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**INVESTIGATION OF THE COVID-19 PANDEMIC IMPACT ON CHILD HEALTH
AND NUTRITION SERVICES IN PRIMARY HEALTH CARE FACILITIES,
MNQUMA LOCAL MUNICIPALITY: A RETROSPECTIVE STUDY**



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**A MINI-DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF PUBLIC HEALTH**

IN THE FACULTY OF HEALTH SCIENCES AT THE UNIVERSITY OF FORT HARE

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31 AUGUST 2023

DECLARATION

I, Namhla Linda Mdingi Buqa, declare that the research “AN INVESTIGATION OF THE COVID-19 PANDEMIC IMPACT ON THE CHILD HEALTH AND NUTRITION SERVICES IN PRIMARY HEALTH CARE FACILITIES, MNQUMA LOCAL MUNICIPALITY: A RETROSPECTIVE STUDY” in submission for the degree of Masters in Public Health at the Fort Hare University is my work and all external sources used or quoted in this study have been recognised by a complete reference list.

Student Name: Namhla Linda Mdingi Buqa

Signature:



Submission Date: 31 August 2023



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CERTIFICATION

This mini-dissertation, entitled 'An investigation of the COVID-19 pandemic impact on the child health and nutrition services in primary health care facilities, Mquma local municipality: A retrospective study,' meets the guidelines outlining the award of the Masters in Public Health at the University of Fort Hare and is an approved contribution to scientific knowledge and scholarly presentation.

Supervisor: Dr D Murray

Co-Supervisor: Dr F Mayeye

Signature: 

Signature: 

Submission date: 6 September 2023



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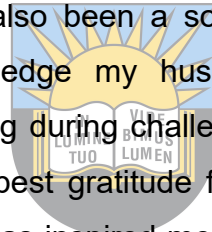
DEDICATION

This mini dissertation is dedicated to several individuals who have played crucial roles in shaping my life. Firstly, I express my deepest gratitude to God Almighty for His grace and blessings, which have guided me throughout my journey.

Moving on to those who have significantly contributed, I extend my heartfelt appreciation to my family, friends, and colleagues. Among them, a special debt of gratitude goes to my grandparents, Join and Adelaide Mdingi, who served as my first teachers and nurturers, laying the foundation for who I am today.

Additionally, I am deeply thankful to the women who played such vital roles in my upbringing and education: my mother, Nontyatyambo, my aunts Eunice, Nobuntu, and Pakama. I would also like to acknowledge the unwavering support of my uncle, Ndimphiwe Mdingi. Their love and guidance have been instrumental in my success.

My personal relationships have also been a source of immense strength. In this regard, I also wish to acknowledge my husband, Mazwi, whose unwavering encouragement has kept me going during challenging times. My children, Lala and Ovu Buqa, also deserve my deepest gratitude for their constant support and kind words. Their presence in my life has inspired me, reminding me of the "why" behind my efforts.



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The University of Fort Hare Research Ethics Committee for granting ethical approval for the study.

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Dr Mbata for assistance regarding my data analysis as an independent coder for my qualitative section.

ABSTRACT

Introduction

The Coronavirus-19 (COVID-19) pandemic, a global phenomenon with multiple waves of infection, significantly disrupted livelihoods and health services worldwide. While evidence suggested children were less susceptible to severe illness and death from the virus itself, the pandemic's indirect effects put them at risk. many countries including South Africa, responded by declaring a state of disaster and implementing movement restrictions to control the spread of the virus. This study investigated the impact of these measures on child health and nutrition services in the Mquma sub-district of the Amathole District, South Africa.

Methods

This study employed an explanatory sequential mixed method of quantitative and qualitative designs. In terms of quantitative data, retrospective data was analysed in two parts. Firstly, Part One involved reviewing twenty health patient records from 2019/20 to 2020/21 period. Part Two (2) focussed on twelve child health and nutrition indicators for children aged two years old, extracted from the District Health Information Management System (DHIS). This allowed for a comparison of trends in service utilisation between pre-pandemic and pandemic periods.

On the other hand, qualitative research explored factors contributing to reduced access to health care and disruptions in services. The researcher used purposive sampling to select the five clinics for convenience and proximity. During data collection at each clinic, caregivers were recruited and interviewed until data saturation was reached.

Results

The study revealed the negative consequence of the COVID-19 pandemic on child health service utilisation. Data from the District Health Information System (DHIS) for 2019/20 showed generally lower immunisation rates in 2020 compared to 2019 except for the first dose Diphtheria, Tetanus, and Pertussis (DTaP) vaccine. Interestingly the variations in proportions between the two years for DTaP (first dose), DTaP (third

dose), and measles vaccination were statistically significant (chi -square=3668.5, p-value<0.0001).

Analysis of the data also indicated a decline in the number of children fully immunised. These decreases ranged from 1.9% to 4.4% in Mpukane, Ngancule, and Zazulwana clinics. Conversely, Hebe-Hebe and Ndabakazi clinics reported increases of 4.8% and 1.6% respectively.

Reviews of children's medical records revealed coughs as the most prevalent illness affecting 50% of children's visits. Vomiting was a less frequent issue accounting for 15% of consultations for this symptom. Notably, the study found no significant changes in the nutritional status during the pandemic.

Caregiver interviews identified challenges during the pandemic that likely hindered access to child health and nutrition services. These challenges included movement restrictions due to COVID-19 regulations, temporary clinic closures, fear of contracting COVID-19, and clinic staff shortages that further strained the services. Additionally, the high cost of private health care made it difficult for some caregivers to access necessary care for their children.



Conclusion

This study concluded that the COVID-19 pandemic significantly disrupted access to and utilisation of child health and nutrition services in the Mquma sub-district, South Africa. Children primarily presented with COVID-19-related symptoms like cough, gastroenteritis, and eye/ear infections.

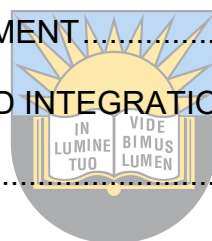
Several factors hindered service utilisation, including movement restrictions due to lockdown, clinic closures, and caregiver fear of contracting the virus. Furthermore, the reported hunger, household food insecurity, school closures, and long queues at grocery stores negatively impacted the nutritional status of children.

Keywords: COVID-19, lockdown, impact on child health, nutrition

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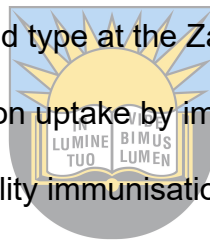
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ACRONYMS AND ABBREVIATIONS

ADM	Amathole District Municipality
AIDS	Acquired Immuno Deficiency Syndrome
BCG	Bacille Calmette–Guérin (BCG)
BCM	Buffalo City Municipality
COVID-19	Corona Virus Disease 19
DHIS	District Health Information System
DTaPd1	Diphtheria Tetanus Pertussis first dose
EC	Eastern Cape
ECDoH	Eastern Cape Department of Health
EPI	Expanded Programme on Immunisation.
HIV/ AIDS	Human Immuno Virus/Acquired Immuno Deficiency Syndrome
KZN	Kwa Zulu Natal
NICD	National Institute for Communicable Diseases
PCV	Pneumococcal Conjugate Vaccine
PHC	Primary Health Care
RMNCAH	Reproductive, Maternal, Newborn, Child, and Adolescent Health
RV	Rota Virus
SA	South Africa
SADHS	South African Demographic Health Survey
SARS-COV-2	Severe Acute Respiratory Syndrome Corona Virus 2
Stats SA	Statistics South Africa
TB	Tuberculosis
UFH- REC	University of Fort Hare Research Ethics Committee

UNICEF	United Nations Children's Education Fund
UNFPA	United Nations Population Fund
WHO	World Health Organization



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CHAPTER 1: OVERVIEW AND INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

This chapter lays the groundwork for the study by first introducing the background of Corona Virus Disease 19 (COVID-19). This context is crucial for understanding the rationale behind the research. Secondly it outlines the study's primary objectives and research questions which guided the investigation. Next, the chapter introduces a theoretical framework that provides a lens through which to analyse the research findings.

Finally, it explains the study methodology, including the research design and approach to data analysis.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

According to the National Institute for Communicable Diseases (2020), "Corona Virus Disease 19 (COVID-19) is a contagious respiratory disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2). The emergence of the Corona Virus Disease 2019 (COVID19) caused by SARS- COV- 2 in the late 2019 sparked a global pandemic. The disease, characterised by symptoms ranging from mild fever and cough to high fever, fatigue, and loss of taste or smell (NICD,2020) quickly spread across the globe, by March 28, 2021, the number of confirmed cases reached a staggering 127 million, with millions of deaths and recoveries reported (NICD,2020). South Africa was no exception, with over 1.5 million confirmed cases and over 50 000 deaths reported at the time. Notably Eastern Cape Province where this study is focussed, mirrored the National trend with a significant number of cases (NICD, 2020).

To control the spread of the virus, many countries, including South Africa, implemented non-pharmaceutical interventions such as lockdown (World Health Organisation ,2020) These restrictions on movement, with people confined to their homes, inevitably impacted access to health care services. A study conducted in KwaZulu Natal, South Africa, revealed this challenge – limited access to health facilities due to transportation unavailability during stricter lockdown periods (Jensen & McKerrow, 2020).

The study further highlighted the strain on healthcare facilities and staff as they tackled the surge in COVID-19 cases (Jensen & McKerrow, 2020). Consequently, concerns arose regarding the potential disruption of child health and nutrition services within primary healthcare facilities, echoing similar experiences during past pandemics (Jensen & McKerrow, 2020).

Although research by Jensen & McKerrow (2020) suggests a low COVID-19 infection rate among children in South Africa, with only 7.4% of confirmed cases and a minimal hospitalisation rate, the potential indirect effects of the pandemic remained a cause for concern. The United Nations Children's Fund (UNICEF, 2020) emphasised this very point, raising the possibility of children being indirectly affected by the pandemic, such as through the loss of a parent or caregiver to COVID-19. The socio-economic and psychological consequences of such losses can be devastating for children, potentially jeopardising their survival and well-being, particularly for those under five years old (UNICEF, 2020). This emphasis on the diminished risk of serious illness in children, while crucial, may have inadvertently shifted policy focus away from safeguarding the overall well-being and health of children during the pandemic.

This research investigates the potential consequences of this shift in focus, examining how the COVID-19 pandemic impacted child health and nutrition services in the Mnquma sub-district of the Amathole District, South Africa.

1.3 PROBLEM STATEMENT

The declaration of a national state of disaster on March 15, 2020, followed by a national lockdown on March 27, 2020 (SA, 2020), led to movement restrictions that hindered access to health care. The health care system, focussed on managing the pandemic, diverted resources away from routine primary health care services for children. This included disruptions in critical services like growth monitoring, immunisations, nutrition supplementation and childhood illness management.

Data from the Eastern Cape Department of Health (2020) revealed alarming trends. A significant percentage of children under one (14%) did not receive necessary healthcare at facilities. Similar declines were observed in measles second dose vaccinations (17.2%) and Vitamin A supplementation (17.9%). These disruptions pose a severe threat to child health and survival.

Therefore, understanding and quantifying the impact of these disruptions on child health services is crucial to inform future public health interventions. This research aims to investigate the specific effects of the Covid 19 pandemic on child health and nutrition services in the Mngquma sub district of the Amathole District, South Africa.

1.4 AIM OF THE STUDY

In response to disruptions in child health services caused by the COVID-19 pandemic, this retrospective mixed-methods study investigated the impact of the pandemic on access to and utilisation of child health and nutrition services in the Mngquma sub-district, South Africa. By employing a mixed-methods approach, the research sought to understand the challenges caregivers and healthcare providers faced during this critical time. Ultimately, this study aimed to inform future public health interventions designed to mitigate the adverse effects of pandemics on child health services.

1.5 RESEARCH OBJECTIVES

The researcher identified more specific objectives related to the above-mentioned aim. To achieve the aforementioned, they took various actions. Firstly, they evaluated the extent of the COVID-19 pandemic disruption on the uptake of childhood immunisations for children under two years of age; secondly, they assessed the trends and performance of selected indicators pre-COVID-19 (April 2019- March 2020) and during the COVID-19 pandemic (April 2020- March 2021) from the web-based DHIS database during the disaster management period. Thirdly, they described changes in childhood illnesses and malnutrition incidence during the COVID-19 pandemic (April 2020- March 2021); next, they explored the challenges experienced by caregivers of children under two years of age regarding the utilisation of child health services from April 2020 to March 2021. Finally, they examined how the results of the qualitative approach explain the results of the quantitative approach of the study.

1.6 RESEARCH QUESTIONS

To support the achievement of the above objectives, the study posed five pertinent investigative questions, namely: To what extent did the COVID-19 pandemic and its restrictions disrupt the uptake of childhood immunisations for children under two years of age at the Mngquma sub-district, pre-COVID-19 (April 2019- March 2020) and during

(April 2020- March 2021)?; What were the performance trends of selected indicators from the web-based DHIS database pre-COVID-19 (April 2019- March 2020) and during COVID-19 (April 2020- March 2021) during disaster management restriction of movement?; What was the incidence of childhood illnesses and malnutrition during COVID-19 (April 2020- March 2021) for children under two years of age who were seen in PHC services? What challenges did caregivers of children under two years of age experience regarding using child health services from April 2020 to March 2021? Finally, how do the results of the qualitative approach explain the quantitative approach's results in the study?

1.7. SIGNIFICANCE OF THE STUDY

This study's findings are significant for the Mquma subdistrict and the Department of Health, by understanding how the COVID-19 pandemic disrupted access to child health and nutrition services, policy maker can develop more effective strategies to mitigate these disruptions during future public health emergencies. This is particularly crucial considering the ongoing nature of the pandemic and the possibility of future waves of the outbreaks. The research emphasises the need for the Department to adapt child health intervention to function effectively within a context of Covid 19 and similar situations.

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The paradigmatic departure of the study

This mixed-methods study employed a philosophical framework informed by both post positivism and constructivism. The paradigmatic departure standards or criteria for assigning value to a discipline's processes and products and the method of knowledge development within a discipline (Lincoln, Lynham & Guba, 2011; Creswell & Creswell, 2018).

Post-positivism

The quantitative phase of the research, which analysed data from health files of children under two years old, aligns with a postpositivist approach. According to Creswell and Cresswell (2018), quantitative studies typically follow a postpositivist worldview. Since this study was based on an explanatory sequential mixed method, the post-positivism paradigm was used for the quantitative phase.

Post-positivism represents the thinking after positivism, challenging the traditional notion of the absolute truth of knowledge and stating that we cannot be positive about our claims of knowledge when we examine human behaviour (Cresswell & Cresswell, 2017).

Constructivism

The qualitative phase of the study, which involved interviews with caregivers, draws on a constructivist perspective. More recent writers who have summarised this position are Lincoln, Lynham and Guba (2011) and Crotty (1998), among others. Social constructivists believe that people try to find an insight into the world in which they live and work. Individuals develop subjective meanings of their experiences and are directed towards particular objects or things. The questions become broad and general so that the participants can construct the meaning of a situation, typically forged in discussions or interactions with other persons. The more open-ended the questioning is, the better, as the researcher listens carefully to what people say or do in their life settings (Creswell & Creswell, 2018).

1.8 DEFINITION OF TERMS

SARS-CoV-2: SARS-CoV-2, or Severe Acute Respiratory Syndrome Coronavirus 2, is responsible for causing COVID-19 infections, characterised by symptoms ranging from mild respiratory issues to severe illness and, in some cases, fatalities. It is also associated with long-term health effects. The World Health Organization (WHO) identified SARS-CoV-2 in 2020 as the causative agent of the COVID-19 pandemic. In the context of this study, SARS-CoV-2 refers to the specific strain of coronavirus that has had adverse effects on child health and nutrition services in the Mnquma local municipality. This includes impacts such as disruptions to healthcare services,

changes in access to nutrition programmes, and other related challenges attributable to the pandemic.

District Health Information System (DHIS): The District Health Information System (DHIS) is a web-based national system utilised to gather routine health service utilisation data monthly from all public health services. Originating in South Africa in 2011, DHIS serves as a comprehensive platform for collecting, analysing, and disseminating health-related data at the district level and beyond. In the context of this study, DHIS refers to the specific implementation of this system, where it collects monthly data not only from national health services but also from those operating within the Mquma local municipality. This data encompasses various aspects of healthcare delivery, including patient demographics, disease prevalence, treatment outcomes, and resource utilisation, facilitating informed decision-making and resource allocation within the healthcare system.

1.9. THEORETICAL FRAMEWORK

The study was based on Lévesque's theoretical framework since it has a multidimensional view of health access in the context of health systems. According to Cu, Meister, Lefebvre, and Ridde (2021), "Lévesque's theoretical framework dimensions include approachability, acceptability, availability, affordability, and appropriateness. Furthermore, the framework considers individuals' abilities to observe, pursue, receive, buy, and be involved in the healthcare system". Consequently, the framework provided a comprehensive lens to analyse the various facets of health access and utilisation within the study's context.

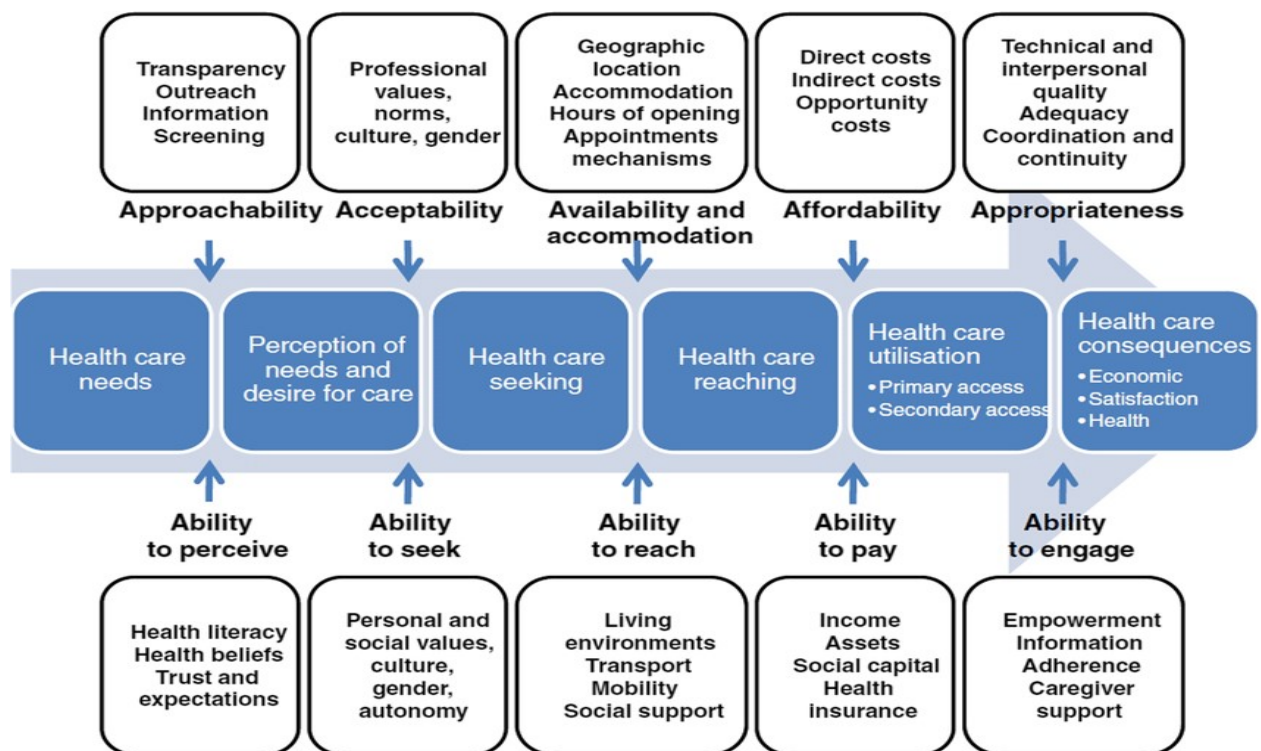


Figure 1: Lévesque theoretical framework – Access to healthcare

The framework above was used to consider access to the health system through approachability, availability, affordability, and appropriateness in service delivery during the pandemic. According to Lévesque, Harris, and Russel (2013), “access to healthcare is a consequence of the interface between the characteristics of social, persons, households, and physical environments, and the characteristics of health systems and providers”. The study aimed to examine this interface by explaining the performance of child health and nutrition while also considering the carers' experiences with the health system during the pandemic.

1.9.1 Approachability

Approachability is a key dimension of access to healthcare and refers to the ease with which caregivers can navigate the healthcare system and interact with healthcare providers. Transparency and communication are essential to improving trust in healthcare services. This study expects health facilities to be transparent and communicate with caregivers during implementing lockdown regulations for COVID-19. In addition, factors like welcoming and culturally sensitive interactions with staff can further enhance approachability and encourage caregivers to seek healthcare for their children.

1.9.2 Availability

Lévesque et al. (2013) define availability as tangible health resources that can deliver healthcare. These resources include physical location, accommodation (availability of beds and equipment), opening hours, and appointment mechanisms. Maintaining service availability was crucial to mitigate the negative impact of COVID-19 on vulnerable social groups. This required effective resource management, particularly healthcare professionals, within an already constrained environment to ensure the continuity of child health and nutrition services during the pandemic. As highlighted by a Rwandan study (Wanyana, Wong & Hakizimana, 2021), balancing the fight against COVID-19 with providing comprehensive healthcare presented significant managerial challenge

1.9.3 Acceptability

Acceptability refers to social and cultural factors influencing how people perceive and utilise health care services. These factors can include beliefs, gender, or community group of benefactors and trust in the health care system. In the context of the COVID-19 pandemic, strict adherence to infection prevention and control protocols in clinics was essential to alleviate caregiver concerns about contracting the virus within healthcare facilities. However, the pandemic's disruptions to daily life could have resulted in delays in children receiving necessary healthcare. This is a significant concern, as unmet child health needs could jeopardise progress in reducing child morbidity and mortality rates, potentially hindering efforts to achieve sustainable development goals (Akseer et al., 2020; Ahmed et al., 2021).

1.9.4 Affordability

Affordability refers to a patient's financial ability to cover the costs associated with healthcare services, including both direct costs (user fees) and indirect costs (transportation, time off work). The COVID-19 pandemic, as reported by Burger and Mchenga (2021), had a significant indirect financial impact on communities. Job losses, business closures, and food insecurity were widespread, and these economic hardships likely contributed to reduced clinic attendance and potentially compromised children's nutritional status.

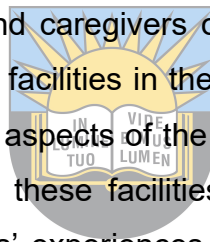
1.9.5 Appropriateness

As defined by Lévesque et al. (2013), appropriateness refers to several key aspects, such as meeting client needs. In particular, the services offered should be aligned with the specific health problems or concerns of the caregivers and their children and their timeliness. There should be minimal delays in receiving care, including assessment, diagnosis, and treatment. Healthcare providers should possess the necessary skills and knowledge to deliver effective care while interacting with caregivers respectfully and compassionately.

The COVID-19 pandemic undoubtedly challenged the appropriateness of healthcare services. Temporary clinic closures due to staff infections resulted in unmet healthcare demands, potentially delaying access to necessary services for children.

1.10 DELIMITATION (SCOPE)

The study focused on mothers and caregivers of children younger than two years attending fixed primary healthcare facilities in the Mnquma sub-district. As such, the research aimed to investigate two aspects of the pandemic. Firstly, changes in child health and nutrition trends within these facilities during the COVID-19 pandemic. Secondly, it focused on caregivers' experiences as they navigated child healthcare access during the pandemic.



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1.11 LAYOUT OF THE STUDY

This research is presented in five chapters that cover various research-related aspects. These include an overview, a literature review, a methodology outline, data analysis and results. The final chapter provides a conclusion.

Chapter 1: Introduction

This chapter serves as an introduction to the study, providing context for the research. It delves into the impact of the COVID-19 pandemic on child health services, highlighting the specific problem statement and research objectives that guide this investigation. The significance of the study and the chosen analytical framework are also presented.

Chapter 2: Literature review

Building upon the foundation in the introduction, Chapter 2 presents a comprehensive literature review. This critical examination explores existing literature on COVID-19 and its effects on health services, mainly focusing on the impact on child health during pandemics. Furthermore, the chapter explores relevant research on caregiver experiences and perceptions within the context of a pandemic.

Chapter 3: Methodology

Shifting the focus to the research methods employed, this chapter outlines the methodological approach. A mixed-methods design, incorporating quantitative and qualitative data collection methods, is explained in detail. Chapter 3 delves into the overall research design, setting, population, and sampling techniques used for participant selection. Additionally, the pilot study conducted to ensure the effectiveness of the research instruments is described. The chapter concludes by outlining the data collection tools and processes, followed by a detailed explanation of the data analysis methods.

Chapter 4: Results and discussion

Chapter 4 presents the study's findings.

Chapter 4: Data analysis and discussion of the findings. Chapter 4 presents the study's findings. Following a meticulous analysis of the collected data in accordance with the research objectives, this chapter draws connections to the existing literature reviewed in Chapter 2. Subsequently, the chapter delves into a discussion section that interprets the findings in a broader context, drawing insights from relevant research and highlighting any unexpected outcomes.

Chapter 5: Summary, Conclusion, and Recommendations. In conclusion, this chapter summarises the research's key findings, emphasising their alignment with the analytical framework presented in Chapter 1. Chapter 5 also acknowledges the study's strengths and limitations, providing valuable insights for future research endeavours. Finally, the chapter concludes with recommendations for policymakers and healthcare providers to improve child health service delivery during future public health emergencies.

1.12 SUMMARY

This dissertation investigated the impact of the COVID-19 pandemic on child health and nutrition services in the Mquma sub-district, South Africa.

Chapter 1 provided background information on the disruptions caused by the pandemic in healthcare systems globally.

The problem statement related to specific challenges faced in accessing child health and nutrition services during the pandemic. The study's objectives also included understanding how the pandemic affected service access and caregiver experiences.

The next chapter will explore the effects of the pandemic on access to child health and nutrition and the socio-economic effects of the pandemic on households and the health system through an extensive literature review.



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CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviewed the literature on the impact of the COVID-19 pandemic on child health services. The literature illustrated the complex effects of COVID-19 on health, social, and economic systems. According to Brink, Van der Walt, and Van Rensburg (2018), a literature review aids the researcher in getting accustomed to the previous and existing body of knowledge of the study topic. Systematic identification, location, and information analysis related to COVID-19 formed part of the literature review. Information was sourced from peer-reviewed journals and articles, books, internet sources, and government reports to get a complete overview of the existing information and knowledge about COVID-19.

2.2 BACKGROUND TO THE COVID-19 PANDEMIC

The National Institute for Communicable Diseases (2020) defines Corona Virus Disease 19 (COVID-19) “as a contagious respiratory disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV 2)”. NICD (2020) further indicated that “this virus was first identified in Wuhan, China, in December 2019 and has since caused an ongoing global pandemic with several waves of infections. The symptoms ranged from mild fever and cough to high fever, pneumonia, fatigue, loss of taste, and smell”. The official reports indicated that most people infected by COVID-19 experienced mild to moderate sickness and recovered without special treatment. However, some experienced severe sickness and required hospitalisation and intensive care. (NICD,2020)

People suffering from other comorbidities like diabetes, cardiovascular diseases, chronic respiratory disease, and cancers were at risk of developing severe illness and death. The mortality rate was estimated to be between 2% and 5% but differed depending on the infected person's age and health condition. Age has been identified as the most crucial parameter determining the severity of the disease and the mortality rate.

On 15 March 2020, the South African government declared a national disaster to curb the spread of COVID-19 and deal with the pandemic. The state of disaster was

followed by a very strict national lockdown from 27 March 2020. Under alert level 5 lockdown, citizens were limited in movement and only allowed outside their yards for specific essential services, and the security forces were tasked to implement the rules. The only exclusions to these rules were for individuals to carry out basic services such as grocery shopping, medical needs, and work for the designated workers. A prohibition was executed on movements from high-risk countries and the sale of alcohol and cigarettes. (Burger & Mchenga, 2021).

The strict restriction of movement of people led to decreased economic activities and negatively affected access to health services, thus worsening the health and well-being of children. The coronavirus pandemic was a new and unique occurrence of our lifetime, posing a high risk to livelihoods. Several countries introduced non-pharmaceutical interventions to control the spread of coronavirus, including lockdowns of the countries, regions, and cities, thus limiting the movement of people, with most people locked down in their homes (WHO, 2020). Almost two years later, on 04 March 2022, the caseload for COVID-19 infections was as follows: the Eastern Cape Province had 535 active cases of COVID-19. The cumulative number of confirmed cases was 343 689, with a recovery rate of 95.0 % (326 658 recoveries) and a case fatality rate of 4.8% (16 498 deaths) (South Africa, 2022).

The socio-economic and psychological safety net results of such a loss on children were massive. Survival and health of children under five always remained a considerable risk during the pandemic. Children experienced minimal risk of developing severe illness due to COVID-19, and this was a leading discussion among the policy debates over the pandemic; however, those discussions focused on adults at high risk of losing a life to the pandemic while neglecting children's health and well-being.

Section 27 of the South African constitution (1996) guarantees South Africans a right to access health services, which include reproduction, social security, nutrition, and water, if they cannot support themselves. Women and Children's article 24 of Children's Rights guarantees the child's right to enjoy the primary affordable standard of health and facilities for treating ill health and rehabilitation of health. Therefore, the state must ensure that no child is deprived of access to healthcare services.

Globally, the pandemic was one of the most complex and severe challenges faced recently. The immense human suffering due to this pandemic could not be quantified. (UNFPA, 2020). The United Nations Population Fund (UNFPA) (2020) further observed that maintaining essential health services for the care of women and children while trying to mitigate the spread of the pandemic would be challenging to the health systems that were already struggling.

According to the UNFPA (2020), Cuba, Costa Rica, and Uruguay were among the countries that opted to maintain access to all health services, while some suspended certain services. These three countries share a health system with equitable primary health services, high-resolution capacity, and clearly defined hospital networks and referrals. On the other hand, South Africa opted to deliver all comprehensive health services except elective surgeries.

There were global concerns that the coronavirus disease reversed significant public health gains enjoyed over the past two decades. Previous humanitarian emergencies caused by other disease outbreaks, e.g., Ebola and war conflicts, reversed the gains made in health outcomes, with women and children being the most vulnerable populations and thus most negatively affected by the collapse of health services that accompany such destructions (Wanyana, Wong & Hakizimana, 2021).

Criticism was levelled against the South African government for not considering the livelihoods of citizens while managing the COVID-19 infection to lessen the onslaught of the virus (Mbunge, 2020). The Eastern Cape Province focused on increasing the dedicated and hardworking teams that worked around the clock to save those who contracted the infection and were hospitalised. Infrastructure, life-saving equipment, and human resources investments yielded positive results, with many lives saved. (South Africa, 2022)

2.3 COVID-19'S IMPACT

The impact of the pandemic will be analysed based on its effects on health services, health service access and nutrition, and child health and well-being.

2.3.1 Health services impact

The coronavirus disease 2019 (COVID-19) pandemic challenged the strengths of the most advanced health systems globally. According to Akseer, Kandru, Keats, and Bhutta (2020), the following sectors were at risk of collapse due to the COVID-19 pandemic: the food systems, social protection systems, healthcare services for women and children, and water and sanitation systems. The vertical COVID-19 response adopted by many countries, including South Africa". There were complex demands for maternal and child health services during the pandemic.

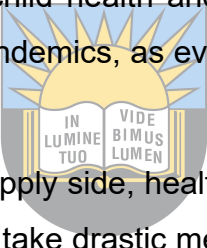
In South Africa, this novel virus highlighted structural inequalities and forced the country to adapt and strengthen public and private health systems. A shortage in human resources was experienced. (Mbunge, 2020). In many countries, the deficit was caused by the inequitable supply of healthcare professionals between rural and urban areas. Moreover, it further asserts that the country faces challenges due to a lack of funding and fiscal constraints that it found itself in even before COVID-19, as rating agencies downgraded it. Other challenges included the slow implementation of universal coverage as a transformation programme in restructuring the healthcare system. South Africa has been faced with an increased burden of disease.

2.3.2 Utilisation of child health services during pandemics

Throughout the world, health bodies such as the World Health Organisation and the United Nations Children's Fund reiterate concerns about the pandemic's effects on child health and nutrition, especially during its early stages. The WHO further instituted a key informant survey to study these effects regarding targeted countries' essential services. Consequently, it was found that 50% of health services were disrupted. The disrupted services included maternal and child health and nutrition, reproductive and communicable diseases, non-communicable diseases, and mental health support (WHO, 2020).

Furthermore, it was noted that a mix of demand and supply factors led to such disruptions. There were reductions in the demand for services, as shown by the reduction in outpatient attendance, which was reduced by 76%. In addition to the above, the lockdown-imposed challenges of access and economic difficulties. COVID-19 response measures included social distancing, quarantine, isolation, and lockdown of communities, negatively affecting access to health services.

A study by Das Neves Martins Pires et al. (2021) in Mozambique corroborates the WHO findings, highlighting that efforts to control the pandemic indirectly reduced access to essential services. Similarly, a study conducted in KwaZulu-Natal, South Africa, reported challenges accessing healthcare facilities due to limited transportation options, particularly during stricter lockdown levels (levels 5 and 4). This study also documented the immense strain on healthcare facilities as they grappled with the influx of COVID-19 patients (Jensen & McKerrow, 2020). Furthermore, research suggests that primary healthcare facilities, child health and nutrition services are particularly vulnerable to disruptions during pandemics, as evidenced by past outbreaks (Jensen & McKerrow, 2020).

The logo of the University of Fort Hare is a shield-shaped emblem. It features a sun with rays at the top, and an open book in the center. The book has the Latin motto 'IN LUMINE TUO' on the left page and 'VIDE BIMIUS LUMEN' on the right page. Below the book, the text 'University of Fort Hare' and 'Together in Excellence' is written in a stylized font.
Supply-side Constraints: On the supply side, healthcare authorities faced a multitude of challenges. They were forced to take drastic measures to accommodate the surge in COVID-19 patients. Elective procedures were cancelled to free up beds, and healthcare staff were redeployed to focus on the pandemic response. The situation became even more critical when outbreaks within healthcare facilities necessitated temporary closures. This occurred when staff members contracted the virus, requiring their colleagues to isolate to prevent further transmission within the facilities (Singh et al., 2021). A study in India by Singh et al. (2021) corroborates these challenges, highlighting the significant strain placed on healthcare personnel by hospital-acquired COVID-19 infections. Staff shortages arose due to illness and the need for self-isolation to control outbreaks within healthcare facilities.

Impact on Reproductive, Maternal and Child health services: The surge in staph infections further compromised the delivery of essential public health programs, particularly those focusing on Reproductive, Maternal, and Child Health (RMCH) services (Singh et al., 2021). These critical programs, encompassing vaccinations, antenatal care, growth monitoring, postnatal services, and breastfeeding promotion,

were entirely suspended or significantly scaled back due to staffing shortages. Facilities were sometimes forced to close temporarily due to a critical lack of personnel.

Research by Jensen and McKerrow (2020) indicated that children in South Africa accounted for a low incidence of COVID-19. Only 7.4% of all confirmed cases of COVID-19 were children and adolescents, with only 3.2 % of children under the age of five with COVID-19 admitted to hospitals. This indicates a low incidence risk and low risk of death in children due to COVID-19.

Reduced Healthcare Utilization: A systematic review by Moynihan et al. (2021) analysing 81 studies across 20 countries revealed a significant decline in healthcare utilisation by more than a third (37%) during the pandemic. This concerning statistic exposes a substantial number of unmet health needs, particularly among women and children. The review further highlighted a worrying 45% reduction in healthcare utilisation, specifically for individuals with milder illnesses.

Disproportionate Impact on Women and Children: Splinter (2020) corroborated this decline in service utilisation, reporting that one in five individuals avoided healthcare facilities during COVID-19 lockdowns, with a particularly concerning trend among women. This is especially worrisome given the primary caregiving role often assumed by women. Their reluctance to seek healthcare could lead to a significant routine and preventative childcare services gap.

Supply Chain Disruptions: Lockdowns also disrupted supply chain management systems, leading to shortages of essential commodities, mainly imported goods (Singh et al., 2021). A study conducted in India by Singh et al. (2021) aligns with this observation, highlighting the pandemic's significant negative impact on India's medical and drug supply chains.

2.3.3 Effects of pandemics on nutrition and child health services

Critical Role of Child Health Services: Child health services form the cornerstone of a nation's health and development. Interruptions to these services can have devastating consequences, leading to a rise in maternal and child morbidity and mortality, unplanned pregnancies, and sexually transmitted infections. In South Africa, the

Medical Research Council has documented a troubling increase in excess deaths, including those of mothers and newborns, among children under five.

Disruptions to Service Delivery: Akseer et al. (2020) identified several factors contributing to the decline in access to women's and children's health services during the pandemic. These included demoralised healthcare staff, travel restrictions, and the necessary shift in service delivery priorities at primary healthcare facilities. Furthermore, the United Nations Population Fund (UNFPA) (2021) reported a decline in access to contraception services, potentially resulting in an estimated 7 million unplanned pregnancies and births. These disruptions can also have detrimental effects on fetal health, increasing the risk of low birth weights and premature deliveries. (Delamou, A., Ayadi, A.M., Sidibe, S., Delvaux, T., Camera B.S., Sandouno S.D., Beavogui A.H., Rutherford G.W., Okumura J., Zhang W., De Brouwer V. 2017).

Vulnerability of Children: The heightened vulnerability of children during pandemics is not a recent development. This phenomenon was tragically observed during the West African Ebola outbreak (2014-2016), where disruptions to essential services resulted in an estimated 100,000 additional child deaths from opportunistic infections (Delamou et al., 2017).

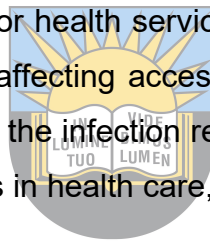
Economic Strain and Food Insecurity: The COVID-19 pandemic devastated households, with many parents and caregivers experiencing job losses and a decline in job security. This loss of income directly translated to household food insecurity and limited access to essential supplies, pushing families towards hunger and malnutrition. A study conducted in Rwanda by Wanyana et al. (2021) documented a significant decline in the utilisation of essential services. The most concerning decrease was observed in antenatal care (ANC) services, with an overall drop of 22.9%. This decline was even more pronounced during the second and third trimesters, with a decrease of 38.38%. Specialist visits and attendance at family planning and child immunisation programmes showed a marked reduction.

The pandemic negatively affected households, with parents and caregivers losing income and job security. Loss of job security directly resulted in poor household food security and scarcity of disposable income. Households became vulnerable to hunger and malnutrition. A study conducted in Rwanda by Wanyana, Wong, and Hakizimana (2021) reported that the worst affected services during the COVID-19 pandemic were

the Ante Natal Care (ANC) services, which declined by 22.9 % overall, while second and third trimesters saw a decline of 38.38%. Visits to the specialists also decreased by 44%. Similarly, attendance to family planning and child immunisation also declined.

Nationally in Rwanda, there was a significant decrease in the consumption of thirteen child health indicators, for example, antenatal care first standard visits from 0.49 to 0.45 (p-value = 0.042); deliveries at health facility from 0.99 to 0.89 (P = 0.004), live births from 0.98 to 0.88 (p-value = 0.004), vaccinations: Bacille Calmette–Guérin (BCG) from 1.06 to 0.95 (p-value = 0.002) and other immunisations. This study measured the current utilisation of mother and child services. It highlighted the need for proactive processes to circumvent service delivery interruptions and maintain routine health services during an outbreak.

The devastating effects of COVID-19 are felt worldwide by almost all sectors. The health sector is bearing the brunt of infection by redirecting its resources to curb the spread of infection. The demand for health services due to poor social determinants of health is also increasing, thus affecting access to and quality of health services. Although deaths of children due to the infection remained low, children were affected out of proportion due to disruptions in health care, particularly in developing countries like India.



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Figure 2 below illustrates the framework for the socio-economic impact of COVID-19 on child health. Through its fundamental, underlying, and immediate drivers, COVID-19 directly affects acute and chronic malnutrition. Understanding these complex relationships is crucial for designing targeted interventions to mitigate the pandemic's long-term consequences for child health.

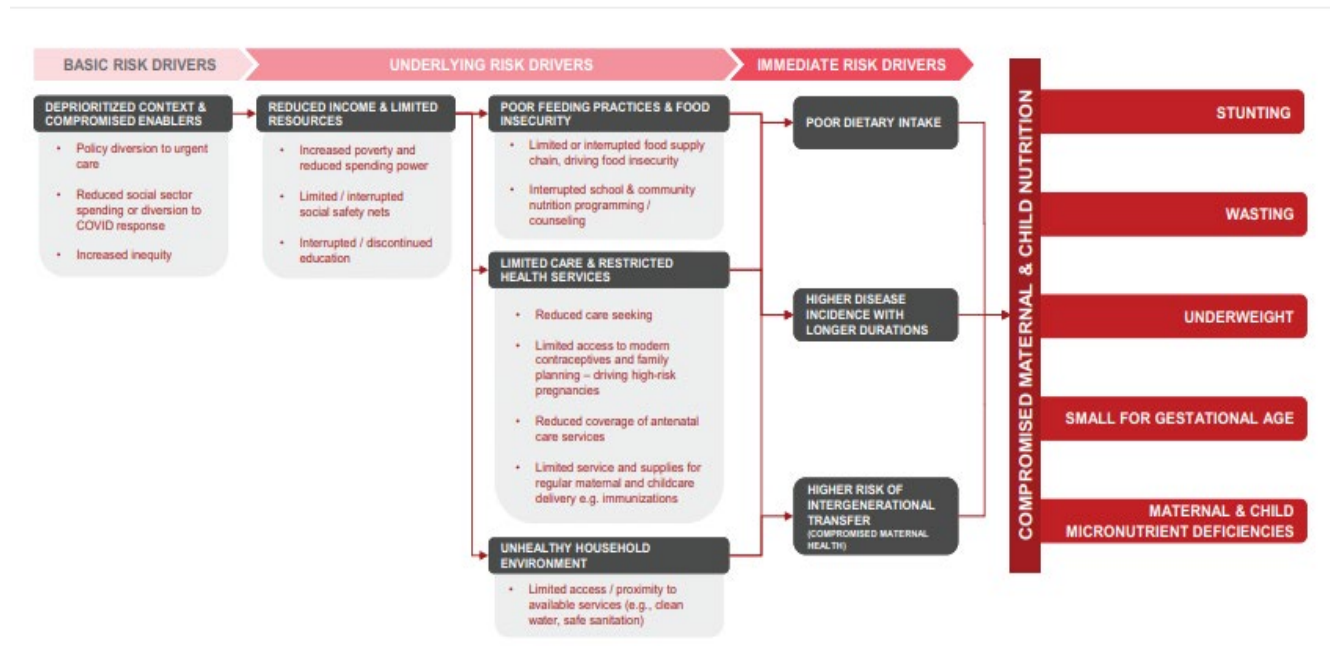


Figure 2: Socio-economic impact of COVID-19 on child health

2.3.4 Socio-economic impact of COVID-19 on child health

Economic strain beyond global crisis: The Covid 19 pandemic inflicted severe economic hardship on millions of households, surpassing the challenges experienced during the 2008 global crisis. Akseer et al. (2020) predicted a staggering rise in global poverty, with projections indicating that over half a billion people could be pushed into poverty and an additional 40-60 million people facing extreme poverty.

South Africa's unique vulnerabilities: South Africa entered the pandemic already, grappling with chronic poverty and unequal access to resources, leading to a polarised healthcare system. The country's economic situation further deteriorated just months before the arrival of COVID-19, with a credit rating downgrade. The pandemic significantly disrupted socio-economic systems for women, as household finances were diverted towards essential needs.

Disproportionate impact on women and children: Statistics South Africa (2021) reported that many households fell from lower - middle income to below poverty line during pandemic. An estimated 54% of households were forced to rely on informal or temporary work arrangements due to job losses. Furthermore, 34% of households

were projected to become vulnerable. The South African government implemented various measures to mitigate the income shock for business owners, workers, and those who lost jobs during the lockdown. However, women and children, already constituting vulnerable communities were disproportionately affected by the pandemic's economic fallout. These adverse effects will likely be long lasting, and restoring essential health services may significantly strain human, material and financial resources.

2.4. PERCEPTIONS OF CAREGIVERS ON HEALTH SERVICES DURING COVID-19

Caregivers' burden during pandemics: Parents and caregivers, the sole providers of care for their children, faced significant challenges during the COVID-19 pandemic. The psychological distress they experience could potentially lead to compromised care and neglect (Conlon et al., 2021). Balancing basic needs, including food provision, securing household income, and ensuring access to healthcare, became overwhelming for many caregivers. Working from home while simultaneously caring for children likely added to their psychological stress.

Fear of transmission and delayed care: A study by Conlon et al. (2021) highlighted the concerns caregivers expressed regarding the risk of contracting COVID-19 and transmitting it to vulnerable relatives and older household members when taking children to healthcare facilities. This fear contributed to delays in seeking care, with some patients reporting experiencing symptoms for two weeks before finally presenting at a health facility, potentially requiring intensive care unit (ICU) services.

Lack of trust and misinformation: A study by Singh et al. (2021) in India revealed that a lack of confidence in the healthcare system's infection control measures further exacerbated caregivers' anxieties. Misinformation surrounding the cause of the disease added to confusion and discouraged caregivers from utilising maternal and child health services. Overwhelmed by media portrayals of overflowing healthcare facilities, caregivers perceived the health sector as overburdened and opted to delay seeking care for their children.

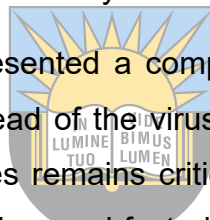
Impact of Health Messaging: Mothers adhering to the "stay home, stay safe" public health messages exhibited delayed health-seeking behaviour. This was evidenced by

a rise in mothers bringing their children to healthcare institutions in a more severe condition. These findings underscore the direct impact of preventive and promotional health messaging on a community's health-seeking behaviour toward their children.

2.5 SUMMARY AND CONCLUSION

This chapter examined the impact of the COVID-19 pandemic on child health and nutrition, drawing on relevant literature. A critical concern emerged: the potential disruption of essential health services that could jeopardise the progress made in child health over the past decade. Understanding and preparing for future outbreaks or public health emergencies was emphasised. The literature underscores the need for healthcare programs to maintain the delivery of core health interventions for mothers and children, even amidst the challenges posed by COVID-19 transmission. However, lockdown measures, curfews, and restrictions on movement significantly impacted caregivers' daily lives, including their ability to seek healthcare for their children.

The COVID-19 pandemic has presented a complex challenge for child health and nutrition. While mitigating the spread of the virus is paramount, ensuring continued access to essential health services remains critical. Investing in healthcare system resilience, addressing misinformation, and fostering trust in healthcare providers are all crucial steps towards safeguarding child health during pandemics and beyond.



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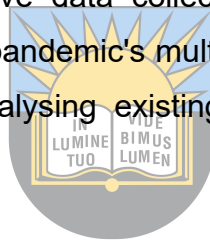
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter, the researcher describes the research approaches and designs. The data collection methodology is explained. The research setting, the population, and the considerations taken in establishing the sample and sample size used to collect data are described. The research instrument used to collect data, its validity, reliability, data analysis, and ethical considerations is outlined.

3.1.1 Aim of the research study

This study employed a retrospective mixed-method approach to investigate the impact of the COVID-19 pandemic on access to child health and nutrition services within the Mngquma sub-district. This approach was chosen because it leverages the strengths of both quantitative and qualitative data collection methods. The study aims to comprehensively understand the pandemic's multifaceted effects on child health and nutrition service utilisation by analysing existing data records alongside in-depth interviews with caregivers.



3.1.2 Research questions of the study

This study uses five key questions to examine how the COVID-19 pandemic impacted access to child health services for children under two in the Mngquma sub-district. The questions explore disruptions to immunisations, health indicator trends, childhood illnesses and malnutrition prevalence, caregiver challenges, and how qualitative data can illuminate quantitative findings. The investigative research questions to be examined are as follows:

- To what extent did the COVID-19 pandemic and its restrictions disrupt the uptake of childhood immunisations for children under two years of age at the Mngquma sub-district, pre-COVID-19 (April 2019–March 2020) and during (April 2020–March 2021)?.
- What were the performance trends of selected indicators from the web-based DHIS database pre-COVID-19 (April 2019–March 2020) and during COVID-19

(April 2020–March 2021) during disaster management restriction of movement?

- What was the incidence of childhood illnesses and malnutrition during COVID-19 (April 2020–March 2021) for children under two years of age who were seen in PHC services?
- What challenges did caregivers of children under two years of age experience regarding use of child health services from April 2020–March 2021?.
- Lastly, how do the results of the qualitative approach explain the quantitative approach's results in the study?

3.1.3 Objectives of the study

- To evaluate the extent of the COVID-19 pandemic disruption on the uptake of childhood immunisations for children under two years of age.
- To assess the trends performance of selected indicators pre-COVID-19 (April 2019–March 2020) and during the COVID-19 pandemic (April 2020–March 2021) from the database of web-based DHIS during disaster management.
- To describe changes in the incidence of childhood illnesses and malnutrition pre-COVID-19 (April 2019–March 2020) and during the COVID-19 pandemic (April 2020–March 2021).
- To explore the challenges experienced by caregivers of children under two years of age regarding the utilisation of child health services from April 2020–March 2021.
- To examine how the results of the qualitative approach explain the results of the quantitative approach of the study.

3.2 THE RESEARCH PROCESS

Research Approval and Design: The study commenced after obtaining approval from the Department of Health's research unit. A comprehensive literature review provided the theoretical foundation. A mixed-method approach was chosen, combining quantitative and qualitative elements.

Sampling Strategy: Health facilities were selected for convenience, while purposive sampling was used to recruit participants. For quantitative data collection, a systematic sampling technique was employed to select children's medical files from the DHIS.

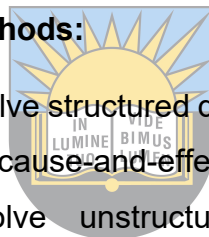
Data collection and analysis: The study utilised a sequential explanatory design. Part one involved a quantitative descriptive analysis of data retrieved from the DHIS and medical files using STATA software. Part two employed a qualitative exploratory design, where data from caregiver interviews was analysed thematically. Finally, quantitative, and qualitative findings were integrated to develop the study report.

3.3 MIXED-METHOD APPROACH

This study employed an explanatory sequential mixed-method design (Creswell & Creswell, 2018). This approach involves collecting and analysing quantitative data first, followed by qualitative data collection that builds upon the initial findings.

Quantitative and Qualitative Methods:

Quantitative methods typically involve structured data collection (surveys, statistics) to measure phenomena and identify cause and effect relationships. On the other hand, qualitative methods often involve unstructured data collection (interviews, observations) to understand experiences and meanings from the participants' perspectives.



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Explanatory Sequential Design in This Study:

The research design consisted of two parts. Part 1 utilised a retrospective quantitative approach, analysing existing data. Part 2 employed a qualitative descriptive approach involving interviews with participants. The quantitative findings from Part 1 informed the interview questions and sample selection in Part 2. Finally, the data from both parts were integrated to create a comprehensive understanding of the research topic.

Mixing the Data:

As Creswell and Creswell (2017) point out, simply collecting quantitative and qualitative data is insufficient. This study actively integrated the quantitative and qualitative methods.

3.3.1 Quantitative approach

This study utilised a quantitative descriptive design, analysing existing data from two sources: the District Health Information System (DHIS) and patient medical records for children under two years old. This retrospective observational study aimed to identify trends and patterns in child health service utilisation during the COVID-19 pandemic.

According to Creswell (2014) and Creswell and Creswell (2017), the quantitative research approach uses inquiry strategies like experiments and surveys to collect data on predetermined instruments that yield statistical data. Bhandari (2020) concurs with this definition when defining quantitative research as collecting and analysing numerical data to find patterns and averages, making predictions, testing causal relationships, and generalising the results to broader populations.

3.3.2 Qualitative approach

The study employed a qualitative approach to gain a deeper understanding of the challenges faced by caregivers when accessing and utilizing child health services. This approach allowed researchers to delve into the lived experiences of caregivers, providing rich insights that complement the quantitative data. In-depth interviews with caregivers enabled the exploration of specific challenges mentioned in the research questions, such as disruptions to routine care and anxieties around accessing healthcare facilities during the pandemic.

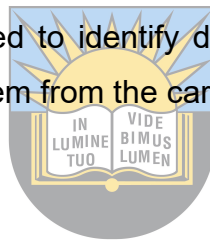
Williams (2019) defines qualitative research as a “holistic approach that involves discovering participants' experiences to explore the problem. Unveiling the impact of the COVID-19 pandemic on child health services required a nuanced research approach. This section delves into the study's design, which combined elements of retrospective, descriptive, and explanatory methods within a mixed-method framework. By analysing existing data alongside in-depth interviews with caregivers, the study aimed to gain a comprehensive understanding of the pandemic's effects on service utilisation and the challenges faced by families.

3.3.3 Retrospective design

This study employed a multifaceted design, strategically combining retrospective and descriptive elements within an explanatory sequential mixed-method framework (Creswell & Creswell, 2018).

Phase 1: Examining Trends Through Existing Data: The research began with a retrospective review of two data sources. First, information was obtained from the web-based District Health Information System (DHIS), allowing for analysis of trends and patterns in child health service utilisation during the COVID-19 pandemic (Hess et al., 2016). Second, researchers retrospectively reviewed patient medical files for children under two years old from selected clinics. This descriptive analysis focused on gathering demographic information, immunisation records, and the prevalence of childhood illnesses (Creswell & Clark, 2018).

By combining these retrospective and descriptive analyses with qualitative interviews in the next phase, the study aimed to identify disruptions in service utilisation and understand the reasons behind them from the caregivers' perspectives.



3.3.4 Descriptive design

The descriptive research design aims to systematically acquire information to define a situation, population, or phenomenon (Cresswell & Clark, 2018). In this study, demographic information, including age, gender, the child's weight, attendance at the immunisation schedule, and the prevalence of childhood illnesses, was collected from the health patient's medical file.

3.3.5 Explanatory design

Explanatory sequential mixed methods is one in which the researcher conducts quantitative research, analyses the results, and then builds on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with the qualitative data (Creswell & Cresswell, 2018). In this study, the researcher began with data collection from files of under 2-year children, followed by interviews with caregivers of the children of five identified clinics. In this study, the researcher explained the factors contributing to disruptions of health services or access to health services for children under two years

of age. Explanatory research was used as the phenomenon of the COVID-19 pandemic was novel and persistent (Babbie & Mouton, 2001).

3.4 RESEARCH METHODS

The research methods of this study outline the following aspects: the study setting, study population, and the sampling methodology used, which includes the sample frame, sample size, and inclusion and exclusion criteria. Additionally, this section will thoroughly address data collection procedures, ethical considerations surrounding participant recruitment and data privacy, and data management practices.

3.4.1 Study setting

This study was conducted in the Mquma sub-district, a local municipality within the Amathole District Municipality of the Eastern Cape Province, South Africa. Mquma offers a natural data collection setting, reflecting the research's real-world context. The study setting signifies a natural setting and the environment for data collection.

Socioeconomic Landscape:

Mquma is predominantly rural and faces challenges associated with poverty. Statistics South Africa (Stats SA, 2018) reports a high poverty index, with a significant portion of the population lacking formal education (12.5% with no schooling, less than 50% with matric certificate). Furthermore, over half of the households are female-headed (53.5%). A mother's education level influences a child's health and education, highlighting potential vulnerabilities within this community.

Healthcare Infrastructure:

Despite boasting 28 clinics, one community health centre, and two district hospitals (Butterworth and Tafalofefe), Mquma grapples with limitations in healthcare access. The average population-to-clinic ratio of 8,815 falls above the recommended one clinic per 10,000 people (Stats SA, 2018), however, the vastness of the area further disadvantages some communities, forcing them to travel significant distances (over five kilometres) to reach healthcare facilities. Limited access to water and sanitation (only 14.2% with flush toilets and 14.8% with piped water) adds another complexity to the healthcare landscape.

3.4.2 STUDY POPULATION

Polit and Hungler (1999) define the population as the “totality of all objects, subjects, or members that follow a set of specifications”. This study employed two distinct target populations, reflecting the two-phased research design.

Retrospective Analysis:

For the retrospective analysis of medical records, the target population comprised children under two years old who attended child health programs at five selected clinics in the Mquma sub-district between April 2020 and March 2021. Their medical files served as the data source for this phase.

Qualitative Interviews:

The target population for the qualitative interviews consisted of caregivers whose children were under two years old and attending child health clinics at the same five selected clinics within the Mquma sub-district. These caregivers were approached for participation during the data collection phase.

3.4.3 Sampling and sampling size

This study employed a multifaceted sampling strategy tailored to each phase's research design and data collection methods.

Quantitative Analysis (Retrospective Review):

Five primary healthcare clinics (PHCs) in the Mquma sub-district were purposively selected for convenience and proximity. A retrospective review of routine data from the District Health Information System (DHIS) was conducted, comparing trends in eighteen child health and nutrition indicators for two time periods: April 2019 – March 2020 and April 2020 – March 2021.

Quantitative Analysis (Medical Records):

A systematic sampling technique was employed for the analysis of medical records. All child health files for children under two years old seen at the clinics between April 2020 and March 2021 were considered the sampling frame. Every third file was selected, resulting in a sample of 66 files. However, 46 files were excluded due to incomplete information, leaving a final sample size of 20 files for analysis.

Qualitative Interviews:

A convenience sampling approach was used to recruit caregivers. Caregivers whose children's charts were included in the medical record sample and available at the health facilities during the data collection period were approached for participation. Recruitment began a month before data collection and continued until data saturation was reached, ensuring a sufficient depth of information from the interviews.

3.4.4 Inclusion and exclusion criteria

The study implemented specific criteria to define who could participate in each data collection phase.

Quantitative Analysis (Medical Records):

Included are health patient medical files for children under two years old seen at the clinics between April 2020 and March 2021.

Excluded: Files with missing information.

Qualitative Interviews (Caregivers):

Included: Caregivers of children under two years old attending PHC facilities who were above 18 years old and provided informed consent.

Excluded: Caregivers with sick children attending the clinics during the data collection period.

3.5 DATA COLLECTION

SECTION A: QUANTITATIVE APPROACH

This section below describes the data collection instruments for the quantitative approach.

3.5.1. Data collection instruments

Part A: The information was extracted from the web-based data from DHIS. This information was entered into the Excel information collection sheet.

Part B: The data collection instrument was the structured information collection sheet developed by the researcher. The data collection sheet contained demographic

information, including age, gender, the weight of the child, attendance of immunisation schedule according to the health schedule of the child, and the prevalence of childhood illnesses. The researcher developed an interview guide, and caregivers' experiences regarding the accessibility of child health programmes were sought.

3.5.2 Validity of the Instrument

Brink et al. (2018) state that “content and face validity measures the study's data accuracy”. Validity offers an accurate measure given the context in which it is applied”. A pilot study was used as an instrument to measure the content. Content validity is always carried out before data collection and measures how well the data collection instrument embodies all study components to be measured. (Brink et al., 2020). Content validity was used before on the adapted information collection sheet and ensured through a literature review study on which the content is based. Content validity refers to the extent to which a data collection instrument accurately reflects the intended constructs or variables of the study (Brink et al., 2018). This research established content validity for the researcher-developed data collection sheet used for medical record review.



3.5.3 Reliability of the instrument

Reliability refers to the consistency of a data collection instrument in producing the same results over time or when used by different researchers (Brink et al., 2018). This study addressed internal consistency through the researcher's focus on consistent data extraction during medical record review. This involved recording the same variables (e.g., age and immunisation records) in a standardised manner throughout the data collection process.

3.5.4 Pilot Testing the Interview Guide (Qualitative Approach):

A pilot study is a crucial step in ensuring the quality of the data collection instrument, particularly for qualitative research using interviews. This study conducted a pilot test to assess the interview guide designed for caregivers.

Sample Selection: Ten child health charts of children with characteristics similar to the target population were reviewed to gain familiarity with the context and potential interview topics. Data from these charts were not included in the main study.

Interview refinement: The draft interview guide recruited five caregivers to participate in pilot interviews. This allowed the researcher to assess the following:

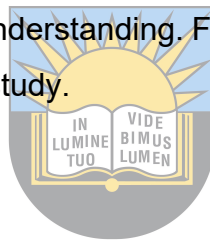
Appropriateness: Were the questions clear, relevant, and engaging for the participants?

Clarity: Did the wording of the questions lead to understandable and informative responses?

Flow: Did the sequence of questions encourage a logical and cohesive interview narrative?

Based on the pilot interviews, the researcher could refine the interview guide to optimise its effectiveness in capturing the desired information from caregivers during the main study.

Five caregivers were also selected to participate in the pilot study to assess the tool's appropriateness, relevance, and understanding. Five participants selected for the pilot study were omitted from the core study.



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3.5.5 Data collection method

Medical record review:

Twenty health patient files for children under two years old, seen at the clinics between April 2020 and March 2021, were reviewed. Data extracted using a structured information collection sheet included demographics, immunisation records, and documented childhood illnesses.

DHIS data extraction:

A retrospective review of routine data from the District Health Information System (DHIS) was conducted, covering two time periods: April 2019 – March 2020 (pre-COVID-19) and April 2020 – March 2021 (during COVID-19). Performance measures related to immunisation uptake, nutritional status, and child health outcomes were extracted for further analysis.

3.5.6. Data analysis quantitative approach

The collected data underwent the following analysis steps:

Coding and entry:

Data from both sources (medical records and DHIS) was coded and entered into STATA software, a commonly used tool for statistical analysis in epidemiological studies.

Descriptive statistics:

Descriptive statistics were calculated at a 95% confidence interval to assess trends in the selected performance indicators across the pre-COVID-19 and COVID-19 periods (reference period: 12 months). This allowed for comparing performance in Mnquma clinics between April 2019 – March 2020 and April 2020 – March 2021.

Normality testing and inferential statistics:

Normality tests were performed on all variables to assess data distribution (skewness). Based on the results, parametric or non-parametric inferential statistics were employed to determine statistically significant differences in indicator performance between the pre-COVID-19 and COVID-19 periods.

SECTION B: QUALITATIVE APPROACH

3.5.7 Study sample, sample size, and sampling method

A purposive sampling technique with a convenience element was employed for participant selection in the qualitative phase.

Purposive Sampling:

The study targeted caregivers of children under two years old attending child health clinics at five purposefully selected clinics within the Mquma sub-district. These clinics were chosen based on their proximity, considering the vast distances between clinics in the area.

Convenience Sampling:

Caregivers whose children's charts were included in the medical record review sample (quantitative phase) and who were available at the health facilities during the data collection period were approached for participation.

3.5.8 Data collection instrument for interviews

Conducting In-Depth Interviews with Caregivers

To gather detailed qualitative data, the researcher developed a semi-structured interview guide centred around the core question: "What are the challenges experienced by parents of children under two years of age regarding the utilisation of child health services from March 2020 to March 2021?"

Ethical Considerations and Access:

Following authorisation from the research coordinator at the Department of Health's Epidemiology and Research Unit, permission to access patient files was obtained from the Amathole health district and Mquma sub-district offices. Additionally, appointments were arranged with the clinic managers of each participating clinic.

Informed Consent:

All potential participants had information sheets explaining the study's objectives, purpose, and significance. The researcher also verbally explained the study's aims before obtaining informed consent (Appendix 2). Participants were encouraged to read and comprehend the consent form before signing and receiving a copy for their records.

Interview Process:

In-depth interviews were conducted using the developed semi-structured interview guide, which included open-ended questions designed to elicit rich descriptions of the participants' experiences. As Brink et al. (2018) suggest, the qualitative approach aims to develop a nuanced understanding that might be missed through solely quantitative methods. Individual interviews were held in private consulting rooms to minimise noise and distractions, ensuring a comfortable and conducive atmosphere (Polit & Beck, 2017).

The interview guide began with a main prompt inviting participants to elaborate on their challenges in accessing primary healthcare services during the specified period. Probing questions were then used to delve deeper into the specific experiences and phenomena under study. Throughout the interview process, the researcher actively employed good communication skills, including maintaining eye contact, attentive listening, observing non-verbal cues, and referencing back to participants' statements. These techniques, as Polit & Beck (2017) outlined, facilitated a smooth information flow during the in-depth interviews.

3.5.9 Trustworthiness of the study

This section addresses the concept of trustworthiness, which encompasses credibility, dependability, confirmability, and transferability. These qualities are essential for ensuring the rigour of qualitative research (Brink et al., 2018).

3.5.9.1 Credibility

Credibility establishes the truthfulness of the findings and the analysis process. In this study, credibility was enhanced by:

Participant Descriptions: Participants were provided with detailed descriptions of the research, allowing them to connect their experiences with the study's objectives.

Member Checking: Quotes and preliminary findings may be shared with participants for verification, ensuring their voices are accurately reflected (Lincoln & Guba, 1985).

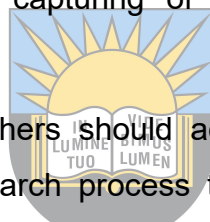
Prolonged Engagement: Building rapport and trust with participants through extended interactions during the interview process strengthens the credibility of the collected data (Brink et al., 2018).

3.5.9.2 Dependability

Dependability refers to the potential for similar results if the study were replicated with the same participants. Here, dependability was addressed by:

Audit trail: A comprehensive audit trail was maintained through audio recordings of interviews and the researcher's capturing of non-verbal observations such as emotions.

Researcher reflexivity: Researchers should acknowledge their own biases and assumptions throughout the research process to minimise their influence on the interpretation of data. (Brink Van der Walt & Van Rensburg, 2012). The researcher reviewed other literature in this study to identify other studies supporting the findings.



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3.5.9.3 Confirmability

Confirmability ensures that the data accurately reflects the participants' experiences and minimises researcher bias. This study achieved confirmability through the following:

Transcription Verification: All interview transcripts were verified by the researcher and potentially by a supervisor to ensure accuracy.

Triangulation: While not explicitly mentioned here, consider triangulation a potential method to strengthen confirmability. Triangulation involves using multiple data collection methods (e.g., interviews and document review) or sources (e.g., interviewing different participant groups) to corroborate findings.

3.5.9.4 Transferability

Transferability refers to the ability to relate the findings to other environments or participants (Brink et al., 2020). Transferability concerns the applicability of the findings to other contexts or participant groups. Here, transferability was addressed by:

Rich Descriptions: Providing detailed descriptions of the research setting, participants, and data collection methods allows readers to assess the applicability of the findings to their contexts (Lincoln & Guba, 2011).

Theoretical Framework: Grounding the research in a relevant theoretical framework can enhance the transferability of findings by offering a broader lens for interpretation.

3.5.10 Qualitative data analysis

The data were recorded and analysed using Tech's eight data analysis steps, as described in Creswell and Clark (2014). Steps in the qualitative data analysis process included the following:

- 
- Getting a sense of the whole.
 - Pick one document - the most interesting one.
 - Making a list of several clustering together similar topics.
 - Abbreviate the topics as codes and write the codes next to the appropriate text segment.
 - Find the most descriptive wording for your topics and categorise them.
 - Make a final decision on the abbreviation for each category in one place and perform a preliminary analysis.
 - Assemble the data material belonging to each category in one place and perform a preliminary analysis.
 - If necessary, recode your existing data.

3.6 DATA INTERPRETATION AND INTEGRATION

A key strength of mixed methods research is its ability to integrate quantitative and qualitative data to provide a more comprehensive understanding of the research question. This section outlines the data interpretation and integration approach employed in this study.

Sequential Design and Data Sets:

This study adopted a sequential mixed methods design involving separate data collection phases for the quantitative (medical record review and DHIS data extraction) and qualitative (interviews) components. This resulted in three distinct data sets:

Quantitative Data Set 1: Extracted from medical records of children under two years old seen at the clinics between April 2020 and March 2021.

Quantitative Data Set 2: Extracted from the District Health Information System (DHIS), covering child health indicator trends for two periods (April 2019 – March 2020 and April 2020 – March 2021).

Qualitative Data Set: Collected through in-depth interviews with caregivers of children under two years old attending child health clinics.

Creswell and Creswell (2018) argue that the mixing or linking of the data sets defines the value of a mixed method and refer to this process as data integration. Accordingly, the interpretation phase focussed on data integration after the presentation of the quantitative and qualitative findings in separate sections. This involved a discussion of how the qualitative data illuminates or expands upon the quantitative results, allowing for a richer understanding of the challenges faced by caregivers in accessing child health services during the COVID-19 pandemic.

3.7 DATA ANALYSIS PLAN

Table 1: Data analysis plan

Study objectives	Quantitative variables	Quantitative methods analysis	Qualitative themes and sub-themes	Qualitative method analysis	Integration
To evaluate the extent of COVID-19 pandemic disruption on the uptake of childhood immunisations for children under two years.	Disruption measure: Missed visits (2 consecutive months). Percentage variance in immunisation coverage	Calculate coverage rates pre/during COVID-19 and analyse trends and variances in rates - Conduct statistical tests to compare pre/during. 	Restricted movement of caregivers due to COVID-19 regulations Temporary closure of facilities Fear of contracting COVID-19	Coding reasons for missed visits, and identifying themes connected to missed visits during COVID-19.	Triangulate coverage rates with missing visit themes - Contextualise rate variability with reasons for missed visits.
To assess the trend's performance of selected indicators pre-COVID-19 (April 2019-March 2020) and during (April 2020-March 2021) from the database of web-based DHIS during disaster management.	Trends performance of selected indicators: - Doses and coverages for fully immunised • (Bacille Calmette–Guérin. • DTaP-IPV-Hib-HBV 1st dose. • Rota Virus 2nd dose. • Measles 1st and 2nd dose. • PCV 1st, 2nd and 3rd doses).	Calculate Fully immunised rates - trends over time - Statistical tests for time trends.	Poor access to health facilities		Trends analysis employs solely quantitative data.

Study objectives	Quantitative variables	Quantitative methods analysis	Qualitative themes and sub-themes	Qualitative method analysis	Integration
To accurately describe the incidence of childhood illnesses and malnutrition pre-COVID-19 (April 2019-March 2020) and during (April 2020-March 2021).	Describing changes in childhood illness: Childhood illness: in first visit, second visit, and third visit. The child's weight within the acceptable centiles.	- Calculate child illness incidence rates from records - Conduct statistical tests to compare pre/during - Analyse anthropometric data.	Nutrition supplements could not be obtained. Long queues in grocery stores Increased reports of hunger and poor household food security	Coding illness incidents from interviews: Identifying malnutrition illness-related themes.	Triangulating the illness rates and malnutrition rates with caregiver illness, providing an in-depth explanation or understanding of factors that led to the incidence rate found above, and contextualising anthropometric data such as growth faltering and moderate malnutrition. And what led to this.
To explore the challenges experienced by caregivers of children under two years of age regarding utilising child health services from April 2020 to March 2021.	Changes in the consumption of vaccinations.	Quantify immunisation coverage and missed child health visits.	-Restricted movements of caregivers due to COVID-19 regulation -Temporal closures of health facilities -Inability to honour appointments -Fear of contracting diseases. -Poor household food security	- Coding and classifying challenges - Identify themes associated with barriers.	Use qualitative data to provide an in-depth knowledge of the underlying barriers of quantitative disruption measures.

3.8 ETHICAL CONSIDERATIONS

This research adhered to national and international ethical guidelines for research involving human participants (Fleming & Zegwaard, 2018).

Retrospective Data Analysis (Quantitative Phase):

Ethics Approval: The Faculty of Health Sciences Research Ethics Committee approved the research proposal at the University of Fort Hare (Appendix 1).

Authorisation: Permission to access patient data for the retrospective analysis was obtained from the research coordinator at the Department of Health's Epidemiology and Research Unit (Appendix 4) and the Mnquma sub-district office managers.

Informed Consent Waiver: Due to the study's retrospective nature using existing medical records and DHIS data, a waiver of consent was obtained from the University of Fort Hare Faculty of Health Sciences Research Ethics Committee (UFH FHREC). This waiver process ensured that the minimal risk study protected patient confidentiality and anonymity.



Qualitative Interviews:

Before commencing interviews, informed consent was obtained from all participants. Participants were also provided with detailed information sheets explaining the study's objectives, procedures, and rights (Appendix 2).

3.8.1 Informed consent

Information Sheets: Participants received comprehensive information sheets outlining the study's objectives, procedures, and their rights as participants (Appendix 2).

Verbal explanation: Before obtaining written consent, the researcher verbally explained the study's aims and objectives to ensure participants fully understood the research process.

Consent form: Participants were encouraged to read and comprehend the consent form before signing and receiving a copy for their records.

3.8.2. Confidentiality and anonymity

Anonymity: To safeguard participant anonymity, no names were collected during interviews. Instead, participants were assigned code numbers to protect their identities.

Confidentiality: Confidentiality was assured by not disclosing participants' names or any information that could potentially identify them. The collected data was solely accessible to the research team, and all interview recordings and reports were securely stored.

Right to withdraw: Participants were informed of their right to withdraw from the study at any point without penalty.

3.8.3 Beneficence

Minimising discomfort: The researcher prioritised participant well-being throughout the research process. Participants experiencing emotional discomfort during interviews were referred to a psychologist for counselling and support (Brink et al., 2020).



3.8.4 Justice

The researcher ensured that participants participated freely in the study. The selection was fair for everyone who met- the selection criteria.

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3.8.5 Risk factors

Interview setting: Interviews were conducted in well-ventilated consulting rooms to minimise risk.

Personal Protective Equipment: Both the researcher and participants wore masks during interviews.

Physical distancing: A safe physical distance of 1.5 to 2 meters was maintained between the interviewer and participants.

Pre-screening: Screening procedures were implemented before commencing interviews.

3.9 SUMMARY

This chapter has comprehensively described the research methodology employed in this study. It covered the following aspects:

Research design: The chosen research design (e.g., explanatory sequential mixed methods) was explained.

Study population and sampling: The target population and the specific sampling strategy used to select participants for both the quantitative and qualitative phases were outlined.

Data collection instruments: The instruments utilised for data collection in both phases (e.g., medical record review sheet, interview guide) were described.

Data collection procedures: The detailed procedures for data collection in the quantitative (e.g., medical record review, DHIS data extraction) and qualitative (interviews) phases were explained.

Data analysis methods: The chosen methods for analysing both quantitative and qualitative data were presented.

Ensuring rigour: The strategies implemented to enhance the validity and reliability of the research findings (e.g., pilot testing, triangulation) were discussed.

The following chapter will present the results from the data analysis collected through the retrospective review of DHIS records, health patient files, and interviews with mothers of children attending primary healthcare facilities.



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CHAPTER 4: DATA ANALYSIS AND DISCUSSION OF THE FINDINGS

4.1. INTRODUCTION

This chapter presents the study's findings, analysing quantitative and qualitative data.

The quantitative data originates from a descriptive retrospective design, utilising information extracted from the District Health Information System (DHIS) and twenty health patient records for children under two years of age seen at the clinics between April 2020 and March 2021.

The qualitative data was obtained through in-depth interviews with caregivers of children under two, aiming to explore their experiences with healthcare access during the COVID-19 pandemic.

As previously mentioned, the research objectives were:

- To assess the impact of the COVID-19 pandemic on childhood immunisation uptake for children under two years old.
- To analyse performance trends in key child health indicators using pre-COVID-19 (April 2019 – March 2020) and COVID-19 (April 2020 – March 2021) data extracted from the DHIS.
- To describe potential changes in the prevalence of childhood illnesses and malnutrition during COVID-19 (April 2020 – March 2021).
- To explore the challenges faced by parents/caregivers of children under two in accessing child health services from April 2020 to March 2021.
- Examining how the qualitative findings illuminate or explain the quantitative results provides a more comprehensive understanding of the research questions.

4.2 QUANTITATIVE ANALYSIS

Part A: Health patient record

4.2.1 Demographics

The Care giver's and children's demographics are outlined below:

4.2.1.1 Caregiver's characteristics obtained from the health patients' record reviews

Table 4.1 below shows the distribution of carers by demographic characteristics. The table shows the frequencies and their corresponding percentages. Concerning education, 6(30.0%) of caregivers had primary school education, 7(35.0%) had secondary education, 3(15.0%) had completed Grade 12, and 15% had an unknown educational level. Of almost all carers, 19 (95.0%) resided in rural areas, and 18 (90.0%) lived in formal houses.



Table :2 Distribution of participants by demographic characteristics of carers			
Characteristic	Response	Frequency	Percent
Carers marital statuses	Single	13	65.0
	Married	5	25.0
	Divorced	1	5.0
	Widow	1	5.0
Carer's educational statuses	Missing	1	5.0
	Primary	6	30.0
	Secondary	7	35.0
	Grade 12	3	15.0
	Unknown	3	15.0
Residential zone	Rural	19	95.0
	Semi-urban	1	5.0
Household type	Formal	18	90.0
	Informal	2	10.0

Age distribution

Based on Figure 3 below, 12(60.0%) of the carers were in the 20-39 age group, and only 1(5.0%) was younger than 20 years, while the rest were older than 39 years. Most of them, 13 (65.0%), were single, 5(25.0%) were married, and the rest were divorced or widows.

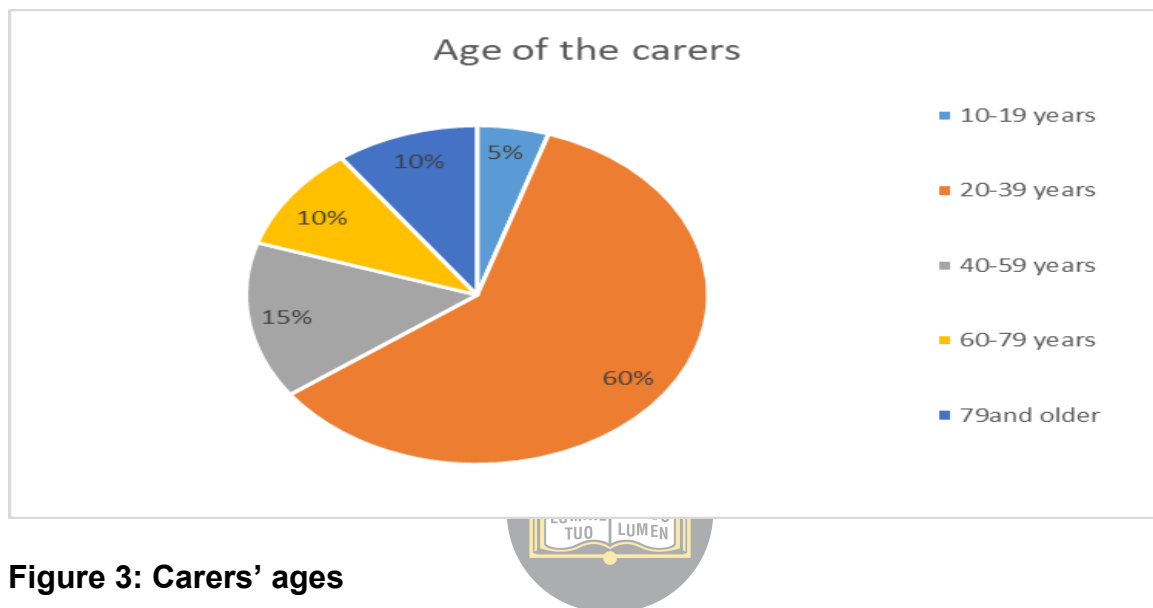


Figure 3: Carers' ages

The household sizes ranged from one member (excluding the child) to more than six members. Six (30.0%) of the carers were from households of four members, 5 (25.0%) had more than six members, 4 (20.0%) had five members in the household, and two (10.0%) had exactly six members. Lastly, the rest had three or fewer members.

4. 2.2. Children's characteristics identified in their selected health patients' records.

The reviewed health records revealed the children's ages and weight status.

Age: The children's ages ranged from 4 to 23 months. The table (insert reference to Table 4.1 if applicable) provides a more detailed breakdown of age distribution.

Weight Status: Sixty percent (12 children) had an acceptable weight for their age.

Missed visits: 55% of caregivers reported missing clinic visits for two consecutive appointments.

Table 3: Distribution of participants by demographic characteristics of child

Characteristic	Response	Frequency	Per cent
Age of child	4	1	5.0
	5	1	5.0
	12	2	10.0
	13	1	5.0
	14	2	10.0
	15	2	10.0
	18	1	5.0
	19	1	5.0
	22	2	10.0
	23	3	15.0
Gender of child	Male	9	45.0
	Female	11	55.0
Weight of the child within acceptable percentiles	Missing	1	5.0
	Yes	12	60.0
	No	7	35.0
Missed visits (two consecutively)	Yes	11	55%
	No	9	45%

4.2.3 Childhood Illnesses during COVID-19

Table 4.3 below shows the distribution of children by childhood illnesses suffered during covid-19. 50-80% of children's visits were consultations to health facilities for cough, followed by diarrhoea and vomiting, about (15%), while eye and ear infections are around 10%.

Table 4: Distribution of participants by childhood illness during Covid

Illness	Response	Frequency	Per cent
Illness consultation 1 st	Ear	1	5.0
	Diarrhoea	2	10.0
	Cough	10	50.0
	Pneumonia	1	5.0
	Growth faltering	1	5.0
	Eye problems	2	10.0
	Vomiting	3	15.0
Illness consultation 2 nd	Ear	1	5.0
	Cough	10	50.0
	Diarrhoea	3	15.0
	Pneumonia	1	5.0
	Growth faltering	1	5.0
	Ear infection	1	5.0
	Vomiting	2	10.0
	Fever	1	5.0
Illness during 3rd consultation	Cough	16	80.0
	Diarrhoea	2	10.0
	Pneumonia	1	5.0
	Eye care	1	5.0

4.2. 4. Changes in the nutritional status during COVID-19 pandemic

Examining weight-for-age data from health patient records revealed concerning trends in nutritional status during the COVID-19 pandemic. Wasting, a form of growth faltering, was identified in 35% of the children. While only one new case of moderate malnutrition was documented at the Zazulwana clinic, none of the other clinics reported such cases.

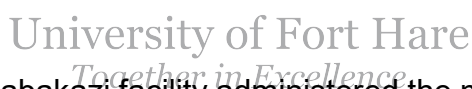
Part B: District Health Information System (DHIS) data

Results from the retrospective data from obtained from the District Health Information system is outlined below:

4.3 ASSESSMENT OF THE EXTENT TO WHICH THE COVID-19 PANDEMIC DISRUPTED THE IMMUNISATION UPTAKE.

4.3.1 Distribution of immunisations by facility, year, and immunisation type

Table 4 presents the distribution of immunisations across the five participating facilities, categorised by year (2019 and 2020) and immunisation type. A total of 14,761 immunisations were included in this analysis, encompassing five different types of vaccines.



The results reveal that Ndabakazi facility administered the most immunisations (5,819 or 39.4%), followed by Hebe-Hebe facility (2,791 or 18.9%). Immunisations were distributed relatively equally across the remaining three facilities.

Looking at the distribution by year, 2019 saw a higher number of immunisations administered (8,794 or 59.6%) compared to 2020.

Table 5: Distribution of immunisation by facility

Variable	Category	Frequency	Percentage	Chisq	p-value
Facility	Hebe-Hebe	2 791	18.91	3668.5	<.0001
	Mpukane	1 859	12.59		
	Ndabakazi	5 819	39.42		
	Nqancule	1933	13.10		
	Zazulwana	2 359	15.98		
Year	Year 1	8 794	59.58	541.4	<.0001
	Year 2	5 967	40.42		
Immunisation type	DTaPd1	767	5.20	13114.2	<.0001
	DTaPd3	915	6.20		
	Measles 1	908	6.15		
	Measles 2	842	5.70		
	Full immunisation	915	6.20		

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The chi-squared goodness-of-fit test was employed to determine whether immunisations were distributed equally across facilities, years, and types. Table 4.4 (or reference the appropriate table number) presents the chi-squared test statistics and their corresponding p-values.

Results: The p-values for all three variables were less than 0.0001, indicating that immunisations were not equally distributed across facilities, years, and types.

Interpretation: These findings suggest that the distribution of immunisations within the Mquma sub-district depends on several factors. Facilities, types of immunisations offered, and the year of data collection all appear to influence immunisation rates. Notably, the data reveals that more immunisations were administered in 2019 compared to 2020. The Ndabakazi facility accounted for the highest proportion of immunisations administered within the study period.

4.3.2 Associations

Cross-tabulations of the variables were used to display the distribution of immunisations in combinations with each pair of variables.

4.3. 3. Association between facility and year

Table 5 presents a cross-tabulation of immunisations by facility and year (excluding immunisation type). This table structure allows for analysing trends across facilities (columns) and years (rows).

Facility-Year Association:

The chi-squared test for independence revealed a statistically significant association between facility and year ($\chi^2 = 77.1$, $p < 0.0001$). This indicates that the distribution of immunisations is not independent of facility location and year of administration.

Year-wise Comparison:

More immunisations were administered in 2019 compared to 2020 across all facilities.

Hebe-Hebe facility had the lowest immunisations in 2019 (55.2%), while Mpukane had the highest proportion (66.7%). This pattern reversed in 2020, with Mpukane experiencing the lowest proportion (10.1%) and Hebe-Hebe slightly increasing (21.0%).



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Facility-wise Comparison:

Within each year, the distribution of immunisations also varied across facilities.

In 2019, Nqancule had the lowest proportion (13.2%), followed by Mpukane (14.3%), Zazulwana (15.4%), Hebe-Hebe (17.5%), and Ndabakazi (39.6%).

In 2020, the order changed slightly, with Mpukane having the lowest again (10.1%), followed by Nqancule (12.9%), Zazulwana (16.9%), Hebe-Hebe (21.0%), and Ndabakazi (39.1%).

Changes in immunisation rates:

Hebe-Hebe and Zazulwana facilities saw an increase in immunisations from 2019 to 2020 (3.5% and 1.5% respectively).

Mpukane experienced the sharpest decline (67.6%), followed by Nqancule (0.3%) and Ndabakazi (0.5%).

These findings suggest that facility location and administration year are critical factors influencing immunisation rates. While Hebe-Hebe and Zazulwana saw slight increases in overall immunisations, most facilities experienced a decrease in 2020. The significant year-facility association highlights the need to consider both factors when analysing immunisation trends.

Table 6: Cross-tabulation of immunisations by facility and year

Year		Facility				
		Hebe-Hebe	Mpukane	Ndabakazi	Nqancule	Zazulwana
Year1	No of immunisations	1 540	1 256	3 486	1 160	1 352
	Column %	55.2	67.6	59.9	60.0	57.3
Year2	No of immunisations	1 251	603	2 333	773	1 007
	Column %	44.8	32.4	40.1	40.0	42.7

4.3.4 Summary of associations

The analyses revealed statistically significant associations between all three factors: facility, year, and immunisation type. To further explore these relationships, the next step will examine conditional associations between year and immunisation type while controlling for the facility. This analysis will investigate how year and immunisation type association varies across different facilities.

4.3.5. Performance trends of selected indicators pre-COVID-19 (2019/20) and during COVID-19 (2020/21)

The associations between the variables is presented below.

4.3.5. 1 Association between year and immunisation type conditional on facilities

At the Hebe-Hebe facility, there was higher uptake of DTaPd1, DTaPd3, Measles1, and complete immunisation, and Measles 2 in 2020 than in 2019.

Year	Table 7: Immunisation by year and type at Hebe-Hebe clinic					
	Immunisation type					
		DTaPd1	DTaPd3	Fully Immunised	Measles 1	Measles 2
2019/20	No of immunisations	24	53	81	61	55
	%	36.92	47.75	48.80	43.26	50.93
2020/21	No of immunisations	41	58	85	80	53
	%	63.08	52.25	51.20	56.74	49.07

At the Hebe-Hebe facility, there was a higher uptake of DTaPd1, DTaPd3, Measles 1, and fully immunised and a lower uptake of Measles 2 in 2020 than in 2019. The pandemic seemed to have insignificant impact in this facility.

Table 8. Immunisation by year and type at Mpukane Clinic						
Immunisation type						
Year		DTaPd1	DTaPd3	Fully immunised	Measles 1	Measles 2
2019/20	No. of immunise	55	65	67	40	63
	Column %	64.71	70.65	59.29	57.14	67.02
2020/21	No. of immunise	30	27	46	30	31
	%	35.29	29.35	40.71	42.86	32.98



At the Mpukane facility, the 2019 uptake of all immunisation types was higher than the 2020 uptake.

Table 9. Immunisation by year and type at Ndabakazi Clinic						
Year	Immunisation type <i>Together in Excellence</i>					
		DTaPd1	DTaPd3	Fully immunised	Measles1	Measles2
2019/20	No of immunisations	187	226	239	225	231
	%	47.34	51.72	54.57	51.25	55.93
2020/21	No of immunisations	208	211	199	214	182
	%	52.66	48.28	45.43	48.75	44.07

At the Ndabakazi facility, there was a higher uptake of all immunisation types in 2019 than in 2020/21, except for DTaPd1, for which more were taken in 2020/21.

Table 10. Immunisation by year and type at Nqancule clinic						
Immunisation type						
		DTaPd1	DTaPd3	ImmF	Measles1	Measles2
Year 1	No of immunisations	28	35	43	41	41
	Column %	57.14	56.45	55.84	59.42	53.25
Year 2	No of immunisation	21	27	34	28	36
	Column %	42.86	43.55	44.16	40.58	46.75

At the Nqancule facility, the proportion of those who took immunisations in 2019 was higher than in 2020 for all the immunisation types.

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Year	Table 11. Immunisation by year and type at Zazulwana clinic					
	Immunisation type					
		DTaPd1	DTaPd3	Fully immunised	Measles1	Measles2
	No of immunise	81	101	77	90	61
2019/20	Column %	46.82	47.42	63.64	47.62	40.67

2020/21	No of immunise	92	112	44	99	89
	Column %	53.18	52.58	36.36	52.38	59.33

At the Zazulwana facility, a higher proportion took DTaPd1, DTaPd3, Measles 1, and Measles 2; however, those fully immunised were lower in 2020 than in 2019.

4.3.6 Differences in within-facility immunisation uptake by immunisation type

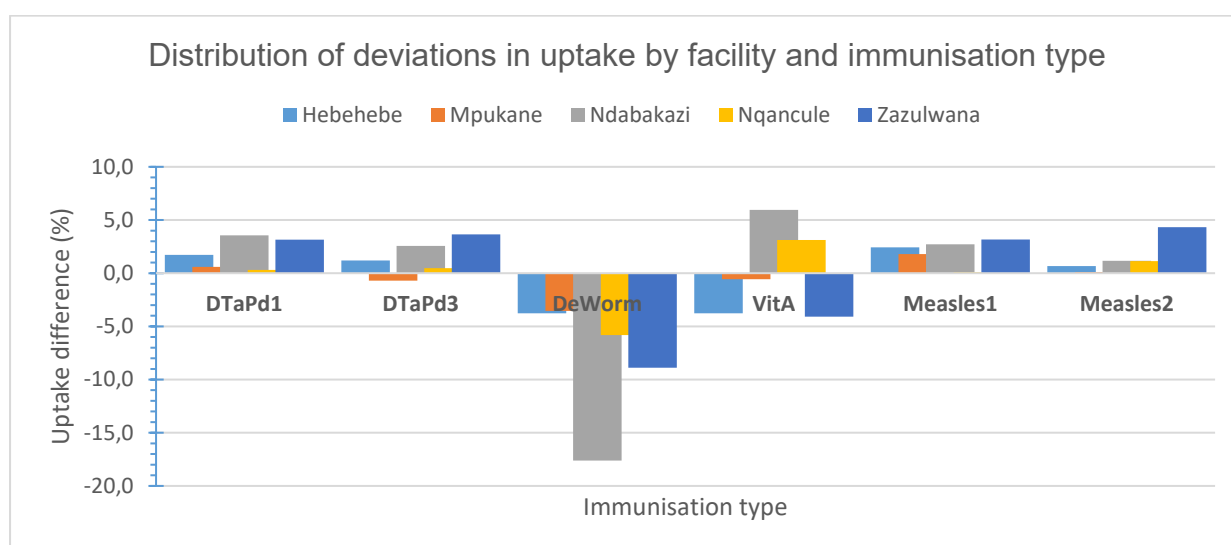
Figure 5 below summarises the changes in immunisation uptake within each facility between 2019 and 2020. It shows the difference in the number of immunisations taken each year. A negative value indicates a decrease in uptake, while a positive value indicates an increase.

Changes in Immunisation Uptake

The Zazulwana clinic saw a 1.3% decrease in the uptake of full immunisation for children under one year old. Mpukane facility experienced a decrease of 0.7% in the uptake of DTaPd3 immunisation. All other facilities (Ngancule, Hebe-Hebe, and Ndabakazi) did not experience any significant changes in immunisation uptake between 2019 and 2020.

These findings suggest that the year's impact on immunisation uptake may vary depending on the specific facility and immunisation type. Further investigation into the reasons behind these variations could improve immunisation program.

Figure 5: Distribution of deviation in uptake by facility and immunisation type



4.3.8 Differences within type immunisation uptake by facility

The table 12 below and the accompanying bar chart depict the differences in immunisation uptake by facility and immunisation type between 2019 and 2020. Negative values in the table indicate a decrease in uptake, while positive values represent an increase.

Key Findings:

DTaPd1 and DTaPd3: Uptake of both DTaPd1 and DTaPd3 immunisations increased in Hebe-Hebe, Ndabakazi, and Zazulwana facilities. In contrast, Mpukane and Nqancule facilities experienced decreases.

Measles: The uptake of the first measles dose decreased in Mpukane, Ndabakazi, and Nqancule facilities, while Hebe-Hebe and Zazulwana saw increases. The pattern for the second measles dose was similar, with increases in Hebe-Hebe, Nqancule, and Zazulwana, as well as decreases in Mpukane and Ndabakazi.

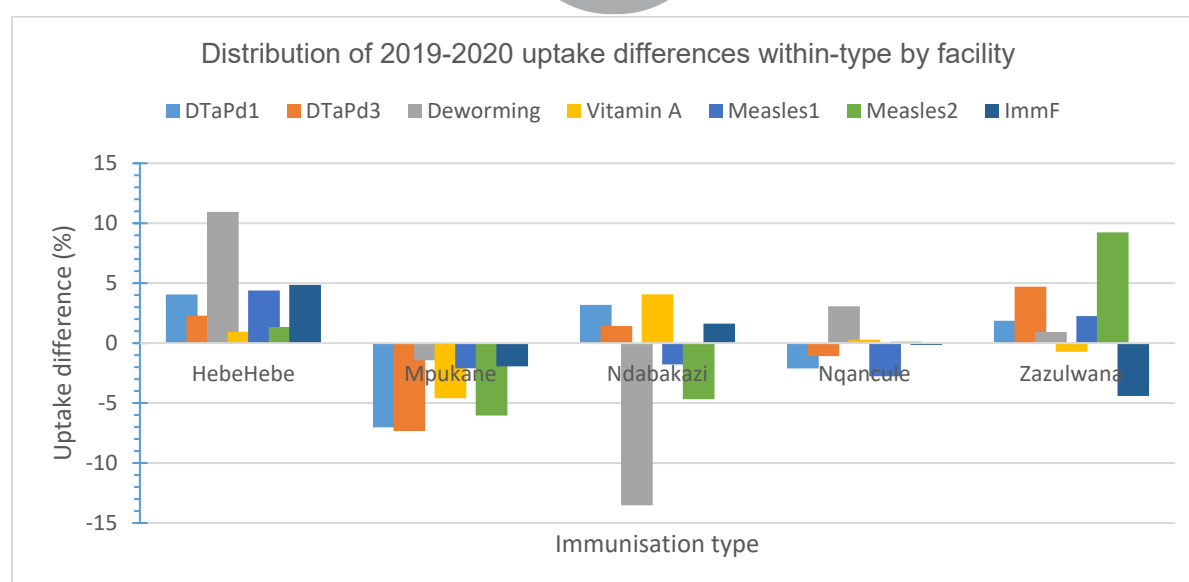
Fully Immunised: Similar to the measles second dose, the proportion of children who were fully immunised by the end of their first year increased in Hebe-Hebe and Ndabakazi but decreased in Mpukane, Nqancule, and Zazulwana.

These findings align with those of Jensen et al. (2020) regarding a decline in measles immunisation coverage rates.

Table 12: Differences in within-facility immunisation uptake from 2019 to 2020

Type	Facility				
	Hebe-Hebe	Mpukane	Ndabakazi	Nqancule	Zazulwana
DTaPd1	4.06	-7.02	3.19	-2.11	1.87
DTaPd3	2.29	-7.33	1.43	-1.08	4.71
Measles 1	4.39	-2.1	-1.78	-2.76	2.26
Measles 2	1.35	-6.04	-4.67	0.12	9.23
Fully immunised	4.85	-1.94	1.63	-0.15	-4.41

Figure 6: Distribution of 2019-2020 uptake differences within type by facility



4.4 DISCUSSION OF QUANTITATIVE APPROACH RESULTS

4.4.1 Demographics

The demographic data focusing on the characteristics of the caregivers and children is discussed below

4.4.1.1 Caregivers' characteristics

The qualitative interviews revealed key characteristics of the caregivers who participated in the study.

Age: Most caregivers (60%) fell within the young adult age range (20-39 years old). Only one participant was younger than 20, while all others were 39 or older.

Marital Status: Most caregivers (65%) identified as single, while 25% were married. The remaining participants reported being divorced or widowed. This finding aligns somewhat with data from Stats SA (2021), which indicates that nearly half of women are single, followed by 27% married, and a smaller percentage divorced (2.9%).

Education: Educational attainment varied among caregivers. Approximately 30% had a primary school education, 35% had completed secondary school, and 15% had a Grade 12 diploma. The remaining participants did not disclose their educational background. These findings are somewhat consistent with the South African Demographic Health Survey, where roughly 65% of the population reported having secondary education, with only 10% having post-secondary qualifications (Statistics et al., 2021).

Residence: Nearly all caregivers (95%) resided in rural areas. In terms of housing, 90% lived in formal dwellings.

Household Size: Household sizes ranged from one member to more than six members. The most common household size included four members (30%), followed by households with more than six members (25%), five members (20%), and precisely six members (10%). The remaining households had three or fewer members.

4.4.1.2 Children's characteristics

The children's ages ranged between 4 and 23 months, with 3(15%) being 23 months old and 2 (10%) being 12, 15, and 22 months respectively. Most children were female, which is inconsistent with the SA Demographic Health Survey 2016, where young children are males aged 0-4.

4.4.2 Distribution of participants by childhood illness during Covid

Data from health patient record reviews revealed the most common reasons for children's consultations at healthcare facilities throughout the year. First Visits: The most frequent reasons for initial consultations were cough (50%) and vomiting (15%).

Subsequent Visits: Similar patterns emerged in subsequent visits, with cough remaining prevalent (80%) and diarrhoea increasing to 10%.

These findings are somewhat consistent with reports by Jensen and McKerrow (2020), suggesting generally less severe COVID-19 illness in children than adults. Additionally, they align with data from the United States (Morbidity and Mortality Weekly Reports, 2020), where cough (54%), vomiting (31%), and diarrhoea (37%) were commonly reported symptoms.

It is important to note that the reviewed medical records did not include COVID-19 test results. Therefore, while the reported symptoms may suggest COVID-19, we cannot definitively confirm that the children were infected. The possibility exists that these consultations were related to mild, undiagnosed COVID-19 cases

4.4.3 Distribution of immunisations by facility, year, and immunisation type

Using the chi-squared test for independence to test for the association between immunisation type and year, it was found that immunisation type and year significantly affected immunisations ($\chi^2 = 230.4$; $p = 0.001$). Proportions of immunisations were compared from 2019 to 2020 within each immunisation type. Proportions of immunisations were higher in 2019 than in 2020 except for the DTapd1, and it was also noted that the differences in proportions for DTapd1, DTapd3, and measles were minor.

A study in India by Kumar, Chakraborty, Dhandore, Dhalaria, Singh, Agarwal, Singh, Priyadarshini, Jain, Bahl, and Taneja (2023) concurs with the above findings, where it was reported that the immunisation coverage for children of all ages declined in 2020 compared to 2019. DT/ DPTS declined by 34.1 %. This finding concurs with (Burger and Mchenga, 2020), who reported that approximately 117 million children worldwide were at risk of not receiving immunisation due to the COVID-19 lockdown.

4.4.4 Differences within facilities in immunisation uptake by immunisation type

Over two years, 14 761 immunisations were carried out in the five clinics. Most of the immunisations were done at the Ndabakazi facility 5 819 (39.4%), followed by the Hebe-Hebe facility 2 791(18.9%), and the rest of the immunisations were almost equally distributed across the remaining three facilities. The catchment population size of each facility influences this. Of the 14 761 immunisations considered, 8 794 (59.6%) were distributed and carried out in 2019. The findings on the general decline in immunisation rates align with observations from Jensen et al. (2020), who reported a 30% reduction in measles and full immunisation coverage in KwaZulu-Natal.

Burger et al. (2020) also support these observations, attributing the decline to disruptions in health services, particularly regarding access to essential services



4.4.5 Differences in within-facility of DTaPd1 and DTAPd3 uptake by year and immunisation type

DTaPd1 and DTAPd3 uptake were higher in 2020/21 than in 2019/20 for Hebe-Hebe, Ndabakazi, and Zazulwana, around (9%), while Mpukane and Nqancule clinics showed a reduction in uptake (almost 0.7%). There are interfacility variations. The results show that DTaPd1 uptake increased in all facilities except Mpukane and Nqancule, with 7.0% and 2.1% decreases, respectively. In Hebe-Hebe, Ndabakazi, and Zazulwana, DTaPd1 experienced an increased uptake of 4.1%, 3.2%, and 1.9%, respectively. DTaPd3 followed the same pattern with 7.3% and 1.1% decreases in Mpukane and Nqancule, respectively. The increases in uptake at Hebe-Hebe, Ndabakazi, and Zazulwana were 2.3%, 1.4%, and 4.7%, respectively. The carers took children for vaccination at early ages as the DTAP vaccines are taken between 6 to 14 weeks according to the South African immunisation schedule.

4.4.6 Measles Vaccine Uptake by Year and Facility

This section examines measles vaccination rates (first and second doses) across facilities and years.

Measles First Dose:

Three facilities showed a decrease in first-dose measles uptake in 2020/21 compared to 2019/20. The remaining two facilities experienced an increase in first-dose uptake during the same period.

Measles Second Dose:

Measles second-dose uptake exhibited the most significant decline at the Mpukane clinic (-6.04%). Conversely, Zazulwana clinic showed an increase of 9.23% in second-dose uptake. It is worth noting that Zazulwana also had a higher overall rate of second-dose measles vaccination compared to other facilities (4.3%). The findings on reduced first-dose measles vaccinations are consistent with Jensen et al. (2020), who reported a near 30% decline (p-value 0.005) in first-dose coverage in 2020.

4.4.7 Differences in within-facility fully immunised coverage by year and facility

Fully immunised increased by 4.8% and 1.6% in Hebe-Hebe and Ndabakazi and decreased by 1.9%, 0.1% and 4.4% in Mpukane, Nqancule, and Zazulwana, respectively. Jensen et al. (2020) also reported similar trends of the decline of immunisation indicators of 'measles first-dose coverage' and 'fully immunised'. This finding concurs with a study by Burger and Mchenge (2020), who found that approximately 117 million children are at risk of not receiving immunisation due to the COVID-19 lockdown.

Reasons for these stated differences in immunisation uptake might be because nurses in clinics with the lowest uptake according to the staff attendance register were due to absenteeism of clinic staff members because of being under quarantine or being sick with COVID-19. Alternatively, it might be because of the lockdown restrictions preventing caregivers from bringing their children for immunisations.

4.4.8. Changes in Nutritional status

Data from health patient records revealed the following findings regarding children's nutritional status:

Wasting: Analysis of weight-for-age measurements indicated that 35% of children exhibited growth faltering (wasting). Moderate malnutrition: Only one new case of moderate malnutrition was reported at the Zazulwana clinic in 2020/21, compared to none reported across all clinics in 2019/20. These findings suggest that the COVID-19 pandemic had minimal impact on the emergence of new moderate malnutrition cases. It is important to note that the observed low prevalence of moderate malnutrition cases contrasts with the findings of Splinter et al., (2021). They reported a 14.3% increase in wasted children, which is an indicator of early-stage malnutrition. The discrepancy between the current study's findings on wasting and Splinter et al., (2021) reported increase in wasted children might be due to methodological differences or variations in the target populations studied.



4.5 DISCUSSION OF QUALITATIVE DATA ANALYSIS

4.5.1 Demographics: Caregivers characteristics

Twenty-two black females, all caregivers, residing in rural areas of the Mquma sub-district (Amathole District Municipality), were interviewed semi-structured. These participants were recruited from five targeted clinics: Hebe-Hebe, Zazulwana, Mpukane, Ngancule, and Ndabakazi.

It is important to note that the sample recruited for this qualitative study consisted solely of female caregivers. Further research may be needed to explore male caregivers' perspectives and determine if their experiences accessing healthcare services differ.

4.5.2 Discussion of themes

Table 14: Themes and sub-themes

No	Themes	Sub-themes
1	Restricted movement of caregivers due to COVID-19 regulations	1.1 Lockdown set up with minimal movements and curfew. 1.2 Poor access to healthcare facilities. 1.3 Unavailability of transport fares.
2	Temporal closure of health facilities	2.1 Staff that tested positive unavailable to render health facilities. 2.2 Health facility deep-cleaning and sanitisation 2.3 Disrupted Care and lost patients.
3	Inability to honour appointments and follow-up date	3.1 Breakdown in communication with caregivers 3.2 Routine healthcare of the children disrupted
4	Fears of contracting COVID-19 virus by caregivers	4.1 Caregivers are afraid to attend health facilities.
5	The COVID-19 pandemic had negative effects on nutrition services	5.1 Disruptions in accessing Food and Nutrition Support. 5.2 Increased reports of hunger and poor household food security 5.3 Disrupted School Nutrition Programmes exacerbate household food insecurity. 5.4. Transportation barriers limit food access in urban areas 5.5. Long grocery store lines and missed shopping opportunities

6	Use of other healthcare facilities to access medical care	6.1 Cost prohibiting access to private care 6.2 Limited trust and concerns over traditional medicine.
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4. 6. DISCUSSION OF THEMES

In this section, the researcher presents findings and discusses the emerging themes accompanied by related literature. Six main themes emerged from the analysis: and they are restricted movement by caregivers due to COV-19 regulations, temporal closures of health facilities, fear of contracting the COVID-19 virus by caregivers, low turn up of staff at work; COVID-19 pandemic adverse effects on nutrition services, and use of alternative healthcare to access medical care.

4.6.1 Theme 1: Restricted movement of caregivers due to COVID-19 regulations

The country's president proclaimed a national state of disaster on 15 March 2020 to control the spread of infections. This was followed by a strict national lockdown from 27 March 2020 to July 2020. According to South African regulations, citizens were restricted from moving around, the country was on lockdown, and few exceptions were allowed. Travel to health facilities for medical care was not part of the restrictions; however, disruptions in the public transport and taxi services in South Africa during the challenging lockdown period affected people's movement. (Burger, 2020).

Sub-theme 1.1 Lockdown set up with minimal movements and curfew.

Under the alert level 5 lockdown, individuals were prohibited from leaving their homes, and the security cluster was tasked to implement the regulations. There were regulated hours of operation in the taxis and transport sector. The only exceptions to these rules were for individuals to carry out essential services. (SA,2020).

"The biggest challenge was restricted movements. Getting a permit so that I could travel home from Cape Town was a challenge. I did not travel home before the lockdown as it was supposed to be only a few weeks, but when it was extended, I

needed to go home with the child. When I finally went home, I found it difficult to change health facilities” (Participant 5).

“ Lockdown led to isolation at home and depression. I was feeling down and afraid of falling sick and dying in front of young children at home” (Participant 3).

According to Ahmed et al. (2020), The primary purpose of the government in enforcing the lockdown was to enforce isolation, which later led to unintended consequences such as loss of income, which decreased life expectancy. The health-seeking behaviour of clients was relentlessly diminished and generally constrained to emergency healthcare.

Participants reported that the curfew that came with the lockdown regulations during the pandemic posed challenges to accessing the services while they were meant to curb the COVID-19 infections. According to Lévesque et al. (2013), access to health services depends on living environments, transport, and mobility. In this study, the lockdown regulations negatively affected caregivers' mobility.

Sub-theme 1.2 Poor access healthcare facilities

Participants reported poor access to health facilities due to lack of public transport. Mostly, the public transport services in rural areas are run by elderly men who, during this period, feared contracting COVID-19. Although the COVID-19 regulations allowed people to access health facilities, other indirect challenges affected the ability to access health facilities.

One participant indicated that “there was no transport to go anywhere here; we were depending on the one bakkie driven by the young man from the village since all the old men stopped their services. The shortage of public transport was real. Traveling and transport was a challenge. Could not do lots of things in town, e.g., grocery shopping” (Participant 16).

“The biggest pressure I had was lack of public transport, i.e. the local taxis (bakkies)” (Participant 4).

“During lockdown, availability of transport to town to do shopping, visit health facilities, other necessities were my biggest pressure. Food was a challenge as children stayed at home” (Participant 18).

The study by Luke (2020) cited public transport as being at the forefront of the discussions in the transport sector during the pandemic; it was further noted that taxis dominated the news during the lockdown months. Public transport could not be upheld. Social distance and reduce time spent in restricted spaces. The government struggled to enforce lower occupancy in public transport. Participants indicated that they needed to access health facilities. However, it was not easy to access health facilities, mainly due to challenges in the public transport system. According to Lévesque et al. (2013), availability establishes the tangible presence of health resources with adequate capability to render health care. In this study, the availability of health services was limited due to poor transport systems during lockdown.

Sub-theme 1. 3. Unavailability of transport fares

Caregivers reported the loss of jobs and small business closures that led to the unaffordability of transport to attend to the routine healthcare of their children in line with the findings of Luke (2020) of no or less money to spend on transport.

“I worked in the retail business in Cape Town; I lost my job during the COVID-19 lockdown, and my child was still very small; I decided to leave Cape Town to be with my parents so that I could get support in raising the child” I do not always have the money to take a taxi to the clinic, I rely on my mother’s pension and sometimes the R350” (Participant 9).

“Yes, I took my child to the immunisation schedule, but I did not take him to the scale. I understand it is important to take the child for weighing but is tiring to walk long distances and can’t afford transport” (Participant 11).

The report from Statistics South Africa (2021) indicated that almost 3,000,000 jobs were projected to be lost through the “hard” lockdown in South Africa, and as many as 30% of those affected were classified as poor post-lockdown. The implications for poverty and welfare were seen in increased applications for government grants.

The participants cited the loss of income during the pandemic, which led to limited household cash flow and affordability. According to Lévesque et al. (2013), framework affordability replicates the financial capability of individuals to use funds and time for

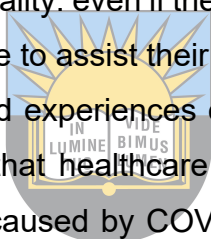
suitable services. Available income was prioritised for food security, and very little was used for activities like travel and transport. Lévesque's theory refers to affordability as the financial capability of individuals to use funds and time for suitable services. In this study, increased transport fees rendered accessing health services unaffordable.

4.6.2 Theme 2: Temporal closures of health facilities during COVID-19

The media widely reported on temporary closures of healthcare facilities, particularly during the initial waves of the COVID-19 pandemic. These closures stemmed from several causes: staff infections with COVID-19, facility sanitisation requirements, and even labour unrest due to staff shortages of personal protective equipment (PPE). The following sub-themes emerged from the interviews conducted for this study:

Sub-theme 2.1 Staff that tested positive unavailable to render health facilities.

Caregivers reported a frustrating reality: even if they reached healthcare facilities, they often found few or no staff available to assist their children's medical needs. This lack of staff aligns with the documented experiences of health managers during COVID-19. Several studies have shown that healthcare leaders were forced to repurpose resources due to staff shortages caused by COVID-19 infections among healthcare workers.



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“The grapevine that I heard that a staff member tested positive in the clinic led to more fear of contracting COVID-19 from the clinic. This may have been misinformation, but I was afraid “(Participant 6).

“My family contracted the virus, I lost my daughter, the mother of this child who is two years old. I have been afraid of COVID-19, and some staff members also contradicted COVID-19” (Participant 20).

Some healthcare workers in South Africa joined the outreach teams responsible for tracking and tracing COVID-19 contacts and containment strategies (Burger, 2020). A study in Nigeria reported that battling COVID-19 and trying to provide health services along the continuum of care was challenging (Akaba, 2021). Several studies report that health workers were not spared of COVID-19 infection and were very vulnerable to infections, and some lost their lives.

Temporal closure of facilities during the pandemic was common, necessitated by sanitising the facilities post-COVID-19 infections in the facility or caused by the isolation of health workers post-exposure. Closures were sudden, and there was limited communication with service users. According to Lévesque et al. (2013), availability establishes the tangible presence of health resources with adequate capability to render health care; these include physical location, accommodation, opening periods, and appointment mechanisms.

Sub-theme 2.2 Health facility deep-cleaning and sanitisation

The global focus on hygiene practices during COVID-19 extended to healthcare facilities. South Africa's Infection Prevention Control (IPC) guidelines mandate thorough cleaning and disinfection of the environment, surfaces, and medical equipment following the identification and treatment of a COVID-19 case within a facility (SA, 2020). Unfortunately, these necessary sanitation measures, while crucial for infection control, contributed to temporary facility closures.

"I indicated that no, I did not honour all the appointments; I was afraid of contracting the virus for me and my baby. I missed three appointments, especially between July and December 2020. It was scary and bad the clinic was sometimes closed for deep-cleaning and sanitisation" (Participant 20).

"I tried to honour all visits, but I missed four appointments. The clinic was scary and sometimes closed for a deep cleaning" (Participant 22).

impact of temporary facility closures on health outcomes during COVID-19. Burger (2020) also highlights the particular vulnerability of mother and child health services during the pandemic. As participants reported, facilities were occasionally shut down entirely for deep cleaning upon identification of a COVID-19 case. This forced caregivers to be turned away, disrupting essential care.

Lévesque et al. (2013) introduced the concept of "acceptability" in healthcare access. This refers to the willingness of individuals to seek services based on personal and social values. In this context, the fear of contracting COVID-19 within the healthcare setting negatively impacted caregivers' acceptability. The temporary closures, even when necessary for sanitation, created a barrier to care by fostering anxieties around potential exposure to the virus within the facility

Sub-theme 2.3 Disrupted Care and lost patients

Adding to the frustrations, participants reported being turned away from facilities and denied appointments for routine check-ups, specifically weighing their children. During these temporary closures, healthcare providers often directed clients to seek care at nearby facilities. However, as the participants emphasised, this presented another hurdle. Limited access to transportation and high costs for some made reaching alternative facilities incredibly difficult. This lack of viable options severely compromised access to essential healthcare services.

Lévesque et al. (2013) discuss the concept of "accessibility" within healthcare, encompassing physical availability and factors like affordability and ease of use. In this situation, the combined challenges of facility closures, transportation limitations, and financial constraints significantly reduced care accessibility. Consequently, some caregivers may have chosen to forgo essential services altogether, potentially leading to the loss of these patients within the healthcare system. This outcome could have long-term negative consequences for both individual and public health.

"I missed the whole year. I did not take my child for immunisation. I feared COVID-19. The only immunisation that was promoted in our villages was the COVID-19 vaccination. I missed five appointments" (Participant 5).

"I reported that, I attended all my appointments for immunisation. I was not given appointments for growth monitoring. On observation of the RTHC, the last weight was plotted on 16.09.2019" (Participant 7).

"Yes, I attended all appointments on the card. But there were no appointments given for growth monitoring" (Participant 9).

Jensen's (2020) study during the pandemic aligns with the participants' experiences. They reported a significant decline in community-based services for children, particularly growth monitoring and weighing, which often fell under the category of services caregivers were turned away for during temporary closures. Jensen's data indicates an 85% drop in these services at community centres and a 54% decrease at the household level, with household services recovering sooner. This may suggest that caregivers may not have prioritised these services during the pandemic's peak, potentially due to the access challenges and anxieties around facility closures.

Lévesque et al. (2013) introduce another facet of their healthcare access framework: "acceptability." This concept goes beyond just physical availability and affordability to consider the characteristics of healthcare providers themselves. Factors such as provider presence within facilities, qualifications, and service delivery methods all influence how acceptable a service is to potential patients.

In this context, the temporary closures likely impacted acceptability. Caregivers who were turned away or unable to access routine check-ups due to transportation limitations may have questioned the overall reliability and effectiveness of the healthcare system. This could lead to a decline in the perceived acceptability of services, potentially causing some to forgo essential care altogether.

4.5.3 Theme 3: Inability to honour appointments and follow-up dates.

Communication would be disrupted during these periods due to a lack of contact with healthcare facility members. Lack of transport to attend to the facilities also resulted in missed opportunities for routine healthcare.

Sub-theme 3.1: Breakdown in communication with caregivers

The lockdown negatively affected the communication between patients and healthcare workers. This was due to unreliable modes of communication with caregivers rather than face-to-face communication with healthcare givers. Burger et al. (2020) recommended the use of helplines to deal with communication challenges during the lockdown period.

"There was no communication from the clinic regarding the services during the lockdown" (Participants 1 & 4).

"If phones were used, there would be problems of network, lack of money for airtime and data" (Participant 2).

"Also messengers used by the clinic (i.e., Community Health Care Workers (CHCWs), and other stakeholders) could distort messages. At times, could even forget to convey the messages" (Participant 21).

“The clinic used the cell phones to communicate with us through SMS. Messages were also put on the notice boards in the community halls. Also, community health workers in the villages gave us messages from the clinic” (Participant 16).

A study in India by Kumar (2021) highlighted communication challenges with health service recipients and further recommended increasing awareness campaigns and health promotion activities during the pandemic. The difficulty of face-to-face communication during the pandemic is noted, and other forms of communication, like the use of cellular phones and communication using community leadership channels, also posed challenges. Poor communication resulted in poor accessibility of health services for children to access health care. According to Lévesque et al. (2013), availability establishes the tangible presence of health resources with adequate capability to render health care; these include physical location, accommodation, opening periods, and appointment mechanisms.

Sub-theme 3. 2: Routine healthcare of the children disrupted

Participants highlighted disruptions to their children's routine healthcare due to missed appointments and unexpected clinic closures. These disruptions stemmed from a combination of lockdown restrictions, temporary facility closures for deep cleaning, and potential anxieties around COVID-19 exposure within healthcare settings. This ultimately weakened the effectiveness of public health interventions, as children could not access essential preventative and ongoing care.

“I did not, for four months, I stayed at home. The child missed three appointments; we are now catching up “(Participant 21).

“I tried to honour all visits, but I missed four appointments. The clinic was scary and sometimes closed for a deep cleaning” (Participant 22).

Some visits were missed ... about two; however, observation of the RTHC showed a fully completed record” (Participant 13).

Jensen (2020) reported a significant decline (36%) in clinic attendance during the lockdown period, while Akseer (2020) noted that the overburdened health system shifted its priorities and directed resources to the COVID-19 management and moved away from the PHC, access to routine services for children.

Caregivers further noted that the pandemic disrupted the care of children as the clinics were also busy testing and managing COVID-19 clients. Some nurses joined the outreach teams. The routine healthcare services for child health include growth monitoring, immunisation, vitamin supplementation, and managing minor ailments and diseases disrupted during COVID-19. This sub-theme aligns with the concept of "accessibility" within Lévesque et al.'s (2013) framework. Accessibility is not just about the physical availability of services but also encompasses factors like ease of use and timeliness. The disruptions caused by lockdown measures and clinic closures significantly hindered the timeliness and overall ease of access to children's routine healthcare, potentially creating gaps in their preventative and ongoing medical care.

4.5.4. Theme 4: Fears of contracting the disease by caregivers

The fear of contracting COVID-19 was a pervasive reality for caregivers throughout the pandemic, as documented in various studies. Wanyana et al. (2020) support this notion, aligning with the findings De Araujo, Veloso, de Campos Souza, and DeAzevedo & Tarro. (2020), who highlight how parental stress due to COVID-19 fears negatively impacted children's well-being. This theme will explore how these anxieties manifested and their influence on caregiver behaviour.

Sub-theme 4:1: Caregivers afraid to attend health facilities.

Caregivers reported being unwilling to go to clinics lest they get infected in transit or at the health facilities. Health facilities were seen as possible sources of infection since the infected patients also sought medical care in health facilities.

"Fear of contracting COVID-19 9, which led to isolation at home and struggles with anxiety, I missed clinic appointments" (Participant 13).

"I missed the whole year. I did not take my child for immunisation. I feared COVID-19. The only immunisation that was promoted in our villages was the COVID-19 vaccination. I missed five appointments for child immunisation" (Participants 6 and 14).

"I missed six appointments in 2020, started again in October 2021, and missed 18 months of clinic visits due to fear of COVID-19" (Participant 10).

“No, I did not honour all the appointments, I was afraid of contracting the virus for me and my baby. I missed three appointments, especially between July and December 2020. It was scary and bad” (Participant 20).

Burger's (2020) research aligns with the caregivers' experiences in this study. He documented a significant increase in unmet healthcare needs due to COVID-19 anxieties, highlighting the unintended public health consequences of the pandemic. Participants echoed these observations, confirming that fear of the unknown dominated the pandemic and led to a decrease in overall healthcare service utilisation.

These anxieties can be understood through the lens of "acceptability", as defined by Lévesque et al. (2013). This concept goes beyond just physical availability and affordability of services. It also considers social factors that influence how appropriate or safe individuals perceive seeking healthcare to be. In this context, the fear of contracting COVID-19 within healthcare settings significantly reduced the perceived acceptability of these services for many caregivers. This ultimately led them to avoid essential healthcare for their children, prioritising perceived safety over the potential benefits of seeking care.



4.5.5 Theme 5: COVID-19 pandemic negative effects on nutrition services

The study participants reported episodes of hunger and decreased household food security. This is mainly due to job losses, schools shutting down, and the closure of small companies.

Sub-theme 5.1: Disruptions in Accessing Food and Nutrition Support

The participants highlighted challenges in obtaining food and micronutrient supplements, typically provided through the PHC program in South Africa. Several factors limited their access to these essential services.

Fear of COVID-19: As discussed in Theme 4, anxieties around contracting the virus discouraged caregivers from visiting healthcare facilities. This apprehension directly impacted their ability to access food and nutrition supplements for their children.

Limited transportation: The transportation barriers identified in Theme 1 also played a role in this sub-theme. Caregivers lacking reliable or affordable transportation faced difficulty reaching health facilities to collect these vital supplements.

These challenges effectively disrupted access to a critical component of the PHC program, potentially jeopardising the nutritional well-being of children during a time of heightened vulnerability.

“I took my child to all immunisation appointments but missed the appointments for weighing and food supplementation. Shortage of money to only take the child to scale. I needed to prioritise my visits” (Participants 3, 4, & 8).

“We needed food parcels as the pressure was high and travelling to look for jobs was prohibited” (Participant 17).

Social relief services would be appreciated, especially after I lost my daughter to COVID-19. She left the children, and I needed support for their birth certificates and changing of grant beneficiaries. I needed food parcels, which I did not get. The local community development worker did not choose me for the support of food” (Participant 21).

Due to anxieties around COVID-19 and transportation limitations, caregivers deprioritized visits to health facilities. This shift in prioritisation meant their children missed out on weight-ins and essential food and micronutrient supplementation programs. As Lévesque et al. (2013) define "appropriateness" in healthcare access, it refers to several key aspects:

The services offered must adequately address the client's specific needs. The care must be delivered promptly, considering the time invested in assessing health issues and determining appropriate treatment. The technical aspects of care and the interpersonal interactions between caregivers and healthcare providers must be of high quality. In this context, the pandemic and its associated challenges significantly hindered the appropriateness of healthcare access for these children.

Sub-theme 5. 2: Increased reports of hunger and poor household food security

The loss of income from jobs and small businesses – a consequence for many caregivers who worked in retail or small businesses – forced them to confront hunger and struggle as their ability to buy food became severely limited. This economic hardship aligns with Burger et al.'s findings (2020), which documented the pandemic's indirect effects on communities, including job losses, business closures, and food insecurity. These factors disproportionately impacted disadvantaged households, exacerbating existing inequalities. Hunger and household food insecurity emerged as some of the most significant challenges during the pandemic, directly linked to the loss of financial resources. As Lévesque's framework suggests, "affordability" refers to an individual's financial capacity to utilise resources for essential services. In this case, the pandemic significantly compromised affordability, leaving many families struggling to put food on the table

“Food security was a challenge. Permit needed for travelling was a challenge coupled with delays in town due to long queues. I couldn’t ask neighbours for help due to isolation and fear for Covid” (Participant 15).

” I experienced the greatest pressure of loss of work. It was difficult to maintain the family. Hunger and food security was a challenge” (Participant 1).

“Improve food security for my family. Supply of clean water as it is needed to keep hygiene, keep hands clean” (Participant 8).

Caregivers and parents lost income from jobs and small entrepreneurship, and they reported hunger and struggle due to the loss of means to buy food. This phenomenon was also reported by Burger et al. 2020, that the COVID-19 pandemic also had indirect effects on the communities, involving job losses, business closures, and food insecurity, which later harmed poor households, indicating that inequality worsened. Hunger and household food insecurity were reported as among the most significant challenges experienced during the pandemic due to loss of income.

Sub-theme 5.3: Disrupted School Nutrition Programmes Exacerbate Food Insecurity

The closure of school nutrition programs during the pandemic significantly contributed to hunger and food insecurity among these families. Introduced post-apartheid to support education and well-being, these programs provided a vital source of nutrition for many children. Participants in the study highlighted the challenges they faced when access to these programs was disrupted. The child support grants they received were inadequate to compensate for the lost income and ensure food security, especially for families with older children who previously relied on school meals.

Even the introduction of the Social Relief of Distress Grant (R350) proved insufficient. This economic hardship aligns with Lévesque et al.'s (2013) concept of "affordability" within healthcare access. Affordability goes beyond just the physical availability of services; it encompasses the financial capability of individuals to access those services. In this context, the loss of school meals and inadequate government grants rendered essential nutrition services **unaffordable** for many families.

"The biggest pressure I experienced was hunger; I depend on child grants for my three children. They remained at home, didn't go to school, and couldn't get school nutrition that helped us feed them. Food finished quickly, and children couldn't eat anywhere else" (Participant 19).

"I needed food parcels to deal with anxiety and hunger as we lost our jobs during the lockdown and children could not attend school and receive nutritious meals" (Participant 11).

The closure of early childhood development programmes, as documented by Burger et al. (2020), further exacerbated the challenges faced by households. This closure shifted the care burden onto families, making it even more difficult for caregivers to pursue employment opportunities. The resulting decline in household income directly contributed to increased hunger within these families.

These hardships disproportionately impacted children, who faced disruptions to their education, mental health, and nutrition despite the relatively low mortality rates of COVID-19 among this age group. Lévesque's theoretical framework sheds light on this issue through the concept of "affordability." Affordability encompasses not just the

financial cost of services but also broader factors such as opportunity costs (e.g., lost wages due to caregiving responsibilities), provider behaviours, and the perceived quality of care. In this context, the pandemic's effects significantly reduced affordability for many families, limiting their children's access to essential resources like food and educational opportunities.

Sub-theme 5.4: Transportation barriers limit food access from urban areas

Participants across various aspects of their lives, including grocery shopping in urban centres, reported a significant lack of transportation options, particularly public transport. This challenge was further compounded by curfew restrictions that mandated everyone except frontline workers to be indoors by early evening. These combined factors significantly worsened the difficulties faced by caregivers in securing food for their families.

“During lockdown, the availability of transport to town to do shopping, visit health facilities, and other necessities was my biggest pressure. Food was a challenge as children stayed at home” (Participant 18).

Akseer et al. (2022) concur with the above findings when identifying that the critical systems at risk of ruin or reduced efficiency in the aftermath of the pandemic included food systems, household earnings, public safety and health services for women and children. The public transport participants feared contracting the virus while in transit to the health facilities, mainly due to fears of poor social distancing in the public transport.

Acceptability in Lévesque's theory refers to social and cultural factors that influence people's acceptance of the service (e.g., beliefs, the gender or community group of benefactors, systems of medicine). In this case, the service from the public transport sector was not acceptable to customers and, therefore, negatively affected access to health services.

Sub-theme 5.5 Long grocery store lines and missed shopping opportunities.

Adding to caregivers' difficulties, long queues formed inside grocery stores due to social distancing measures. These extended wait times and curfew restrictions forced some families to abandon their shopping trips before purchasing essential food supplies.

This phenomenon was not unique to South Africa. Jones (2022) reported similar experiences in the United Kingdom, highlighting how social distancing regulations of two meters significantly altered queuing systems within grocery stores. These changes, while necessary for public health, unfortunately, created unintended consequences that further strained household food security for many families.

“Long queues led to limited shopping for the supplies as it was stressful and very difficult to go shopping” (participant 11)

The shops in town where we buy food had long queues as the number in a shop at a specific time was limited. That led us to sometimes leave town without the supplies that we needed as the curfew time also affected the transport. We couldn't leave home early and come back very late from town (Participant 15)

4.5.6 Theme 6: Utilisation of alternative health services

This theme explores the use of alternative healthcare options by caregivers who faced challenges accessing public health services. The participants' experiences highlight the limitations encountered within the formal healthcare system and the strategies they adopted to address their children's medical needs.

Sub-theme 6.1: Cost prohibiting access to private care.

While some caregivers explored alternative healthcare options when faced with public health service limitations, these alternatives were often out of reach due to affordability concerns. Consultation fees with private general practitioners and medications from private pharmacies proved too expensive for many participants. This financial barrier, compounded by a lack of medical insurance, restricted their ability to access private healthcare effectively.

“I consulted the local traditional nurse for colic medicines. I did not have enough money for the private doctor”. (Participant 8)

“No, I did not attend any other health facility. I only used this clinic. Doctors are expensive. (Participant 17)

The World Bank (2020) reported that the private healthcare system experienced challenges of financial strains during the pandemic. These costs were transferred and absorbed by healthcare users. Participants who found the health facilities closed indicated they could not access health services from private healthcare due to affordability. The affordability included the cost of transportation to the facilities.

Sub-theme 6.2 Limited trust and concerns over traditional medicine

While some caregivers explored traditional healers as an alternative, this approach was not without reservations. The participants expressed anxieties about the following:

Lack of scientific assessment and diagnosis: Concerns existed regarding the methods used by traditional healers for evaluating and diagnosing illnesses. Caregivers may have questioned the scientific basis of these practices and their effectiveness in treating their children's specific medical needs. Potential for negative side effects: Fears surrounding the potential for traditional remedies to be too strong or have unforeseen negative side effects on their children's health were also reported. This hesitancy highlights a potential lack of trust or understanding regarding the practices employed by traditional healers.

“I visited the traditional nurse for the baby rub and medicine for “plate” ailments could not be effectively eradicated: - because this category of healers does not use scientific means of assessment and diagnosis as there are no standard set doses, constituents, and strengths of such medications they provide” (Participant 13).

“I took my child to the nurse at the local pharmacy for minor ailments as well as a traditional nurse for the “plaite”, i.e., colicky child. I was afraid of the strong traditional medicines to the young child” (Participant 11).

Mphekgwana, Makgahlela, and Mothiba. (2021), conducted a study in Limpopo, South Africa, documenting a significant increase in the use of traditional medicine during the pandemic. This trend was primarily linked to the postponement of medical

appointments within the formal healthcare system. The participants in this study mirrored these observations, indicating that some caregivers resorted to traditional healers when faced with limited access to public health services.

There are, however, several factors to consider regarding traditional healthcare:

Accessibility and affordability: As Lévesque's framework suggests, "affordability" is crucial to healthcare access. Traditional healers often represent a more affordable and accessible option for many communities, particularly during economic hardship.

Concerns about scientific rigour: However, the participants also expressed anxieties about traditional healers' lack of scientific methodology in diagnosis and treatment. This highlights a potential gap in trust or understanding between traditional practices and biomedicine.

Potential health risks: Fears regarding the potential for ineffective or even harmful traditional concoctions were also mentioned. The absence of standardised dosages, ingredients, and potency within traditional remedies raises concerns about potential adverse effects on children's health. This could theoretically lead to an increase in unresolved childhood illnesses, such as coughs, developmental delays, and vomiting.

These factors create a complex situation for caregivers seeking alternative healthcare options. While affordability and accessibility may push some towards traditional healers, anxieties about the lack of scientific rigour and potential health risks create a hesitancy that cannot be ignored.

4.6. CHAPTER SUMMARY

This chapter examined the negative impact of the COVID-19 pandemic on the utilisation of Primary Healthcare (PHC) services by children under the age of two in South Africa. Key findings include:

Retrospective data analysis (2019-2021) revealed a decline in the use of routine child health and nutrition services.

Immunisation rates: Full immunisation coverage showed mixed results across clinics, with some experiencing slight increases and others experiencing decreases

compared to pre-pandemic levels. However, the overall trend suggests that other childhood immunisations will decline during 2020.

Clinical records review: The most common childhood illnesses documented were coughs (50%) and vomiting (15%). Subsequent visits displayed similar patterns, with an additional 10% of cases presenting with diarrhoea later in the pandemic. This increase in diarrhoea and persistently high cough rates (80%) align with potential COVID-19 symptoms in children.

Caregiver interviews: These interviews corroborated the challenges identified in service utilisation data. Caregivers reported encountering various obstacles during the pandemic that likely negatively affected their children's health and nutrition. These challenges included:

- Restrictions on movement due to COVID-19 regulations
- Temporary closures of healthcare facilities
- Fear of contracting COVID-19 within healthcare settings
- Reduced staffing levels at clinics
- Disruptions to nutrition services
- Alternative healthcare options: The high cost of private healthcare limited access for many caregivers. A few participants reported utilising traditional healers when clinic access was unavailable.

This chapter highlighted the significant disruptions to essential healthcare services for young children during the pandemic. These disruptions, along with the challenges faced by caregivers in accessing care, likely had negative consequences for the health and well-being of this vulnerable population.

CHAPTER 5: SUMMARY, CONCLUSION, LIMITATIONS, AND RECOMMENDATIONS

This chapter builds upon the detailed findings presented in Chapter 4. It overviews the study's objectives, summarises the key conclusions, acknowledges limitations, and offers recommendations based on the research results.

5.1 INTRODUCTION

Following an extensive discussion of the study's findings in the previous chapter, this section provides a concise overview of the research objectives. The objectives of the study were:

- To evaluate the extent of the COVID-19 pandemic disruption on the uptake of childhood immunisations for children under two years of age.
- To assess the performance trends of selected indicators pre-COVID-19 (April 2019- March 2020) and during (April 2020- March 2021) from the database of web-based DHIS during disaster management.
- To describe changes in the incidence of childhood illnesses and malnutrition pre-COVID-19 (April 2019- March 2020) and during (April 2020- March 2021).
- To explore the challenges experienced by parents of children under two years of age regarding utilising child health services from April 2020 to March 2021.

5.2 SUMMARY OF FINDINGS

This chapter summarises the key findings of the study investigating the impact of the COVID-19 pandemic on child health and nutrition services. The research employed an explanatory sequential mixed-method design, utilising quantitative and qualitative data collection methods. The study aimed to assess changes in child health services and the pandemic's impact from caregivers' perspectives.

Key Findings:

Immunisation rates:

Overall, childhood immunisation uptake declined by approximately 15% in 2020/21 compared to 2019/20. This decrease was observed across most immunisations except for DTaPd1, which showed a slight increase in 2020.

Specific Immunisation trends:

Measles vaccinations showed mixed results. Measles first dose increased in Hebe-Hebe and Zazulwana clinics, while Mpukane, Ndabakazi, and Nqancule experienced decreases. The trend for the second dose mirrored this pattern, with increases in Hebe-Hebe, Nqancule, and Zazulwana, as well as decreases in Mpukane and Ndabakazi.

Full immunisation coverage increased slightly in Hebe-Hebe and Ndabakazi clinics but decreased in Mpukane, Nqancule, and Zazulwana.

Childhood Illnesses:

Clinical records indicated that 50-80% of children's visits involved consultations for coughs. Diarrhoea and vomiting followed around 15%, while eye and ear infections accounted for approximately 10% of visits in 2020/21. These symptoms align with potential COVID-19 presentations documented in other studies. The study did identify cases of children contracting COVID-19, although the reported effects were not severe.

Overall, the findings suggest that the COVID-19 pandemic disrupted the delivery of child health services. This resulted in declines in immunisation rates, disruptions to essential programs like nutrition supplementation, and changes in the pattern of childhood illnesses presented at clinics.

5.3 ALIGNMENT OF THE STUDY TO THE CONCEPTUAL FRAMEWORK

This study employed a conceptual framework centred on access to healthcare, specifically focusing on the five key dimensions outlined by Lévesque et al. (2013): approachability, acceptability, availability, affordability, and appropriateness. This framework offers a comprehensive lens for examining access from both the healthcare

system's perspective and that of the patients it serves. The study's findings directly correlate with several aspects of this framework:

5.3.1 Approachability

According to Lévesque (2013), approachability refers to the availability of information through awareness and promotion of transparency. Some caregivers reported that the pandemic negatively affected the communication between patients and healthcare workers, mainly due to unreliable modes of communication rather than face-to-face communication with healthcare. Challenges like transportation limitations (Themes 1 & 5.4) and fear of contracting COVID-19 within healthcare facilities (Theme 5.1) significantly hindered caregivers' ability to reach health services.

About 55% of respondents reported that they missed appointments for health facilities. A study in India by Kumar (2021) highlighted communication challenges with health service recipients.



5.3.2 Acceptability

“Acceptability relates to ethnic and social influences deciding possibilities for people to agree to the aspects of the service” Lévesque et al., (2013). Concerns regarding public transport safety during the pandemic (Theme 5.5) and potential anxieties around traditional healing practices (Theme 6.2) raise questions about the acceptability of specific healthcare options for caregivers. Caregivers reported that they were afraid of contagious COVID-19 infection in health facilities as health facilities were perceived to have the virus, and the infected clients were treated in health facilities.

5.3.3 Availability

Availability is defined by Lévesque et al. (2013) as the “substantial reality of health resources with adequate capacity to deliver services”. Temporary clinic closures (sub theme 5.1) and reduced staffing levels (sub theme 4.6) illustrate disruptions to service availability during the pandemic.

Some caregivers reported that they had to utilise public taxis to access health facilities as they could not walk as the facilities were more than five kilometres away from their

residence. During the pandemic, temporal closures of health facilities were experienced due to the unavailability of staff members who tested positive for COVID-19. The health system moved its priorities and directed resources to COVID-19 management, moving away from the PHC and routine child health services. (Akseer et al, 2020).

5.3.4 Affordability

“Affordability reproduces the financial competency of people to use funds and time to practice suitable services”. (Lévesque et al, 2013). The high cost of private healthcare (Theme 6.1) limited access for many caregivers, particularly those who lost income due to COVID-19 (Theme 5.2)

5.3.5 Appropriateness

Appropriateness represents the “suitability of services rendered and consumer’s needs, timeliness, the extent of care spent in evaluating health problems and concluding the correct treatment, and the practical and quality care” (Lévesque et al., 2013). Caregivers reported that public health facilities were the facilities of choice during the pandemic, although some reported challenges of clinic closures during the pandemic. Among the 35% of missed appointments, some may be related to the closure of facilities during COVID-19. The challenges reported were mostly indirect challenges of COVID-19.

By analysing the study's findings through this framework, we understand how the various dimensions of access to healthcare services were disrupted during the COVID-19 pandemic. This knowledge can inform future public health initiatives to ensure equitable and appropriate access to essential child health services, even in the face of unforeseen challenges.

5.4 ALIGNMENT OF FINDINGS OF THE STUDY WITH THE RESEARCH OBJECTIVES

Building on the previous section's discussion of access challenges, this section focuses on the specific disruptions to child health services utilisation observed during the pandemic.

5.4.1 To assess the extent to which the COVID-19 pandemic disrupted the utilisation of PHC services by children under two years of age.

Immunisation rates:

A statistically significant decline of approximately 15% in child health service coverage was identified in 2020/21 compared to 2019/20 (Chi-square = 77.1, $p < 0.0001$).

Immunisation rates for all vaccines (except DTaPd1) were higher in 2019/20 compared to 2020/21.

These findings align with research by Burger et al. (2020) and WHO (2020), which documented significant global disruptions to childhood immunisation services during the pandemic. A WHO study across 105 countries revealed that 70% experienced health service disruptions.

5.4.2 To assess the performance trends of selected indicators pre-COVID-19 (April 2019–March 2020) and during (April 2020–March 2021) from the database of web-based DHIS during disaster management.

Immunisation rates:

A statistically significant decline of approximately 15% in child health service coverage was identified in 2020/21 compared to 2019/20 (Chi-square = 77.1, $p < 0.0001$).

Immunisation rates for all vaccines (except DTaPd1) were higher in 2019/20 compared to 2020/21. These findings align with research by Burger et al. (2020) and WHO (2020), which documented significant global disruptions to childhood immunisation services during the pandemic. A WHO study across 105 countries revealed that 70% experienced service disruptions.

Facility-level variations:

Immunisation uptake varied across clinics, with Ndabakazi recording the highest proportion. This may be due to its proximity to surrounding communities.

Specific immunisation trends:

DTaPd1 was the only immunisation with a higher uptake rate in 2020/21 compared to 2019/20. The excerpt provided does not explore the reasons for this specific increase.

All other immunisations (including DTap3 and measles) showed a decrease in uptake during the pandemic year. These findings regarding specific immunisations and nutritional status mirror those reported by Kumar et al. (2021) in India, where childhood immunisation coverage declined across the board during the pandemic. The decrease in nutrition supplementation specifically aligns with Burger's (2020) estimation that approximately 117 million children globally were at risk of missing out on essential immunisations due to COVID-19 restrictions.

Conclusion:

The COVID-19 pandemic significantly disrupted child health services utilisation, particularly preventive measures like immunisations and nutritional supplementation. This highlights the vulnerability of essential healthcare services during public health emergencies and underscores the need for robust strategies to ensure continued access for children despite unforeseen challenges.

5.5 QUALITATIVE STUDY

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The qualitative component of the study provided caregivers with a platform to share their experiences regarding the challenges they faced in ensuring their children's health and nutrition during the COVID-19 lockdown. These insights offer a deeper understanding of the real-world implications of the access barriers identified in the quantitative data.

5.5.1 Restricted movement of caregivers due to COVID-19 regulations

This section aligns with the earlier themes regarding challenges in accessing healthcare services. It focuses on how COVID-19 regulations restricting movement hampered caregivers' access to clinics.

Movement restrictions: The excerpt describes how lockdown regulations limited movement outside of one's residence, except for emergencies and essential shopping. This likely posed a significant barrier for caregivers needing healthcare services for their children.

Fear of travel during a lockdown: Although healthcare access was permitted, caregivers reported anxieties about travelling and being out, potentially due to concerns about enforcement or safety.

Caregivers reported poor access to health facilities, mainly due to unintended consequences of COVID-19 regulations. Public transport regulations were at the forefront of the pandemic control. Ahmed et al. (2021) reported that lockdown regulations and the promotion of social distancing discouraged attendance to healthcare facilities, including the most vulnerable child health and nutrition services.

The reduction of passengers and limited hours of operation pushed public transport prices, job losses, and the closure of small businesses led to unaffordable taxi fares (Luke, 2020).

Pillay (2021) further reports that restrictions on the operating hours of the taxis and their limited number of passengers led to prohibitively expensive taxi fares, thus restricting movement. Jensen (2020) further notes that people were afraid to move around if they meet roadblocks and cannot explain their reasons for travelling to law enforcement agencies.

5.5.2. Temporary closure of health facilities

This section aligns with the theme of access disruptions due to temporary clinic closures. It highlights the challenges caused by:

Staff shortages: COVID-19 infections among healthcare workers led to clinic closures when staff members were identified as close contacts and required isolation. Mbunge (2020) also documented similar facility closures during the pandemic and their negative impact on health service availability.

Vulnerability of healthcare workers: The excerpt highlights the specific risks faced by nurses, who bore a significant brunt of COVID-19 infections, with some even losing their lives (Wanyana, 2021). This contributed to staffing shortages and closures.

Isolation protocols: The standard of isolating infected healthcare workers and their close contacts for 10-14 days further strained staffing levels and necessitated temporary closures.

Initial fear and decontamination protocols: During the early stages of the pandemic, a single confirmed COVID-19 case within a clinic could lead to its closure for decontamination due to heightened fears surrounding the virus. Burger (2020) emphasises the fragility of mother and child health services and their particular vulnerability to such disruption.

Temporary clinic closures caused by staff shortages due to COVID-19 infections and isolation protocols significantly disrupted access to essential child health services. This highlights the importance of strategies to protect healthcare workers and maintain adequate staffing levels during public health emergencies.

5.5.3 Missed appointments and disruptions in communication.

This section explores two interrelated challenges: missed appointments and communication breakdowns between caregivers and healthcare providers.

Missed appointments:

Caregivers reported a tendency to postpone or miss appointments, particularly during the initial stages of the pandemic lockdown. This could be due to anxieties about venturing out, transportation disruptions, or concerns about clinic availability.

Even when caregivers managed to reach facilities, they sometimes lacked staff to attend to their children's needs. This likely relates to the staffing shortages discussed in Section 5.5.2.

Communication challenges:

The lockdown restrictions hindered traditional face-to-face communication between healthcare workers and caregivers.

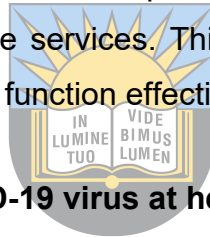
Reliance on alternative communication methods like messages, posters, community leaders, and health workers' cell phones proved unreliable.

These communication disruptions likely contributed to missed appointments and may have created confusion or anxieties among caregivers regarding their children's healthcare needs.

Alignment with existing research:

The excerpt is supported by findings from Jensen (2020) and Akseer (2020), who documented how overburdened healthcare systems during the pandemic shifted resources towards COVID-19 management, often at the expense of routine preventative and promotive health services, including child health services. This reallocation of resources likely contributed to disruptions in service availability and communication with caregivers.

The pandemic highlighted the vulnerability of communication channels between healthcare systems and caregivers. Missed appointments and a lack of clear information likely contributed to anxieties and potentially delayed or prevented children from receiving essential healthcare services. This underscores the need for robust communication strategies that can function effectively during crises.



5.5.4 Fears of contracting COVID-19 virus at healthcare facilities

This section aligns with the access challenges identified earlier and reinforces the theme of caregivers' anxieties regarding healthcare utilisation during the pandemic. Fear of exposure during travel: Caregivers expressed concerns about contracting COVID-19 while using public transportation to reach clinics.

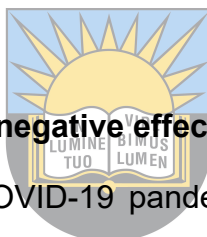
Fear of exposure within facilities: The perception of healthcare facilities as potential hotspots for the virus due to COVID-19 patients further deterred caregivers from seeking services. This aligns with the findings of Wanyana (2020), who documented a decline in demand for child health services in Rwanda during the pandemic, likely due to similar anxieties.

Concerns about social distancing in public transport: Caregivers are worried about the difficulty of maintaining social distancing on crowded public transport, increasing their risk of exposure.

Delays in seeking healthcare: The combined anxieties about travel and exposure within healthcare facilities likely led to delays in caregivers seeking essential services for their children. This could potentially have negative consequences for children's health outcomes.

Risk of unmet healthcare needs: The excerpt raises a critical concern—the potential for unmet healthcare needs among children due to pandemic-related anxieties. This could lead to setbacks in progress towards reducing child mortality and morbidity, jeopardising efforts to achieve Sustainable Development Goals (Akseer et al., 2020; Ahmed et al., 2021).

Fear of contracting COVID-19 emerged as a significant barrier to healthcare utilisation for children during the pandemic. This highlights the importance of addressing these anxieties through clear communication, infection control measures within facilities, and potentially exploring alternative service delivery models that might minimise caregiver exposure risks.



5.5.5 The COVID-19 pandemic's negative effects on nutrition services

This section explores how the COVID-19 pandemic disrupted access to essential nutrition services for children.

Food insecurity and hunger: Caregivers reported experiencing food insecurity and hunger, primarily due to job losses and income reduction. This aligns with Burger's (2020) findings that the pandemic disproportionately impacted poorer communities, with rural black households experiencing higher rates of hunger.

Prioritisation of food over healthcare: Fear of contracting COVID-19 and lack of transportation fares caused caregivers to prioritise obtaining food for their families over seeking additional nutrition support like boosters or supplements from health facilities. This aligns with research by Jensen et al. (2020), which documented a slow recovery in services like food supplementation compared to other acute services after the initial lockdown.

Potential consequences for child nutrition: Food insecurity and hunger can negatively impact children's nutritional health. The excerpt highlights that hunger rates more than doubled during the lockdown, with Burger et al. (2020) reporting that over 37% of respondents experienced food shortages within their households.

Disruption of school meal programs: School closures meant children who relied on school nutrition programs for supplemental meals faced additional challenges in meeting their nutritional needs. This finding is supported by the World Economic Forum (2021) report, which highlights the global impact of the pandemic on food insecurity and hunger, with job losses significantly exceeding those experienced during the 2009 financial crisis.

Limited access to social support: Despite additional grants, some jobless caregivers did not receive social support (Turok & Visagie, 2021). This further exacerbated food insecurity, particularly among vulnerable populations.

Transportation limitations and logistical challenges: Curfews, limited access to public transport, and long queues at grocery stores presented additional hurdles for caregivers trying to obtain food for their families. Akseer et al. (2020) identify disruptions within the food system as contributing to these challenges.

The COVID-19 pandemic significantly disrupted children's access to essential nutrition services. Food insecurity, job losses, and the closure of school meal programs all contributed to a rise in child hunger and potential negative consequences for children's health and development. This underscores the need for social safety nets and alternative food delivery models to ensure vulnerable children receive adequate nutrition during public health crises.

5.5.6. Use of alternative healthcare facilities.

This section explores how caregivers sought alternative healthcare options in response to the challenges of accessing public health facilities.

Utilisation of private pharmacies: For minor ailments, some caregivers reported using private pharmacies, potentially due to convenience or perceived shorter waiting times compared to clinics. Limited use of traditional healers: While a few caregivers mentioned traditional health services as an alternative, affordability concerns were raised, particularly for unemployed community members in rural areas.

Concerns regarding traditional medicine: The excerpt highlights anxieties surrounding the lack of scientific basis for diagnosis and treatment methods employed by traditional healers (as noted by Beyers, 2020). This may have discouraged the broader use of this alternative.

Alignment with Quantitative findings:

The qualitative findings in this section support the quantitative data (potentially from Chapter 4) regarding the underutilisation of services and reduced coverage rates. The specific challenges identified by caregivers in this section help explain the quantitative trends observe the high costs associated with private healthcare limited its accessibility for many caregivers. While some turned to traditional healers for minor ailments, concerns about the legitimacy of their practices may have restricted wider adoption of this alternative. These findings highlight the need for strategies to improve access to affordable and culturally sensitive healthcare services, particularly during public health emergencies.

5.6 DATA INTEGRATION OF QUANTITATIVE AND QUALITATIVE RESULTS

Data from the second phase(qualitative) was built upon the study's first phase (quantitative). In contrast, both data sets from the quantitative phase were brought together for comparison along with identified themes of the qualitative phase.

This chapter builds upon the foundation established by the study's two phases. Quantitative data from the first phase served as a springboard for the qualitative exploration conducted in the second phase. After data collection, the dissertation

compared findings from both phases alongside the identified themes from the qualitative interviews.

Disruptions to immunisation coverage

An analysis of immunisation coverage revealed a positive variance (increase) for all facilities except hebe-hebe and Ndabakazi clinics. However, the proportions of immunisations delivered in 2019/20 were consistently higher than those in 2020/21, except dtapd1. Qualitative interviews with caregivers confirmed that covid-19 restrictions on movement significantly hindered their ability to access healthcare facilities. This challenge was further compounded by the economic impact of the pandemic, leading to increased public transport fares due to social distancing requirements in taxis and job losses among caregivers. These combined factors contributed to a rise in missed appointments and overall inaccessibility of healthcare services.

Staff shortages and temporary closures

The challenges in honouring appointments extended beyond caregivers. Healthcare practitioners were also susceptible to covid-19 infection. A positive test result for one staff member triggered the isolation of others identified as close contacts. This consequence led to temporary closures of health facilities, further exacerbating disruptions in child health services.

Fear and prioritisation of services

Caregivers' anxieties about contracting COVID-19, both during travel and within healthcare facilities, reduced their travel to clinics. This fear also influenced their prioritisation of services. Immunisations delivered through injections were prioritised over services like weighing and nutritional supplementation.

Nutritional challenges

A review of patient files revealed that 35% of children exhibited growth faltering in weight for age (wasting). However, rates of moderate malnutrition remained relatively unchanged over the two years. Qualitative interviews provided valuable insights into these findings. Caregivers identified hunger and household food insecurity as significant challenges experienced during the COVID-19 pandemic. The economic

downturn, with job losses and closures of small informal businesses, was the primary reason for this food insecurity.

5.7 STUDY LIMITATIONS

This section acknowledges several limitations that should be considered when interpreting the study's findings:

Generalizability: The research focused on only five clinics within the Mnquma sub-district. This limits the generalizability of the findings to a broader population. The results may not represent child health service utilisation patterns in other areas.

Data Source: The study relied on retrospective data from the District Health Information System (DHIS), a secondary source. While this approach offers valuable insights, it is susceptible to potential inaccuracies within the data collection system.

Incomplete Data: Only 20 patient files contained complete information, with the remainder lacking essential details. This limited sample size restricts the strength of the quantitative analysis and may have introduced selection bias. Additionally, caregivers retaining some patient files further hindered comprehensive data collection from health facilities.

Recall Bias: The qualitative data was gathered through interviews where caregivers were asked to recall their experiences during the lockdown period. This approach is susceptible to recall bias, as memory can be imperfect, and some details may be forgotten or inaccurately remembered.

While the study offers valuable insights into the disruptions to child health services during the COVID-19 pandemic within the Mnquma sub-district, the above limitations should be considered. Future research with a broader scope and more robust data collection methods could strengthen the generalizability of these findings.

5.8 STRENGTH OF THE STUDY

This section highlights the key strengths of the research:

Novelty: The study goes beyond simply documenting the decline in child health service coverage during the pandemic. It delves deeper by exploring caregivers' specific challenges, offering valuable insights often missing from existing research (as evidenced by the findings).

Real-World Application: The research findings would directly inform the Department's child health and nutrition services strategies during the COVID-19 pandemic. The information can also be used to develop more robust plans for future public health emergencies and disasters, potentially mitigating similar disruptions in service delivery.

Focus on the Community: By focusing on caregivers' experiences within the study, the research provides a crucial perspective often overlooked in broader public health data. Understanding these challenges is essential for developing effective interventions that address the specific needs of communities during crises.

Overall, the study's strengths lie in its contribution to a more nuanced understanding of the pandemic's impact on child health services. By going beyond coverage rates and exploring caregivers' lived experiences, the research offers valuable insights that can inform improved service delivery strategies in the face of future public health challenges.

5.9 RECOMMENDATIONS

The recommendations for the study are mentioned below:

5.9.1 Recommendations for health service utilisation

Improving access to health services is recommended that clients can walk to access health services. A National Department of Health norm of having health facilities at 5 km or a clinic serving 10,000 populations must be implemented. Caregivers who could walk to facilities could bring their children to facilities without transport limitations. A community health worker programme should be strengthened to improve

communication with health facilities and implement supplementation interventions in administering Vitamin A and deworming, which are community-based.

5.9.2 Recommendation for dealing with fears during a pandemic.

Formal communication channels between healthcare providers and service recipients were disrupted. Healthcare providers and community leadership must establish sustainable informal communication channels to communicate messages from healthcare providers clearly without distortions. These may include communication through women's support groups, faith-based organisations, and other youth groups. COVID-19 opened an opportunity to strengthen communication via technology through cell phones, e.g., sending bulk messaging to clinic attendees.

5.9.3 Recommendation for dealing with food insecurity and hunger.

The government should develop comprehensive pandemic programmes that protect citizens from infections and social security. Programmes like school feeding and social ECD programmes, including meals from ECD centres, should be protected. However, the government tried to give deserving members of the population the social relief of distress.



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5.9.4 Recommendation for dealing with transport challenges.

The government has to improve the public transportation system in rural areas to enable safe travel between villages and small towns. This will improve access to health services and food from the grocery stores.

5.9.5 Recommendation for dealing with child health and nutrition services coverage.

The health sector and stakeholders need to look closer to child health and institute continuous scrutiny and response to trends in health care delivery. This is critical to side-step losses of hard-won benefits in child health and endurance towards sustainable development goals.

5.10 FUTURE RESEARCH IMPLICATIONS

This section identifies areas for further investigation based on the current study's findings:

Generalisability: To broaden the research's applicability, a larger-scale study replicating this methodology with a more extensive population is recommended. This would allow for generalising the findings beyond the Mnquma sub-district.

Indirect effects of COVID-19: The study suggests that COVID-19 may have indirectly affected children's health. Further in-depth research is recommended to explore these indirect effects. Involving parents, healthcare workers, and community leaders in such research would provide valuable insights into these broader impacts.

5.11 CONCLUSION

This chapter concludes by summarising the essential findings and their implications:

Disruptions to Child Health Services:

The COVID-19 pandemic significantly disrupted the utilisation of child health and nutrition services within the Mnquma sub-district. Reasons for reduced service utilisation: Several factors contributed to this decline, including restrictions on movement due to lockdown regulations, temporary closures of healthcare facilities, and anxieties among caregivers regarding contracting COVID-19. Impact on Child

Health:

Children primarily sought healthcare services for symptoms like cough, gastroenteritis, and eye/ear infections, which might be linked to COVID-19 or its indirect effects.

Nutrition services and food security:

Nutrition services were negatively affected by household food insecurity, school closures (disrupting access to school meals), and difficulties accessing groceries due to long queues.

Overall Significance:

This study highlights the vulnerability of child health and nutrition services during public health emergencies. The findings underscore the need for robust strategies to ensure service accessibility, clear communication with communities, and social support mechanisms to safeguard food security during crises. By addressing these challenges, we can work towards mitigating the negative impacts of pandemics on children's health and well-being.



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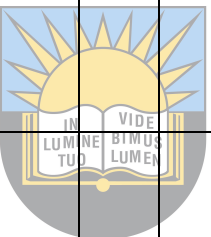
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APPENDIX 1: DATA COLLECTION TOOLS - PART A

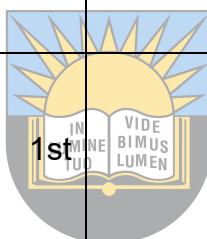
SECTION A: QUANTITATIVE SECTION

	Age of the child (in months)	Age of the carer	Gender of the child	Marital status of the caregiver	The educational level of the caregiver	The living area of the caregiver	Household type	Number in the household	The child's weight is within acceptable centiles	Childhood illnesses suffered by the child during the lockdown period	Missing visit (two consecutively)
1											
2											
3											
4											
5											
6											
7											
8											
9											



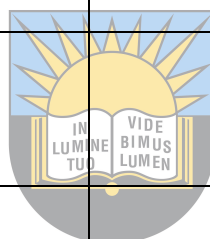
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Part B: DHIS information				
No	Indicator and Data elements	2019/20 Performance	2020/21 Performance	% Change / Variance
1.	BCG dose coverage			
	Numerator: BCG dose			
	Denominator Population under 1 year			
2	DTaP-IPV-Hib-HBV 1st dose coverage			
	Numerator: DTaP-IPV-Hib-HBV (Hex) 1st dose			
	Denominator Population under 1 year			
3	RV 2nd dose coverage			
	Numerator: RV 2nd dose under 1 year			
	Denominator Population under 1 year			
4	DTaP-IPV-Hib-HBV 3rd dose coverage			
	Numerator:			



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Part B: DHIS information				
No	Indicator and Data elements	2019/20 Performance	2020/21 Performance	% Change / Variance
	DTaP-IPV-Hib-HBV (Hexavalent) 3rd dose			
	Denominator Population under 1 year			
5	Measles 1st dose under 1-year coverage			
	Numerator: Measles 1st dose under 1 year			
	Denominator: Population under 1 year			
6	PCV 3rd dose coverage			
	Numerator: PCV 3rd dose			
	Denominator: Population under 1 year			
7	Measles 2nd dose coverage			
	Numerator: Measles 2nd dose			
	Denominator: Population under 1 year			
8	OPV 0 under 1 year coverage			



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Part B: DHIS information				
No	Indicator and Data elements	2019/20 Performance	2020/21 Performance	% Change / Variance
	Numerator: OPV 0 dose under 1 year			
	Denominator: Population under 1 year			
9	OPV 1st dose under 1-year coverage			
	Numerator: OPV 1 dose under 1 year			
	Denominator: Population under 1 year			
10	RV 1st dose under 1-year coverage			
	Numerator: RV 1st dose under 1-year coverage			
	Denominator: Population under 1 year			
11	PCV 1st dose under 1-year coverage			
	Numerator: PCV 1st dose			
	Denominator: Population under 1 year			



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Part B: DHIS information				
No	Indicator and Data elements	2019/20 Performance	2020/21 Performance	% Change / Variance
12	Immunisation coverage			
	Numerator: Immunisation under 1-year coverage			
	Denominator: Population under 1 year			



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APPENDIX 2: INTERVIEW GUIDE

This interview is anonymous. Please do not write your name.

You are requested to answer all questions.

Factors affecting the utilisation of health services during the lockdown.

In your own words, describe challenges experienced in accessing health care services.

1. What has been your biggest pressure/hindrance during lockdown?



2. How do you access health services?

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3. Did you take your child to all his/her clinic appointments between April 2020 and March 2021? How many visits did you miss?

What are the reasons for missing child clinic visits/appointments?

4. Did you receive child health services other than from your health facilities?

If Yes, EXPLAIN where you got them.

5. What did the clinic/health facility communicate with you regarding child health services during lockdown?



6. What medium was used to communicate with you?

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7. Which health services did you find most supportive during the lockdown period?

8. What services do you feel could support you and your child during lockdown?

APPENDIX 3: ETHICAL CLEARANCE FROM THE UNIVERSITY



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HEALTH RESEARCH ETHICS COMMITTEE

P.O. Box 1054
East London 5200
Tel: +27 (0) 43 704 7368
E-mail: dgoon@ufh.ac.za

ETHICAL CLEARANCE CERTIFICATE REC-100118-054

Certificate Reference Number: **Ref #2021=09=04=Mdingi-BuqaN**
Project title: **Investigation of COVID-19 pandemic impact on the child health and nutrition services in primary health care facilities, Mnquma Local Municipality, Eastern Cape, South Africa**
Nature of Project: **Masters of Public Health**
Principal Researcher: **Mdingi-Buqa N**
Student Number: **202002286**
Supervisor: **Dr D Murray**

On behalf of the University of Fort Hare Health Research Ethics Committee (HREC), I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instruments(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the HREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the HREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

The HREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principles or practices are revealed or suspected
 - relevant information has been withheld or misrepresented
 - regulatory changes of whatsoever nature so require
 - the conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.

APPENDIX 4: APPROVAL FROM DEPARTMENTAL RESEARCH COMMITTEE



Enquiries: Yvonne Gixela

Tel no: 079 074 0839

Email: Yvonne.Gixela@echealth.gov.za / yvonne.gixela@gmail.com

Date: 28 September 2021

Investigation of COVID-19 pandemic impact on the child health and nutrition services in primary health care facilities, Mquma Local Municipality, Eastern Cape, South Africa

Dear Mrs. N.L. Mdingi-Buqa

The department would like to inform you that your application for the abovementioned research topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health in writing.
2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.
3. The Department of Health expects you to provide a progress update on your study every 3 months (from date you received this letter) in writing.
4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Eastern Cape Health Research Committee secretariat. You may also be invited to the department to come and present your research findings with your implementable recommendations.
5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

SECRETARIAT: EASTERN CAPE HEALTH RESEARCH COMMITTEE



TOGETHER, MOVING THE HEALTH SYSTEM FORWARD

APPENDIX 5: CO-CODING CERTIFICATE FOR QUALITATIVE DATA

A CERTIFICATE CONFIRMING PERFORMANCE OF INDEPENDENT CODING AND ANALYSIS OF QUALITATIVE DATA FOR THE INDICATED STUDENT BELOW.

Student's Name: Namhla Linda Mdingi -Buqa.

Supervisor: Dr D. Murray.

Name of the Co-coder: Mrs AN Mbatha

Highest Qualification: Master's Degree (Nursing Education) Responsive Nursing Education curriculum, attained at KwaZulu - Natal University. A Doctoral Degree candidate to graduate from UNISA on 31st October 2022.

Date: 2022/ 08/22

Work Done: Co-coding work of twenty two (22) participants who were interviewed in Namhla Linda Mdingi- Buqa's study.

I read through a 21 paged proposal to understand what the student proposed in her study.

Found well written and clear problem statement. The Aim of the study, objectives and the set questions were scrutinised in preparation for having them in mind whilst going through data to be analysed.

- Went through the responses of participants and then analysed them and put data into relevant codes. (Coding was done independently of the primary coder)

- Thereafter compared the codes with those of the primary code. This information was presented as summarised responses of the participants prepared for identifying themes.

- Since the student collected both quantitative and qualitative data, I excluded data identified as quantitative data during my analysis. Discussed and shared my views with the supervisor about how data was collected having in mind the principles needed to be adhered to, when dealing with qualitative approach of research.

This note therefore, serves to confirm that, I have experience in doing the work I engaged in. It has been several years now that I have been doing this nature of work. I have been mostly used by the students from University of Fort Hare to do this work and just a few from other universities.

Signature.....

Date:.....23/08/2022.....

APPENDIX 6: DECLARATION LANGUAGE EDITING



EDITING CERTIFICATE

25 March 2024

To whom it may concern

DECLARATION OF LANGUAGE EDITING

Re: INVESTIGATION OF COVID-19 PANDEMIC IMPACT ON THE CHILD HEALTH AND NUTRITION SERVICES IN PRIMARY HEALTH CARE FACILITIES, MNQUMA LOCAL MUNICIPALITY: A RETROSPECTIVE STUDY

A MINI-DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH AT THE THE UNIVERSITY OF FORT HARE

This serves to confirm that I, Tanya-Lee R Stewart, a SATI-registered language editor and translator, undertook the language editing of the above-mentioned document on behalf of NL Mdingi Buqa, UFH student number: 202002286, for the purpose of meeting the submission requirements of a Master of Public Health.

Do note that I make no claims to the substantive matter covered by the document and have not altered the intent or research content drafted by the author(s). Furthermore, I can only provide a guarantee of linguistic accuracy, provided the relevant track changes were accepted and my advice followed. All changes and corrections were suggested by means of "track changes" and e-mails. However, the implementation thereof was left entirely up to the author. As such, I do not accept responsibility or liability for any inaccuracies, both linguistically and content-related, that may be present.

Should you have any queries, please contact me through the email address and telephone number provided in the above letterhead.

TR Stewart
Member: South African Translators' Institute
SATI registration no: 1003470



APPENDIX 7: LETTER FROM TECHNICAL EDITOR

TO WHOM IT MAY CONCERN

I hereby confirm that I have provided technical editing services for the following mini-dissertation:

BY NAMHLA LINDA MDINGI BUQA 202002286

A MINI-DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH

The technical editing services included:

- Standardising fonts and font sizes throughout the document.
- Inserting page numbers, including Roman numerals for the preliminary pages and Arabic numerals for the main content.
- Adjusting spacing to ensure consistency and readability.
- Applying structured heading styles (Heading 1, Heading 2, Heading 3 Heading 4) for consistency and ease of navigation.
- Ensuring that no headings began at the bottom of a page.
- Setting up a dynamic Table of Contents based on applied heading styles.
- Replacing the UFH logo with the most recent official version.
- Adding and formatting appendices and sectional divisions as required.

These corrections and formatting enhancements were made to ensure that the document meets the professional standards required for academic submission and presentation.

