
    a. Apple
    b. Samsung
    c. Huawei
    d. Nokia
    e. Other
6. Are you aware of the Covid-19 virus?
    a. Yes
    b. No
7. Do you order groceries online?
    a. Yes
    b. No
8. How far do you live from the nearest grocery store which you order food from?

a. 0-5 kilometers
b. 5,01 – 10 kilometers
c. > 10 kilometers

B. IMPACT OF COVID-19 ON MOBILE APPLICATION PURCHASE INTENTION

9. The requirement for social distancing increased my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
10. The requirement for social distancing did not impact my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
11. The requirement for screening at grocery shop entrances increased my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
12. The requirement for screening at grocery shop entrances did not impact my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
13. Limited shopping hours increased my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
14. Limited shopping hours did not impact my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree

c. Neutral
d. Agree
e. Strongly Agree

15. Fear of infection with Covid-19 increased my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
16. Fear of infection with Covid-19 did not impact my intention to purchase groceries using my grocery shop mobile app.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

C. IMPACT OF COVID-19 ON ONLINE (DESKTOP/LAPTOP) PURCHASE INTENTION

17. The requirement for social distancing increased my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
18. The requirement for social distancing did not impact my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
19. The requirement for screening at grocery shop entrances increased my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
20. The requirement for screening at grocery shop entrances did not impact my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

21. Limited shopping hours increased my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
22. Limited shopping hours did not impact my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
23. Fear of infection with Covid-19 increased my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
24. Fear of infection with Covid-19 did not impact my intention to purchase groceries online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

D. CONSUMER PREFERENCES

25. Which grocery store do you frequently use to buy your groceries from?
    a. Woolworths Food
    b. Pick n Pay
    c. Checkers
    d. Shoprite
    e. Spar
    f. OK
    g. Other
26. I find the grocery store mobile site visually attractive and having good content.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
27. I find the grocery store website visually attractive and having good content.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

28. The type of mobile advertisements I receive on my mobile device from grocery stores encourage me to order groceries on my mobile device.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
29. The type of online advertisements I receive on my desktop device from grocery stores encourage me to order food online.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

E. COVID-19 PURCHASE BEHAVIOUR

30. Covid-19 has made you expect food retailers to be able to provide the means for you to order groceries digitally?
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
31. If a new strain of Covid-19 were to emerge that would make South Africa go into a hard lockdown, would you be comfortable to order your groceries using either a mobile or desktop device?
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
32. If a grocery store does not offer a website or mobisite to order and have groceries delivered to your home, how likely will you buy groceries from that grocery store?
    a. Extremely unlikely
    b. Unlikely
    c. Neutral
    d. Likely
    e. Extremely likely
33. In your own words, can you please share how Covid-19 has affected the way you shop for groceries?

34. How do you decide where to shop for groceries?

F. DEMOGRAPHICAL DATA

35. Country of Origin:

South Africa		Other	

36. What is your province of primary residence?

Item	Province	Response
1	Gauteng	
2	Limpopo	
3	North-West	
4	Mpumalanga	
5	Kwa-Zulu Natal	
6	Northern Cape	
7	Western Cape	
8	Eastern Cape	
9	Free State	

37. Please indicate your age range?
    a. Under 18
    b. 18-34
    c. 35-59
    d. 60 and older
38. What gender do you identify with?
    a. Male
    b. Female
    c. Non-binary/ third gender
    d. Prefer not to say
39. What is your marital status?
    a. Single/Unmarried
    b. Co-Habit
    c. Married
    d. Widow/widower