NELSON MANDELA UNIVERSITY

THE IMPACT OF THE COVID-19 PANDEMIC ON CONSUMER SUSTAINABILITY AND GREEN PRACTICES IN NMB

BY

RONIQUE LESLEY DAVIS
STUDENT NUMBER: 214133893
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DECLARATION BY CANDIDATE

NAME:	RONIQUE LESLEY DAVIS
STUDENT NUMBER:	214133893
QUALIFICATION:	BACHELOR OF COMMERCE HONOURS
TITLE OF PROJECT:	**THE IMPACT OF THE COVID-19 PANDEMIC ON CONSUMER SUSTAINABILITY AND GREEN PRACTICES IN NELSON MANDELA BAY**

DECLARATION: I, Ronique Lesley Davis declare that THE IMPACT OF THE COVID-19 PANDEMIC ON CONSUMER SUSTAINABILITY AND GREEN PRACTICES IN NELSON MANDELA BAY is my own work, that all sources used or quoted have been identified and acknowledged by means of complete referencing and that this study was not previously submitted by me, for a degree at any university.

In accordance with Rule G5.6.3, I hereby declare that the above-mentioned treatise/dissertation/thesis is my own work and that I have not previously been submitted to another University or for another qualification

Ronique Davis……..

SIGNATURE

25 October 2021……

DATE

DEDICATION

This study is wholeheartedly dedicated to the memory of my late mother, Nicolette Le Roux, who passed away upon the completion of my primary education, and my grandmother, Ellen Ferreira, who has been my source of inspiration and strength, and who continues to provide me with moral, spiritual, emotional, and financial support.

To my brothers, who graciously sacrificed their own education for mine. Thank you for affording me the greatest gift in this life. I will never forget.

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ABSTRACT

Significant importance is placed on environmental issues such as climate change, scarcity, natural resources, and other ecological challenges. However, in 2020, the World Health Organization (WHO), declared the coronavirus a global pandemic and the emergence of the pandemic has raised concerns regarding the environment.

The purpose of this study is to identify the impact of the COVID-19 pandemic on consumer sustainability and green practices, the results of the study will enable future researchers to conduct prospective research into the impact of the COVID-19 pandemic on consumer sustainability and green practices. Quantitative research methodology and descriptive statistics were used to analyse and interpret data from the respondents.

Main findings from the study observe that consumers in NMB engage in conservation of water, reusing old materials and a sustainable lifestyle.

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CHAPTER ONE

INTRODUTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

Environmental degradation is constantly affecting the ability of the earth's ecological, physical, and chemical resources (Omoogun, Egbonyi & Onnoghen, 2016:61). As a result, sustainability and green practices are being implemented on a global scale as nations and organisations seek to modify their environmental structures (Conrad, 2013:3369).In recent years, environmental issues have emerged through a variety of stages. Since then, the sustainability of the environment has become a fundamental issue for governments at various levels (Ogiemwonyi, Harun, Othman, Ismail & Ali,2019:517). The modification of environmental structures and processes also ensure that consumers are consistently informed of the dangers imposed on the environment by corporations as they pursue their bottom line (Smith & Perks, 2010:2).

In 2020, the World Health Organization (WHO), declared the coronavirus a global pandemic. The COVID-19 virus was a catalyst of global interruptions resulting in restrictions in global trade, limitations to mobility, and limited access to food consumption. The pandemic has caused chaos for many nations, organizations, and individuals alike and has affected many aspects of life, including the Sustainable Development Goals (SDG's) developed by the United Nations (Srivastova, Sharma & Suresh, 2020:4970).

Consumers participate in the circular economy through their sustainable and green practices. The promotion of green consumption is considered a significant method of solving environmental issues and the exploitation of natural resources. Thus, green consumption contributes to reducing environmental degradation (Ogiemwonyi *et al.*, 2019:514). Li (2020:586) asserts that consumer green practices are based on the consumers green consumption and refers to sustainable consumption. Furthermore, Li (2020:587), contends that green consumption refers to three aspects, firstly, the consumer is motivated to purchase green production, secondly, the consumer is encouraged to take measures in circumventing environmental pollution and lastly, it enables the consumer to modify their consumer concepts and promote the natural environment. Consumers sustainable and green practices include, sustainable food practices, sustainable household consumption, transportation, and mobility (Akenji & Chen, 2016:7-8).

Sustainability has progressed significantly in recent years; however, the emergence of the COVID-19 pandemic has resulted in significant concerns regarding the environment and caused uncertainty. According to Hassen, El Bilali & Allahyari (2020:3) the coronavirus has affected the purchasing pattern of consumers. Studies conducted by Manasinghe (2020:2) and Hakovirta & Denuwara (2020:1) report that environmental sustainability resulting from global trade and economic policy was considered a highly focused issue and the fundamental purpose of humanity prior to the pandemic. However, Director (2020:1) argues that the impacts of COVID-19 cannot be anticipated.

Thus, the impact of the COVID-19 pandemic on consumer sustainability and greening practices in the Nelson Mandela Bay will be reviewed in this study.

1.2 PROBLEM STATEMENT

Considering the above, it is evident that research into the extent to which the pandemic has impacted sustainability and green practices are required. The purpose statement of this study is thus to investigate the impact of the COVID-19 pandemic of consumer sustainability and green practices.

The environment is burdened by global warming and scarcity of resources (Lorek & Fuchs, 2011:2). A significant level of importance is currently placed on environmental issues such as climate change, scarcity, natural resources, and other ecological challenges. It has become evident that humans have the capacity to contribute to various efforts to sustain the environment (Larsson & Khan, 2011:1). Therefore, the impact of environmental sustainability for organisations and consumers is a widely researched topic. Larsson and Khan (2011:2) contend that consumers have an increasing interest in protecting the environment which encourages companies to achieve greener production.

Green consumption consists of activities including how consumers retain, use, and dispose their waste, recycling, effective utilization of energy and resources, safety and health and the preservation of physical and biological resources (Singh & Gupta, 2012: 3). Consequently, several green practices and activities have been developed to aid environmental impacts, these are green purchasing, green supply chain management, green manufacturing, green packaging, and reverse logistics (Shaharudin, Akbar, Zainal, Hassam Zainoddin & Nizam, 2018: 243).

Consumers play an integral role in the preservation of the environment through their green purchasing activities, Singh and Gupta (2012: 3), asserts that consumers use their role by responding to the green challenge in a variety of ways.

In recent years, emphasis has been placed on sustainability and increasing concerns for the environment (Giovannoni & Fabietti, 2014:21). However, there are many challenges to achieving a degree of sustainability that ensures future generations meet their needs (Orr, 2002:1457). COVID-19 has emerged as a key challenge for consumer sustainability and green practices. Although the pandemic has led to a decline in greenhouse gas emissions, the pandemic has also led to excessive consumption, increased technological and energy requirements, and increased solid waste generation (McGain, Muret, Lawson & Sherman, 2021: Internet). Latham (2021: Internet) contends that several studies have reported that the pandemic has resulted in healthier consumption choices. In a survey conducted by a consulting firm, it was found that sixty percent of consumers performed purchase decisions that were either more environmentally friendly, sustainable, or ethical (Latham, 2021: Internet). Therefore, the researcher concludes that a basis for this study exists.

The problem statement of this study is to identify the impact of the COVID-19 pandemic on consumer sustainability and green practices. Although there has been substantial research on consumer sustainability, green practices and its benefits to society, the environment and the economy, there is limited research on the impact of COVID-19 on consumer sustainability and green practices. It is important to conduct this research in order to establish whether the pandemic will sustain certain elements of its negative or positive effects in terms of consumer sustainability and green practices.

1.3 OBJECTIVES OF THE STUDY

The following primary research objectives, secondary research objectives and methodological research objectives have been formulated to address the research problem highlighted in the current study.

1.3.1 PRIMARY RESEARCH OBJECTIVES

In line with the problem statement the primary objective of this study is to assess the impact of COVID-19 on consumer sustainability and green practices in Nelson Mandela Bay.

1.3.2 SECONDARY RESEARCH OBJECTIVES

In order to achieve the primary objective, the following secondary objectives (SO) have been formulated.

SO_1: To conduct a theoretical overview of consumers' sustainability and green practices and the attitudes and behaviours that influence consumers green practices, namely; sustainable health, environmental sustainability, green travel and transport, sustainable food and clothing and waste management practices.

SO_2: To empirically assess the level of consumer sustainability and green practices undertaken by consumers in the Nelson Mandela Bay Metropolitan amid the COVID-19 pandemic.

SO_3: To provide conclusions and recommendations based on the results of consumers in the Nelson Mandela Bay Metropolitan on how to improve the undertaking of sustainable and green consumer practices in considering the COVID-19 pandemic.

1.3.3 METHODOLOGICAL RESEARCH OBJECTIVES

MO_1: To conduct a theoretical investigation of the sustainability and green practices of consumers (sustainable health, environmental sustainability, green transport and tourism, sustainable food and clothing and waste management practices).

MO_2: To determine an appropriate research methodology to address the identified research problem and research objectives;

MO_3: To develop an appropriate measuring instrument (quantitative) to empirically test the impact of the independent variables on the dependent variables.

MO_4: To source and analyse primary data from a pre-determined sample of consumers in the Nelson Mandela Bay Metropolitan and test the results using appropriate statistical methods.

MO_5: To source data from a pre-determined sample of consumer in the Nelson Mandela Bay to be tested using appropriate statistical methods.

MO_6: To provide pertinent conclusions and recommendations based on the findings of this research, which could assist consumers in the Nelson Mandela Bay in improving their sustainability and green practices.

1.4 SIGNIFICANCE OF THE SUDY

The findings of this study will provide prospective researchers with guidelines that will enable them in conducting research into the impact of COVID-19 on consumer sustainability and green practices. It also seeks to assist researchers with perspectives into the elements of the novel corona virus that hold a positive or negative effect, thus enabling researchers to better understand the relationship between COVID-19 and sustainability and green practices. To conclude, this study will contribute to the knowledge of both consumers and organisations in understanding consumers attitudes and behaviours toward sustainable development.

1.5 STRUCTURE OF THE STUDY

The structure of the study consists of:

Chapter one: This chapter will undertake the introduction and background of the study and includes a statement of the problem. The objectives of the study will also be indicated, including the primary, secondary, and methodological research objectives. Lastly, the significance and purpose of the study will be elaborated.

Chapter two: An extensive discussion on the consumers sustainability and greening practices will be presented. Firstly, the nature and importance of consumer greening practices will be discussed, followed by the attitudes and behaviours that affect consumers green practice initiatives. The consumers green practice initiatives will then be presented by examining the greening hierarchy and the role of green consumption. Lastly, the challenges impacting the consumers green practices will be explored.

Chapter three: This chapter undertakes a detailed discussion pertaining to the research approach and methodology applied by the researcher. Chapter three includes a discussion about the data collection methods utilised within this study. The statistical methods used to analyse data collected from consumers in the Nelson Mandela Bay Metropolitan will be presented in this chapter.

Chapter four: This chapter includes a discussion of the empirical results based on the statistical analysis performed in this study. A summary of the demographic information related to the consumers and their greening practices will be provided.

Chapter five: The key findings from the literature review and the empirical investigation is summarised in this chapter, followed by conclusions pertaining to the study as well as

recommendations to improve the undertaking of green practices to protect the environment by consumers in Nelson Mandela Bay Metropolitan.

1.6 SUMMARY AND CONCLUSIONS

Chapter one outlines an overview of the proposed study. An introduction to the topic was provided to ascertain the need for conducting the study on the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB.

Sustainability has generated significant advancement in recent years and the COVID-19 pandemic has elevated consequential apprehensions regarding environmental degradation.

The main objective of this study is to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB. Several secondary objectives were formulated, such as selecting an appropriate research methodology and measuring instrument for the study.

Chapter two of this study will provide a comprehensive theoretical overview in order to provide the necessary background research on the topic of this study.

CHAPTER TWO

LITERATURE OVERVIEW

2.1 INTRODUCTION

The preceding chapter (Chapter One) entails the undertaking of a detailed discussion pertaining to the purpose and importance of this study in the introduction and background section. The primary objective of this study is to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB. Thereafter, Chapter Two of this study will provide a theoretical overview of consumers sustainable and green practices and aims to address the attitudes and behaviours that influence the consumers sustainable practices.

This chapter will now review existing literature on consumer sustainable and green practices. It will include definitions of important concepts relating to the dependent variable (consumer sustainability and green practices). The theoretical overview will outline five important concepts relating to sustainable and green practices (waste management, sustainable health, environmental sustainability, green transport and travel and sustainable food and clothing).

2.2 DEFINITIONS

This section of the literature overview will seek to define the key concepts related to the impact of the COVID-19 pandemic on consumer sustainability and green practices in Nelson Mandela Bay.

2.2.1 GREEN PRACTICES

Green practices are defined as the development of procedures for the preservation of energy and other environmental resources (Dutta, Umashankar, Choi & Pasa, 2008:270). Yanarella, Levine and Lancaster (2009:296), define green practices as safe practices, while Smith and Perks (2010:4) refer to green practices as environmentally sound practices. The role of the consumer in promoting green practices can be understood through their consumption of green products, as consumers are proponents of green consumption (Singh & Gupta, 2012:3).

2.2.2 CONSUMER SUSTAINABILITY

According to Hosta and Zabkar (2016:147) consumer sustainability can be defined as the consumers consciousness regarding the long-term impact of their actions on the condition of

the environment. Sharma and Rani (2014: 369) argue the definition of sustainable consumption, that is, the consumption of goods and services that do not exhibit harmful impacts on the environment and continues the process of meeting the needs of future generations.

2.2.3 COVID-19

COVID-19 or the coronavirus is a disease caused by the SARS-Cov-2 virus (Steinmetz, 2020: Internet). Hafeez, Ahmed, Siddqui, Ahmed, and Mishra (2020:116) argues that the Covid-19 virus refers to a combination of viruses that which cause diseases in humans. Di Gennaro, Pizzol, Marrota, Antunes, Racalbuto, Veronese and Smith (2020:1) argues that the COVID-19 virus is defined as "an RNA virus, with a typical crown-like appearance under an electron microscope due to the presence of glycoprotein spikes on its envelope".

2.3 BACKGROUND ON THE COVID-19 PANDEMIC

Since it emergence, the coronavirus pandemic has affected consumers, their purchasing behaviour and actions undertaken to restrict transmission of the disease. The pandemic has significantly interrupted consumer practices globally and locally (Pophiwa, Moroane & Kenny, 2021:1). Rai, Singh, Sharma, Bharti, and Shukla (2021:3402) argue that the pandemic has resulted in consumers purchasing behaviour shifting towards mass purchasing. Cambefort (2020:2) reports that the impacts of the pandemic challenged consumption in several ways. Firstly, the coronavirus has essentially resulted in a general decline in consumption resulting in the downsizing of consumption. Secondly, the emergence of increased preferences for locally produced products has been prevalent during the pandemic. Lastly, a rapid increase in consumer responses to misconduct by brands in the treatment of their employees has occurred. (Cambefort, 2020:2-5).

An essential determinant of the spread of the virus is the preventative measures individuals undertake through small-scale decisions. According to Guner, Hasanoglu, and Aktas (2020:571), preventative measures play a significant role in restricting transmission of the virus. These preventative measure include "stay-at-home restrictions, the use of face masks, personal hygiene, isolation and social distancing" (Guner *et al.*,2020:572). Restricting the spread of the virus has resulted in the introduction of mandatory practices by international governments, such as "social distancing, self-quarantining and the wearing of masks" in order to prevent the spread (Pophiwa *et al.*,2021:1).

Another important element of the spread of the virus is its transmission rate and impact amongst elderly people and those with comorbidities. The transmission and mortality and mortality rates of the virus can be attributed to several determinants, including socio-demographics and health care demographics (Bhowmik, Tirtha, Iraganaboina & Eluru, 2021:1). The study conducted by Bhowmik *et al.*,(2021:9) reports that the transmission rate amongst countries with a high percentage of females constitute a higher transmission of the virus compared to other countries. Since the emergence of the virus, the elderly has been severely at risk relative to younger people (D'Ascanio, Innammorato, Pasqueriello, Pizzirusso, Guerrieri *et al.*,2021:2). Araujo, Nunes, Costa, de Souza, Torres and Nobre (2021:2) contend that elderly people are more at risk resulting from comorbidities and existing illnesses.

However, non-compliance from citizens has occurred during the course of the pandemic. According to Nivette, Ribeaud, Murray, Steinhoff, Bechtiger, Hepp, Sganahan, and Eisner (2021:1) , adolescents and young adults are the perpetrators of low compliance with regards to preventative measures. Subsequently, these individuals potentially display only mild symptoms of the disease, while the virus continues to spread. Staunton, Swanepoel, and Labuschaigne (2021:3) contend that alternative reasoning can be attributed for the lack of compliance in South Africa, specifically socio-economic realities that restrict the efficiency of prevention strategies.

South Africa's COVID-19 response required the government to direct its efforts on containment of the virus (Staunton *et al.*,2021:3). Kollamparambil and Oyenubi (2021:2) asserts that the South African government initiated a hard lockdown in the developing stages of the pandemic. Staunton *et al.*,(2021:1) reports that the initial stages of the pandemic were managed with effectiveness by the government. However, government interventions included over-dependence on criminal law to ensure the restrictions implemented were adequately adhered to. Staunton *et al.,* (2021:11) further argues that interventions by the government were not effective enough and has affected the poor and disenfranchised, leading to a lack of available employment opportunities.

Governments were also forced to contend with social media misinformation and discrimination and stigma during the pandemic. The expeditious transmission of the disease coincided with an equivalent cascade of information through social networks, which allowed an extensive inundation of communique's to spread rapidly (Ferreira & Borges, 2020:109). Social media during the course of the pandemic also affected communities perception of those infected with COVID-19, Sotgui & Dobler, 2020:1) asserts that communities presumed to believe vague and

biased information through social networks. Bhanot, Singh, Verma and Sharud (2021:3) argue that stigma during the pandemic resulted in the infected being treated as the 'passive acquirers of the disease'.

2.4 CONSUMER SUSTAINABILITY AND GREEN PRACTICES

This section of the study seeks to provide a detailed discussion on the practices that consumers undertake in their efforts to protect the natural environment. These practices include waste management (reduce, reuse, and recycle), sustainable clothing practices, sustainable health and food practices, green transport and travel and environmental sustainability.

2.4.1 SUSTAINABLE HEALTH PRACTICES

Apart from environmental impacts, heath is substantially impacted by a consumers food choices (Akenji & Chen, 2016:6). The following aspects of sustainable health consumption will now be discussed; sustainable lifestyle, locally produced foods, and organic food consumption.

Firstly, consumers acquire locally produced items that contribute to the minimization of energy utilization in the production process, transportation, and storage (Sustain, 2007:4). In a study conducted by Forbes, a thirty-five percent increase in local food purchases during the pandemic is reported in the United Kingdom (Ewing-Chow, 2020: Internet). Martinez (2020: Internet) reports that the pandemic has increased the consumers affinity for locally produced products. Hassen *et al.,* (2021:1) asserts that the COVID-19 pandemic has influenced consumers food consumption behaviour and diets, and food wastage behaviour. The virus has also caused a decline in household expenditure and movements in the spending patterns of consumers (Jribi, Ismail, Doggui & Debbabi, 2020:2). Jribi *et al.,* (2020:2) reports that food wastage levels are approximately 3.3 billion tonnes of CO_2 annually. A study conducted in Italy reports a significant reduction in the level of food wastage, while a study conducted in Malaysia reports an approximate reduction of food waste by fifteen percent (Cosgrove, Vizcaino & Wharton, 2021:2).

Secondly, consumers sustainable food consumption principles include the purchasing of organic products that minimise harmful impacts on the environment and the health of the consumer (Sustain, 2007:4). Furthermore, organic products constitute important reasons for healthy and nutritional foods (Kisaka-Lwayo & Obi, n.d:12). Martinez (2020: Internet) asserts that the occurrence of the COVID-19 pandemic has increased the consumers preferences for

healthy products. Consumers trust that organic food products have the ability to boost their immune system and provide ammunition against the COVID-19 virus (Gumber & Rana, 2021:2). Organic food stores have encountered substantial increases in sales revenue (Gumber & Rana, 2021:2). Dey (2021: Internet) argues that the general consensus is that organic products are relatively expensive, but the pandemic has caused a shift in the consumers preferences for organic and natural products to maintain good health.

Thirdly, consumers adopt sustainable food practices for various reasons, including to alleviate environmental, lifestyle and health concerns (Akenji & Chen, 2016:6). A sustainable lifestyle is defined as sequence of consumption employed by consumers in order to promote improved quality of life, minimise natural resource and emissions usage and promotes the needs of future generations (Rakic & Rakic, 2015:893). Dey (2021: Internet) argues that a sustainable lifestyle involves an individual choice to minimize the utilisation of natural resources. According to Rakic and Rakic (2015:893) consumers undertake sustainable diets for the implementation of measures that enable improved nutrition in an attempt to reduce their carbon footprint and adapting their conduct regarding food waste. The COVID-19 pandemic has caused individuals to realize the impact of their consumption choices on the environment and has resulted in the consumer adopting a more sustainable lifestyle (Dey, 2021: Internet).

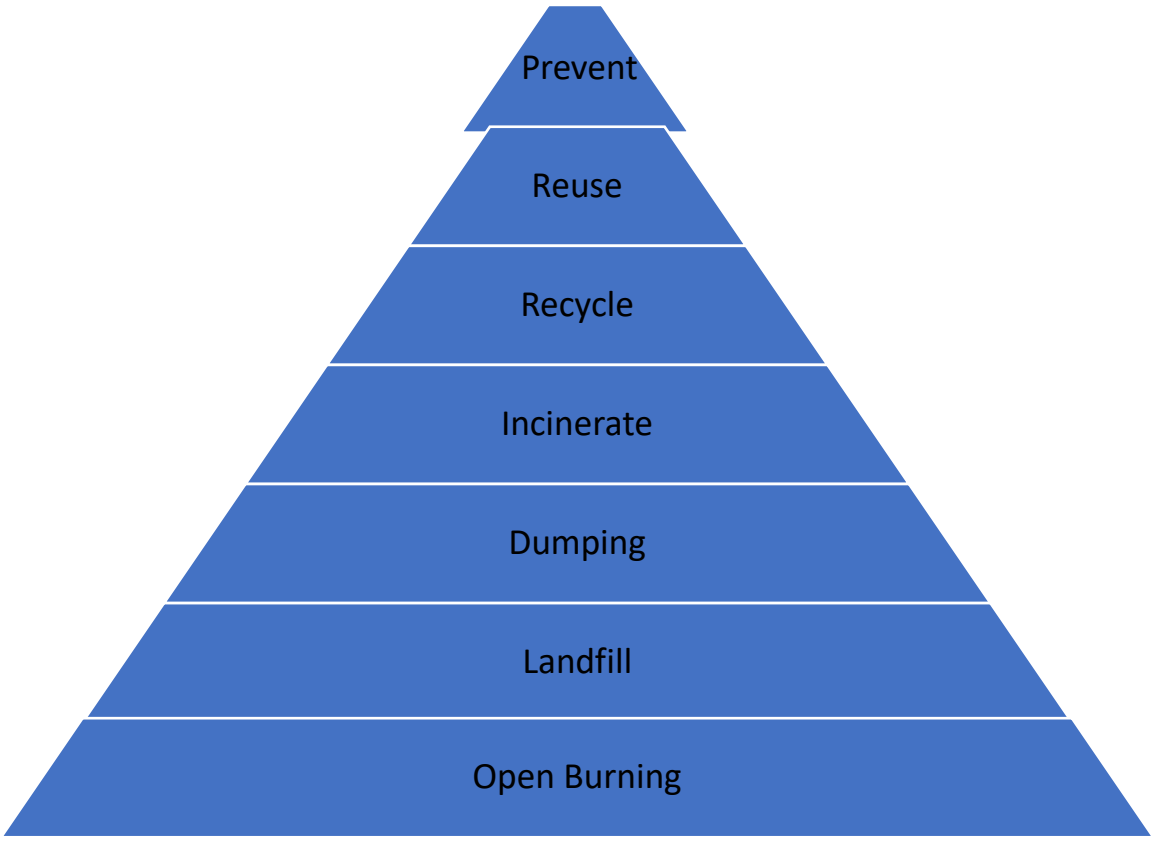
2.4.2 WASTE MANAGEMENT PRACTICES

According to Choshaly (2016:3) the concept of the 3R principle forms the basis of green consumption and sustainable development. The 3R principle consists of three activities, namely reduce, reuse, and recycle.

Waste prevention is significant in the management of waste (Abdul-Rahman, 2014:1). Smith (2020:10) contends that waste prevention is an activity undertaken to reduce the amount of waste caused by people, businesses, and households alike. Effective waste prevention involves the consumer limiting purchases to essential goods and only in required amounts (Abdul-Rahman, 2014:1; Smith, 2020:10). Waste prevention also entails efforts to reduce waste. Abdul-Rahman (2014:2) contends that reducing the quantity of purchases is the most important activity in managing waste. According to Ferrari, Gamberini and Rimini (2016:760) waste prevention is a measure performed before a substance becomes waste and cannot essentially be considered a measure of waste management procedures. Consumers can implement various steps in their efforts to reduce or prevent waste, including the purchasing of items that are required, and not those that form “wants”, purchasing products that are superior in quality,

using durable rather than disposable products and avoiding the use of plastic bags by purchasing shopping bags (Abdul-Rahman, 2014:2).

FIGURE 2.1: WASTE MANAGEMENT HIERARCHY



Source: Adapted from Smith (2020:7)

Figure 1 illustrates the different levels of the waste management hierarchy, including waste prevention, reuse, and recycling.

Reusing transpires after waste prevention is executed (Medina, 2010:7). Reusing is defined as a process that occurs when an object has already satisfied its purpose and is used to perform another activity (Umar, Sehab & Yagnik, 2018:58). Smith (2020:10) defines waste reuse as the continuation of the use of an item by conveying it to another person or acquiring non-disposal objects. Reusing involves the recovery of objects that can be reutilized (Medina, 2010:7). According to Umar et al., (2018:58) recovery of items encompasses energy recovered from waste, that is, energy incinerated for the purpose of developing heat, subject to the inability to reuse or recycle the product. Magram (2011:693) defines reusing as assembling waste through the collection of food and drink containers for the purpose of cleaning and reselling. Abdul-

Rahman (2014:3) asserts that reusing is based on the premise that used substances constitute a resource rather than refuse. Smith (2020:10) reiterates that consumers generally consider old, fragmented, or vacant items as futile and prefer to dispose such items without contemplating the effect on the environment and asserts that reuse of items is a resource. Strategies for the reuse of an item includes methods such as employing shopping bags, donating mature objects to charity (Smith, 2020:10), and acquiring beverages in revertible containers (Abdul-Rahman, 2014:3). According to Umar et al., (2018:58) glass or water bottles and old tires returned through the 'deposit refund system' are essential strategies of the reusing principle.

Recycling follows reusing in the waste management hierarchy (Smith, 2020:10). Recycling involves the regenerating of waste from old materials for reprocessing (Umar et al.,2018:58). Smith (2020:10) defines recycling ass a waste management activity that involves the transformation of discarded waste into functional products that exhibit environmentally sustainable characteristics. Umar *et al.*, (2018:58) report that recycling is most effective for valuable or expensive materials, metal, plastic, and glass. Several activities are associated with the process of recycling, including the collection, manufacturing, and refining of materials to enable consumers to acquire newly produced products modified from recycled materials (Smith, 2020:11).

According to the United Nations Environmental Programme (2020:9), the COVID-19 pandemic has generated supplemental challenges in the management of waste, particularly in developing countries. The risks associated with waste management during COVID-19 include escalations in the volume of plastic waste caused by the national lockdown and the intermission of repurpose activities in stores. Furthermore, another challenge for waste management and consumer sustainability involves increases in illegal dumping and littering and recycling activities. Sarkodie and Owusa (2021:7952), contend that the pandemic has resulted in significant increases in the production of waste and can be attributed to the accumulation of medical waste such as personal protective equipment generated by households. It is contended by the United Nations Environmental Programme (2020:9), that the pandemic has exposed a lack of access to information regarding waste, in addition to a shortage of accurate estimates regarding household waste generation.

2.4.3 ENVIRONMENTAL SUSTAINABILITY

Environmental efficiency for households is an important aspect of environmental sustainability (Khan, Saengon, Alganad, Chongcharoen & Farrukh, 2020: 1). Environmental sustainability

can be defined as a state of balance and interdependence that enables humans to satisfy their needs while maintaining the volume of the ecosystem to resume its restoration of the services required to satisfy those needs (Morelli, 2011:5). Improved energy efficiency in households refers to adequate attempts to lower energy consumption of households, without compromising the degree of consumer welfare or the state of the environment (Khan *et al.*,2020:1).

In a study conducted on the consumers approach to environmental sustainability, Khan *et al.*, (2020:4) contends that household environmentally sustainable behaviour comprises of decreases in energy resource utilisation and eco-friendly purchase decisions. Energy resource usage refers to the decline in the temperature of household appliances, lower water consumption and decreases in the consumption of electricity (Khan *et al.*,2020:4).

Firstly, single-use plastics are a group of materials that are formed several ways and employed in an array of applications (United Nations Environmental Programme, 2018:2). The COVID-19 pandemic has resulted in increased waste production from single-use plastic, including personal protective equipment and has impacted waste management activities on a global scale (Silva, Prata & Rocha-Santos, 2020: Internet). Bomey (2020: Internet) concurs with this assertion, reporting that non-regulated waste, such as plastic bags, medical equipment, food delivery and takeaways has increased during the pandemic. Single-use plastics are constructed of plastic and intended to be discarded after a short period (Graulich, Kohler, Low, Sutter, Watson, Mehlhart, Egebaek & Bilsen, 2021: 4).

According to Fielding, Russell, Sprinks and Mankad (2012:1); and Dworak, Berglund, Laaser, Strosser, Rousard, Grandmougin, Kossida and Kyriazopoulou (2007:9), the conservation of water is a fundamental activity undertaken by consumers and households in an attempt to preserve environmental resources and avoid water scarcity. Kumari and Singh (2016: 76) assert that water conservation can be defined as any reduction in the use of water as an efficiency measure through improved water management. The Ministry for the Environment (2009:10) contends that water wastage is primarily caused by household use, which involves running taps, extended showers, leaking pipes and using hoses and sprinklers. The installation of water efficient appliances in households is an important strategy for sustainable management (Fielding *et al.*,2012:1). A common practice for water efficiency in households involves the removal of existing appliances with more efficient equipment (Fielding *et al.*,2012:1). Browne, Tucker, Johnston and Leviston (2007: 7) contend that sustainable household practices for water conservation include preserving bathwater to water the garden, restricting showers, utilising

grey water for toilet flushing, obtaining a water tank, restricting water used for the dishwasher and restricting the washing of dishes.

In a study conducted by on household water consumption in during the course of the pandemic, a significant increase in the consumption of water since the emergence of the pandemic is reported (Abu-Bakar, Williams & Hallett, 2021:13). Consequently, in a study conducted by Campos, Carvalho, Melo, Goncalves, Santos and Barros (2021:9) it is concluded that an increase in water consumption is primarily caused preventative measure such as washing hands, water, cleaning floors and showering".

Furthermore, energy efficiency refers to the consumers inclination to consume energy efficient products as an important aspect for diminishing household energy consumption (Li, Li, Jin & Wang, 2019:1). Household appliances therefore provide underlying importance to energy consumption and increasing emissions magnification (Li et al., 2019:1). Thus, the coronavirus pandemic has resulted in significant increases in the demand for household appliances (Brinkley, 2020: Internet). Brinkley (2020: Internet) contends that energy consumption during the pandemic has increased, while Soava, Mehedintu, Sterpu and Grecu (2021:5) argue that the pandemic has led to households' energy consumption patterns changing significantly. Soava et al., (2020:6) contends that households developed and developing nations exhibit different electricity consumption trends.

2.4.4 SUSTAINABLE TRANSPORTATION AND TRAVEL

The emergence of environmental concerns such as air pollution and greenhouse gas emissions and environmental degradation has given rise to a need for greener transportation systems (Panday & Bansal, 2014:305). The transportation industry is a source of environmental issues, from a local perspective through air pollution and from a global perspective through climate change (Howarth & Polyviou, 2012:764-765).According to Akenji and Chen (2016:8) thirteen percent of greenhouse gas emissions and twenty-three percent of CO2 emissions are generated by the transportation industry.

Environmentally sustainable transport is defined as a system that prevents harm to the ecosystem and satisfies human needs for access associated with the utilisation of 'renewable resources' at lower levels of regeneration, and the utilisation of non-renewable resources at levels below the expansion of renewable substitutes. Wadhwa (2000:283) contends that sustainable transportation is a system that provides the capacity for performance, promotes a sustainable lifestyle, and exhibits a clean environment. A green transportation system includes

the green transportation hierarchy, consisting of activities such as 'walking, bicycle transportation, public transport, shared vehicle and single-driving vehicle activities (Li, 2016:762). Akenji and Chen (2016:8) contends that consumers can contribute to sustainable systems of travel by adapting their habits to consider the types of transport used, the frequency and distance of travel and the support systems and infrastructure.

According to Sung and Monschaur (2020: Internet), the pandemic has affected various forms of transport, including public transport and vehicle mobility. Shared transportation is a form of consumption, which refers to passenger transportation (Faulin *et al.*,2019:17). Car sharing refers to an essential component of sustainable transportation. International transport activity decreased below fifty percent during the pandemic, while air travel has declined by almost seventy-five percent (Sung & Monschaur, 2020: Internet). Therefore, environmental risks in the airline industry may occur. Bartle, Lutte and Leuenberger (2021:9) argue that the growth of sustainable air travel and reduced air pollution and CO2 emissions are unlikely to persist after the pandemic.

Sustainable transportation is influenced by COVID-19 through working from home activities that affect air pollution and traffic congestion, electric automobiles (Panday & Bansal, 2014: 305), shared transportation (Faulin, Grasman, Juan & Hirsch, 2019:17) and air travelling. Maintaining work-from-home-policies could potentially influence the carbon emissions generated by airports and air travelling patterns (Vetter, 2020:Internet). Researchers report significant declines in traffic congestion, resulting from cleaner air and vacant streets. In terms of the sustained impact, Vetter (2020:Internet) argues that although the environmental impact of work-from-home policies have advanced since the coronavirus pandemic, a lack of information exists, and additional calculations and information is required as conditions may vary in different countries.

2.4.5 SUSTAINABLE FOOD AND CLOTHING

Consumers play a significant role in the sustainability of food chains through their food choices. According to Brown (2021: Internet), food systems affect the environment and influences greenhouse gas emissions, occupies significant amounts of land, and effects biodiversity. Sustainable food consumption is defined as the consumption of food and dietary consumables that satisfy the dietary requirements of humans, the natural environment, and the economy (Ifeanyichukwa & Nwaizugbo, 2020:33).

Food consumption plays an integral role in society as it provides the consumer with environmentally sustainable options (Siragusa & Tumino, 2021:1). According to Li, Mirosa and Bremer (2020:1), the emergence of online food delivery has formed an integral part of the consumers sustainable development. When consumers order products online and receive the goods offline, an online-to-offline transaction occurs (Li *et al.*,2020: 2).

The consumption of processed foods also influences the consumers food consumption choices (Brown, 2021: Internet). Minimally processed foods cause less emissions than the consumption of unprocessed food, while processed foods exhibit significant negative effects (Brown, 2021: Internet). Brown (2021: Internet) argues that processed foods that contain meat exhibit a minimal impact on the environment.

Gwozdz, Nielsen and Muller (2017:3) asserts that consumers use their environmental clothing choices as an environmental practice. An individual's clothing choices form a significant part of their expression (Gwozdz *et al*., 2017:1). Niinimaki (2009:3) reports the definition of green clothing to involve clothing designed for long-term usage, involves locally produced items, and brings about minimal harmful environmental consequences. Additionally, green fashion products incorporate eco-labelled or recycled materials (Niinimaki, 2009:3). Dehosse (2020:77) proposes a definition of ethical fashion and defines ethical fashion as "fashion designed, sourced, and manufactured with environmental and social considerations in mind. An ethical consumer is defined as an individual that assess the impact their purchase decision has on the environment prior to enacting the purchase (Dehosse, 2020:82).

Consumers exhibit specific sustainable fashion practices, including avoiding fast fashion, purchasing second-hand clothing, collaborative clothing consumption and discarding behaviour (Mukendi, Davies, McDonagh & Glozer, 2020:24). Avoiding fast fashion includes undertaking practices such as slow fashion and anti-consumption (Kim, Choo & Yoon, 2012:246). Despite the prominence of fast fashion, several sustainability issues have developed (Kim *et al.*,2012:245). The avoidance of fast fashion involves opposing fast fashion in support of pro-environmentalism, acquiring local products and anti-consumption (Kim *et al.*,2012:246). Essentially, slow fashion involves advocating for environmental sustainability through concern for rising utilisation of agricultural chemicals. Anti-consumption involves opposing the consumption of fast fashion and is generally a response against over-consumption and the exploitation of ecological and unrecyclable waste (Kim *et al.*,2012:246).

Collaborative clothing consumption allows shared use of a product, provides the capacity for improved efficiency in the life cycle of the product and reduces the need for maintenance of the product (Adrami & Stock, 2019:11). Thus, collaborative consumption involves the lending and sharing of items as a form of environmental and clothing sustainability (Adrami & Stock, 2019:11). Toth (2015:15) argues that collaborative clothing consumption refers to reusing. An argument is provided that clothing that is already manufactured and utilised can be passed to second-hand stores (Toth,2015:15). Rather than passing clothing to landfills or adopting a process of incineration, the clothing is reused to avoid waste (Toth, 2015:15).

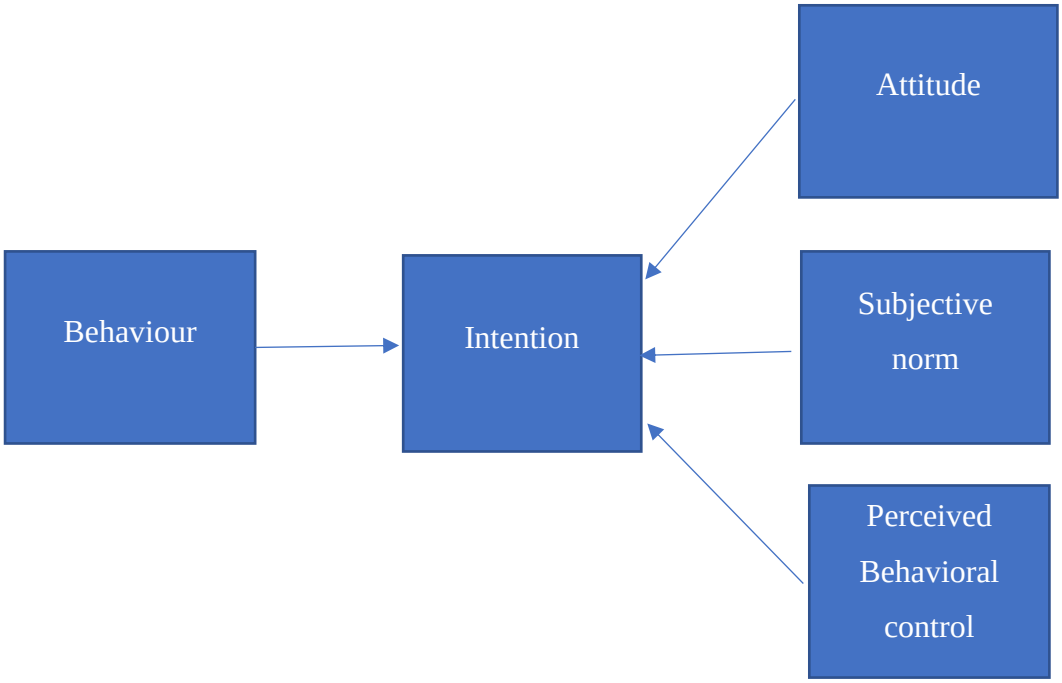
2.5 THE THEORY OF PLANNED BEHAVIOUR

Specific attitudes and behaviours are required for the consumer to execute sustainable and green choices. The theory of planned behaviour (TPB) conceptualizes the environmental behaviour associated with the psychology of consumer choices (Dawson & Hancocks, 2018:23). Smith (2020:6) contends that the theory of planned behaviour provides a structure for identifying the determinants of environmental behaviour.

According to Dawson and Hancocks (2018:23) the TPB assumes that behaviour is influenced by the intention to act. Consumers will therefore participate in environmentally sustainable and green practices on the belief that they have a responsibility to protect the environment. Paul, Modi, and Patel (2016:124) contend that the theory of planned behaviour provides a rationale that describes the extent of the consumer's willingness to undertake green practices. Furthermore, Azjen (1991) contends that behavioural intentions can be predicted by attitudes towards behaviour, the 'subjective norm and perceived behavioural control'.

An individual's attitude is defined as an assessment of the behaviour the individual intends to perform (Kuek, Yop, Chen, Choong, Tan, Kuah & Ng, 2020: 2475). The subjective norm characterizes the individuals execution of the action, considering social or community acceptance (Dawson & Hancocks, 2018:24). Therefore, the subjective norm relative to green behaviour studies the buyers feeling towards social pressure regarding green action (Paul *et al,* 2016:124). Perceived behavioural control makes reference to the discernment associated with carrying out the task considering an individual's control over it (Kuek *et al.,* 2020:2476).

FIGURE 2.2 THEORY OF PLANNED BEHAVIOUR



Source: Adapted from Dawson and Hancocks (2018: 24)

2.4 SUMMARY AND CONCLUSION

In this chapter, a comprehensive exposition of the sustainable and green practices that consumers undertake was discussed. The researcher commenced the chapter by providing a brief clarification of key terms. Thereafter, a detailed discussion on the practices that constitute sustainable consumer behaviour was provided. The researcher also provided evidence from previous research in order to establish a basis for the purpose statement of this study.

CHAPTER THEE

RESEARCH METHODOLOGY AND DESIGN

3.1 INTRODUCTION

The preceding chapters provided a comprehensive introduction to the topic of this study – the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB, in addition to a detailed theoretical overview of the topic.

A research design can be defined as a comprehensive framework used to link the conceptual issues to the empirical research (Asenahabi, 2019:77). It constitutes an investigation with the aim of providing direction for the procedures undertaken in the study (Asenahabi, 2019:77). The objective of research design aims to provide pertinent guidance to the research questions by elevating the research problem into data analysis (Asenahabi, 2019:77). The research design is used to dictate the research methodology to be adopted in the study.

A research methodology is defined as the systematic process applied to solve the research problem (Kothari, 2004:8; Igwenagu, 2016:5 & Alharahsheh & Pius, 2020:40). The research methodology is often described as a method undertaken to conduct research (Igwenagu, 2016:5), and is considered important because it supplies researchers with a "comprehensive, consistent, and accurate procedure of research" (Disman & Barliana, 2017:47).

This chapter outlines the research approach and methodology employed in collecting and analysing data from the respondents. A detailed exposition on the primary and secondary data required will be discussed. The researcher has selected the quantitative research approach, in addition to a descriptive research method to conduct the study.

In this section the following topics will be discussed; the research methodology selected in this study, data collection, the design of the measuring instrument and data analysis.

3.2 RESEARCH PARADIGM

A research paradigm can be defined as an abstract framework through which systemic details of a research project are analysed in order to direct the methods of data examination employed by the researcher, and the research methods employed in the study (Kivunja & Kuyini, 2017:26). It is noted by Zukauskaus, Vveinhardt and Andruikaitiene (2018:123) that three types of research philosophies exist including positivism, interpretivism and realism.

According to Rahman (2017:106), quantitative research methodology is established by utilising a positivist research philosophy. Daniel (2016:92) contends that interpretivism and realism is related to qualitative research and positivism is associated with a quantitative research methodology. Positivism attempts to provide scientific reasoning to philosophy as a discipline (Majeed, 2019:19). Majeed (2019:19) contends that positivism is rendered an admissible research paradigm based on its pursuit for accuracy, objectivity, casualty, and neutrality of values. Positivism is associated with objectivism rather than subjectivism (Zukauskas et al.,2018:128).

For the purpose of this study a positivist philosophical approach will be utilised as it is most appropriate to quantitative data collection. Therefore, the positivist philosophy will ensure reliable and consistent data is provided by the respondents of the study.

3.3 RESEARCH APPROACH

Kothari (2004;3) states that the basic types of research methodologies include qualitative and quantitative research methods. Qualitative data can be defined as research relating to experiences, behaviours, emotions, and cultural occurrences (Rahman, 2017:103). Qualitative research is also associated with a process whereby data is not illustrated numerically (Alharahsheh & Pius, 2020:40). Quantitative research methodologies are defined as a proposition undertaken to test objective theories through the examination of the correlation among variables (Pojwan, 2018:3). In a quantitative paradigm, importance is placed on facts and sources of behaviour, the information provided by the researcher is illustrated numerically and statistical technologies are utilised in the illustration of the result (Golafshani, 2003:597-598).

According to Struwig and Stead (2013: 6), several methods for the collection of quantitative data. Struwig and Stead (2013: 6-8) identify exploratory, descriptive, and experimental and quasi-experimental research as quantitative data collection methods that can be utilised by researchers to solve the research problem. The use of exploratory research methods involves research objectives that endeavour the establishment of new perspectives, develops new research questions and provides a new approach to the assessment of topics (Saunders & Lewis, 2018:115). Struwig and Stead (2013:8) define experimental research as a process that incorporates the use of causality in addressing the research problem. Descriptive research involves obtaining an accurate representation of the research or study. It is based on accurately describing a person, place, or occurrence (Saunders & Lewis, 2018:116).

For the purposes of this study, the researcher will undertake a quantitative research method and a descriptive research approach to gather data from consumers in Nelson Mandela Bay. The researcher will utilise a self-administered structured questionnaire and remained objective to avoid human bias. The data collected was then analysed using statistical methods to determine the effect of the COVID-19 pandemic on consumer sustainability and green practices in NMB.

3.4 DATA COLLECTION

In order to address the research objectives of a study, researchers can collect secondary and primary data. The collection of data forms an integral part of the research process and ensures the validity and reliability of the study (Ismail & Mittens, 2019:52).

3.4.1 SECONDARY RESEARCH

The researcher will conduct a comprehensive literature review to identify as many consumer green and sustainable practices as possible. Secondary data is defined as the data collection of pre-existing data by another researcher to solve the other researcher's problem statement (Brynard, Hanekom & Brynard, 2014:38). Martins, Da Cunha, and Serra (2018:2) suggest that secondary data can be sourced from several sources, namely; from governmental sources when the information is obtained from transparent and reliable sources, data sourced from agencies and private entities, websites, journal articles, and online databases (Martins *et al.,* (2018:2). According to Saunders and Lewis (2018: 86), secondary data includes the use of raw data and compiled data. Raw data refers to unprocessed data, such as data extracted from an archive, a transcript, or a television interview. Compiled data refers to processed data which involves processes such as summarization and selection (Saunders & Lewis, 2018:86

For the purposes of this study, secondary data will be collected from credible sources, such as internet journals, web documents and textbooks and from international databases such as Emerald and Sabinet, which will provide the secondary data collection of the study to utilise credible search engines. This will assist the researcher in achieving the primary objective of the study in order to assess the impact of the COVID-19 pandemic on consumer sustainability and green practices in Nelson Mandela Bay.

3.4.2 PRIMARY RESEARCH

Primary data is defined as the collection of new data (Struwig & Stead, 2013:82). Hox and Boeije (2005:593) assert that primary data collection involves collecting data to solve the

research problem utilising procedures relevant to the research problem. For the purposes of this study, the researcher will make use of questionnaires as a research tool to obtain primary data. The collection of primary data requires that decisions be made on the sample, population, and sample frame of the study. According to Saunders and Lewis (2018:138) the research population constitutes an absolute selection of group members. Struwig and Stead (2013:114) argue that the population is defined as the combined accumulated aggregate of all the components that constitute the focal point of the study. Therefore, in this study, the population will comprise of all consumers within the Nelson Mandela Bay Municipality.

Sampling is defined as a technique utilised to select a miniature group with the aim of determining the properties of a population (Brynard *et al.*,2014:56). Saunders and Lewis (2018:138) define a sample as the subdivision of all group members of the entire population.

A sampling frame refers to an absolute catalogue of all members of the population (Saunders & Lewis, 2018:139). The researcher will then select the sample of the catalogue when utilizing probability sampling (Saunders & Lewis, 2018:139). Struwig and Stead (2013:115) assert that the sampling frame represents the sampling units present in the population, from which the sample for the population is drawn. Struwig and Stead (2013:116-118) identify non-probability and probability sampling techniques.

Probability sampling involves each component possessing an equal chance of being selected in the sample (Struwig & Stead, 2013:118). Probability sampling techniques include simple random sampling, systematic random sampling, and stratified sampling (Saunders & Lewis, 2018:140). Non-probability sampling involves a selection of sampling techniques when a complete list of the population is not possible, thus a sample cannot be randomly selected without a complete list of the population (Saunders & Lewis, 2018:140). Non-probability sampling includes various sampling methods including quota sampling, purposive sampling, volunteer sampling and convenience sampling (Saunders & Lewis, 2018:140).

Quota sampling occurs when the characteristics of the respondents is used to select a sample (Struwig & Stead, 2013:117). Saunders and Lewis (2018:144) assert that a quota sample will essentially be utilised when a sampling frame in unavailable. Purposive sampling involves the researcher using judgement in the selection of a sample for a variety of possible reasons (Saunders & Lewis, 2018:145). According to Struwig and Stead (2013:116) convenience sampling is a technique used on the premise of the respondent's availability. Thus, a respondent

will be approached when it is clear to the researcher that the respondent is accessible and cooperative (Struwig & Stead, 2013:116).

For the purpose of this study, non-probability and convenience sampling will be undertaken. The study will use a convenience sample of 50 consumers from the population. A self-administered structured questionnaire will be provided to willing respondents. The respondents will be provided with sufficient time to complete the questionnaire.

3.5 DESIGN OF THE MEASURING INSTRUMENT

For the purpose of achieving the objectives of this study, questionnaires were designed to obtain primary data from consumers in the Nelson Mandela Metropolitan Bay. A questionnaire forms a significant component of the research process. The questionnaire consists of a structured interview containing a set of pre-determined questions answered by the respondent.

The research will be undertaken by utilising a self-administered structured questionnaire which will measure the respondents' responses. The questionnaire used in this study will consist of a cover page and three sections. The cover page will provide a concise outline for the purpose of the study, the topic, and a declaration of the regard for the confidentiality of the respondents participating in this study.

- The first section (Section A) focused on the respondents' general perceptions regarding COVID-19.
- The second section (Section B) focused on gathering data about the respondents' perceptions regarding consumer sustainability and greening practices as indicated in the literature review, consumers greening practices are based on the waste/greening hierarchy. These practices comprised of waste management activities, sustainable food and health consumption, sustainable transport and travel, sustainable clothing, and environmental sustainability.
- The third section (Section C) focused on gathering data regarding the demographics of respondents, using a nominal scale.

To gather the information in Sections A and B of the questionnaire, questions were formulated using a 5 – point Likert ordinal scale. According to Struwig and Stead (2013: 98), a Likert scale forms part of scaled response questions in which the responses of the respondents are measured using a 5-point scale that assesses the respondents' attitudes or feelings towards the statement or question. To measure the consumers perception towards sustainability, green practices and

the COVID-19 pandemic, a Likert-type scale ranging from (1) strongly disagree to (5) strongly agree was used.

3.6 DATA ANALYSIS

Once the primary data has been collected, it will be analysed using appropriate methods. The collection of raw data by means of the measuring instrument will be summarised into useful information and used to interpret the effect of the independent variable on the dependent variable. The data collected will recorded using Microsoft Excel, after which Statistica software will be used to analyse the data.

Data analysis is defined as the science of studying raw data with the aim of concluding the information obtained (Singh & Singh, 2015:50). Data analysis can therefore be categorised as either descriptive or inferential (Singh & Singh, 2015:15). Inferential analysis refers to a process of drawing conclusions from data that is subjected to random variation (Mishra, Pandey, Singh, Gupta, Saha & Keshri, 2019:67). Inferential statistics focuses on the future and aims to generalize conclusions about the population through the examination of a smaller sample (Mishra *et al.*,2019:67).

Descriptive statistics involves the computation of specific indices obtained from raw data, aimed at demonstrating an association between two or more variables (Singh & Singh, 2015:50). Descriptive statistics involves computing measures of central tendency and dispersion (Struwig & Stead, 2013:165). Measures of central tendency include the mean, mode and median (Struwig & Stead, 2013:165). The mean represents the mathematical average of a set of data, which can be computed by summation of the observations divided by the number of observations (Mishra *et al.*, 2019:68).

The median is the observation that is found in the middle of the data set after rearrangement of the data in ascending or descending order (Mishra *et al.*,2019:68). Therefore, the median is the observation that forms the central place in the data set (Mishra *et al.*,2019:68). The mode involves the number that appears most frequently in the distribution (Struwig & Stead, 2013:165). A distribution can contain either multiple modes or no modes (Mishra *et al.*,2019:68).

For the purposes of this study, descriptive statistics will be employed. Therefore, the researcher will endeavour to analyse numerical data by employing measures of central tendency and dispersion, including the mean, mode, and median and frequency distributions.

3.7 SUMMARY AND CONCLUSIONS

The main objective of this chapter was to provide a detailed analysis of the research methodology utilised in this study. The research methodology has been identified and discussed, additionally, the quantitative research methodology was adopted in this study. Furthermore, the researcher adopted descriptive statistics as the appropriate research method to formulate the quantitative research method.

In the following chapter, a presentation of the empirical results obtained from the respondents and analysed in order to investigate the perceptions of consumers on the impact of COVID-19 on consumer sustainability and green practices.

CHAPTER FOUR

FINDINGS AND INTERPRETATION OF DATA

4.1 INTRODUCTION

The preceding chapter has focused on the research design and research methodology employed in this study. As previously mentioned, a survey questionnaire was designed to collect quantitative data from 50 consumers in Nelson Mandela Bay. In this chapter (chapter four), the results of the statistical analysis undertaken on the data gathered will be presented.

Subsequently, the results of the empirical study will be discussed. Firstly, the biographical information gathered from respondents in Nelson Mandela Bay (Section C) will be summarized. The components of the biographical information will include the respondents age, gender, highest qualification obtained, frequency of shopping, current employment status, zero waste-shopping products and the R's of the waste hierarchy the consumer engages in.

Thereafter, the results of the general perceptions regarding the COVID-19 pandemic (Section A) and the general perceptions regarding the impact of COVID-19 on consumers green practices will be discussed. The chapter will conclude with a brief discussion of the main findings obtained from the empirical results will be provided.

4.2 RESULTS OF EMPIRICAL INVESTIGATION

The results of Section A, B and C of the questionnaire are presented in the following sections.

A total of 100 questionnaires were distributed among respondents in Nelson Mandela Bay. The questionnaires were distributed through a Microsoft forms link and email for convenience, and as a result of the COVID-19 pandemic. A total of 100 questionnaires were distributed, 73 questionnaires were returned, resulting in a response rate of 73 percent, 72 of which were usable for statistical purposes.

The data in the questionnaires were captured in Microsoft Excel and subsequently exported to Statistica, an advanced analytical program. The data was collected using a 5-point Likert scale, which was measured from 1, which was represented by strongly disagree, to 5, which represents strongly agree.

4.2.1 RESULTS OF BIOGRAPHICAL INFORMATION

Section C of the questionnaire requested the biographical information from several respondents.

Table 4.1 represents the demographical profile of the respondents

TABLE 4.1: SUMMARY OF BIOGRAPHICAL INFORMATION (SECTION C)

Characteristic	Category	Frequency	Percent
Age	18-25	33	46
	26-40	29	40
	41-50	5	7
	51-60	4	6
	60+	1	1
Gender	Female	41	57
	Male	31	43
Highest Qualification obtained	Grade 11 and lower	1	1
	Grade 12	24	33
	National diploma or certificate	14	19
	Bachelor's degree	22	31
	Postgraduate degree/diploma	11	15
Current Employment Status	Student	30	42
	Unemployed	10	14
	Retired	3	4
	Employed Full-time	27	38
	Employed Part-time	2	3
Frequency of Shopping	Once a month	22	31
	Twice a month	21	29
	Three times a month	12	17
	Once a week	15	21
	Every second day	1	1
	Every day	1	1

Table 4.2 above presents the demographic information of the respondents of the empirical study. A total of 46 percent of respondents represent the age category 18-25, 40 percent represent the age category 26-40. The largest age category in this study is therefore 18-25 years of age. A majority of 57 percent of the respondents were female and the remaining 43 percent were male. In terms of the highest qualification obtained by respondents, a total of 33 percent of respondents have obtained a grade 12 qualification, 20 percent of the respondents have obtained a national diploma or certificate and 31 percent represent the bachelor's degree category. According to the data gathered from respondents, the majority have obtained a grade 12 qualification and a total of 42 percent of the respondents indicated that they are students, 14 percent of the respondents represent the unemployed category, while 37 percent are employed full-time. Therefore, the majority of respondents are students. In terms of the frequency of shopping, 31 percent of the respondents indicated the once-a-month category, and 29 percent represent the twice a month category.

4.2.2 FREQUENCY DISTRIBUTION RESULTS FOR THE TYPE OF ZERO-WASTE PURCHASES

Table 4.2 depicts the zero-waste purchases the respondents are most likely to engage in.

TABLE 4.2: RESPONDENTS ZERO WASTE PURCHASES

Respondent's practice zero waste when purchasing the following types of items	**N = 72**		
Characteristic	**Category**	**Frequency**	**Percentage**
Fruit	No	23	32
	Yes	49	68
Vegetables	No	30	42
	Yes	42	58
Meat	No	40	56
	Yes	32	44
Cheese	No	57	79
	Yes	15	21
Grains	No	58	81
	Yes	14	19

Respondent's practice zero waste when purchasing the following types of items	N = 72		
Beauty Products	No	49	68
	Yes	23	32
Cleaning Products	No	52	72
	Yes	20	28
Stationary	No	63	88
	Yes	9	13
Packaging	No	44	61
	Yes	28	39
Other	No	72	100

Table 4.2 depicts the zero waste products the respondents are most frequently engaged in, majority of the respondents indicated that they are most likely to purchase fruit (68 percent) and vegetables (58 percent) when the production and packaging do not threaten the environment, 44 percent of the respondents selected zero-waste meat products, 39 percent of represent the zero-waste packaging group, and 32 percent of the respondents indicated that they are most likely to engage in zero-waste shopping relating to beauty and care products.

4.2.3 FREQUENCY DISTRIBUTION RESULTS FOR WASTE HIERARCHY ACTIVITIES AND PRACTICES

Table 4.3 depicts the respondents participation in waste hierarchy activities and practices.

TABLE 4.3: RESPONDENTS WASTE HIERARCHY PRACTICES

Respondent's participation in the following practices	N = 72		
Characteristic	**Category**	**Frequency**	**Percentage**
Reduce	No	35	49
	Yes	37	51
Reuse	No	34	47
	Yes	38	53
Recycle	No	50	69
	Yes	22	31

Respondent's participation in the following practices	N = 72		
None	Yes	14	19

Table 4.3 illustrates that 51 percent of the respondents of this study practice activities that reduce waste, while 49 percent do not engage in activities to reduce waste, 53 percent of respondents reuse waste, while 31 percent participate in recycling activities. 19 percent of the respondents indicated using other waste management practices. Majority of the respondents engage in practices to reduce and reuse waste.

4.2.4 DESCRIPTIVE STATISTICS RELATING TO THE GENERAL PERCEPTIONS REGARDING THE COVID-19 PANDEMIC (SECTION A)

Table 4.4 illustrates descriptive statistics relating to the general perceptions regarding COVID-19, indicating the mean, mode, median, and standard deviation. In terms of the standard deviation, low scores (below one), indicate that the data set is skewed close to the mean, and high score (above one), indicate that the data set is spread over a wider range of values.

TABLE 4.4: RESULTS OF GENERAL PERCEPTIONS REGARDING THE COVID-19 PANDEMIC

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
A1	4,51	5	5	0,60	94	6	0
A2	3,97	4	4	1,05	79	10	11
A3	4,26	4	5	0,93	90	4	6
A4	4,49	5	5	0,89	93	1	6
A5	4,28	5	5	1,10	88	4	8
A6	3,68	4	4	0,90	58	36	6
A7	2,54	3	2	1,14	24	26	50
A8	3,32	4	4	1,15	50	22	28
A9	4,17	4	4	0,84	89	7	4
A10	4,65	5	5	0,63	99	0	1
A11	3,97	4	4	0,98	78	11	11
A12	4,47	5	5	0,69	94	3	3
Overall	4,03	4,25	4,33	0,91			

The overall mean of 4,03 indicates that the data lies in the "agree" range of the five-point Likert scale and that the standard deviation (0,91), implies no significant variation around the mean score. Statement A10, thus being "The COVID-19 pandemic has influenced and changed lives on a global scale since its emergence" had the highest mean (4,65) and a mode and median of 5, indicating that the majority of respondents strongly agreed with this statement. Additionally, statement A10 also had the lowest standard deviation (0,63), which indicates that majority of the respondents responded to this statement in a similar manner. Statement A7, thus being "The effectiveness of interventions by the government were being adequately performed", indicates the lowest mean (2,54), only 36 respondents agreed with this statement, 17 disagreed and 19 remained neutral regarding this statement. Statement A8, thus being "There is social discrimination and stigma in some communities regarding people infected with the virus", had a mean of 3,32 and also the highest standard deviation (1,15), indicating that the data is spread out over a wider range of values.

4.2.5 DESCRIPTIVE STATISTICS RELATING TO THE GENERAL PERCEPTIONS REGARDING THE IMPACT OF COVID-19 ON CONSUMER GREEN PRACTICES

The following section will aim to analyse descriptive statistics relating to the general perceptions of the impact of COVID-19 on consumer green practices (Section B).

4.2.5.1 DESCRIPTIVE STATISTICS RELATING TO GENERAL PERCEPTIONS REGARDING HEALTH PRACTICES

In Section B, statements B1-B3 represent the respondents general perceptions regarding sustainable health practices undertaken by the respondents. Table 4.5 below represents a summary of the descriptive statistics relating to the respondents sustainable health practices, including the mean, mode, median, and standard deviation.

TABLE 4.5: RESULTS OF GENERAL PERCEPTIONS REGARDING SUSTAINABLE HEALTH PRACTICES

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
B1	3,97	4	4	0,79	76	19	4
B2	3,57	4	4	0,87	58	31	11
B3	3,26	3	3	1,10	42	32	26
Overall	3,60	4	3,67	0,92			

Table 4.5 above illustrates the respondents perceptions regarding sustainable health practices. The overall mean for the statements regarding the impact of COVID-19 on the consumers sustainable health practices are 3,60, indicating that the data falls within the "neutral range" and the standard deviation (0,92) implies no significant variation around the mean score. According to Witek and Kuznair (2020: 3), the consumers green purchase intentions are significantly impacted by the price of the product. Consequently, consumers demonstrate indifference towards maintaining a sustainable lifestyle. Statement B1, thus being "Looking to maintain a sustainable lifestyle due to health and wellness concerns" had the highest mean (3,97), indicating that majority of the respondents tend to agree with this statement, and the lowest standard deviation (0,79), indicating relatively low dispersion of the data values. Additionally, Statement B3, thus being "Switching to increased consumption of organic foods because of health concerns", had the lowest mean (3,26), indicating that most respondents tend to fall in the "neutral" range and the highest standard deviation (1,10), which indicates a relatively large dispersion of the data values.

4.2.5.2 DESCRIPTIVE STATISTICS RELATING TO GENERAL PERCEPTIONS REGARDING WASTE MANAGEMENT PRACTICES

Table 4.6 below depicts the descriptive statistics relating to the general perceptions regarding household waste management practices.

TABLE 4.6: RESULTS OF GENERAL PERCEPTIONS REGARDING HOUSEHOLD WASTE MANAGEMENT PRACTICES

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
B4	3,31	3	3	0,96	44	38	18
B5	3,96	4	4	0,90	71	25	4
B6	3,55	4	4	0,96	54	29	17
B7	2,76	3	3	1,19	26	33	40
Overall	3,39	4	3,50	1,00			

Statements B4-B7 relate to the consumers general perceptions regarding waste management practices. The overall mean for the data set (3,39), implies that majority of respondents fall in the "neutral" range. The standard deviation (1) indicates a relatively high dispersion of the data set. Statement B5, thus being "Disposing of all hazardous waste (chemical, medical, and other

harmful waste) in the manner prescribed", had the highest mean (3,96), indicating that the data falls in the "agree" range. Statement B5 also had a low standard deviation (0,90), implying a relatively low dispersion of data. Statement B7, thus being "Making a habit of taking recyclable goods to recycling facilities", had the lowest mean (2,76) and the highest standard deviation (1,19), suggesting that majority of the respondents were neutral in their response to the statement and that there was a high dispersion of the data values. 29 respondents disagreed with this statement. This result coincides with previous research conducted on the barriers to recycling activities in South Africa. Strydom (2018:13) contends that the lack of knowledge and inconvenient recycling facilities are fundamental reasons for non-recycling among households in South Africa.

4.2.5.3 DESCRIPTIVE STATISTICS RELATING TO GENERAL PERCEPTIONS REGARDING ENVIRONMENTALLY SUSTAINABLE PRACTICES

Table 4.7 illustrates the results of the descriptive statistics relating to the general perceptions regarding environmentally sustainable practices.

TABLE 4.7: RESULTS OF GENERAL PERCEPTIONS REGARDING ENVIRONMENTAL SUSTAINABILITY

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
B8	3,17	3	3	0,99	35	42	24
B9	3,65	4	4	1,16	61	19	19
B10	3,04	3	3	1,09	35	36	29
B11	4,11	4	5	0,85	75	22	3
Overall	3,49	4	3,75	1,02			

Statements B8-B11 relate to the consumers general perceptions regarding their participation in environmentally sustainable practices. The overall mean of the data set (3,49) indicates that the data lies in the "neutral" range of the five-point Likert scale. The standard deviation (1,02) implies a high dispersion of the data set. Statement B11, thus being, "Attempting to conserve more water at home (eg, showering, making food, cleaning, etc)", had the highest mean (4,11) indicating that majority of the respondents strongly agreed with this statement, and the lowest standard deviation (0,85), indicating relatively low dispersion of the data set. Only two respondents disagreed with this statement. Statement B10, thus being "Engaging more in the

purchase of home energy-efficient appliances and other energy-saving products" had the lowest mean (3,04), indicating that majority of the respondents fall in the "neutral" range. Statement B9, thus being "Reducing my consumption of single-use plastic to help save the environment" had the highest standard deviation (1,16) implying a high dispersion of the values in the data set.

4.2.3.4 DESCRIPTIVE STATISTICS RELATING TO GENERAL PERCEPTIONS REGARDING SUSTAINABLE TRANSPORT AND TRAVEL PRACTICES

Table 4.8 below shows the descriptive statistics relating to the general perceptions regarding the sustainable transport and travel practices undertaken by the respondents of this study.

TABLE 4.8: RESULTS OF GENERAL PERCEPTIONS REGARDING SUSTAINABLE TRANSPORT AND TRAVEL

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
B12	3,99	4	4	0,94	76	15	8
B13	2,96	3	3	1,26	32	35	33
B14	3,14	3	4	1,26	46	21	33
Overall	3,36	3	3,67	1,15			

Statements B12-B14 relate to the consumers general perceptions regarding sustainable transport and travel practices. The overall mean of the data set (3,36) indicates that the data set lies in the "neutral range", and the standard deviation of the data set (1,15) implies that there is relatively high dispersion of the values in the data set. Statement B12, thus being "Of the opinion that working remotely from home has decreased air pollution as there is less public and private vehicle travelling" had the lowest mean (3,99) and the lowest standard deviation (0,94), indicating that most respondents strongly agreed with the statement and that the data values contained relatively low dispersion levels. Only 6 respondents disagreed with this statement and 55 agreed. Statement B13, thus being "Changing my air travelling habits, especially for leisure purposes" had the lowest mean (2,96) and the highest standard deviation (1,26), implying that majority of the respondents fall in the "neutral" range and that the data set contains relatively high dispersion.

4.2.5.5 DESCRIPTIVE STATISTICS RELATING TO GENERAL PERCEPTIONS REGARDING SUSTIANBLE FOOD AND CLOTHING PURCHASING

Table 4.9 depicts a summary of the descriptive statistics performed relating to the general perceptions regarding sustainable food and clothing purchases.

TABLE 4.9: RESULTS OF GENERAL PERCEPTIONS REGARDING SUSTAINABLE FOOD AND CLOTHING

N = 72	Mean	Median	Mode	Standard Deviation	% Agree	% Neutral	% Disagree
B15	2,79	3	3	1,15	24	40	36
B16	4,19	4	4	0,60	90	10	0
B17	3,28	3	3	0,86	38	49	14
B18	3,82	4	4	1,09	74	11	15
B19	3,75	4	4	1,02	63	25	13
B20	3,69	4	4	1,02	63	25	13
Overall	3,59	4	3,67	0,96			

Statements B15-B20 relate to the consumers general perceptions regarding sustainable food and clothing practices. The overall mean (3,59) and standard deviation (0,96) indicate that majority of the respondents fall in the “neutral” range and that there is relatively low dispersion of the values in the data set. Statement B16, thus being “Of the opinion that new digital technologies and retailing platforms have been fuelling online shopping” had the highest mean (4,19) and the lowest standard deviation (0,60), indicating that majority of respondents strongly agree with the statement and that there is relatively low dispersion of values in the data set. Statement B15, thus being “Preferring to purchase clothes from sustainable brands”, had the lowest mean (2,79), and the highest standard deviation (1,15), implying that the majority of the respondents fall in the “neutral” range and that the data indicates relatively high dispersion of the values in the data set.

4.3 SUMMARY AND CONCLUSIONS

In this chapter, the results obtained from the empirical investigation were discussed, commencing with the demographic information (Section C) of the respondents. Thereafter, the general perceptions regarding the COVID-19 pandemic (section A) were discussed. This section was followed a discussion of the consumers general perceptions regarding consumer green practices (Section B).

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The primary objective of this study is to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices in Nelson Mandela Bay. Chapter Four of this study presents the main findings of the empirical investigation, which was undertaken through sampling 72 (seventy-two) selected respondents in NMB.

Chapter Five provides a summarized overview of the main findings from the preceding chapters of this study (Chapter One to Five). This chapter includes a brief description of the research design and methodology section. Thereafter, the main findings from the literature review and empirical investigation will be provided. Furthermore, the empirical results of this study will be interpreted and presented. Lastly, recommendations will be provided on improving the undertaking of sustainable and green practices in Nelson Mandela Bay, amid the COVID-19 pandemic.

5.2 RESEARCH OBJECTIVES OF THE STUDY

As previously mentioned, the primary objective of the study was to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB.

The secondary objectives formulated to give effect to the primary objective of this study were as follows.

SO^1: To conduct a theoretical overview of consumer sustainability and green practices and the attitudes and behaviours that influence consumer green practices, namely, sustainable health, environmental sustainability, green travel and transport, sustainable food and clothing and waste management practices.

SO^2: To empirically assess the level of consumer sustainability and green practices undertaken by consumers in Nelson Mandela Bay, amid the COVID-19 pandemic.

SO^3: To provide conclusions and recommendations based on the results of consumers in NMB on how to improve the adoption levels of sustainable and green consumer practices in light of the COVID-19 pandemic.

5.3 RESEARCH METHODOLOGY AND DESIGN

This study employed a quantitative research methodology approach in order to determine the impact of the COVID-19 pandemic on consumer sustainability and green practices. For the purposes of this study, a descriptive research method was employed to obtain the relevant data to assess the impact of the COVID-19 pandemic on consumer sustainability and green practices in NMB.

In order to achieve the primary and secondary objectives of this study, the primary research conducted in the study involved the researcher employing non-probability and convenience sampling. The researcher adopted convenience sampling as an adequate method for collecting data from the respondents of this study as the national lockdown influenced the ability of the researcher to physically distribute the survey questionnaires to respondents. The research population comprised of all consumers within Nelson Mandela Bay. The sample frame of the study involved 72 cooperative and willing respondents within NMB. Furthermore, primary data was collected from respondents through the utilisation and distribution of a five-point Likert scale survey questionnaire. The questionnaire was adapted and distributed through a Microsoft online form. Thereafter, the results of the questionnaires completed by the respondents were captured using Microsoft Excel, and a process of coding was undertaken. Furthermore, the data collected was analysed using statistical analysis, namely the Statistica program.

In addition to the primary data, the study also employed secondary data to give effect to the primary objective of this study. The secondary research conducted for the purpose of this study included an extensive theoretical overview to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices of NMB. The secondary research was conducted by consulting several relevant journals and textbooks.

5.4 MAIN FINDINGS FROM THE LITERATURE

Several consumer sustainability and green practices were discussed in the theoretical overview of this study (Chapter Two). The main findings from this section will now be interpreted.

5.4.1 SUSTAINABLE HEALTH PRACTICES

In section 6.1.2 of this study, sustainable health practices are discussed as those practices that promote a sustainable lifestyle and includes the purchase of organic foods and locally produced

goods. A sustainable lifestyle involves consumption choices that incentivizes the minimization of natural resources. According to Dey (2021: Internet), the COVID-19 pandemic had a productive outcome on sustainable lifestyles, as a consequence of the incontrovertible shifts in consumer purchasing patterns, which include organic and natural products, and excludes excessive purchasing of luxury products.

Organic products are those products that consumers purchase to restrict harmful consequences on the environment. Martinez (2020: Internet) contends that consumers preferences in the course of the coronavirus pandemic exemplifies a shift towards organic products that improves the immune system. Locally produced products minimize energy utilization in the production process. Martinez (2020: Internet) contends that the pandemic has resulted in a positive impact on the espousal of locally produced products, consequently derived from increased consumer demand of locally produced products.

5.4.2 WASTE MANAGEMENT PRACTICES

Research conducted by (Choshaly, 2016:3 & Umar, Sehab & Yagnik (2018:58), establish that waste management practices consists of principles such as reduce, reuse and recycle activities. The process of waste prevention refers to the reduction of waste and involves activities consumers undertake in order to reduce waste, such as the restriction of consumer purchases and acquiring products only in required quantities (Abdul-Rahman, 2014:2). Reusing in the waste management hierarchy involves utilizing a depleted product for another purpose (Umar *et al.,* 2018:58). Recycling involves the invigoration or transformation of old materials for reprocessing purposes.

In a study conducted by the United Nations Environmental Programme (2020:9), it was reported that the COVID-19 pandemic has introduced several challenges in the management of waste, including increases in the volume of plastic waste, resulting from lockdown restrictions and activities, increases in littering and restrictions in recycling. It is further reported by Sarkodie and Owusa (2021:7952) that the national lockdown has caused a radical increase in the production of waste due to household waste activities involving protective personal equipment. However, Martinez (2020: Internet) argues that food wastage levels suggests a decrease of food waste by households. Furthermore, restrictions during the COVID-19 pandemic has caused the interruption of other waste management activities, especially those practices that involve reusing old materials.

5.4.3 ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability involves a process that authorizes humans to assuage their basic needs while maintaining the state of the environment (Morelli, 2011:15). Environmental activities include eco-friendly practices, reducing plastic waste, the consumption of energy-efficient appliances and the conservation of water. From the literature, several sources conclude that the COVID-19 pandemic has negatively affected household energy consumption due to work-from-home policies and the national lockdown, leading to increases in the demand for household appliances. Bomey (2020: Internet) contends that an increase in single-use plastic waste and medical waste has occurred during the pandemic.

5.4.4 SUSTAINABLE TRANSPORT AND TRAVEL

Sustainable transportation and travel activities constitute a significant determinant of air pollution. During the pandemic, work-from-home policies, shared transportation and declined levels of air travelling influenced decreased greenhouse gas emissions. Sung and Monschaur (2020: Internet) contend that the lack of vehicle mobility and public transport were substantially affected by the national lockdown. Vetter (2020: Internet) argues that these activities significantly affected the decline in air pollution.

5.4.5 SUSTAINABLE FOOD AND CLOTHING

Consumer's food choices are significant determinants of the state of the environment. Ifeanyichukwa and Nwazingo (2020:33) define sustainable food choices as the consumption of food and dietary products that satisfy dietary needs of humans and the environment. From the literature, it is concluded that at-home cooking meals have lessened negative impacts on the environment than processed foods.

Green clothing includes the consumption of clothing choices that exhibit long-term usage, is locally produced and environmentally sustainable. Environmentally aware consumers undertake sustainable clothing practices by participating in activities that avoid fast fashion, collaborative clothing and discarding measures (Mukendi, 2020:24).

5.5 MAIN FINDINGS FROM THE EMPIRICAL INVESTIGATION

5.5.1 CONCLUSIONS REGARDING GENERAL PERCEPTIONS OF THE COVID PANDEMIC (SECTION A)

Section A of the survey questionnaire and section 4.4.2 from Chapter Four endeavored to gather and interpret information regarding the respondents' general perceptions of the coronavirus pandemic. The overall mean of 4,03 indicates that majority of the respondents tend to agree with statements A1-A12 concerning their general discernment of the disease. The overall mode of 4,33 further indicates that respondents tend to agree with majority of the statements in section A. These results are significant as respondents indicated a general understanding of the pandemic, it's devastating effects and its correlation to minor decisions. This was demonstrated by the respondent's selection regarding their perceptions of individual decisions and their inadvertent effect on the spread of the virus.

5.5.2 CONCLUSIONS REGARDING GENERAL PERCEPTIONS OF THE IMPACT OF COVID-19 ON CONSUMERS GREEN PRACTICES

The statements in section B, the impact of COVID-19 on consumer green practices were analysed. Furthermore, the section was divided into five parts which will be discussed in the following paragraphs.

5.5.2.1 SUSTAINABLE/GREEN HEALTH PRACTICES

Sustainable health practices were represented by a set of statements from B1-B3, and the overall mean calculated (3,60) indicates that majority of respondents fall in the 'neutral' category, regarding the impact of COVID-19 on the consumers sustainable health practices. An observation was made that respondents are still reluctant to undertake health practices relating to locally produced products, organic foods, and sustainable lifestyles.

5.5.2.2 WASTE MANAGEMENT PRACTICES

Waste management practices were represented by a set of statements from B4-B7. The overall mean for this section was 3,39, which indicates that majority of respondents fall in the 'neutral' range. This results reflects the observation that a lack of establishment of waste management practices exists among consumers in NMB. Consumers tend to disagree with statement B7, which solicitates the frequency of the respondents' recycling activities. Statements B7 had the lowest mean in section B (2,76). This may be a result of a lack of information or lack of access to recycling stations in NMB.

5.5.2.3 ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability represented by statements B8-B11 had an overall mean of 3,49, which falls in the “neutral” range, and a standard deviation (1,02), which indicates variation among the results. Furthermore, respondents indicated neutrality for all statements in this section, with the exception of statement B11, which scored a mean (4,11) that indicates that majority of the respondents of this study engaged in activities to promote the conservation of water. Furthermore, it is established that majority of respondents are neutral regarding statements that relate to the adoption of green and eco-friendly practices, reduction of plastic waste and the consumption of any home energy-efficient products, in light of the pandemic.

5.5.2.4 SUSTAINABLE TRANSPORT AND TRAVEL

Sustainable transport and travel practices were represented by statements B12-B14 and obtained an overall mean (3,36) implied that respondents were neutral in their perceptions that working from home reduces air pollution and the impact of COVID-19 on air travelling habits. Respondents were also neutral in their perceptions of shared travelling and its impact on the reduction of traffic congestion.

5.5.2.5 SUSTAINABLE FOOD AND CLOTHING PRACTICES

Sustainable food and clothing practices represented by statements B15-B20 had an overall mean (3,59), indicating that respondents were neutral in their perceptions of sustainable brand purchases, digital technology and online shopping on the environment, the impact of information on the purchases and the effects of home cooking and visiting restaurants.

5.6 LINK BETWEEN THEORETICAL FINDINGS AND EMPIRICAL FINDINGS

The following section endeavours to identify whether any similarities or differences were evident from the theoretical findings and the empirical investigation.

- Section 2.3.1.1 in Chapter two and questionnaire items B1-B3 dealt with respondents participation in the adoption of a sustainable lifestyle, purchases of organic products, and the consumption of locally produced products. The results indicated that majority of respondents endeavoured to maintain a sustainable lifestyle due to health and wellness concerns but were neutral in their demand of more organic and locally produced items. Studies by Dey (2021: Internet) contend that consumers have adopted

a more sustainable lifestyle since the emergence of COVID-19. Additionally, Gumber and Rana (2021:2) assert that more consumers are undertaking the purchases of organic foods in an effort to boost their immune systems.

- Section 2.3.1.2 in Chapter two and the questionnaire B4-B7 relates to the respondents undertaking of waste management practices during and as a result of COVID-19. It is established from the literature that an increase in the volume of plastic waste and a decline in reusing practices has occurred, which resulted in illegal dumping and littering. Although majority of the respondents were neutral in their responses, the empirical result corresponds with the literature. Respondents tended to disagree with the ascertain they make a habit of taking recyclable goods to recycling facilities.
- Section 2.3.1.3 in Chapter two and questionnaire items B8-B11 relates to the respondents perceptions regarding environmental sustainability practices. The results indicated that the respondents are neutral concerning the adoption of eco-friendly household practices, the reduction of single-use plastics, purchasing of home-energy efficient appliances and the conservation of water, this assertion partly corresponds with the literature.
- Section 2.3.1.4 in Chapter two and questionnaire items B12-B14 relates to the respondents sustainable transport and travel practices in the context of COVID-19. From the literature, Sung and Monschaur (2020:Internet) contend that transport activity has declined below fifty percent during the pandemic, including seventy-five percent decline in air travel. This observation partly coincides with the empirical results section, where majority of the respondents were neutral with regards to changing their air travelling habits, specifically for leisure purposes.
- Section 2.3.1.5 in Chapter two and questionnaire items B15-B20 relates to the respondents sustainable food and clothing practices. In the theoretical overview, it is reported that the avoidance of fast fashion is a significant determinant of sustainable clothing practices. This coincides with the empirical result, where majority of the respondents agreed with the statement that new digital technologies have been fuelling online shopping.

5.7 CONCLUSIONS

The rapid growth of environmental degradation presents a major challenge to governments, businesses, consumers, and households globally. Consumers and their respective households are considered key stakeholders in the development of climate change. The aim of the current study was to investigate the impact of the COVID-19 pandemic on consumer sustainability and green practices in Nelson Mandela Bay. Findings from this study revealed that consumers and households in NMB engaged primarily in activities that conserve the consumption of water, recognize the impact of new digital technologies on the increases in online shopping (fast fashion), adopt at-home cooking and utilise meal delivery services, demonstrate awareness regarding the positive impacts of working remotely from home on air pollution, disposing off hazardous waste and seeking to maintain a sustainable lifestyle for health and wellness concerns.

The results of the current study suggests that a significant percentage of consumers and households in NMB do not participate in practices such as purchasing locally produced and organic foods, household waste management initiatives, purchasing items in bulk, utilising recyclable facilities, adopting green and eco-friendly practices, reducing consumption of single waste plastics, purchasing home-energy efficient appliances, adapting their air travelling habits and purchasing clothing from sustainable brands. A significant determinant for the lack of participation in the above-mentioned practices can be attributed to the lack of awareness and information, a shortage of waste management facilities and a neutral attribute from respondents of this study toward consumer sustainability and green practices.

5.8 RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations and guidelines have been formulated.

5.8.1 GENERAL PERCEPTIONS REGARDING THE COVID-19 PANDEMIC

Based on the respondents' general perceptions regarding the COVID-19 pandemic, consumers should:

- Recognize that the outbreak of COVID-19 has been a major interrupting event, challenging how consumers engage in shopping behaviour.

- Realize that an essential determinant of the spread of the virus is a series of small-scale individual decisions.
- Recognize that the coronavirus has a rapid spread with a high transmission rate leading to substantial deaths worldwide.
- Be aware that people with low immunity, elder people and those with comorbidities are more at risk.
- View ignorance and non-compliance regarding health and safety protocols as the main contributors for spreading the virus.
- Recognize that the pandemic has influenced and changed lives on a global scale since its emergence.

5.8.2 GENERAL PERCEPTIONS REGARDING THE IMPACT OF COVID-19 ON CONSUMER SUSTAINABLE HEALTH PRACTICES

According to Dawson and Hancocks (2018:23), consumers exhibit specific attitudes and behaviours that encourage environmental behaviour and consumption choices.

Based on the consumers perceptions regarding consumer green practices, the following recommendations and guidelines have been formulated:

TABLE 5.1 GENERAL GUIDELINES REGARDING CONSUMER GREEN PRACTICES

Regarding sustainable health practices, consumers should….
1. Seek to adopt a sustainable lifestyle to promote health and wellness concerns
2. Strive to be more health conscious and seek to purchase more locally produced food items
3. Realize the impact of increased consumption in organic products on the condition of their health
Regarding waste management practices, consumers should….
4. Realize the impact of their actions on the environment and adopt various household waste management initiatives
5. Strive to dispose of all hazardous waste (chemical, medical, and other harmful waste) in the manner prescribed
6. Purchase items in bulk or as refills in order to reduce packaging waste
7. Ensure participation in taking recyclable goods to recycling facilities
Regarding environmentally sustainable practices, consumers should…

8. Adopt green and eco-friendly practices in their households to improve environmental sustainability
9. Reduce consumption of single waste plastic to improve the condition of the environment
10. Engage more in the purchase of home-energy efficient appliances and other energy-saving products.
11. Participate in the conservation of water at home, through activities such as showering, making food and clothing
Regarding sustainable transport and travel practices
12. Recognize that working remotely from home decreases air pollution as a result of less public and private vehicle travelling
13. Adapt air travelling habits, specifically those that involve leisure purposes
14. Implement shared travelling practices to reduce traffic congestion and costs
Regarding sustainable food and clothing practices, consumers should….
15. Adapt purchasing patterns to include buying clothing from sustainable brands
16. Recognize that new digital technologies and retailing platforms fuel online shopping
17. Ensure access to high quality, reliable information about the environmental characteristics of products purchased
18. Adopt at-home cooking habits and utilize meal delivery services
19. Recognize that at-home cooked meals have lower environmental impacts than processed foods
20. Re-evaluate eating out habits and utilizing restaurants

5.9 RECOMMENDATION FOR FUTURE RESEARCH

Based on the findings observed in this study, the following recommendations are provided

- It is imperative that future researchers convey the importance of their participation in this area of research.
- To reduce difficulties and improve the level of transparency, future researchers must undertake a research methodology and approach convenient for the researcher and the respondents.
- It is recommended that future researchers conduct a pilot study before the data collection process in order to ensure the reliability of the study.

5.10 LIMITATIONS OF THE STUDY

Firstly, the study was undertaken primarily in the Nelson Mandela Bay and is not a reflection of all areas. Furthermore, the database from which the sample was selected does not reflect all consumers in NMB.

Secondly, a limitation to the study was presented in the lack of existing literature on the impact of COVID-19 on consumer sustainability and green practices. A restriction also exists in relation to the respondents understanding of the statements in the questionnaire, consequently, uncertainty exists regarding whether the respondents were honest and genuine in their responses.

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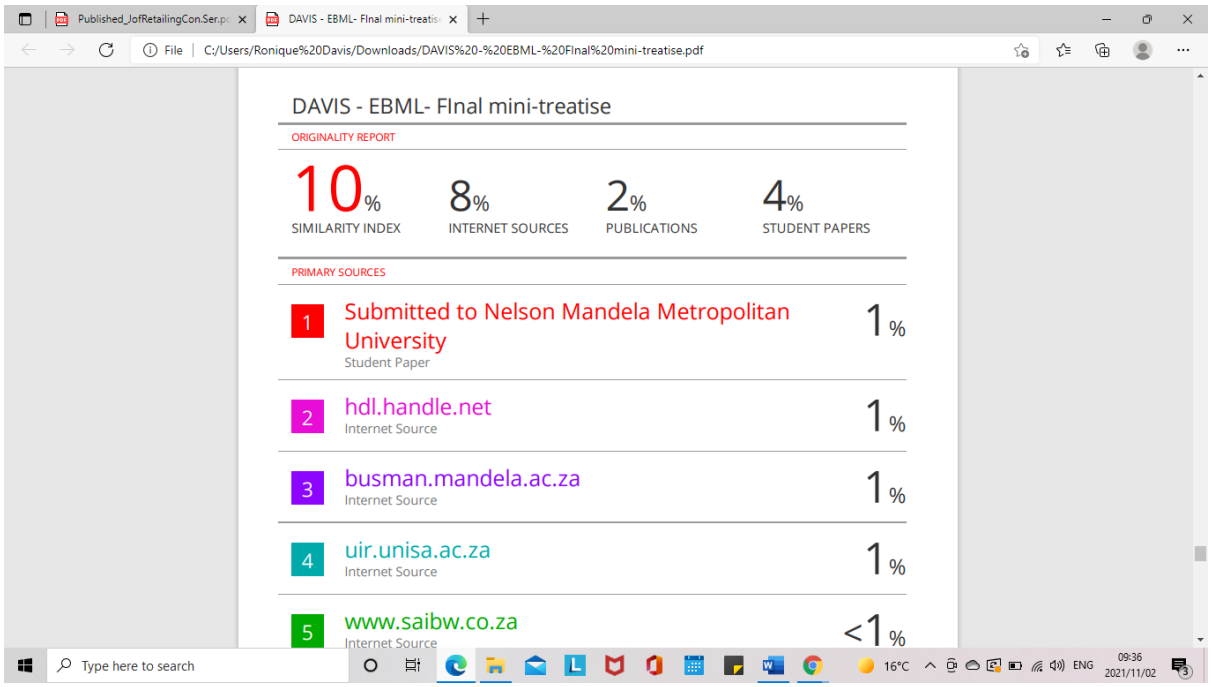
APPENDIX 1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APPENDIX 2

NELSON MANDELA UNIVERSITY

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

ETHICS CLEARANCE FOR TREATISES / DISSERTATIONS / THESES

Instructions:

- Should be completed by study leader and student
- Must be signed off by student, study leader and HoD
- Submit completed form to Ms Lindie van Rensburg
- Please ensure that the research methodology section from the proposal is attached to this form
- ***Please note that by following this Proforma ethics route, the study will NOT be allocated an ethics clearance number***

FACULTY: Business and Economic Sciences

SCHOOL / DEPARTMENT: Business Management _____

I, (surname and initials of study leader) **Prof EE Smith**_____

the study leader for (surname and initials of candidate) **RL Davis** _____

(student number) **214133893** _____

a candidate for the degree of **Business Management Honours** _____

with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

The impact of the Covid-19 pandemic on consumer sustainability and greening practices in Nelson Mandela Bay considered the following ethics criteria *(please tick the appropriate block):*

APPENDIX 2: ETHICAL CLEARANCE

		YES	NO
1.	Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?		X
2.	Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?		X
2.1	Are subjects/participants/respondents of your study:		
2.1.1	Children under the age of 18?		X
2.1.2	NMMU staff?		X
2.1.3	NMMU students?		X
2.1.4	The elderly/persons over the age of 60?		X
2.1.5	A sample from an institution (e.g. hospital/school)?		X
2.1.6	Handicapped (e.g. mentally or physically)?		X
3.	Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)		X
3.1	Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?		X
4.	Will the participant's privacy, anonymity or confidentiality be compromised?		X
4.1	Are you administering a questionnaire/survey that:		
4.1.1	Collects sensitive/identifiable data from participants?		X
4.1.2	Does not guarantee the anonymity of the participant?		X
4.1.3	Does not guarantee the confidentiality of the participant and the data?		X
4.1.4	Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?		X
4.1.5	Will create doubt whether sample control measures are in place? Will be distributed electronically via email (and requesting an email response)?		X
4.1.6	Note: • If your questionnaire **DOES NOT** request respondents' identification, is distributed electronically and you request respondents to return it *manually* (print out and deliver/mail); **AND** respondent anonymity can be guaranteed, your answer will be NO. • If your questionnaire **DOES NOT** request respondents' identification, is *distributed via an email link and works through a web response system (e.g. the university survey system);* ***AND*** respondent anonymity can be guaranteed, your answer will be NO.		X

APPENDIX 2: ETHICAL CLEARANCE

5.	Do you wish to publish an article from this study and submit to an accredited Journal?		X

and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

_____ 2 August 2021

STUDY LEADER(S) DATE

_____ 20 August 2021

HEAD OF DEPARTMENT DATE

_____ _____

STUDENT

DATE

_____

_____

STUDENT DATE

APPENDIX 3

South Campus
Department of Business Management
Tel. +27 (0)41 5042033
Elroy.Smith@mandela.ac.za

July 2021

PERCEPTIONS REGARDING THE IMPACT OF COVID-19 ON CONSUMER SUSTAINABILITY AND GREENING PRACTICES

It is hereby confirmed that the Business Management Honours students in Corporate Citizenship (EBMX401) at Nelson Mandela University are busy with a research project investigating perceptions regarding the impact of COVID-19 on consumer sustainability and greening practices. .

It would be appreciated if you could assist them in the completion of a short questionnaire in this regard. Please note that the information provided will be treated as strictly confidential and will be used for research purposes only. No individual results will be published. We trust that you will find this in order and thank you for your time and effort in completing this questionnaire.

Kind regards

Prof EE Smith

Research coordinator

QUESTIONNAIRE

Please indicate by means of a cross (X) the extent to which you agree or disagree with the statements in the following sections.

(1) Strongly disagree

(2) Disagree

(3) Neutral

(4) Agree

(5) Strongly agree

SECTION A

GENERAL PERCEPTIONS REGARDING THE COVID-19 PANDEMIC

I BELIEVE …		**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	The outbreak of COVID-19 has been a major interrupting event, challenging how consumers engage in shopping behaviour.	1	2	3	4	5
2	An essential determinant of the spread of the virus is a series of small-scale individual decisions (e.g. wearing facemasks, regularly washing hands or deciding how often to go a store).	1	2	3	4	5
3	The Corona-virus has a rapid spread with a high transmission rate leading to substantial deaths worldwide.	1	2	3	4	5
4	People with low immunity, elder people and those with comorbidities are more at risk.	1	2	3	4	5

5	Ignorance and non-complaince regarding health and safety protocols are the main contributors for spreading the virus.	1	2	3	4	5
6	Information regarding the pandemic on social media is unreliable and contain many rumors.	1	2	3	4	5
7	The effectiveness of interventions by the government were being adequately performed.	1	2	3	4	5
8	There is social discrimination and stigma in some communities regarding people infected with the virus.	1	2	3	4	5
9	The perceived risks posed by COVID-19 is considerable and severe.	1	2	3	4	5
10	The COVID-19 pandemic has influenced and changed lives on a global scale since its emergence.	1	2	3	4	5
11	Providing educational programs about COVID-19 could increase awareness and improve infection control and prevention.	1	2	3	4	5
12	The COVID-19 lockdown has forced people to increase technology use.	1	2	3	4	5

SECTION B

PERCEPTIONS REGARDING THE IMPACT OF COVID-19 ON CONSUMER GREEN PRACTICES

IN THE CONTEXT OF COVID-19, I AM …		**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
	HEALTH					
1	Looking to maintain a sustainable lifestyle due to health and wellness concerns.	1	2	3	4	5
2	More health conscious and looking to buy more locally grown food items.	1	2	3	4	5
3	Switching to increased consumption of organic foods because of health concerns.	1	2	3	4	5
	WASTE MANAGEMENT					
4	Aware of my actions on the environment and engaged in various household waste management initiatives.	1	2	3	4	5
5	Disposing of all hazardous waste (chemical, medical, and other harmful waste) in the manner prescribed.	1	2	3	4	5
6	Purchasing items in bulk or as refills in order to reduce packaging waste.	1	2	3	4	5

7	Making a habit of taking recyclable goods to recycling facilities.	1	2	3	4	5
	ENVIRONMENTAL					
8	Adopting green and eco-friendly practices in my household to improve environmental sustainability.	1	2	3	4	5
9	Reducing my consumption of single-use plastic to help save the environment.	1	2	3	4	5
10	Engaging more in the purchase of home energy-efficient appliances and other energy-saving products.	1	2	3	4	5
11	Attempting to conserve more water at home (e.g. showering, making food, cleaning, etc.).	1	2	3	4	5

	IN THE CONTEXT OF COVID-19, I AM …	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
	TRANSPORT AND TRAVELLING					
12	Of the opinion that working remotely from home has decreased air pollution as there is less public and private vehicle travelling.	1	2	3	4	5
13	Changing my air travelling habits, especially for leisure purposes.	1	2	3	4	5
14	Making use of shared travelling as to reduce traffic congestion and costs.	1	2	3	4	5
	FOOD AND CLOTHING PURCHASING					
15	Preferring to purchase clothes from sustainable brands.	1	2	3	4	5
16	Of the opinion that new digital technologies and retailing platforms have been fueling online shopping.	1	2	3	4	5
17	Ensuring access to high quality, reliable information about the environmental characteristics of products purchased.	1	2	3	4	5
18	Shifting toward at-home cooking and make use of meal delivery services.	1	2	3	4	5
19	Of the opinion that home-cooked meals have lower environmental impacts than processed foods.	1	2	3	4	5
20	Re-evaluating my eating out habits and visiting restaurants.	1	2	3	4	5

SECTION C

BIOGRAPHICAL INFORMATION

Please indicate with cross (X) in the appropriate block.

1. Age

Years	18-25	26 – 40	41 – 50	51 – 60	60+
Response	1	2	3	4	5

2. Gender

Female	1
Male	2

3. Highest qualification

Grade 11 and lower	1
Grade 12	2
National Diploma or certificate	3
Bachelor's degree	4
Postgraduate degree/ diploma (e.g.Honours/ Masters)	5
Other (Please specify)	6

4. Employment status

Student	1	Employed full-time	5
Unemployed	2	Employed part-time	6
Retired	3	Unable to work	7

5. Frequency of shopping

Once a month	1
Twice a month	2
Three times a month	3
Once a week	4

Every second day	5
Every day	6

6. Zero waste shopping products

I am most likely to practice zero waste when purchasing the following types of products:			
Fruit	1	Personal care and beauty products	6
Vegetables	2	Cleaning products and materials	7
Meat	3	Stationery and office supplies	8
Cheese	4	Packaging materials (e.g. plastic bags)	9
Grains	5	Other (please specify)	10

7. The three R's of waste hierarchy

In the light of COVID-19, I engage in the following activities or practices:	
Reduce amount of waste that is produced (e.g. multipurpose or multi-use of items).	1
Reuse of products through finding new use for it or donating it.	2
Recycling of materials from normal waste (e.g. glass).	3
None of the above	4

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE