

**THE ASSOCIATION BETWEEN LEARNER EDUCATION DISRUPTION (LED) AND
MENTAL HEALTH OUTCOMES OF PRIMARY CAREGIVERS (15 YEARS AND
OLDER) DURING COVID-19 IN SOUTH AFRICA**



By **MABEL JUDITH ANDRADY**

Student Number: 2506050

Supervised by: **Professor Nicole De Wet-Billings**

21 July 2023

A research report submitted to the Faculty of Humanities, Schools of Social sciences and Public Health, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Art in the field of Health Demography.

DECLARATION

I Mabel Judith Andraday (Student number: 2506050), am a student registered for a Master of Arts in Health Demography in the year 2022-2023. I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that ALL the work submitted for assessment for the above course is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signature:



Date: 21 July 2023

Acknowledgment

- I am eternally thankful to God for leading me through this research journey and giving me the strength and resilience to conquer all obstacles that arose along the way.
- Thank you, Professor Nicole De Wet-Billings, for your supervision, support, and encouragement that you have given me throughout the academic year. Your insightful feedback and constructive criticism have helped me shape my research and grow as a scholar.
- Thank you, Mum and Dad, for your unwavering love, encouragement, and support that has been the driving force behind my academic pursuits. Your belief in me has given me the confidence to pursue my dreams.
- I thank everyone, especially in the Department of Demography and Population Studies, who has contributed to my academic journey in one way or another through their expertise, their encouragement, or their friendship. Your support has been instrumental in making this research a success.
- Finally, I acknowledge DataFirst for granting me access to the NIDS CRAM Wave 5 Survey data set.

TABLE OF CONTENT

DECLARATION	2
Acknowledgment	3
ABSTRACT	10
Background	10
Objective	10
Methodology	10
CHAPTER 1: INTRODUCTION	12
1.1. Background	12
1.2 Problem Statement	14
1.3 Research Question and Sub-Questions	16
1.3.1 Main Research Question:	16
1.3.2 Sub-Questions:	16
1.4 Research Objective and Sub-Objectives	16
1.4.1 Main Research Objective:	16
1.4.2 Sub-objectives:	16
1.5 Justification	17
CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK	20
2.1 Socioeconomic Factors	21
2.2 Demographic Factors	25
	4

2.3 Theoretical Framework	28
2.4 Conceptual Framework	30
2.4 Hypotheses	31
3.1 Study Area	33
3.1 Study Design and Data Source	33
3.3 Study population and sample size	34
3.4 Questionnaire Design	35
3.5 Study variables	35
3.5.1 Dependent variable	35
3.5.2 Independent variables	36
3.6 Data Analysis	40
3.6.1 Main objective: To examine the association between LED and mental health outcomes of primary caregivers 15 years and older in South Africa	40
3.6.2 Sub-objective 1: To determine the level of poor adult mental health outcomes during COVID-19	40
3.6.3 Sub-objective 2: To evaluate the statistical association between LED and poor mental health outcomes of primary caregivers 15 years and older during COVID-19	41
3.7 Ethical issues	42
3.8 Limitations	42
CHAPTER 4: RESULTS	44

4.1 Poor mental health outcomes by gender	44
4.2 Level of Poor Mental Health Outcomes By Primary Caregivers' Characteristics	45
Table 4.1: <i>Frequency and percentage distribution of primary caregivers' poor mental health by socioeconomic and demographic characteristics</i>	45
4.3 Level of poor mental health outcome due to LED	50
4.4 Identifying the primary caregivers' rate of mental health outcomes.	51
4.5 Association between exposures and mental health outcomes	56
CHAPTER 5. DISCUSSION	62
5.1 Conclusion	71
REFERENCE LIST	76
APPENDIX	101

LIST OF TABLES

Table 3.1: Categorisation of the outcome variable	34
Table 3.2: Categorisation of the independent variable	36
Table 4.2: Frequency and percentage distribution of primary caregivers' poor mental health by socioeconomic and demographic characteristics	50
Table 4.3: Results of multivariate logistic regression, showing odds of poor mental health outcomes by demographic and socioeconomic characteristics	55

LIST OF FIGURES

Figure 2.1: Social Determinants of Health Framework	27
Figure 2.2 Conceptual Framework of the study showing the relationship between Learner Education Disruption, Demographic Factors and Socioeconomic Factors, adopted from the Social Determinants of Health Framework (Happy People, 2020)	30
Figure 4.3: Percentage distribution of gender distribution of respondents by poor mental health outcomes (at least one) (n= 3,019).	40
Figure 4.4: Percentage distribution of LED by poor mental health outcomes (at least one) of the respondents (n=3019)	48

LIST OF ABBREVIATIONS

COVID-19:	Coronavirus Disease 2019
DBE:	Department of Basic Education
eMH:	Electronic Mental Health
GBV:	Gender-based violence
LED:	Learner Education Disruption
NIDS CRAM:	The National Income Dynamics Study – Coronavirus Rapid Mobile
NCD:	Noncommunicable diseases
PTSD:	Post Traumatic Stress Disorder
SACAP:	South Africa College of Applied Psychology
SDG:	Sustainable development goal
SDH:	Social Determinants of Health
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNICEF:	United Nations Children’s Fund
WHO:	World Health Organization

ABSTRACT

Background

Mental illness affects around one-third of South Africans (Herman et al., 2009). With schools shut down during COVID-19, learners have either had to adapt to online/remote learning or have entirely dropped out of school. Many parents of these learners have had to deal with unemployment, no income, shortage of food, and possible bills to pay, including medical, with less or no access to government grants. This has further led to adverse mental health outcomes for students and parents/caregivers. Hence, further study is necessary to ascertain the impact of factors, such as pre-existing negative mental health, socioeconomic status, and their children's academic performance, on the overall mental well-being of individuals during the pandemic.

Objective

To examine the association between learner education disruption (LED) of adults 15 years and older, specifically primary caregivers, during COVID-19 in South Africa

Methodology

The study used the National Income Dynamics Study – Coronavirus Rapid Mobile (NIDS-CRAM) Wave 5 Survey, and it focused on South African adults (15 years and older) who were primary caregivers and may have experienced LED. An unweighted total of 3019 primary caregivers responded to if they had any learners in their households who had not returned to school in the past year. The study's dependent variable is the mental health outcome that results from the absence of learner education. From this, a total of 350 participants responded “yes.” The outcome variable for this study is mental health. The outcome was measured by coding participants' responses to questions ga19 and ga20 as "1" for "yes" responses indicating little interest in doing things and feeling down, depressed, or hopeless and "0" for "no" responses. A new variable, `mental_health_out`, was then calculated by tabulating the "yes" responses from both questions.

Demographic, socioeconomic, and COVID-19-related characteristics are the independent variables. The demographic variables include age, race, sex, and residency. The socioeconomic variables include education, access to school meals, and government grants received. The

COVID-19-related variables are changes in income, mental health symptoms, and COVID-19 relief grants received. The rate of LED was calculated, and a chi-square test was run, followed by the adjusted binary logistic regression model performed.

Results

More women (69.55%) than males (30.44%) responded that having had poor mental health outcomes expressed having mental health outcomes. Furthermore, 34.91% of primary caregivers experienced LED with poor mental health outcomes from iT. Meanwhile, 63.14% who did not experience LED also suffered from poor mental outcomes. The adjusted logistic regression model for LED revealed that the odds of respondents having mental health outcomes decreased (OR= 0.91; CI: 0.72- 1.15), indicating that it is less likely that the event of poor mental health outcomes will occur.

Conclusions

The results of this study draw light to the importance of addressing the mental health outcomes of primary caregivers during education disruptions in South Africa; several program and policy recommendations are proposed in line with the South African Mental Health Framework.

Keywords: Mental Health Outcomes, Learner Education Disruption, Primary Caregivers, South Africa, Social Determinants of Health

CHAPTER 1: INTRODUCTION

1.1. Background

Globally, the 2019 pandemic led to significant learner education disruption (LED), affecting approximately 94% of students in 192 countries, with 99% of them being from low and lower-middle-income countries. Learner education Disruption refers to a form of disruption to the education and learning processes that students experience worldwide (Karalis, 2020). As a result of imposed social distancing measures, nearly 1.6 billion students were unable to attend school, forcing them to adapt to remote learning. In Sub-Saharan Africa, approximately 70% of learners initially experienced school closures, with South Africa being one of the countries with the highest number of impacted students. The outbreak had a profound impact on education, with around 250 million students in Sub-Saharan Africa affected by the disruptions caused by the pandemic.

During the 2020 lockdown in South Africa, nearly a million learners aged 5 to 18 were not attending school, exacerbating the existing educational inequalities in the country (Statistics South Africa, 2020a). While some students had access to resources like the internet, electronic devices, and a supportive learning environment, many from economically disadvantaged backgrounds could not participate in remote learning due to poverty and lack of resources (Al-Maskari et al., 2021). Despite efforts by the South African Department of Basic Education to implement a recovery plan and reduce the school curriculum, not all schools were able to provide remote learning options for their students (Department of Basic Education South Africa, 2020). With mobile technology at its peak around the globe, poverty in South Africa, with 49.2% of adults living in the upper-bound poverty line, did not permit newer opportunities for students of economically weaker backgrounds to partake in remote learning (Statistics South Africa, 2015).

According to another report by Statistics South Africa in 2020, it was estimated that, nationally, only 11.7% of schools offered the facility to learn remotely. The school-feeding program had the most significant impact on students aged 5 to 9 years old, with 79.3% regularly consuming the food. While learners experienced negative mental health outcomes due to LED, parents' mental health has also gravely suffered during the pandemic (Wu et al., 2020). In a study in Guatemala that focused on the mental health impact of the Covid-19 pandemic on parents in high-risk, low-income communities found that parents in these neighbourhoods reported much more stress in response to the implementation to reduce the spread of the virus than nonparents (Alonzo et al., 2022).

Consequently, childcare and rearing cost primary caregivers beyond the monetary standpoint. LED-related interruptions, such as school closures, remote learning, and the need for parents to negotiate new teaching techniques, increased responsibilities, and anxieties in their life. Parents had to adjust to the demands of supporting their children's education while also managing their own employment and home obligations, sometimes in resource-constrained situations. Furthermore, the absence of social support networks and community services in these communities might also contribute to parents' increased stress levels.

A notable mental health outcome and outcome of this study is depression. Depression is one of the most prevalent mental health conditions, with 5% of the world's population suffering from depression pre-pandemic (World Health Organization, 2021). Within the first year of the COVID-19 pandemic, there was a 25% rise in the worldwide incidence of anxiety and depression (World Health Organization, 2022). With parents and caregivers having to deal with the

consequences of the pandemic, the Center for Disease Control and Prevention published a study reporting that 70% of participants who were parents or caregivers of other adults experienced mental health issues. Specifically, 55% of parents/caregivers experienced symptoms of anxiety/depression, making this study an important one (Czeisler et al., 2021). This study is indicative of the mental health outcomes that parents experienced as a consequence of the pandemic. Hence, with LED into play, parents' and caregivers' mental health worsened resulting in heightened mental health issues.

1.2 Problem Statement

Research by Thrush & Hyder (2014) shows that between 52% and 94% of primary caregivers have some kind of psychological repercussion, most often depression. According to research conducted at the Yale Medicine Child Study Center, parental depression not only influences the parent's perception of the world but also impacts the internal and external experiences of their children (Yale Medicine, 2022). This connection between parental depression and the impact on child development has important implications in the context of LED. When primary caregivers experience depression, it can have adverse effects on their ability to provide adequate support and care for their children during LED. The disruptions caused by LED, such as school closures and changes in learning environments, have increased parental stress levels and exacerbated existing mental health challenges, including depression (Harmey & Moss, 2023).

For this study, the scope of depression from NIDS CRAM Wave 5 was examined. A South Africa College of Applied Psychology (SACAP) study reports that 1 in 6 South Africans has anxiety, depression, or a substance use disorder (SACAP, 2019). However, only 27% of

individuals with serious mental illnesses receive treatment, demonstrating how the healthcare system has failed to address mental health issues (SACAP, 2019).

During the pandemic in South Africa, over 3 million adults lost jobs, a third of adults contracted COVID-19, and many continue to grieve the death of friends or family members due to the disease (Tswana, 2020; Lindeque, 2021). Under these circumstances, the poor mental health of adults in South Africa increased drastically. According to a survey by Pharma Dynamic (Qukula, 2020), 56% of adult respondents were more stressed during the pandemic, while 65% of the total respondents neglected their overall health because of COVID-19 (Mlaba, 2020).

Before COVID-19, parental burnout was known to occur when parents' ability to cope with child-rearing stress is detrimental and repeatedly exceeded (Kawamoto et al., 2018). It would be fallacious to say that being a parent was not a full-time job. Unlike, employees, parents are not entitled to paid time off nor can those living in middle- and lower-income households afford to find ethical alternatives for child-rearing when experiencing parental burnout. As a result, burned-out parents are more susceptible to suffer severe repercussions, such as suicide and escaping ideations since they feel stuck in their positions (Abramson, 2021). Adding to this stress is the presence and closures of schools during the pandemic.

While the LED is a consequence of the pandemic, it began at the state level, wherein the state had imposed social distancing, quarantine, work from home wherever applicable, and closure of schools. With learners not in school, this unplanned demand for care placed parents under immense pressure. At the same time, they continued to be obligated to unspoken yet understood

parental responsibilities for childcare, education, learning, and feeding, on top of the existing pressures of the lockdown (McClain et al., 2021).

1.3 Research Question and Sub-Questions

1.3.1 Main Research Question:

What is the association between Learner Education Disruption (LED) and mental health outcomes of primary caregivers (15 years and older) during COVID-19 in South Africa?

1.3.2 Sub-Questions:

1. What is the level of poor mental health outcomes during COVID-19?
2. What is the statistical association between LED and poor mental health outcomes of primary caregivers during COVID-19?

1.4 Research Objective and Sub-Objectives

1.4.1 Main Research Objective:

To examine the association between LED and mental health outcomes of primary caregivers (15 years and older) in South Africa

1.4.2 Sub-objectives:

1. To determine the level of poor mental health outcomes of primary caregivers during COVID-19
2. To evaluate the statistical association between LED and poor mental health outcomes of primary caregivers 15 years and older during COVID-19

1.5 Justification

This research is vital because primary caregivers contribute to the national economy, are responsible for social change, and significantly influence their children's well-being. Primary caregivers greatly impact a child's development. According to the Centers for Disease Control and Prevention (CDC), parents play a crucial role in the lives of young children, making them one of the most significant individuals in their development. Parents encompass individuals who fulfill the role of both mothers and fathers, in addition to other caretakers who assume parental responsibilities (Centers for Disease Control and Prevention, 2023). A primary caregiver's involvement can also be determined by their socio-economic status, further indicating an overall impact on their children's development. For instance, Kainuwa & Yusuf (2013) argue that parents' educational and socio-economic backgrounds influenced the standard of education of their children.

Focusing on primary caregivers who have experienced LED during COVID-19 acknowledges the immediate influence that these disruptions exert on the caregiver's capacity to offer assistance and direction to their child. In addition, primary caregivers play a crucial role in facilitating the social and emotional development of children. Parents offer a stable foundation for their children to navigate the external environment, manage their emotions, and cultivate interpersonal connections. For example, the heightened levels of stress and the need to manage multiple responsibilities can lead to diminished emotional accessibility, restricted chances for involvement, and modified approaches to parenting. Therefore, directing attention towards primary caregivers who have encountered LED facilitates a more profound comprehension of the effects these disruptions have on the caregiver-child relationship and the potential ramifications for the child's developmental outcomes.

The importance of the mental well-being of primary caregivers who have encountered LED is imperative due to a number of significant justifications. To begin with, the well-being of caregivers has a direct influence on the overall functioning of the family unit. When caregivers experience elevated levels of stress, anxiety, or depression as a result of their caregiving responsibilities, it can give rise to a difficult domestic atmosphere, resulting in strained interpersonal connections and disturbances in the regularity of daily activities.

Moreover, a primary caregiver's poor mental health may hinder a sense of self-efficacy in children, which can further hinder the development of optimistic attitudes and social competence (Mahmudah et al., 2021). For these reasons and the fact that not only children but also the elderly is dependent on their care, ensuring the mental health of primary caregivers is of utmost importance. It has been observed that poverty-stricken people are much more likely to be depressed and tend to punish their children harshly and respond inconsistently to their actions (Gould & Ward, 2015).

Poor mental health outcomes are related to poor eating habits and physical activity, illicit drug use, excessive alcohol use, and suicidal ideations and behaviours (Smith et al., 2017; Farhangi et al., 2018; Glowacz & Schmits, 2022). Consequently, this will negatively impact their health and how much they can care for their children and contribute to their communities. Hence, addressing possible factors contributing to poor mental health outcomes among primary caregivers is necessary. The WHO (2020) has published mental health considerations with messages for carers of children and older adults. However, they lack a frame of significance and do not include implications for all socioeconomic backgrounds (Sebidi, 2020).

This research is in line with the goals of national programmes and policies in South Africa, which seek to enhance mental health services and support. The study's results can provide valuable insights for the creation and execution of focused interventions aimed at addressing the mental health requirements of primary caregivers. For this reason, the study aims to meet the objectives of several national programmes like those developed by the South African Federation for Mental Health and policies like the Mental Health Care Act, 2002, and strategic frameworks like the National Mental Health Policy Framework and Strategic Plan 2013-2020. Furthermore, the study also aims to set the stage for achieving a sustainable development goal (SDG) for mental health suggested by WHO (2015).

By preventing, treating, and promoting mental health, SDG 3 aims to reduce premature deaths from noncommunicable diseases (NCDs) by one-third by 2030. Keeping this goal in mind, this research will contribute not only to the literature archives on LED but also to mental health outcomes of primary caregivers in South Africa. Based on the last data monitored by UNESCO in February 2022, schools in 6 countries, namely the Philippines, Uzbekistan, Bahamas, Fiji, Nepal, and Dominica were still closed due to COVID-19, making this study a basis for further research and preventive measurements around the globe (UNESCO, 2020).

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

COVID-19 has exacerbated human distress, defaced the economy, and upended the lives of millions around the world. In 2020, UNESCO created a tool to capture real-time updates on the timeline of school closures worldwide. The tool visually displays that schools in South Africa were shut down for 60 weeks due to COVID-19 (UNESCO, 2020). Within these 60 weeks, South African learners experienced inequality in accessing education, and school meals, eventually leading them to drop out of school and primary caregivers' experiencing worsened mental health outcomes.

While extensive research has been conducted on mental health outcomes, including insomnia, PTSD, and suicidal ideations, anxiety and depression have garnered the most attention in research, observation, and reporting on mental health (Wu et al., 2021; Xie et al., 2022). In addition, mental health illnesses due to the death of family members and friends, social disruption like quarantine and social distancing, gender-based violence, unemployment, and, specifically, LED have also been researched.

Studies linking LED and poor mental health outcomes were not necessarily an essential concern until the onset of the pandemic (Lee, 2020; Caelear et al., 2022; Agostinelli et al., 2022).

However, their effect on primary caregivers' mental health has yet to be adequately studied.

During the pandemic, LED disrupted social connections and interactions, leading to heightened feelings of social isolation and loneliness. Insufficient social support and limited opportunities for engagement further contributed to mental health challenges (Hwang et al., 2020). LED also introduced additional stressors and uncertainties for primary caregivers. Parents' concerns

regarding their children's educational progress, financial implications, and the delicate balance of multiple responsibilities contributed to elevated stress and anxiety levels, potentially resulting in mental health issues (Hanushek & Woessmann, 2020).

Moreover, the simultaneous management of caregiving responsibilities, including supporting children's education while attending to other obligations, contributed to increased caregiver burden. The strain of juggling multiple roles and responsibilities and the lack of routine and structure negatively impacted primary caregivers' mental well-being (Kayaalp et al., 2021; Irani et al., 2021). For these reasons, certain socioeconomic and demographic factors can be considered to further understand the association between LED and mental health outcomes better and further prove the relevance of this study.

2.1 Socioeconomic Factors

Regional lockdowns were imposed to prevent the spread of the virus because of the rapid human-to-human transmission (Galbadage et al., 2020). According to the NIDS CRAM Wave 5 data, 10% of the surveyed households had students who did not return to school in 2021 (Spaull et al., 2021). The survey suggests that parental anxiety was one of the main reasons for non-attendance at school even after the schools reopened.

This form of anxiety was common among primary caregivers since COVID-19 was still prevalent, and primary caregivers preferred that their learners stay home to avoid transmitting the deadly virus (Fersch et al., 2022). At the same time, learners of primary caregivers who could not send their children back to school lacked adequate access to resources for remote learning and

homeschooling methods. Ultimately, being able to continue with these alternative learning methods meant utilising available resources like television or radio for free satellite services, active internet connection, devices like smartphones, tablets, or personal computers, access to regular meals, and a supportive environment to study (Daniels & Casale, 2022).

In the absence of a traditional education learning environment, the responsibility to help the learners keep up and progress better comes on the primary caregiver (Reich et al., 2020). Consequently, the educational level of the primary caregivers makes a significant difference in how much they can contribute to improving the quality of their learner's learning processes. For instance, a primary caregiver with a relatively lower education level may choose to avoid being as involved for reasons such as the lack of knowledge on the subject matter, creating an unjust learning experience (National Academies of Sciences et al., 2016).

Additionally, the level of education also increases the chances of being exposed to misinformation, and lacking coping skills heighten poor (mental) health (Bin Naeem & Kamel Boulos, 2021). Taking on a big responsibility like this defines how well the learner progresses in schoolwork (Wang & Sheikh-Khalil, 2014; Greenhow et al., 2021; Zhang, 2021). By not assessing the learner's progress, the primary caregivers miss out on helping them reach their full potential (Novianti & Garzia, 2020). However, other responsibilities and burdens like paying bills and caring for the household's elderly members result in the inability to cope and exacerbate mental health outcomes (Park, 2020; Bilal et al., 2020).

Many primary caregivers and parents have had to balance their work and personal responsibilities with the added responsibilities of caring for and educating their children, which can be overwhelming and contribute to feelings of exhaustion (Aguilar et al., 2021). During the school closure period, primary caregivers also took time off or reduced their hours to care for and educate their children, leading to further financial strain and insecurity (Nwosu, 2021).

LED emphasises the significance of access to education and its level as a social determinant of health. The primary caregivers' level of education and ability to be involved in their learners' schoolwork also depend on other socioeconomic factors like employment status, food, and financial security (Woodland et al., 2022). Several studies on parenting during COVID-19 have examined how the lack of involvement in their learners' online education is also because of primary caregivers having to go to work or try to work in remote settings themselves. In addition, their involvement in their learner's educational progress also means providing sufficient emotional support when needed (Garbe et al., 2020). This, in turn, adds more pressure to the primary caregiver's ability to provide, ultimately worsening their mental health outcomes.

To avoid adverse effects on children's neurobiological and social-emotional development, parents with supportive relationships with their children are essential in high-stress situations (Roos et al., 2021). However, financial instability, interpersonal family conflict, and parental mental illness negatively impact their learner's well-being. In contrast to households with more coherent access to government grants over time, individuals with higher depressive moods and those who live in insistent large families were substantially more likely to experience anxiety (Mukumbang et al., 2020). Caregivers had unmet childcare demands, LED, inadequate resource

availability, and financial hardship. Unemployment has long been linked to various adverse health outcomes, such as mortality from all causes, cardiovascular problems, and suicide, as well as increased rates of psychological trauma, substance abuse, anxiety, and depression (Kim & dem Knesebeck, 2015).

In a study, due to COVID-19's instantaneous influence on financial hardship in April 2020, nearly half of the adults said they had run out of funds for meals in the previous month (Spaull & der Berg, 2020). The NIDS CRAM Wave 5 (Shepherd et al., 2021) survey report indicates that more than 85% of the 10 million targeted learners received access to school meals. However, its distribution varied in all country provinces (Daniels & Casale, 2022). Food security in the home, including the availability of school meals, has emerged as a significant determinant of primary caregivers' anxiety and depression (Pitchik et al., 2021). The COVID-19 lockdown also significantly reduced the movement of the import and export of food in South Africa and around the globe (Arndt et al., 2020; (Aday S. & Aday M. S., 2020). This resulted in businesses in the agro industry raising their food prices and the mass hoarding of food (Bairagi et al., 2022).

Those relying on government subsidies to provide meals for their families were the most affected by financial and food insecurity during COVID-19. The same report on the NIDS CRAM Wave 5 survey suggests that 40% of primary caregivers in households where children are food insecure exhibited depressive symptoms. Meanwhile, 51% of learners who did not have access to school meals make this a pressing issue for the mental health outcomes of primary caregivers (Daniels & Casale, 2022).

2.2 Demographic Factors

Age is critical in the primary caregiver's ability to cope with mental health outcomes from LED.

As a result of the unexpected education disruption, primary caregivers were under increased stress due to factors such as the age and capability of their children, income level, living, and accessible supplemental assistance (Lau & Lee, 2021). Burro et al.'s (2022) Patience index suggests that age determines the level of patience one can attain in their lifetime. However, the authors also state that the greater one's wealth, the greater their patience.

Furthermore, individuals in the wealthiest economic bracket remain patient at any age, whereas those in the poorest strata are less patient as they age (Burro et al., 2022). Consequently, with learners at home, primary caregivers in relatively poor households, especially those who were and continue to be overworked and underpaid or unemployed, feel overwhelmed and lack patience due to their age (Alonzi et al., 2021; Seivwright et al., 2023). This lack of patience with themselves and those around, and past trauma results in them partaking in unhealthy behaviours such as alcoholism, substance abuse, and projecting violence in their homes and outside (Clemens et al., 2021; Lee et al., 2022).

During COVID-19, gender roles and expectations were reinforced and disrupted. The consequences of the pandemic resulted in an increased division of labour between men and women which were caused by shifts in family and childcare obligations (Haney & Barber, 2022). For example, women were expected to take on a more significant caregiving role for their children and elderly during school closures and the national lockdown (Kapur, 2020). This eventually led to a high rise in stress.

South Africa globally ranks as one of the countries with the highest rates of gender-based violence (GBV) (Africa Health Organization, 2021). During the pandemic, GBV was at its peak, with restrictions of the lockdown leading to increased reports of domestic violence and sexual assault (Usta et al., 2021). With LED, food, and financial insecurity, the pandemic disproportionately impacted women's mental health (Casale & Posel, 2020; Phalaetsile, 2020). In addition, many female primary caregivers, in cases where they were the sole breadwinner, were underpaid and found it difficult to find substantial jobs to support their families (OECD, 2021; Engelbrecht, 2023).

COVID-19 has also had a disproportionate impact on race. Many studies find that White individuals have a significant and systemic advantage that protects them against calamities such as the COVID-19 pandemic. For example, in a study by Thomeer et al. (2023) in the United States, compared to Black and Latinx individuals, Asians reported considerably more significant levels of victimisation distress and increases in racial prejudice due to COVID-19. On the other hand, the White population did not report as much distress regarding racism.

Similarly, Harriman et al. (2022) discuss how Africans experienced higher mental distress levels than other racial groups in South Africa. This can be argued with evidence from studies that have extensively written about the lack of governmental administration support at hospitals, vaccination centres and when waiting to receive grants in the country during COVID-19 to the extent that some even called it the "inequality virus" (Cooper et al., 2021; Berkhout et al., 2021). With South Africa having the highest unemployment rate, it is no surprise that race, together with

gender, indicates that COVID-19 caused much damage beyond total repair. According to Statistics South Africa (2021), Black African women had a 41.0% unemployment rate, far higher than the 8.2% rate for White women, 22.4% rate for Indian/Asian women, and 29.9% rate for Coloured women.

For primary caregivers living in disadvantaged neighbourhoods, restricted measures such as lockdowns made it challenging to sustain their livelihoods. With requirements to quarantine, lower-wage employees, especially in Sub-Saharan Africa, particularly low-income families, found it difficult to execute their duties and deal with economic challenges (Chirisa et al., 2022). Dasgupta & Robinson's (2021) study on nine African nations during COVID-19 found that female-headed families, the impoverished, and those with less formal education seemed to suffer the most regarding food insecurity. Living in low-income residences meant accessing proper healthcare, water, food, and technology to continue with virtual learning.

A perfect example to understand this better would be a study conducted by Fisher et al. (2022). This research focused on how COVID-19 affected people living in Alexandra, one of Johannesburg, South Africa's poorest townships. Their results found that around 70% of the workforce stopped showing up for work after the lockdown. In addition, more than half of all families had a significant source of income cut off. Furthermore, over half of the participants admitted to food hoarding. Finally, more than 80% said the pandemic impacted their mental health in some way, whether it be stress, anxiety, or depression.

2.3 Theoretical Framework

A person's health and well-being are influenced by various social determinants, such as where they are born, where they grow up, where they go to school, where they work, where they play, and where they go to worship (Healthy People, 2020). Using Healthy People 2020's Social Determinants of Health (SDH) Framework, this study investigates and highlights how LED has affected the mental health of primary caregivers in South Africa during COVID-19. How determinants like education, neighbourhood, built environment, economic stability, health, health care, and social and community contexts influence the mental health of primary caregivers makes adopting this framework relevant.



Source: Healthy People (2020)

Figure 2.1: Healthy People 2020 approach to Social Determinants of Health.

2.3.1 Application of Healthy People 2020 Approach

Several studies in the past have used the SDH framework to support their findings. One such study by Ursache et al. (2022) examined how school closures because of “COVID-19 impacted the parent and child well-being in families of colour in the United States. This quasi-experimental study used the social determinants of health framework to test the effect on child and parent mental health and sleep in the context of COVID-19-related school closure among families in historically disadvantaged neighbourhoods. The findings show that parents' mental health deteriorated after the schools were closed compared to before.

Another study by McQuaid et al. (2021) examined the prevalence of mental health issues in adults during the COVID-19 pandemic in Canada. This study was conducted through an online survey which consisted of demographic and socioeconomic questions on depression, anxiety, and loneliness symptoms. This research found that adults from lower-income families reported higher levels of anxiety, depression, and loneliness. Furthermore, women between the ages of 18 and 29 showed more anxiety, depression, and loneliness than men. These results show that at the pandemic's peak in Canada, younger women, those with lower incomes, and people living alone were more viable to report feeling lonely.

The SDH framework is useful for this study as it acknowledges that social, economic and environmental factors beyond behaviours and genetics determine health. The framework identifies the social conditions influencing health outcomes, such as poverty, discrimination, education, and employment. Since this study investigates the association between LED and primary caregivers' mental health outcomes, it is crucial to consider the SDH to identify the confounding factors impacting mental health. By adopting the SDH framework, the study can

examine how the social determinants of health intersect and contribute to mental health outcomes.

2.4 Conceptual Framework

The social determinants of health framework (SDH) provide a useful lens for understanding and addressing the mental health needs of primary caregivers in South Africa. The SDH theory connects the independent variable with the dependent variable. For example, the economic stability determinant includes variables that define the participants' age, sex, and race and enquire about their income status and/or any change in income and if any government or COVID-19-related grants were received.

The education determinant defines the level of education the participants and their children have attained. The neighbourhood and built environment determinants include the province the participants live in. The social and community context determinant includes their school attendance since the onset of the pandemic. Finally, the health and healthcare determinant investigate if they have received any health assistance and what are their mental health symptoms because of LED.

The pathways connecting these domains are intricate and multifaceted. For instance, economic stability influences educational opportunities, which, in turn, impacts employment prospects and income levels. Furthermore, educational attainment can shape the neighborhood and built environment, as individuals with higher education levels may have greater autonomy in selecting their living and working environments. The social and community context is influenced by

factors such as economic stability, education, and neighbourhood characteristics, as they shape an individual's social networks, support systems, and access to community resources.

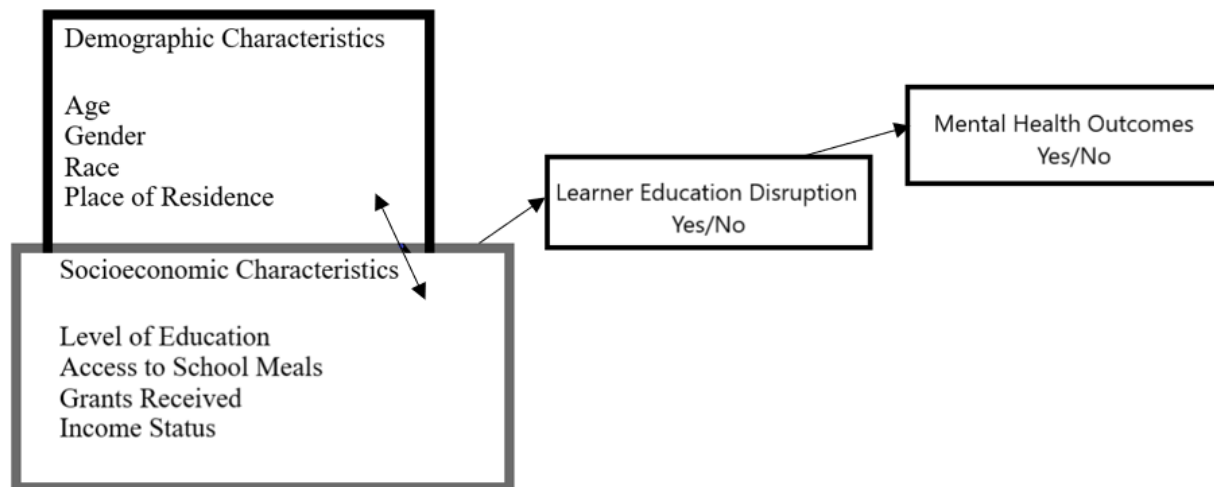


Figure 2.2 Conceptual Framework of the study showing the relationship between Learner Education Disruption, Demographic Characteristics, and Socioeconomic Characteristics.

Keeping this conceptual framework in mind and using the theory, the research problem is analysed. Ultimately, providing sufficient evidence to understand why studying the association between LED and the mental health of primary caregivers (15 years and older) during COVID-19 in South Africa is of utmost importance.

2.4 Hypotheses

Null Hypothesis (H0): There is no association between LED and mental health outcomes of primary caregivers (15 years and older) during COVID-19 in South Africa.

Alternative Hypothesis (H1): There is an association between LED and mental health outcomes of primary caregivers (15 years and older) during COVID-19 in South Africa.

CHAPTER 3: METHODOLOGY

3.1 Study Area

Since the NIDS-CRAM is a South African survey, the setting of this study is in South Africa. South Africa is the Southernmost country in the African continent. Choosing South Africa as the focal study area for investigating the association between mental health and educational outcomes amid the COVID-19 pandemic is substantiated by multiple factors. To begin with, the educational system in South Africa has historically faced challenges in addressing disparities and inequalities, particularly with regard to racial and socioeconomic factors. The challenges faced by primary caregivers have been further intensified by the COVID-19 pandemic, leading to a pressing need for academic research to comprehensively comprehend the distinct experiences and requirements of these individuals in this particular context. With a population of 60.6 million and counting, the country is home to many races, cultures, and religions (Statistics South Africa, 2021). While Gender-based violence against women is prevalent in the country, women comprise about 51% of the total population, with the remaining 49% being men (World Bank, 2021). In 2021, South Africa's GDP stood at \$419 billion, making the country the second most wealthy country in Africa (World Bank, 2021). However, Statistics South Africa (2023) reported in the second week of March 2023 that the country's GDP had declined due to finance, trade, and government services.

3.1 Study Design and Data Source

The National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) is a longitudinal panel study examining the nationwide lockdown's socioeconomic effects on South Africa during COVID-19. In contrast to the main NIDS panel study, NIDS-CRAM is an

exceptional follow-up to the NIDS Wave 5 subsample of adults conducted in 2017. An empirical study will use a cross-sectional quantitative research design to evaluate the NIDS-CRAM Wave 5 Survey, conducted between 6 April and 11 May 2021 (Ingle et al., 2021). A total number of 7,073 participants were interviewed in Wave 1. Consequently, 5,862 were successfully interviewed in Wave 5 (Ingle et al., 2021; Daniels & Ranchhod, 2021). The survey highlights the pandemic's implications on household income, school attendance, health, vaccination, grants, access to meals, employment, and occupation.

3.3 Study population and sample size

The study focuses on the mental health outcomes of South African primary caregivers, 15 years and older, who may have experienced LED during COVID-19. This study uses the comprehensive term 'primary caregiver' to describe its study population, which includes parents, older siblings, guardians, and any other next of kin who was physically, emotionally, and culturally responsible for the learners who experienced education disruption. The study population is unweighted; 5,862 (66%) adults were interviewed in the Wave 5 survey. A total of 3019 (34%) adults gave binary responses of “Yes” and “No” to the question, “Any learners in your household who have not returned to school in the past year?”. From this, a total of 350 (11.6%) participants responded “yes,” and 2,669 (88.4%) answered “no.” Although NIDS-CRAM is a follow-up with NIDS respondents, the questionnaire used in this survey is substantially shorter than the one used in the original NIDS panel survey since its emphasis is on the Coronavirus pandemic and the consequences of the national lockdown.

3.4 Questionnaire Design

Compared to the NIDS survey, which was conducted in person, data was conducted telephonically and through computer-assisted telephone (CATI) interviews, with length and complicatedness being key factors (Ingle et al., 2021).

This interview allowed respondents to participate in any of the 10 official South African languages (Ingle et al., 2021). The excluded language was Ndebele. No attempts were made to check if the respondents who were being reinterviewed lived in the same household. The questionnaire design included questions not asked by all respondents, resulting in skipped responses. Furthermore, the NIDS-CRAM questionnaire also consisted of many open-ended questions to reduce errors (Ingle et al., 2021).

3.5 Study variables

3.5.1 Dependent variable

In the questionnaire, Question ga19 asks, “Over the last 2 weeks, have you had little interest in doing things?” (Ingle et al., 2021). Responses from this are coded as “Yes” =1 for those with little interest in doing things and “No” = 0 for those who did not. Similarly, ga20 questions, “Over the last 2 weeks, have you been feeling down, depressed or hopeless?” where responses are coded as “Yes” =1 for those who have felt depressed and “No” = 0 for those who have not felt depressed. Taking the ‘yes’ responses from both questions, a new variable, `mental_health_out`, was tabulated.

Table 3.1: *Categorisation of the outcome variable*

Outcome Variable	Variable Definition	Study Measurement
Mental Health Outcome	The primary caregiver did experience poor mental health outcomes due to LED or did not experience poor mental health outcomes due to LED.	0. NO POOR MENTAL HEALTH 1. YES POOR MENTAL HEALTH

3.5.2 Independent variables

LED was measured using question F2 from the questionnaire, which asked “In the past two weeks, how many young people in your household attended school? The variable ‘School attendance’ responses are split into 2 values. One, those who attended school in the past 2 weeks, and two, those who did not yet attend. They are binary coded as ‘Yes’ and ‘No,’ respectively. The variable ‘Government Grant’ is split into four categories. “Child Support Grant,” “COVID-19 Grant,” “Other Grants,” and “None.”

The survey responses of ‘COVID-19 relief grants which were “Yes applied - yes successful”, and “Yes applied - not successful,” “Yes applied - application pending,” were coded as ‘Yes’ responses. Meanwhile, those who responded to “No never applied” were coded as ‘No.’ The “Refused” values were dropped. Similarly, for the variable ‘Access to School meals’ the “Yes” values were coded as ‘Yes’ and the “No” and “No applicable” values were coded as ‘No.’ is binary coded as ‘Yes’ and ‘No.’ Those who responded with “Don’t know” and “Refused” were

dropped. Meanwhile, ‘COVID-19 relief grants received and access to meals are binary coded as ‘Yes’ and ‘No’ responses.

Table 3.2: Categorisation of Independent Variables

Study Var. Name	Survey Var. Name	Survey Categorisation	Study Categorisation
Age	w5_nc_dob_y	Continuous 15- 100+	Categorical: 1: 15-24 2: 25-34 3: 35-44 4: 45-54 5: 55-64 5: 65+
Gender	w5_nc_gen	Binary: 1: Man 2: Woman	Binary: 1: Man 2: Woman
Race	w5_nc_popgrp	Categorical: 1: African/Black 2: Coloured 3: Asian/Indian 4: White -8: Refused - 3: Missing	Categorical: 1: Black 2: Coloured 3: Asian/Indian 4: White
Education Level	w5_nc_edschgrd	Categorical: 0: Grade R 1-12: Grade 1-12 19: No Schooling	Categorical: 1: Primary 2: Secondary 3: Higher 4: No Formal Education
Province	w5_nc_prov	Categorical: 1: Western Cape 2: Eastern Cape 3: Northern Cape 4: Free State 5: KwaZulu Natal 6: North West 7: Gauteng 8: Mpumalanga	Categorical: 1: Western Cape 2: Eastern Cape 3: Northern Cape 4: Free State 5: KwaZulu Natal 6: North West 7: Gauteng 8: Mpumalanga

		9: Limpopo -8: Refused -3: Missing	9: Limpopo
Government Grant	w5_nc_incgovtyp	Categorical: -9: Don't know -8: Refused -3: Missing 1: Child Support Grant (CSG) 2: Old Age Pension Grant (OAP) 3: Disability Grant 4: Foster Child Grant 5: Care Dependency Grant 8: R350 COVID-19 Social Relief of Distress 9: Other (specify) 10: Grant in aid 11: NSFAS	Categorical: 1. Child Support Grant 2. COVID-19 Grant 3. Other Grants 4. None
COVID-19 grant	w5_nc_incvgrt	Categorical: 1: Yes applied - yes successful 2: Yes applied - not successful 3: Yes applied - application pending 4: No never applied -8: Refused	Binary: 1: Yes 2: No
Change in Income	w5_nc_hhincchnge	Categorical: 1: Increased 2: Decreased 3: Stayed the same	Binary: 1: Yes 2: No

		-9: Don't know -8: Refused	
School Attendance	w5_nc_edunoatt2021	Categorical: 1: Yes 2: No -8: Refused -9: Don't Know	Binary: 1: Yes 2: No
Access to school meals	w5_nc_schfood2w	Categorical: 1: Yes 2: No 3: Not applicable -8: Refused -9: Don't Know	Binary: 1: Yes 2: No
Mental Health (Depression) Outcome 1	w5_nc_mnthlth_1	Categorical: 1: Not at all 2: Several days 3: More than half the days 4: Nearly every day -8: Refused -9: Don't Know	Binary: 1: Yes 2: No
Mental Health (Depression) Outcome 2	w5_nc_mnthlth_2	Categorical: 1: Not at all 2: Several days 3: More than half the days 4: Nearly every day - 8: Refused -9: Don't Know	Binary: 1: Yes 2: No

3.6 Data Analysis

The data analysis for this study was done using STATA 15. Each of the research objectives must be met in order to answer the research question in the study.

3.6.1 Main objective: To examine the association between LED and mental health outcomes of primary caregivers 15 years and older in South Africa

Keeping the main objective in mind, the first step was to tabulate the age group variable, which describes participants aged 15 years and above who may have experienced mental health outcomes from learner education disruption during COVID-19. The second step was to tabulate the 'w5_nc_edunoatt2021' variable, representing the frequency of participants with learners who did not attend school in 2021. Next, the new variable 'mental_health_out' for those who responded to having had depressive symptoms was tabulated. The rate of learner education disruption with depressive symptoms was calculated as follows:

$$\frac{\text{Number of primary caregivers with Learners who have not yet returned to school}}{\text{Number of primary caregivers with depressive symptoms}} \times 1000$$

3.6.2 Sub-objective 1: To determine the level of poor adult mental health outcomes during COVID-19

A cross-tabulation using the chi-square test was performed for the first sub-objective to analyse the association between binary and category data. Cross-tabulating this data shows the statistical significance of each independent variable and mental health outcomes among primary caregivers aged 15 years and above.

3.6.3 Sub-objective 2: To evaluate the statistical association between LED and poor mental health outcomes of primary caregivers 15 years and older during COVID-19

For the second sub-objective a contingency table was utilized, where the relationship between the binary dependent variable and all the category and binary independent variables was examined using binary logistic regression. The binary logistic regression model was used to estimate the probability of poor mental health outcomes based on the presence or absence of LED, while controlling for other potential confounding variables. By using a binary logistic regression model, a statistical analysis of the association between LED and poor mental health outcomes, accounted for potential confounding variables and obtained estimates of the odds ratios, which helped quantify the relationship between these variables was attained. An odds ratio greater than 1 indicates a positive correlation, while an odds ratio less than 1 indicates a negative association based on the model's coefficient value. Furthermore, a significance level of $p < 0.05$ determines whether mental health outcomes and any independent variables are associated. The equation for logistic regression is as follows:

$$\ln(P(Y) / (1 - P(Y))) = \beta_0 + \beta_1 X_1 + (\text{Khandelwal, 2020})$$

Where $\ln()$ represents the natural logarithm function, which is applied to the odds ratio to transform it into a linear form that can be modeled using regression.

$P(Y)$ denotes the probability of the event or outcome of interest (Y) occurring. In logistic regression, Y is typically a binary variable (e.g., presence or absence of an event), and $P(Y)$ represents the probability of Y being equal to 1.

$1-P(Y)$ represents the probability of the event or outcome not occurring (i.e., Y being equal to 0).

$\beta_0, \beta_1, \beta_2, \dots, \beta_K$ are the regression coefficients associated with the predictor variables ($X_1, X_2, \dots, X_K$).

$X_1, X_2, \dots, X_K$ are the predictor variables included in the model. They can be continuous or categorical variables that are thought to be associated with the probability of the event occurring.

β_0 represents the intercept term, which is the expected log odds of the event occurring when all predictor variables ($X_1, X_2, \dots, X_K$) are zero.

3.7 Ethical issues

The study used secondary data from the NIDS CRAM Wave 5 survey which is available to download from the DataFirst portal. All respondents were surveyed anonymously; therefore no vulnerable groups have been compromised during and after the research has been conducted. An ethics waiver form has been used to verify the same. The ethics clearance number, as mentioned on the Ethics Waiver Approval letter provided by the University of Witwatersrand, is 48643/3709764.

3.8 Limitations

First, when responding to questionnaires, participants may not give accurate information about variables such as grants, meals, income, and even those who have or have not returned to school.

This could be so because of the feeling of mistrust attached, wherein participants may not want to be honest about any aid that has been provided. Second, self-reporting about their lack of interest in events and their depressive symptoms can be impacted by external discrimination. This discrimination can result from attached stigma toward adverse mental health (Horsfall et al., 2010).

Thirdly, the study sample does not represent the whole of South Africa. Hence, further studies beyond the scope of this research will have to be conducted to better understand the confounding factors associated with primary caregivers' mental health outcomes. Consequently, this misrepresentation might negatively influence the study's outcomes since erroneous data would undermine the study's aims. Finally, the NIDS-CRAM does not by itself identify the population group as primary caregivers and hence cannot be solely distinguished as biological parents, siblings, or extended family members.

CHAPTER 4: RESULTS

4.1 Poor mental health outcomes by gender

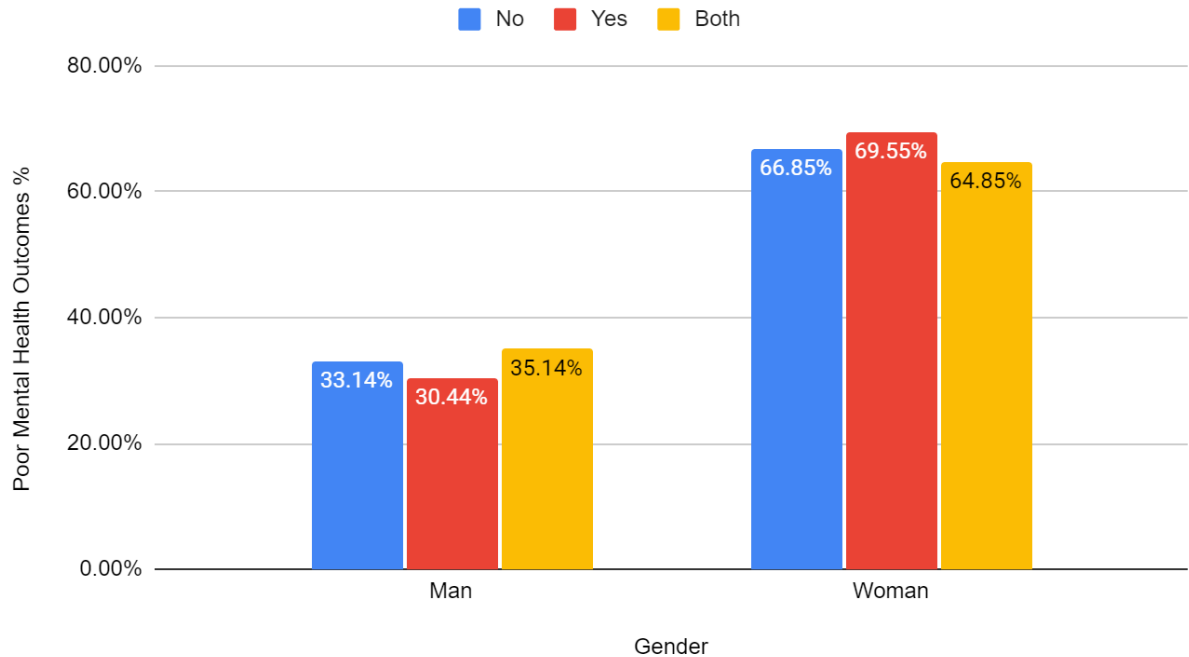


Figure 4.3 *Percentage distribution of gender distribution of respondents by poor mental health outcomes (at least one) (n= 3,019).*

As indicated in Figure 4.3, the cross-tabulation of gender and mental health outcomes indicates that women have the highest number of respondents with poor mental health outcomes. While 69.55% of women responded to having had poor mental health outcomes, only 30.44% of men expressed having mental health outcomes. Simultaneously, 66.85% of women also said they did not have mental health outcomes. Meanwhile, only 33.14% said they did not either. Overall, the total number of men who responded to whether they experienced poor mental health was 35.14%, with the remaining 64.86% being women.

4.2 Level of Poor Mental Health Outcomes By Primary Caregivers' Characteristics

Table 4.1: *Frequency and percentage distribution of primary caregivers' poor mental health by socioeconomic and demographic characteristics*

Respondent Characteristic	Poor Mental Health Outcomes				Total
	Yes		No		
	n	%	n	%	n
Total	1,061	35.14	1,958	64.86	3,019
Age					
15-24	140	36.46	244	63.54	384
25-34	296	38.39	475	61.61	771
35-44	301	38.05	490	61.95	791
45-54	167	32.62	345	67.38	512
55-64	88	31.10	195	68.90	283
65+	69	24.82	209	75.18	278
P-Value	0.000				
Race					
Black	924	33.23	1,857	66.77	2,781
Coloured	108	60.67	70	39.33	178
Asian/Indian	7	38.89	11	61.11	18

White	22	52.38	20	47.62	42
P-Value	0.000				
Province					
Western Cape	63	42.86	84	57.14	147
Eastern Cape	103	33.12	208	66.88	311
Northern Cape	79	56.83	60	43.17	139
Free State	87	53.37	76	46.63	163
KwaZulu-Natal (KZN)	364	31.57	789	68.43	1153
North West	80	48.78	84	51.22	164
Gauteng	135	36.49	235	63.51	370
Mpumalanga	86	35.98	153	64.02	235
Limpopo	64	19.22	269	80.78	333
<i>P-Value</i>	0.000				
Education Level					
Primary	125	28.47	314	71.53	439
Secondary	894	36.94	1,526	63.06	2,420
Higher	14	36.84	24	63.16	38
No Formal Education	22	21.36	81	78.64	103
Don't know	6	31.58	13	68.42	19
<i>P-Value</i>	0.000				
Access to School Meals					
Yes	596	33.86	1,164	66.14	1,760

No	465	36.93	794	63.07	1,259
<i>P-Value</i>	0.081				
Government Grants					
Child Support Grant	276	39.88	416	60.12	692
COVID-19 Grant	131	34.47	249	65.53	380
Other Grants	108	27.76	281	72.24	389
None	4	50.00	4	50.00	8
<i>P-Value</i>	0.001				
COVID-19 Grant					
Yes	376	41.32	534	27.27	910
No	685	32.48	1,424	58.68	2,109
<i>P-Value</i>	0.000				
Change in Income					
Yes	360	35.75	647	64.25	1,007
No	687	34.89	1,282	65.11	1,969
<i>P-Value</i>	0.642				

Keeping n at 3019, the age group output shows that 301 (38.05%) respondents between the age group 35-44 had the poorest mental health outcomes. However, 490 (61.95%) primary caregivers within this age group responded to not experiencing any poor mental health outcome. Following this, 296 (38.39%) primary caregivers within the age group 25-34 responded to having the poorest mental health. Meanwhile, 475 (61.61%) said they did not experience the same. The age group with the least mental health outcome was 65+, with 69 (24.82%) respondents confirming

their mental health experience during the COVID-19 pandemic. Setting the p-value at 0.05, there is a statistically significant relationship between age and poor mental health outcomes because the p-value is 0.000.

While race and mental health outcomes have statistical significance, 1857 (66.77%) Black primary caregivers reported not having mental health outcomes, with 924 (33.23%) respondents reporting having poor mental outcomes. Following this, 70 (39.33%) coloured respondents said they had no poor mental health outcomes, and 108 (60.67%) did. The Indian population has the lowest mental health outcomes, with 7 (38.89%) primary caregivers reporting poor mental health outcomes and 11 (61.11%) reporting no mental health outcomes.

Table 4.1 also indicates that primary caregivers from KwaZulu-Natal 364 (31.57%) reported poor mental health outcomes while 789 (68.43%) did not. 135 (36.49 %) respondents from Gauteng had mental health outcomes, while 235 (63.51 %) did not. Western Cape had 63 (42.86 %), primary caregivers, with the least respondents reporting poor mental health outcomes and the remaining 84 (57.14%) reporting that they did not. Finally, province and mental health outcomes have statistical significance because their p-value is less than 0.05.

Education level also has a statistically significant association with mental health outcomes. 894 (36.94%) respondents with a secondary education level had the most reports of poor mental health outcomes. However, 1,526 (63.06 %) did not report poor mental health outcomes. 125 (28.47%) primary caregivers with primary education reported poor mental health outcomes, and 314 (71.53%) did not. Additionally, out of the respondents with a higher education level, 14

(36.84%) experienced mental health outcomes, and 24 (63.16 %) did not. Only 22 (21.36%) primary caregivers with no formal education reported poor mental health outcomes. Finally, 6 (31.58%) respondents who did not know their education level reported mental health outcomes, with 13 (68.42%) who did not.

While 416 (60.12%) respondents did not experience poor mental health outcomes, 276 (39.88%) reported having mental health outcomes despite either having applied for or received a child support grant. 131 (34.47%) primary caregivers who either applied for or received the COVID-19 grant reported poor mental health outcomes, with the remainder of 249 caregivers not reporting poor mental health outcomes. Out of those who applied for or received other grants, 108 (27.76%) caregivers also had mental health outcomes. Because the p-value is 0.00, government grants have a statistically significant association with mental health outcomes.

Of those who applied for or received the COVID-19 grant, 376 (41.32 %) primary caregivers reported poor mental health, while the remaining 534 (27.27%) did not. Meanwhile, 685 (32.48%) primary caregivers who did not receive the COVID-19 grant experienced poor mental health outcomes. Table 1 further indicates that the COVID-19 grant and mental health outcomes are statistically significant because the p-value is 0.00. Lastly, the binary variables access to school meals and change in income are not statistically significant because their p-values are 0.081 and 0.642, respectively.

4.3 Level of poor mental health outcome due to LED

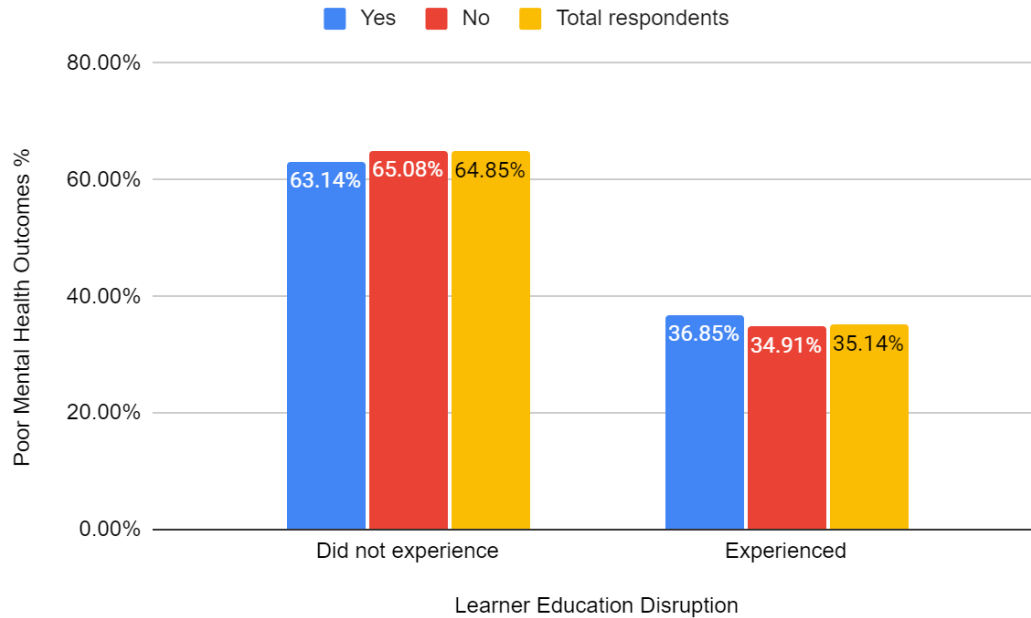


Figure 4.4: *Percentage distribution of LED by poor mental health outcomes (at least one) of the respondents (n=3019)*

Taking the 'no' and 'yes' responses of both variables, the cross-tabulation of LED and mental health outcomes in figure 4.4 indicates that of the total population of 3019, 35.14% experienced LED while 63.85% did not. Even though respondents did not experience LED, 64.14% suffered from poor mental outcomes, while 65.08% did not. Of those who had LED, 36.85% responded to having had poor mental health outcomes. Meanwhile, 34.91% who experienced LED did not suffer mental health outcomes.

4.4 Identifying the primary caregivers' rate of mental health outcomes.

Table 4.2: *Rate of poor mental health outcomes by demographic and socioeconomic characteristics of the respondents*

Respondent characteristic	Rate per 1,000 population	
	Yes	No
Age- group		
15-24	364.58	635.41
25-34	383.91	616.08
35-44	380.53	619.46
45-54	326.17	673.82
55-64	310.95	689.04
65+	248.20	751.79
Race		
Black	332.25	667.74
Coloured	606.74	393.25
Indian	388.88	611.11
White	523.80	476.19
Province		
Western Cape	421.76	571.42
Eastern Cape	331.18	668.81
Northern Cape	568.34	431.65
Free State	533.74	466.25
KwaZulu-Natal	315.69	684.30
North West	487.80	512.19

Gauteng	364.86	635.13
Mpumalanga	365.95	651.06
Limpopo	192.19	807.80
Gender		
Man	332.30	667.69
Woman	360.52	639.47
Education Level		
Primary	284.73	715.26
Secondary	369.42	630.57
Higher	368.42	631.57
No Formal Education	213.59	786.40
Don't know	315.78	684.21
Access to School Meals		
Yes	338.63	661.36
No	369.34	630.65
Government Grants		
Child Support Grant	398.84	601.15
COVID-19 Grant	344.73	655.26
Other Grants	277.63	722.36
None	500	500
COVID-19 Grant		
Yes	403.29	586.81
No	324.79	471.67

Change in Income		
Yes	357.49	642.50
No	348.90	651.09

The results suggest a downward trend in poor mental health as the respondents age. In other words, the rate of poor mental health outcomes appears to decrease as the age of the respondents increases. Respondents in the 15-24 age group experience the highest rate of poor mental health, with a rate of 364.58 per 1000 population. However, this rate declines as age increases, with the lowest reported rate in the 65+ age group at 248.20 per 1000 population. This trend is similarly observed among primary caregivers. The highest incidence of poor mental health outcomes is in the 25-34 age group, with a rate of 383.91 per 1000 population. This rate steadily decreases through the 35-44 and 45-54 age groups, where the rates are 380.53 and 326.17 per 1000 population, respectively. Finally, primary caregivers in the 65+ age group experienced the least poor mental health outcomes with a rate of 248.20 per 1000 population.

Within the population group, Coloured primary caregivers had the highest rate of poor mental health, with a rate of 606.74 per 1000 population. Black caregivers showed a comparatively lower rate of poor mental health outcomes at 332.25 per 1,000 population. Those who did not respond to poor mental health outcomes stand at 667.74 per 1000 population. White primary caregivers, who reported poor mental health at a rate of 523.80 per 1,000 population, suggesting a more than 50% occurrence. and Indians at a rate of 388.88 per 1,000 population, with the remainder being 611.11 per 1000 population to 'No' responses.

As previously indicated in Figure 4.3, Table 4.2 also illustrates that women reported having had the most mental health outcomes with a rate of 360.52 per 1000 population, with 639.47 per 1000 population experiencing no poor mental health outcome. Meanwhile, the rate of men experiencing poor mental health was 332.30 per 1000 population, with 667.69 per 1000 population who did not.

Northern Cape stands out with the highest prevalence of poor mental health outcomes at 568.34 per 1000 population, followed closely by Free State at 533.74 per 1000 population. On the other end of the spectrum, Limpopo appears to have the lowest rate of poor mental health outcomes at 192.19 per 1000 population, followed by KwaZulu-Natal at 315.69 per 1000 population. There is a general trend that the provinces with larger 'No' responses have lower rates of poor mental health outcomes. For example, in the Western Cape, there's a prevalence of 421.76 per 1000 population experiencing poor mental health outcomes, compared to a higher number of 571.42 per 1000 population that did not.

Those who responded to having had access to school meals had a rate of poor mental health of 338.63 per 1000 population and 661.36 per 1000 population for those who did not experience mental health outcomes. While for those who did not have access to school meals, the rate of poor mental health is 369.34 per 1000 population, the remaining 630.65 per 1000 population expressed they did not have a mental health outcome despite no access to school meals.

Among primary caregivers who received government grants, those who did not receive the child support grant had the highest rate of poor mental health, with a rate of 398.84 per 1000 population. However, 601.15 per 1000 population who did receive or applied for the grant did

not respond to mental health outcomes. Those who received COVID-19 grants experienced poor mental health at the rate of 344.73 per 1000 population, with 655.26 per 1000 population who did not. The rate for those who received other grants, but still experienced poor mental health was 277.63 per 1000 population, while 722.36 per 1000 population who did receive these grants did not report mental health outcomes. The results suggest that individuals who did not receive a government grant had the highest rate of poor mental health outcomes, 500 per 1000 population, compared to those who received different types of government grants.

While for those who responded to receiving the COVID-19 grant, the rate of poor mental health is 403.29 per 1000 population, and the rate of no poor mental health is 586.81 per 1000 population. Concurrently, primary caregivers who did not receive the COVID-19 grant experienced mental health outcomes at 324.79 per 1000 population, while others who did not receive the grant and did not experience poor mental health outcomes were at the rate of 471.67 per 1000 population.

Finally, the respondents with a change in income had a mental health outcome at the rate of 357.49 per 1000 population with no poor mental health at 642.50 per 1000 population. Similarly, those who did not have a change in income had poor mental health at the rate of 348.90 per 1000 population, with respondents with no mental health outcomes at the rate of 651.09 per 1000 population.

4.5 Association between exposures and mental health outcomes

The hypotheses were tested using the binary logistic regression model analysis to determine which independent variables had a significant statistical association with mental health outcomes.

Table 4.3: Results of multivariate logistic regression, showing odds of poor mental health outcomes by demographic and socioeconomic characteristics.

Respondent Characteristics	Odds Ratio	P-value	95% Confidence interval
LED			
Yes	RC		
No	0.91	0.475	0.7294096 1.158419
Age-Group			
15-24	RC		
25-34	1.08	0.523	0.8429049 1.399398
35-44	1.07	0.596	0.8316649 1.378212
45-54	0.84	0.231	0.6388474 1.114092
55-64	0.78	0.149	0.5674886 1.09009
65+	0.57	0.002*	0.4085669 0.8103377
Race			
Black	RC		
Coloured	3.10	0.000*	2.272132 4.231533
Indian	1.27	0.612	0.4941632 3.30994

White	2.21	0.011*	1.200396	4.071371
Province				
Western Cape	RC			
Eastern Cape	0.66	0.044*	0.4412232	0.9880228
Northern Cape	1.75	0.019*	1.099031	2.804265
Free State	1.52	0.065	0.9744057	2.390831
KwaZulu-Natal	0.61	0.006*	0.4337007	0.8724411
North West	1.26	0.296	0.8115312	1.986981
Gauteng	0.76	0.179	0.5189902	1.130447
Mpumalanga	0.74	0.178	0.4923787	1.140755
Limpopo	0.31	0.000*	0.2072977	0.4854432
Gender				
Man	RC			
Woman	1.13	0.129	0.9642633	1.330828
Education Level				
Primary	RC			
Secondary	1.47	0.001*	1.17735	1.8395
Higher	1.46	0.278	0.7342759	2.924244
No Formal Education	0.68	0.145	0.4077457	1.14163
Don't know	1.15	0.770	0.4311039	3.117978
Access to School Meals				

Yes	RC		
No	1.14	0.082	0.9833261 1.330396
Government Grants			
Child Support Grant	RC		
COVID-19 Grant	0.79	0.081	0.6110627 1.029027
Other Grants	0.57	0.000*	0.4426405 0.7581449
None	1.50	0.564	0.3738326 6.07703
COVID-19 Grant			
Yes	RC		
No	0.68	0.000*	0.5819553 0.8020074
Change in Income			
Yes	RC		
No	0.96	0.642	0.8217385 1.128775

(*) indicate the p-values that are significant.

Table 4.3 shows the adjusted binary logistic regression shows that only some values in the age group, places of residents, race, education level, access to school meals, government grants, and COVID-19 grants were statistically significant ($p < 0.05$).

The odds of having a poor mental health outcome were 0.91 times lower among primary caregivers who did not experience LED in relation to those who experienced LED.(OR= 0.91;

CI: 0.72- 1.15). This indicates that it is less likely that the event of poor mental health outcomes will occur. In addition, LED and mental health outcomes do not have a statistically significant association ($p>0.05$).

Relative to the 15-24 age group, those aged 65+ had the lowest statistical significance making this group less likely to experience mental health outcomes (OR=0.57; CI: 0.40-0.81).

Meanwhile, poor mental health is more likely to occur for the age groups 25-34 (OR= 1.08; CI: 0.84-1.39) and 35-44 (OR= 1.07; CI: 0.83-1.37) because their odds increased. The odds of poor mental health outcomes occurring age group 45-54 (OR= 0.84; CI: 0.63- 1.11) slightly decreased.

There was a significant association between the population group and mental health outcomes because the Coloured population had the highest odds of having poor mental health (OR= 3.10; CI: 2.27-4.23) ($p<0.05$). Meanwhile, the other population groups are statistically insignificant ($p>0.05$). The odds of having a poor mental health outcome were 3.10 times higher among primary caregivers who did not experience LED in relation to those who experienced LED.

Coloured respondents experiencing poor mental health are more likely because the odds increased significantly (OR=3.10; CI: 2.27- 4.23). Furthermore, relative to the Black primary caregivers, the odds of mental health outcomes were more than 2 and 3 times, respectively, for White and Coloured counterparts. The same can be said for the Indian population group, as the odds are greater than 1 (OR= 1.27; CI: 0.49- 3.30). This indicates that it is more likely that an event of poor mental health outcomes will occur.

The results of the adjusted binary logistic regression model also suggest that the odds of North West (OR= 1.26; CI: 0.81- 1.98), Free State (OR= 1.52; CI: 0.97- 2.39), and Northern Cape (OR= 1.75; CI: 1.09- 2.80) increased. This suggests that it is more likely that poor mental health outcomes will occur. However, among these three provinces, only the Northern Cape has a statistically significant association with mental health outcomes ($p<0.05$). Meanwhile, the odds of Limpopo (OR= 0.31; CI: 0.20- 0.48), KwaZulu-Natal (OR= 0.61; CI: 0.43- 0.87), Eastern Cape (OR= 0.66; CI: 0.44- 0.98), Mpumalanga (OR= 0.74; CI: 0.49- 1.14), and Gauteng (OR= 0.76; CI: 0.51-1.13), decreased.

The results also show that the odds for those with Secondary (OR=1.47; CI: 1.17- 1.83), Higher (OR=1.46; CI: 0.73- 2.92), and ‘Don’t know’ (OR=1.15; CI: 0.43- 3.11) education levels increased. This indicates that it is more likely that poor mental health outcomes will occur. Furthermore, Secondary education level is statistically significant with mental health outcomes ($p<0.05$).

The odds of not having access to school meals are greater than 1, making it more likely that poor mental health outcomes will occur. However, no access to school meals is not statistically significant to poor mental health outcomes ($p>0.05$).

Since the odds of responses to either having applied for or received COVID-19 grants (OR= 0.79; CI: 0.61- 1.02) and other grants (OR= 0.57; CI: 0.44- 0.75) decreased, it is less likely that poor mental health outcomes will occur. However, the odds for those who did not apply or receive any grants increased, indicating that it is more likely that poor mental health outcomes

will occur (OR= 1.50; CI: 0.37- 6.07). Only ‘other grants’ are statistically significant to mental health outcomes ($p < 0.05$).

Finally, keeping the ‘yes’ responses as the reference categories, the odds of not receiving the ‘COVID-19 grant’ being less than 1 indicates that it is less likely that poor mental health outcomes will occur (OR= 0.68; CI: 0.58- 0.80). However, the p-value indicates that the variable COVID-19 grants are statistically significant with mental health outcomes ($p < 0.05$). Similarly, the odds of not having a change in income decreasing indicate that it is less likely for poor mental health outcomes to occur (OR= 0.96; CI: 0.82- 1.12).

CHAPTER 5. DISCUSSION

The mental health of primary caregivers in South Africa during the COVID-19 pandemic is of significant concern because of the lasting effects of mental illnesses. The onset of the pandemic led to widespread disruptions in daily life and added considerable stress and uncertainty to primary caregivers, who continue to be responsible for the care and development of children and often have responsibilities to elderly relatives (Beach et al., 2021). These added stressors, combined with the specific impact of LED, have likely significantly impacted the mental health of primary caregivers in South Africa.

The study's main objective was to examine the association between LED and the mental health outcomes of primary caregivers (15 years and older) during COVID-19 in South Africa. This research investigated how different socioeconomic and demographic characteristics could help identify the factors that amplified poor mental health outcomes among primary caregivers. The research findings provide essential insights that can be used to develop targeted policies like the National Mental Health Policy Framework and Strategy plan and interventions that support primary caregivers in improving their mental health during and after the still ongoing pandemic and future pandemics that may arise.

Additionally, understanding the impact of LED on primary caregivers' mental health helps better understand how the government can take adequate steps to protect individuals, like the sample population of this study, from experiencing such poor mental health outcomes in the future. The results indicate that LED significantly contributed to poor mental health outcomes among parents

and primary caregivers. Of the total population of 3019, 35.14% experienced LED, suggesting that they had to manage remote learning and homeschooling or no school attendance for their children due to COVID-19-related school closures. This sudden change in the education system could have been stressful and overwhelming for many parents who may need to prepare or train for this role.

Of those who did experience LED, 36.85% responded to having had poor mental health outcomes. This suggests that LED could significantly contribute to poor mental health outcomes among parents and primary caregivers. Larsen et al. (2022) point out that the sudden and prolonged disruption of routines, social connections, support systems, and increased caregiving responsibilities contribute to stress, anxiety, and depression among parents. These adverse outcomes could be exacerbated for those with pre-existing mental health conditions, limited resources, and support systems or who were also dealing with other COVID-19-related stressors such as job loss, financial strain, and health concerns.

In their study on parental mental illness during COVID-19, Furlong et al. (2021) extensively highlights the crises families experienced with parental mental health illness amidst the pandemic. They note that parents having pre-existing mental health illnesses experienced exacerbated outcomes and were often hospitalised. This further increased the financial burden on the entire family. Furthermore, their study also addresses the issue of how heightened anxiety and depression during the COVID-19 lockdown led to irritable and violent behaviour that was projected on their children.

Moreover, remote learning and the closure of schools that gave rise to LED increased the primary caregivers' stress and anxiety experiences due to being responsible for providing home schooling and distance learning for their children; this was subject to how well-versed caregivers were with the study material. As a result, in other relevant studies, many primary caregivers have reported feeling overwhelmed and ill-equipped to provide the necessary education for their children, particularly those with special educational needs or disabilities (Shapiro and Bassok, 2022).

Additionally, the closure of schools and the suspension of extracurricular activities limited their children's opportunities for social interaction and support. Because of this, it has been the responsibility of the primary caregivers to fill those missing gaps, often leaving them exhausted (Kerr et al., 2021). This, in turn, may have led to increased feelings of loneliness and a lack of motivation among primary caregivers to participate in personal activities (Riazi et al., 2021). The sudden shift to remote learning and the closure of schools disrupted many learners' daily routines and support systems, leading to increased stress, anxiety, and uncertainty.

It is clear from these findings that there is a significant difference in mental health outcomes between men and women because of LED during COVID-19 in South Africa. This study found that 69.55% of women reported having poor mental health outcomes during the COVID-19 pandemic in South Africa, compared to 30.44% of men. In addition, figure 4.3 reveals that more female primary caregivers than their counterparts were surveyed. Nonetheless, various studies suggest that women are more likely than males to use clinical health services for anxiety and other poor mental health symptoms (Afifi, 2007; Chaplin, 2015; Pedrosa et al., 2020).

Furthermore, gender socialisation, social patterns of reinforcement, and intentional coping behaviours in response to stressful situations are affected by gender differences in the perceived notion of care actions like cooking, cleaning and more are performed (Mayor, 2015; Sharma et al., 2016; Bhan et al., 2020). Bromberger and Kravitz (2011) note that differences in biology and psychology between sexes have been studied extensively as potential causes of depression. However, that being said, it is crucial to consider that out of the total number of respondents, there were more female caregivers than males. Thus, reflecting on the outcome of women reporting more poor mental health than men.

The results from this study show that primary caregivers in the 35-44 age group had the highest prevalence of poor mental health outcomes. For example, 38.05% of respondents in this age group reported poor mental health outcomes. This is compared to 38.39% of respondents in the age group 25-34. The odds ratios of primary caregivers of these two age groups experiencing mental health outcomes are 1.07 and 1.08 times higher than other age groups. This finding is consistent with previous research, which has suggested that what Franssen et al. (2020) categorise as the “early middle age group” may be a particularly vulnerable period for developing mental health problems due to accumulating stressors and challenges over time (Ha et al., 2008; WHO, 2017).

One example of a stressor faced by primary caregivers in this age group is balancing work and family responsibilities. Many primary caregivers in this age range are also building their careers and may feel overwhelmed by the demands of both work and caregiving. Additionally,

caregivers in this age group may care for young children and elderly parents, further compounding their caregiving responsibilities.

Regarding race, 667.74 per 1000 population of Black primary caregivers reported not having mental health outcomes, while 332.25 per 1000 population reported having poor mental health outcomes. In comparison, the odds ratio of 3.10 among the Coloured group suggests that the likelihood of poor mental health is the highest within the population group against those who did not experience LED. Despite the abolishment of Apartheid, the legacy of the system of discrimination persists in South Africa.

The effects of systematic racism and discrimination are well documented in previous research on race and mental health, revealing that racial and ethnic minority groups were disproportionately impacted during the pandemic (Mude et al., 2021; Thomeer et al., 2023). Additionally, primary caregivers experiencing one or more mental health outcomes could be because they live in disadvantaged neighbourhoods with their children enrolled in under-resourced schools due to the lack of available resources and support (Lindsey et al., 2013; White et al., 2021).

The study also showcases a strong association between mental health outcomes and LED. The odds ratio is 1.47 with a statistical significance association ($p < 0.05$), indicating that primary caregivers who completed a secondary level education encountered more harmful emotional stability results than those with alternative qualifications. However, this may be swayed by several factors. These include financial instability or academic pressure and how schooling impacts access to resources for individuals in contrasting circumstances involving job security

uncertainty or restricted prospects triggered by worldwide situations akin to COVID-19 (Posel et al., 2021; Calear et al., 2022).

The findings indicate that KwaZulu-Natal primary caregivers (34.31%) exhibited the highest rate of poor mental health outcomes. The second-highest percentage belonged to Gauteng's primary caretakers (12.72%). Meanwhile, Western Cape was third (5.94%). This is not surprising, particularly after analysing recent study outcomes from the Asenze Cohort investigating preschool children born when the HIV infection rates were high between 2003 and 2005 in KZN (Desmond et al., 2022). Furthermore, Chhagan et al. (2022) found that caregivers had high rates of depression, anxiety, and post-traumatic stress disorder. These findings spotlight several factors linked to the current pandemic and other ongoing epidemic concerns that have only worsened mental health outcomes for these primary caregivers.

The study suggests that poor mental health outcomes from LED may not solely be due to the pandemic but may be from pre-existing mental health conditions or other vulnerabilities (Lee et al., 2015). Primary caregivers who experience poor mental health may turn to substance abuse and alcoholism to cope with overwhelming stress and emotional burden (Sinha, 2008; Turner et al., 2018). Isolation and social distancing measures have also contributed to this escape, leading to insufficient or poor sleep quality, and impacting mental health outcomes (Varma et al., 2021; Gadi et al., 2022).

The study further suggests that respondents may have been using maladaptive coping strategies, such as avoidance or denial, to deal with the stress of LED and the pandemic (Lewis et al., 2021).

Therefore, it is crucial to consider pre-existing vulnerabilities and to address the maladaptive coping strategies used by primary caregivers to manage stress, such as substance abuse and alcoholism, to improve mental health outcomes during the pandemic.

The result strengthens and validates the respondents' need for government support through grants like child support grants, COVID-19 relief grants, and other government grants. Not knowing where the next income was coming from and the inability to provide for learners due to a lack of school meals certainly contributed to the strain brought on by the pandemic (Prime et al., 2020; Steimle et al., 2021). Those who were naturally more resilient were the ones who were able to maintain their emotional health intact despite hardships. Primary caregivers not reporting poor mental health can be for two reasons. One, the fear of being stigmatised did not allow them to and two, they had high levels of resilience. Respondents who had a lower level of resilience were likely to experience deteriorating mental well-being at a faster rate.

Furthermore, primary caregivers' learners who did not have access to school meals experienced more mental health outcomes than those who did. With other factors such as poverty, poor nutrition and physical health, and level of education, access to school meals may affect a primary caregiver's capacity to function "normally" (O'Neil et al., 2014; Scaglioni et al., 2018; Pérez-Escamilla et al., 2020). Although primary caregivers who did get the child support grant were less likely to suffer from mental health problems, those who did not were at a higher risk. Many factors might account for this difference. For instance, receiving child support grants has been linked to increased financial stability and security, which may positively affect mental health

outcomes. In addition, other variables, such as access to resources or assistance, may be linked to grant receipt, affecting mental health (Harandi et al., 2017).

Nonetheless, one unexpected outcome did occur. In contrast to the initial finding on KZN, the 2017 South African census found that Northern Cape may have overestimated the frequency of depression because the province offers a considerable percentage of South Africa's agricultural land (Statistics South Africa, 2020b). This is followed by recent research conducted by the Wits/Medical Research Council Developmental Pathways for Health Research Unit (DPHRU) that found depression and anxiety most prevalent in the Northern Cape because the province is a predominantly rural region (Craig et al., 2022).

While these studies are preliminary, they highlight the need to examine the association between LED and primary caregivers' mental health outcomes at different times during COVID-19 in South Africa. Given the exceptional nature of the COVID-19 outbreak, it is imperative to comprehend the mental health of vulnerable individuals, specifically primary caregivers.

The findings emphasise the crucial significance of contextual factors in determining mental health outcomes. Factors such as gender, level of education, and geographical location can all play a role. For example, females are often at risk for negative consequences due to preconceived notions based on their gender or traditional responsibilities as primary caregivers in households (Mayor, 2015; Thibaut & van Wijngaarden-Cremers, 2020).

The study highlights the importance of addressing the social determinants of health to reduce mental health disparities and improve mental health outcomes among primary caregivers during the COVID-19 pandemic. By addressing the structural challenges that disproportionately affect those who are responsible for caregiving duties, there is potential to enhance the primary caregiver's overall psychological well-being. Ultimately, improving mental health requires attention to all these contributing factors simultaneously rather than isolation or exclusion thereof, as they often operate interdependently on individuals' emotional states.

Acknowledging that the framework proposed in this study may not encompass all possible factors affecting primary caregivers' mental health is essential. These aspects could include their housing and living arrangements, exposure to traumatic events or violence, cultural beliefs and values, employment status, and work conditions. The study aims to examine LED's association with South African primary caregivers' mental well-being instead of extensively evaluating social determinants concerning health issues. In addition to the findings of this research, it is essential to note that the population examined in the study does not accurately reflect primary caregivers throughout South Africa. Therefore, caution must be exercised when applying these outcomes beyond LED.

The study has several strengths that contribute to its credibility and reliability. First, it has a large sample size of 3019 primary caregivers, increasing the findings' generalizability. Second, it employs nationally inclusive samplings extracted from NIDS-CRAM, which permits the findings to pertain to South Africa's larger population. Third, the study found how various demographic and socioeconomic factors impact mental health outcomes. These factors encompassed age, race,

educational level, and accessibility to school meals. Incorporating multiple variables into their research design could holistically evaluate the intended outcome.

Fourth, an empirical study using a cross-sectional design assesses the correlation between LED and adverse mental health outcomes at a specific time. Fifth, using chi-square and an adjusted multivariate logistic regression analysis enables accuracy with the help of these controlled confounding variables. Sixth, it focuses on a specific and vital area of public concern. Thus, it fills the gap in the existing literature by providing new insight into how the pandemic affected this specific study population.

5.1 Conclusion

This study has successfully identified a multitude of factors that exert influence on the mental health outcomes of primary caregivers in the context of South Africa amidst the COVID-19 pandemic. The factors encompassed consist of LED, gender, age, race, level of education, access to school meals, and geographical location. The advent of LED, which encompasses the implementation of remote learning and the closure of schools, has imposed an increased burden on caregivers. The prevalence of poor mental health was found to be higher among women in comparison to men.

The age group of 35-44 exhibited the highest prevalence of poor mental health among caregivers. Racial disparities were identified, as evidenced by the higher prevalence of poor mental health among Coloured and White caregivers in comparison to Black caregivers. There exists a correlation between lower levels of education and adverse mental health outcomes. The mental

well-being of caregivers was found to be enhanced when their children had no access to school meals. The mental health outcomes were also influenced by the geographical location.

While learner education disruption is a strong predictor of adverse mental health outcomes, it is clear that primary caregivers, especially those from disadvantaged socioeconomic backgrounds, need to be supported via interventions. Therefore, it should be essential for the government to focus on providing satisfactory grants and financial aid to primary caregivers who continue to fall victim to unjust socioeconomic disparities. This will ultimately help reduce their mental health issues. Several program and policy recommendations can be made to address the mental health outcomes of primary caregivers during a disruption in education in South Africa. These must be intended to target primary caregivers from underprivileged backgrounds explicitly.

Firstly, keeping the mother tongue's effect on mental health in mind, developing a comprehensive, culturally sensitive, and linguistically tailored mental health primary caregiver support group program for the diverse population in South Africa is essential. The mother tongue effect refers to the potential impact of an individual's native or first language on their mental well-being. It suggests that the language spoken and understood by an individual since childhood, often their mother tongue, can influence their psychological and emotional state. The mother tongue effect on mental health is rooted in the idea that language is not merely a means of communication but also plays a significant role in shaping cognitive processes, self-identity, and cultural experiences.

By acknowledging and addressing the mother tongue's effect on mental health, mental health professionals and policymakers can develop more inclusive and culturally appropriate strategies to support individuals in their mother tongue promote better understanding, and ultimately enhance mental health outcomes. Hence, this program should include counselling and therapy services in their mother tongue and native language, offer transport vouchers to help them access these programs, and even provide alternative virtual support for managing the additional responsibilities and stress of caring for a learner during a disruption in education.

Secondly, it would be erroneous not to emphasise bridging the gap between technology and those who benefit the most from such online services. While the South African Federation for mental health has an active campaign called 'Speak Your Mind' to destigmatise mental health using social media, the government could leverage social media platforms to promote mental health resources and raise awareness about the importance of primary caregivers seeking help (SA Federation for Mental Health, 2019).

In April 2021, for instance, the Indian government launched the "Mental Health and Normalcy Augmentation System" (MANAS) as a nationwide online platform designed to promote mental health among the Indian population. The National Institute of Mental Health and Neuro Sciences (NIMHANS) created and released the inaugural mobile app to enhance mental health among individuals aged 15 to 35. Nonetheless, since its launch, the institution has ensured that the app benefits all age groups (Press Information Bureau, 2021). Furthermore, although South Africa has a similar app called Panda, neither the government nor the country's most prominent organisations that promote and advocate mental health have officially approved or endorsed it.

Thirdly, about one-third of the South African population uses smartphones, which is believed to proliferate in the upcoming years (Petroc, 2023). Therefore, the government of South Africa can significantly benefit from implementing new technological techniques, such as gamification, to promote mental health resources and encourage people, specifically caregivers and parents alike, to engage in self-care activities. For example, in the Philippines, a mental health app called 'MindNation' uses gamification techniques to promote mental wellness and stress management (Neil, 2022).

Finally, designing a program that provides enhanced financial aid and support to primary caregivers who still need to get COVID-19 relief grants and other grants is critical. This might include paying for extra tutoring, access to the internet and electronic devices, and other academic assistance for the student and aiding primary caregivers with expenses. This will help the learner compensate for missed learning opportunities and boost their overall wellness. Future research recommendations for addressing the mental health outcomes of primary caregivers in South Africa during a disruption in schooling include performing long-term studies to follow the mental health outcomes of primary caregivers over a longer duration. This would allow researchers to comprehend the long-term effects of educational disruption on a primary caregiver's mental health,

In addition, primary caregivers could greatly benefit from randomised controlled trials (RCT) through mental health services. These trials will allow effective assessments of the association between treatments and the mental well-being of primary caregivers. For instance, one Pakistani

research looked at the impact of an intervention administered by family volunteers using technology for learners and their primary caregivers. The intervention involved teaching the primary caregivers new coping mechanisms, providing practical training, and connecting them with other caregivers using an app. The intervention was feasible and agreeable to execute, and it improved the learner and primary caregivers' mental health overall.

Evaluating the efficacy of therapies, such as electronic mental health (eMH) programmes like telephone and online counselling hotline services, is also essential. Assisting primary caregivers, especially those from underprivileged backgrounds, shoulder less of a financial burden by subsidising therapy and providing access to basic amenities and programs like those created by the South African Federation for Mental Health is crucial to improving mental health outcomes for the population as a whole. Research on the effects of various forms of support on primary caregivers' mental health is also crucial. These forms of support include emotional, practical, and financial assistance.

In addition, primary caregivers from disadvantaged backgrounds should be studied to determine the efficacy of programs to enhance their economic chances and quality of life. Finally, this research has the potential to promote and advocate extensive mental health improvement and serve as a model for nations in Sub-Saharan Africa and the Global South. These results can increase better understanding and acceptance, lessen stigma, and boost funding for mental health initiatives and services; especially in countries where schools remain closed due to COVID-19.

REFERENCE LIST

- Aborode, A., Anifowoshe, O., Ayodele, T. I., Iretiayo, A. R., & David, O. O. (2020). Impact of COVID-19 on Education in Sub-Saharan Africa.
<https://doi.org/10.20944/preprints202007.0027.v1>
- Abramson, A. (2021). *The impact of parental burnout*. <https://www.apa.org/monitor/2021/10/cover-parental-burnout>
- Aday, S., & Aday, M. S. (2020). *Impact of COVID-19 on the food supply chain*. *Food Quality and Safety*, 4(4), 167–180. <https://doi.org/10.1093/fqsafe/fyaa024>
- Africa Health Organization. (2021). *Gender based violence fact sheet: South africa*. Africa Health Organisation. <https://aho.org/news/gender-based-violence-fact-sheet-south-africa/>
- Agostinelli, F., Doepke, M., Sorrenti, G., & Zilibotti, F. (2022). *When the great equalizer shuts down: Schools, peers, and parents in pandemic times*. *Journal of Public Economics*, 206, 104574. <https://doi.org/10.1016/j.jpubeco.2021.104574>
- Aguiar, J., Matias, M., Braz, A. C., César, F., Coimbra, S., Gaspar, M. F., & Fontaine, A. M. (2021). *Parental burnout and the covid -19 pandemic: How portuguese parents experienced lockdown measures*. *Family Relations*, 70(4), 927–938.
<https://doi.org/10.1111/fare.12558>
- Afifi, M. (2007). Gender differences in mental health | SMJ. Singapore Med J .
<http://www.smj.org.sg/article/gender-differences-mental-health>

Al-Maskari, A., Al-Riyami, T., & Kunjumammed2, S. K. (2021). *Students academic and social concerns during COVID-19 pandemic* - PMC. PubMed Central (PMC);

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8243059/>

Alonzo, D., Popescu, M., & Zubaroglu Ioannides, P. (2022). *Mental health impact of the Covid-19 pandemic on parents in high-risk, low income communities*. The International Journal of Social Psychiatry, 68(3), 575–581.

<https://doi.org/10.1177/0020764021991896>

Arndt, C., Davies, R., Gabriel, S., Harris, L., Makrelov, K., Robinson, S., Levy, S., Simbanegavi, W., van Seventer, D., & Anderson, L. (2020). *Covid-19 lockdowns, income distribution, and food security: An analysis for South Africa*. Global Food Security, 26, 100410. <https://doi.org/10.1016/j.gfs.2020.100410>

Bairagi, S., Mishra, A. K., & Mottaleb, K. A. (2022). *Impacts of the COVID-19 pandemic on food prices: Evidence from storable and perishable commodities in India*. PLoS ONE, 17(3), e0264355. <https://doi.org/10.1371/journal.pone.0264355>

Beach, S. R., Schulz, R., Donovan, H., & Rosland, A.-M. (2021). *Family caregiving during the covid-19 pandemic*. The Gerontologist, 61(5), 650–660.

<https://doi.org/10.1093/geront/gnab049>

Berkhout, E., Galasso, N., & Lawson, M. (2021). *The Inequality Virus: Bringing together a world torn apart by coronavirus through a fair, just and sustainable economy*. Oxfam GB for Oxfam International Under. <https://policy-practice.oxfam.org/resources/the-inequality-virus-bringing-together-a-world-torn-apart-by-coronavirus-throug-621149/>

- Bhan, N., Rao, N., & Raj, A. (2020). *Gender differences in the associations between informal caregiving and wellbeing in low- and middle-income countries*. *Journal of Women's Health*, 29(10), 1328–1338. <https://doi.org/10.1089/jwh.2019.7769>
- Bin Naeem, S., & Kamel Boulos, M. N. (2021). *Covid-19 misinformation online and health literacy: A brief overview*. *International Journal of Environmental Research and Public Health*, 18(15), 8091. <https://doi.org/10.3390/ijerph18158091>
- Bromberger, J. T., & Kravitz, H. M. (2011). *Mood and menopause: Findings from the study of women's health across the nation (Swan) over ten years*. *Obstetrics and Gynecology Clinics of North America*, 38(3), 609–625. <https://doi.org/10.1016/j.ogc.2011.05.011>
- Burro, G., McDonald, R., Read, D., & Taj, U. (2022). *Patience decreases with age for the poor but not for the rich: An international comparison*. *Journal of Economic Behavior & Organization*, 193, 596–621. <https://doi.org/10.1016/j.jebo.2021.11.005>
- Calear, A. L., McCallum, S., Morse, A. R., Banfield, M., Gulliver, A., Cherbuin, N., Farrer, L. M., Murray, K., Rodney Harris, R. M., & Batterham, P. J. (2022). *Psychosocial impacts of home-schooling on parents and caregivers during the COVID-19 pandemic*. *BMC Public Health*, 22(1), 119. <https://doi.org/10.1186/s12889-022-12532-2>
- Casale, D., & D. Posel. (2020). *Gender and the early effects of the COVID-19 crisis in the paid and unpaid economies in South Africa*. National Income Dynamics Study (NIDS) – Coronavirus Rapid Mobile Survey (CRAM).

- CDC. (2023). Child development: Parenting matters | cdc. Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/childdevelopment/features/parenting-matters.html>
- Chaplin, T. M. (2015). *Gender and emotion expression: A developmental contextual perspective*. *Emotion Review : Journal of the International Society for Research on Emotion*, 7(1), 14–21. <https://doi.org/10.1177/1754073914544408>
- Chhagan, M. K., Mellins, C. A., Kauchali, S., Craib, M. H., Taylor, M., Kvalsvig, J. D., & Davidson, L. L. (2014). Mental health disorders among caregivers of preschool children in the Asenze Study in KwaZulu-Natal, South Africa. *Maternal and Child Health Journal*, 18(1), 10.1007/s10995-013-1254–1255. <https://doi.org/10.1007/s10995-013-1254-5>
- Chirisa, I., Mutambisi, T., Chivenge, M., Mabaso, E., Matamanda, A. R., & Ncube, R. (2022). *The urban penalty of COVID-19 lockdowns across the globe: Manifestations and lessons for Anglophone sub-Saharan Africa*. *GeoJournal*, 87(2), 815–828. <https://doi.org/10.1007/s10708-020-10281-6>
- Clemens, V., Köhler-Dauner, F., Ziegenhain, U., & Fegert, J. M. (2021). *Predictors of parental coping during the covid-19 pandemic: A survey in germany*. *Frontiers in Psychology*, 12. <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.715327>
- Cooper, S., Van Rooyen, H., & Wiysonge, C. S. (2021). *COVID-19 vaccine hesitancy in South Africa: How can we maximize uptake of COVID-19 vaccines? Expert Review of Vaccines*, 20(8), 921–933. <https://doi.org/10.1080/14760584.2021.1949291>

- Craig, A., Rochat, T., Naicker, S. N., Mapanga, W., Mtintsilana, A., Dlamini, S. N., Ware, L. J., Du Toit, J., Draper, C. E., Richter, L., & Norris, S. A. (2022). *The prevalence of probable depression and probable anxiety, and associations with adverse childhood experiences and socio-demographics: A national survey in South Africa*. *Frontiers in Public Health*, 10. <https://www.frontiersin.org/articles/10.3389/fpubh.2022.986531>
- Czeisler, M. É. (2021). *Mental health among parents of children aged less than 18 years and unpaid caregivers of adults during the covid-19 pandemic—United states, december 2020 and february–march 2021*. *MMWR. Morbidity and Mortality Weekly Report*, 70. <https://doi.org/10.15585/mmwr.mm7024a3>
- Daniels, R. C., & Casale, D. (2022). *The impact of COVID-19 in South Africa during the first year of the crisis: Evidence from the NIDS-CRAM survey*. *Development Southern Africa*, 39(5), 605–622. <https://doi.org/10.1080/0376835X.2022.2116408>
- Daniels, R., & Ranchhod, V. (2021). *National Income Dynamics Study – Coronavirus Rapid Mobile Survey (NIDS-CRAM) – SALDRU*. <https://www.saldru.uct.ac.za/surveys/nids-cram/>
- Dawes, J., May, T., McKinlay, A., Fancourt, D., & Burton, A. (2021). *Impact of the COVID-19 pandemic on the mental health and wellbeing of parents with young children: A qualitative interview study*. *BMC Psychology*, 9(1), 194. <https://doi.org/10.1186/s40359-021-00701-8>
- Department of Basic Education South Africa. (2020). *RECOVERY PLAN 2020*. <https://www.education.gov.za/Home/RecoveryPlan2020.aspx>

- Desmond, C., Norwitz, G. A., Kvalsvig, J. D., Gruver, R. S., Kauchali, S., Watt, K. G., Myeza, N. P., Munsami, A., & Davidson, L. L. (2022). *The asenze cohort study in kwazulu-natal, south africa: Protocol and cohort profile*. *Epidemiology and Health*, 44, e2022037. <https://doi.org/10.4178/epih.e2022037>
- Engelbrecht, M. (2023). *Factors associated with covid-19-related stress among female primary caregivers in vulnerable families in south africa*. *European Journal of Investigation in Health, Psychology and Education*, 13(2), 377–390. <https://doi.org/10.3390/ejihpe13020028>
- Farhangi, M. A., Dehghan, P., Jahangiry, L., & van Wouwe, J. P. (2018). *Mental health problems in relation to eating behavior patterns, nutrient intakes and health related quality of life among Iranian female adolescents* - PMC. PubMed Central (PMC); <https://www.ncbi.nlm.nih.gov/>
- Fersch, B., Schneider-Kamp, A., & Breidahl, K. N. (2022). *Anxiety and trust in times of health crisis: How parents navigated health risks during the early phases of the COVID-19 pandemic in Denmark*. *Health, Risk & Society*, 24(1–2), 36–53. <https://doi.org/10.1080/13698575.2022.2028743>
- Fisher, D. A., Miller, T. R., Grube, J. W., Ringwalt, C. L., Achoki, T., Ngwato, T. P., Shilakoe, L., & Mkhondo, P. (2022). *Locked down: Economic and health effects of covid-19 response on residents of a south african township*. *Global Social Welfare*. <https://doi.org/10.1007/s40609-022-00230-1>

- Franssen, T., Stijnen, M., Hamers, F., & Schneider, F. (2020). Age differences in demographic, social and health-related factors associated with loneliness across the adult life span (19–65 years): A cross-sectional study in the Netherlands. *BMC Public Health*, 20(1), 1118. <https://doi.org/10.1186/s12889-020-09208-0>
- Furlong, M., McGilloway, S., Mulligan, C., Killion, M. G., McGarr, S., Grant, A., Davidson, G., & Donaghy, M. (2021). *Covid-19 and families with parental mental illness: Crisis and opportunity*. *Frontiers in Psychiatry*, 12, 567447. <https://doi.org/10.3389/fpsyt.2021.567447>
- Gadi, N., Saleh, S., Johnson, J.-A., & Trinidad, A. (2022). *The impact of the COVID-19 pandemic on the lifestyle and behaviours, mental health and education of students studying healthcare-related courses at a British university*. *BMC Medical Education*, 22(1), 115. <https://doi.org/10.1186/s12909-022-03179-z>
- Galbadage, T., Peterson, B. M., & Gunasekera, R. S. (2020). *Does COVID-19 Spread Through Droplets Alone?* *Frontiers*; www.frontiersin.org. <https://www.frontiersin.org/articles/10.3389/fpubh.2020.00163/full>
- Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). *Covid-19 and remote learning: Experiences of parents with children during the pandemic*. *American Journal of Qualitative Research*, 4(3), 45–65. <https://doi.org/10.29333/ajqr/8471>
- Glowacz, F., & Schmits, E. (2022). *Changes in Alcohol Use During the COVID-19 Pandemic: Impact of the Lockdown Conditions and Mental Health Factors* - PMC.

PubMed Central (PMC); www.ncbi.nlm.nih.gov.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7781407>

Gould, C., & Ward, C. L. (2015). *Positive parenting in South Africa Why supporting families is key to development and violence prevention.*

<https://issafrica.org/research/policy-brief/positive-parenting-in-south-africa-why-supporting-families-is-key-to-development-and-violence-prevention>

Greenhow, C., Lewin, C., & Staudt Willet, K. B. (2021). *The educational response to Covid-19 across two countries: A critical examination of initial digital pedagogy adoption. Technology, Pedagogy and Education*, 30(1), 7–25.

<https://doi.org/10.1080/1475939X.2020.1866654>

Haney, T. J., & Barber, K. (2022). *The extreme gendering of COVID–19: Household tasks and division of labour satisfaction during the pandemic.* Canadian Review of Sociology/Revue Canadienne de Sociologie, 59(S1), 26–47. <https://doi.org/10.1111/cars.12391>

Healthy People 2020 (2010): *An Opportunity to Address Societal Determinants of Health in the United States.* Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020.

<https://www.healthypeople.gov/2010/hp2020/advisory/SocietalDeterminantsHealth.htm>

Ha, J.-H., Hong, J., Seltzer, M. M., & Greenberg, J. S. (2008). *Age and gender differences in the well-being of midlife and aging parents with children with mental health or*

developmental problems: Report of a national study. Journal of Health and Social Behavior, 49(3), 301–316. <https://doi.org/10.1177/002214650804900305>

Hanushek, E. A., & Woessmann, L. (2020). The economic impacts of learning losses. Oecd education working papers, no. 225. OECD Publishing.

Harandi, T. F., Taghinasab, M. M., & Nayeri, T. D. (2017). *The correlation of social support with mental health: A meta-analysis*. *Electronic Physician*, 9(9), 5212–5222. <https://doi.org/10.19082/5212>

Harriman, N. W., Williams, D. R., Morgan, J. W., Sewpaul, R., Manyapel, T., Sifunda, S., Mabaso, M., Mbewu, A. D., & Reddy, S. P. (2022). *Racial disparities in psychological distress in post-apartheid South Africa: Results from the SANHANES-1 survey*. *Social Psychiatry and Psychiatric Epidemiology*, 57(4), 843–857. <https://doi.org/10.1007/s00127-021-02175-w>

Herman, A. A., Stein, D. J., Seedat, S., Heeringa, S. G., Moomal, H., & Williams, D. R. (2009). The South African Stress and Health (SASH) study: 12month and lifetime prevalence of common mental disorders. *South African Medical Journal*, 99(5), 6. <https://pubmed.ncbi.nlm.nih.gov/19588796/>

Horsfall, J., Cleary, M., & Hunt, G. E. (2010). *Stigma in mental health: Clients and professionals*. *Issues in Mental Health Nursing*, 31(7), 450–455. <https://doi.org/10.3109/01612840903537167>

- Hwang, T.-J., Rabheru, K., Peisah, C., Reichman, W., & Ikeda, M. (2020). Loneliness and social isolation during the COVID-19 pandemic. *International Psychogeriatrics*, 1–4. <https://doi.org/10.1017/S1041610220000988>
- Ingle, K., Brophy, T., Daniels, R.C., 2021. National Income Dynamics Study – Coronavirus Rapid Mobile Survey (NIDS-CRAM) 2020 - 2021 Panel User Manual. Release July 2021. Version 1. Cape Town: Southern Africa Labour and Development Research Unit.
- Irani, E., Niyomyart, A., & Hickman, R. L. (2021). Family caregivers' experiences and changes in caregiving tasks during the covid-19 pandemic. *Clinical Nursing Research*, 30(7), 1088–1097. <https://doi.org/10.1177/10547738211014211>
- Kainuwa, A., & Yusuf, N. (2013). Influence of Socio-Economic and Educational Background of Parents on their Children's Education in Nigeria . *International Journal of Scientific and Research Publications*, Volume 3(Issue 10).
- Kapur, N. (2020). Gender analysis: *Prevention and response to Ebola virus disease in the Democratic Republic of Congo*. January 2020. CARE. https://www.care-international.org/files/files/Ebola_Gender_Analysis_English_v2.pdf
- Karalis, T. (2020). Planning and evaluation during educational disruption: Lessons learned from covid-19 pandemic for treatment of emergencies in education. *European Journal of Education Studies*, 0. <https://doi.org/10.46827/ejes.v0i0.3047>
- Kawamoto, T., Furutani, K., & Alimardani, M. (2018). *Preliminary Validation of Japanese Version of the Parental Burnout Inventory and Its Relationship With Perfectionism*.

Frontiers; www.frontiersin.org.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2018.00970/full>

Kayaalp, A., Page, K. J., & Rospenda, K. M. (2021). Caregiver burden, work-family conflict, family-work conflict, and mental health of caregivers: A mediational longitudinal study. *Work and Stress*, 35(3), 217–240.

<https://doi.org/10.1080/02678373.2020.1832609>

Kendler, K., & Gardner, C. (2014). *Sex differences in the pathways to major depression: A study of opposite-sex twin pairs*. *The American Journal of Psychiatry*.

<https://www.semanticscholar.org/paper/Sex-differences-in-the-pathways-to-major-a-study-of-Kendler-Gardner/ddf0ad5327ddccb22322fa3e4b0f57b06846dc8f>

Kerr, M. L., Rasmussen, H. F., Fanning, K. A., & Braaten, S. M. (2021). Parenting during covid-19: A study of parents' experiences across gender and income levels. *Family Relations*, 70(5), 1327–1342. <https://doi.org/10.1111/fare.12571>

Khandelwal, R. (2020, April 8). *Quick and easy explanation of logistics regression*.

Medium. <https://towardsdatascience.com/quick-and-easy-explanation-of-logistics-regression-709df5cc3f1e>

Kim, T. J., & dem Knesebeck, O. von. (2015). *Is an insecure job better for health than having no job at all? A systematic review of studies investigating the health-related risks of both job insecurity and unemployment* - BMC Public Health. BioMed Central; bmcpublihealth.biomedcentral.com.

<https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-015-2313-1>

- Larsen, L., Helland, M. S., & Holt, T. (2022). *The impact of school closure and social isolation on children in vulnerable families during COVID-19: A focus on children's reactions*. *European Child & Adolescent Psychiatry*, 31(8), 1–11.
<https://doi.org/10.1007/s00787-021-01758-x>
- Lau, E. Y. H., & Lee, K. (2021). *Parents' views on young children's distance learning and screen time during covid-19 class suspension in hong kong*. *Early Education and Development*, 32(6), 863–880. <https://doi.org/10.1080/10409289.2020.1843925>
- Lee, J. (2020). *Mental health effects of school closures during COVID-19*. *The Lancet Child & Adolescent Health*, 4(6), 421. [https://doi.org/10.1016/S2352-4642\(20\)30109-7](https://doi.org/10.1016/S2352-4642(20)30109-7)
- Lee, J. O., Hill, K. G., Hartigan, Lacey. A., Boden, J., Guttmanova, K., Kosterman, R., Bailey, J. A., & Catalano, R. F. (2015). *Unemployment and substance use problems among young adults: Does childhood low socioeconomic status exacerbate the effect?* *Social Science & Medicine* (1982), 143, 36–44.
<https://doi.org/10.1016/j.socscimed.2015.08.016>
- Lee, S. J., Ward, K. P., Lee, J. Y., & Rodriguez, C. M. (2022). *Parental social isolation and child maltreatment risk during the covid-19 pandemic*. *Journal of Family Violence*, 37(5), 813–824. <https://doi.org/10.1007/s10896-020-00244-3>
- Lewis, R., Roden, L. C., Scheuermaier, K., Gomez-Olive, F. X., Rae, D. E., Iacovides, S., Bentley, A., Davy, J. P., Christie, C. J., Zschoernack, S., Roche, J., & Lipinska, G. (2021). *The impact of sleep, physical activity and sedentary behaviour on symptoms of depression and anxiety before and during the COVID-19 pandemic in a sample of South*

African participants. Scientific Reports, 11(1), 24059. <https://doi.org/10.1038/s41598-021-02021-8>

Lindeque, M. (2021). *Dealing with death: The devastating burden of one year of COVID-19 in SA*. Dealing with Death: The Devastating Burden of One Year of COVID-19 in SA; ewn.co.za. <https://ewn.co.za/2021/03/26/dealing-with-death-the-devastating-burden-of-one-year-of-covid-19-in-sa>

Lindsey, M. A., Chambers, K., Pohle, C., Beall, P., & Lucksted, A. (2013). *Understanding the behavioral determinants of mental health service use by urban, under-resourced black youth: Adolescent and caregiver perspectives*. Journal of Child and Family Studies, 22(1), 107–121. <https://doi.org/10.1007/s10826-012-9668-z>

Mayor, E. (2015). Gender roles and traits in stress and health. Frontiers in Psychology, 6, 779. <https://doi.org/10.3389/fpsyg.2015.00779>

McClain, C., Vogels, E. A., Perrin, A., Sechopoulos, S., & Rainie, L. (2021). *Parents, their children and school during the pandemic*. Pew Research Center: Internet, Science & Tech. <https://www.pewresearch.org/internet/2021/09/01/parents-their-children-and-school-during-the-pandemic/>

Mlaba, K. (2020). *COVID-19 Is Having a Serious Toll on South Africans' Mental Health: Study*. Global Citizen; www.globalcitizen.org.
<https://www.globalcitizen.org/en/content/covid-19-south-africa-mental-health-impact/>

Mude, W., Oguoma, V. M., Nyanhanda, T., Mwanri, L., & Njue, C. (2021). *Racial disparities in COVID-19 pandemic cases, hospitalisations, and deaths: A systematic*

review and meta-analysis. Journal of Global Health, 11, 05015.

<https://doi.org/10.7189/jogh.11.05015>

Mukumbang, F. C., Ambe, A. N., & Adebiyi, B. O. (2020). Unspoken inequality: How COVID-19 has exacerbated existing vulnerabilities of asylum-seekers, refugees, and undocumented migrants in South Africa. *International Journal for Equity in Health*, 19(1), 141. <https://doi.org/10.1186/s12939-020-01259-4>

McQuaid, R. J., Cox, S. M. L., Ogunlana, A., & Jaworska, N. (2021). *The burden of loneliness: Implications of the social determinants of health during COVID-19*. *Psychiatry Research*, 296, 113648. <https://doi.org/10.1016/j.psychres.2020.113648>

National Academies of Sciences, E., Education, D. of B. and S. S. and, Board on Children, Y., Children, C. on S. the P. of Y., Breiner, H., Ford, M., & Gadsden, V. L. (2016). *Parenting knowledge, attitudes, and practices*. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK402020/>

Neil. (2022). MindNation launches mental healthcare app. BusinessWorld Online. <https://www.bworldonline.com/health/2022/08/31/471523/mindnation-launches-mental-healthcare-app/>

Novianti, R., & Garzia, M. (2020). *Parental engagement in children's online learning during covid-19 pandemic*. *Journal Of Teaching And Learning In Elementary Education*, 3(2), 117–131. <https://doi.org/10.33578/jtlee.v3i2.7845>

Mahmudah, F. N., Putra, E. C., & Wardana, B. H. (2021). *The impacts of covid-19 pandemic: External shock of disruption education and financial stress cohesion*. FWU

Journal of Social Sciences, 23.

<https://doi.org/https://doi.org/10.51709/19951272/Summer-2/3>

OECD. (2021). Caregiving in Crisis: Gender inequality in paid and unpaid work during COVID-19. Organisation for Economic Co-Operation and Development.

<https://www.oecd.org/coronavirus/policy-responses/caregiving-in-crisis-gender-inequality-in-paid-and-unpaid-work-during-covid-19-3555d164/>

Nwosu, C. O. (2021). *Childcare and depression during the coronavirus pandemic in South Africa: A gendered analysis*. PLOS ONE, 16(8), e0255183.

<https://doi.org/10.1371/journal.pone.0255183>

O'Neil, A., Quirk, S. E., Housden, S., Brennan, S. L., Williams, L. J., Pasco, J. A., Berk, M., & Jacka, F. N. (2014). *Relationship between diet and mental health in children and adolescents: A systematic review*. American Journal of Public Health, 104(10), e31–e42. <https://doi.org/10.2105/AJPH.2014.302110>

Park, S. S. (2020). *Caregivers' mental health and somatic symptoms during covid-19*. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, gbaa121. <https://doi.org/10.1093/geronb/gbaa121>

Pedrosa, A. L., Bitencourt, L., Fróes, A. C. F., Cazumbá, M. L. B., Campos, R. G. B., de Brito, S. B. C. S., & Simões e Silva, A. C. (2020). *Emotional, behavioral, and psychological impact of the covid-19 pandemic*. Frontiers in Psychology, 11. <https://www.frontiersin.org/articles/10.3389/fpsyg.2020.566212>

- Pérez-Escamilla, R., Cunningham, K., & Moran, V. H. (2020). *COVID-19 and maternal and child food and nutrition insecurity: A complex syndemic*. Maternal & Child Nutrition, 16(3). <https://doi.org/10.1111/mcn.13036>
- Petroc, T. (2023, January 18). *Smartphone users in South Africa 2014-2023*. Statista. <https://www.statista.com/statistics/488376/forecast-of-smartphone-users-in-south-africa/>
- Phalaetsile, G. (2020). *COVID-19: A challenge for the fight against GBV*. Jacaranda FM; [www.jacarandafm.com. https://www.jacarandafm.com/news/news/covid-19-challenge-fight-against-gbv/](https://www.jacarandafm.com/news/news/covid-19-challenge-fight-against-gbv/)
- Pitchik, H. O., Tofail, F., Akter, F., Sultana, J., Shoab, A., Huda, T. M. N., Forsyth, J. E., Kaushal, N., Jahir, T., Yeasmin, F., Khan, R., Das, J. B., Khobair Hossain, Md., Hasan, Md. R., Rahman, M., Winch, P. J., Luby, S. P., & Fernald, L. C. H. (2021). *Effects of the COVID-19 pandemic on caregiver mental health and the child caregiving environment in a low-resource, rural context*. Child Development, 92(5), e764–e780. <https://doi.org/10.1111/cdev.13651>
- Posel, D., Oyenubi, A., & Kollamparambil, U. (2021). *Job loss and mental health during the COVID-19 lockdown: Evidence from South Africa*. PLOS ONE, 16(3), e0249352. <https://doi.org/10.1371/journal.pone.0249352>
- Press Information Bureau. (2021, April). *Community mental-health digital platform manas launched by the principal scientific adviser*. <https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1711860>

- Prime, H., Wade, M., & Browne, D. T. (2020). *Risk and resilience in family well-being during the COVID-19 pandemic*. *The American Psychologist*, 75(5), 631–643.
<https://doi.org/10.1037/amp0000660>
- Qukula, Q. (2020). *More South Africans battling with mental health due to pandemic, survey finds*. CapeTalk; www.capetalk.co.za. <https://www.capetalk.co.za/articles/398444/more-south-africans-battling-with-mental-health-due-to-covid-19-pandemic-survey>
- Reich, J., Buttimer, C. J., Fang, A., Hillaire, G., Hirsch, K., Larke, L. R., Littenberg-Tobias, J., Moussapour, R. M., Napier, A., Thompson, M., & Slama, R. (2020). *Remote learning guidance from state education agencies during the covid-19 pandemic: A first look* [Preprint]. EdArXiv. <https://doi.org/10.35542/osf.io/437e2>
- Riazi, N. A., Wunderlich, K., Gierc, M., Brussoni, M., Moore, S. A., Tremblay, M. S., & Faulkner, G. (2021). “*You can’t go to the park, you can’t go here, you can’t go there*”: *Exploring parental experiences of covid-19 and its impact on their children’s movement behaviours*. *Children*, 8(3), 219. <https://doi.org/10.3390/children8030219>
- Roos, L. E., Salisbury, M., Penner-Goeke, L., Cameron, E. E., Protudjer, J. L. P., Giuliano, R., Afifi, T. O., & Reynolds, K. (2021). *Supporting families to protect child health: Parenting quality and household needs during the COVID-19 pandemic*. *PLOS ONE*, 16(5), e0251720. <https://doi.org/10.1371/journal.pone.0251720>
- Scaglioni, S., De Cosmi, V., Ciappolino, V., Parazzini, F., Brambilla, P., & Agostoni, C. (2018). *Factors influencing children’s eating behaviours*. *Nutrients*, 10(6), 706.
<https://doi.org/10.3390/nu10060706>

- Sebidi, K. (2020). *OPINIONISTA: South Africa's other Covid-19 pandemic – our silent mental health crisis*. Daily Maverick; www.dailymaverick.co.za.
<https://www.dailymaverick.co.za/opinionista/2020-04-07-south-africas-other-covid-19-pandemic-our-silent-mental-health-crisis/>
- Section27. (2021, July 21). July 2021 court order—Revised plans for NSNP. Joint Media Statement: Hope in the Fight against Child Hunger, as Court Orders Government to Rethink Its Plans to Ensure That All Learners Get School Meals during the COVID-19 Pandemic! <https://section27.org.za/2021/07/july-2021-revised-plans-for-nsnp/>
- Seivwright, A. N., Callis, Z., & Flatau, P. R. (2023). *Perspectives of socioeconomically disadvantaged parents on their children's coping during COVID-19: Implications for practice*. *Children & Society*, 37(2), 388–403. <https://doi.org/10.1111/chso.12597>
- Shapiro, A., & Bassok, D. (2022). *Supporting young children with disabilities during the covid-19 pandemic: Evidence from caregivers in virginia*. *AERA Open*, 8, 233285842211345. <https://doi.org/10.1177/23328584221134525>
- Sharma, N., Chakrabarti, S., & Grover, S. (2016). *Gender differences in caregiving among family—Caregivers of people with mental illnesses*. *World Journal of Psychiatry*, 6(1), 7–17. <https://doi.org/10.5498/wjp.v6.i1.7>
- Shepherd, D., Mohohlwane, N., (2021). *The impact of COVID-19 in education - more than a year of disruption*. *The Impact of COVID-19 in Education - More than a Year of Disruption*; www.datafirst.uct.ac.za. <https://cramsurvey.org/wp->

content/uploads/2021/07/11.-Shepherd-D- -Mohohlwane-N.-2021.-Changes-in-education-A-reflection-on-COVID-19-effects-over-a-year.pdf

Sinha, R. (2008). *Chronic stress, drug use, and vulnerability to addiction. Annals of the New York Academy of Sciences*, 1141, 105–130. <https://doi.org/10.1196/annals.1441.030>

South Africa Federation For Mental Health. (2020). *national mental health policy framework and strategic plan 2013-2020*. SA Federation FOR Mental Health. <https://www.safmh.org.za/wp-content/uploads/2020/09/National-Mental-Health-Policy-Framework-2013-2020.pdf>

South Africa Federation for Mental Health. (2021). *Mental Health & Young People - Understanding Mental Health - SAFMH*. SA Federation for Mental Health; www.safmh.org. <https://www.safmh.org/mental-health-and-young-people/>

Smith, L. L., Yan, F., Charles, M., Mohiuddin, K., Tyus, D., Adekeye, O., & Holden, K. B. (2017, 0 0). *Exploring the Link Between Substance Use and Mental Health Status: What Can We Learn from the Self-medication Theory?* - PubMed. PubMed; [pubmed.ncbi.nlm.nih.gov. https://pubmed.ncbi.nlm.nih.gov/28458268/](https://pubmed.ncbi.nlm.nih.gov/28458268/)

South African College of Applied Psychology. (2019). *The Shocking State Of Mental Health In South Africa*. SACAP; www.sacap.edu.za. <https://www.sacap.edu.za/blog/management-leadership/mental-health-south-africa/>

South African Federation for Mental Health (SAFMH). (2019). *Speak your mind—Advocating for mental health awareness—Safmh*. SA Federation for Mental Health. <https://www.safmh.org/speak-your-mind-campaign/>

Spaull, N., & der Berg, S. V. (2020). *Counting the cost : COVID-19 school closures in South Africa and its impact on children*; scholar.sun.ac.za.

<https://scholar.sun.ac.za/handle/10019.1/109513>

Spaull, N., Burger, R., Burger, R., Carel, D., Daniels, R., Makaluza, N., Posel, D., Ranchhod, V., van der Berg, S., Wills, G. (2021). *South Africa - National Income Dynamics Study - Coronavirus Rapid Mobile Survey 2021, Wave 5. (Version V1) [Data set]*. <https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/873/get-microdata>

Statistics South Africa. (2015). *Five facts about poverty in south africa* | statistics south africa. <https://www.statssa.gov.za/?p=12075>

Statistics South Africa. (2020a). Education Series Volume VIII. *COVID-19 and barriers to participation in education in South Africa*, 2020 Report no. 92-01-08

Statistics South Africa, (2020b). *Stats sa releases census of commercial agriculture 2017 report* | statistics south africa. <https://www.statssa.gov.za/?p=13144>

Statistics South Africa, (2021). *South African labour market is more favourable to men than women* | Statistics South Africa. <https://www.statssa.gov.za/?p=14606>

Statistics South Africa. (2022). *60,6 million people in south africa* | statistics south africa. <https://www.statssa.gov.za/?p=15601>

Statistics South Africa. (2023). *GDP declines in the fourth quarter* | Statistics South Africa. <https://www.statssa.gov.za/?p=16162>

- Steimle, S., Gassman-Pines, A., Johnson, A. D., Hines, C. T., & Ryan, R. M. (2021). *Understanding patterns of food insecurity and family well-being amid the COVID-19 pandemic using daily surveys*. Child Development, 92(5).
<https://doi.org/10.1111/cdev.13659>
- Thibaut, F., & van Wijngaarden-Cremers, P. J. M. (2020). *Women's mental health in the time of covid-19 pandemic*. Frontiers in Global Women's Health, 1.
<https://www.frontiersin.org/articles/10.3389/fgwh.2020.588372>
- Thomeer, M. B., Moody, M. D., & Yahirun, J. (2023). *Racial and ethnic disparities in mental health and mental health care during the covid-19 pandemic*. Journal of Racial and Ethnic Health Disparities, 10(2), 961–976. <https://doi.org/10.1007/s40615-022-01284-9>
- Thrush, A., & Hyder, A. (2014). The neglected burden of caregiving in low- and middle-income countries. Disability and Health Journal, 7(3), 262–272.
<https://doi.org/10.1016/j.dhjo.2014.01.003>
- Turner, S., Mota, N., Bolton, J., & Sareen, J. (2018). *Self-medication with alcohol or drugs for mood and anxiety disorders: A narrative review of the epidemiological literature*. Depression and Anxiety, 35(9), 851. <https://doi.org/10.1002/da.22771>
- Tswana, Y. (2020). *So. Africa: Three million South Africans have lost their jobs as a result of the Covid-19 pandemic, women most affected* - Business & Human Rights Resource Centre. Business & Human Rights Resource Centre; <https://www.business->

humanrights.org/en/latest-news/so-africa-three-million-south-africans-have-lost-their-jobs-as-a-result-of-the-covid-19-pandemic-women-most-affected/

United Nations Children Fund. (2020). *COVID-19: A catastrophe for children in sub-Saharan Africa*. <https://www.unicef.org/esa/press-releases/covid-19-catastrophe-for-children-in-sub-saharan-africa>

United Nations Children's Fund. (2021). *Learning losses from COVID-19 could cost this generation of students close to \$17 trillion in lifetime earnings*. <https://www.unicef.org/turkiye/en/press-releases/learning-losses-covid-19-could-cost-generation-students-close-17-trillion-lifetime>

United Nations Sustainable Development Group. (2020). *Policy Brief: Education during COVID-19 and beyond*. <https://unsdg.un.org/resources/policy-brief-education-during-covid-19-and-beyond>.

United Nations Educational Scientific and Cultural Organization. (2020). *Education: From disruption to recovery*. UNESCO. <https://webarchive.unesco.org/web/20220629024039/https://en.unesco.org/covid19/educationresponse/>

Ursache, A., Barajas-Gonzalez, R. G., Adhikari, S., Kamboukos, D., Brotman, L. M., & Dawson-McClure, S. (2022). *A quasi-experimental study of parent and child well-being in families of color in the context of COVID-19 related school closure*. *SSM - Population Health*, 17, 101053. <https://doi.org/10.1016/j.ssmph.2022.101053>

- Usta, J., Murr, H., & El-Jarrah, R. (2021). *Covid-19 lockdown and the increased violence against women: Understanding domestic violence during a pandemic*. *Violence and Gender*, 8(3), 133–139. <https://doi.org/10.1089/vio.2020.0069>
- Varma, P., Burge, M., Meaklim, H., Junge, M., & Jackson, M. L. (2021). *Poor sleep quality and its relationship with individual characteristics, personal experiences and mental health during the covid-19 pandemic*. *International Journal of Environmental Research and Public Health*, 18(11), 6030. <https://doi.org/10.3390/ijerph18116030>
- Wang, M.-T., & Sheikh-Khalil, S. (2014). *Does parental involvement matter for student achievement and mental health in high school?* *Child Development*, 85(2), 610–625. <https://doi.org/10.1111/cdev.12153>
- White, A., Liburd, L. C., & Coronado, F. (2021). *Addressing racial and ethnic disparities in covid-19 among school-aged children: Are we doing enough?* *Preventing Chronic Disease*, 18, E55. <https://doi.org/10.5888/pcd18.210084>
- Woodland, L., Hodson, A., Webster, R. K., Amlôt, R., Smith, L. E., & Rubin, G. J. (2022). *A qualitative study about how families coped with managing their well-being, children's physical activity and education during the COVID-19 school closures in England*. *PLOS ONE*, 17(12), e0279355. <https://doi.org/10.1371/journal.pone.0279355>
- World Bank. (2021). *GDP (Current us\$)—South africa* | data. <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ZA>
- World Health Organization (2015). *Fact sheets on the Sustainable Development Goals (Sdgs): Health targets*. <https://www.euro.who.int/en/health-topics/health->

[policy/sustainable-development-goals/publications/2017/fact-sheets-on-the-sustainable-development-goals-sdgs-health-targets](#)

World Health Organization. (2017). *Mental health of older adults*.

<https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults>

World Health Organization. (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak*. World Health Organization.

<https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf>

World Health Organization. (2021). *Depression*. <https://www.who.int/news-room/fact-sheets/detail/depression>

World Health Organization. (2022). *COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide*. <https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide>

Wu, M., Xu, W., Yao, Y., Zhang, L., Guo, L., Fan, J., & Chen, J. (2020). Mental health status of students' parents during COVID-19 pandemic and its influence factors.

General Psychiatry, 33(4), e100250. <https://doi.org/10.1136/gpsych-2020-100250>

Wu, T., Jia, X., Shi, H., Niu, J., Yin, X., Xie, J., & Wang, X. (2021). *Prevalence of mental health problems during the COVID-19 pandemic: A systematic review and meta-analysis*. Journal of Affective Disorders, 281, 91–98.

<https://doi.org/10.1016/j.jad.2020.11.117>

- Xie, Y., Xu, E., & Al-Aly, Z. (2022). *Risks of mental health outcomes in people with covid-19: Cohort study*. The BMJ, 376, e068993. <https://doi.org/10.1136/bmj-2021-068993>
- Yale Medicine. (2022, October). Parental depression: How it affects a child. Yale Medicine. <https://www.yalemedicine.org/conditions/how-parental-depression-affects-child>
- Zach. (2020). Introduction to logistic regression. Statology. <https://www.statology.org/logistic-regression/>
- Zhang, X. (2021). *Barriers and benefits of primary caregivers' involvement in children's education during COVID-19 school closures*. International Journal of Disaster Risk Reduction, 66, 102570. <https://doi.org/10.1016/j.ijdrr.2021.102570>

APPENDIX

Mabel_Research_Report-1.docx

ORIGINALITY REPORT

17 %

SIMILARITY INDEX

12 %

INTERNET SOURCES

10 %

PUBLICATIONS

7 %

STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

6%

★ Submitted to University of Witwatersrand

Student Paper
