

**Students' Experiences of Technology, Social Connection, and Psycho-Social Well-Being
during the COVID-19 Pandemic**

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Abstract

In an effort to curb the spread of Covid-19 in South Africa, a strict national lockdown was enforced by the South African government on 23 March 2020. The lockdown had a profoundly negative impact on individuals' mental well-being as well as family functioning. In particular, university students were forced to adapt to changes in academic, social, and familial areas of life and faced unique challenges as a result of the lockdown. Maintaining interpersonal relationships outside of the home, such as with family, friends, partners, and colleagues, had the potential to alleviate these adverse mental consequences. This study aims to explore specifically how postgraduate students who were living with close family members during the lockdown used technology to maintain social connections with others outside of their homes. The sample consists of seven postgraduate students who lived with their families for over two months during the national lockdown which began in March 2020. The findings of this study indicate that participants placed greater emphasis on maintaining interpersonal relationships than they had prior to the pandemic and expended more effort on virtual interactions. While participants were able to maintain many interpersonal relationships during the lockdown, many found it difficult to remain in contact with a small proportion of their friends. Participants also reported making creative use of technological platforms to maintain relational closeness. Video calling and textual communication was reported to be particularly useful means of sustaining connections. However, technology-mediated communication often did not provide the same level of intimacy as face-to-face connections. Virtual communication also led to the blurring of boundaries, including challenges in separating virtual and physical 'spaces' and difficulty in maintaining personal-professional boundaries.

Key words: connection, interpersonal relationships, Covid-19, technology, family systems

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Introduction

Introduction

The Coronavirus disease 2019 (Covid-19) was first identified in Wuhan, China in December 2019 (Shi et al., 2020). Thereafter, the infection spread across the globe rapidly (Ganesan et al., 2021). Covid-19 caused flu-like symptoms, such as a dry cough, fever, headaches, sore throat, and muscle pain (Shi et al., 2020). Although most people developed only mild and moderate symptoms, Covid-19 had the potential to result in severe physical complications for a small percentage of people (Shi et al., 2020). Thus, to prevent further spread of the infection, many countries implemented policies restricting the movement of citizens, requiring them to self-isolate within their homes, and prohibiting large gatherings (Shah et al., 2020).

The first reported case of Covid-19 in South Africa took place on the 5th of March 2020 (Stiegler & Bouchard, 2020). Following this, more than 4 million cumulative cases were recorded in South Africa (World Health Organisation, 2023). In order to prevent the spread of the virus, the South African government put a strict lockdown into place on 23 March 2020 (Stiegler & Bouchard, 2020). Citizens were expected to isolate within their homes and were only permitted to go into public to purchase essential goods. Non-essential businesses were forced to close and schools and universities were prohibited from engaging in face-to-face learning (Elmer et al., 2020; Stiegler & Bouchard, 2020). Therefore, many schools and universities conducted academic classes through online platforms (Elmer et al., 2020).

The Covid-19 lockdown had a profound impact on the general well-being of South Africans, particularly those residing in poorer socio-economic areas (Stiegler & Bouchard, 2020). Widespread deaths related to Covid-19 resulted in the loss of bread-winners for many families, leading to hunger in those living close to the poverty line (Mbunge, 2020).

Furthermore, social distancing restrictions often impacted South Africans' abilities to attend culturally significant funeral rituals (Omonisi, 2020). This had a large impact on mourning and grieving processes (Omonisi, 2020). In addition, economic disruptions due to the pandemic resulted in an economic crisis in South Africa (Mbunge, 2020). As a result, the cost of living in South Africa increased, coupled with a lack of job security (Mbunge, 2020; Stiegler & Bouchard, 2020). A nationally representative study indicated that around 3 million South Africans became unemployed during the start of the Covid-19 pandemic in 2020 (Spaull et al., 2020). Lack of employment and transport as well as social distancing restrictions frequently prevented those living with chronic medical conditions from attending routine hospital visits and outpatient visits (Nguse & Wassenaar, 2021). In addition, during the Covid-19 lockdown, instances of gender-based violence (GBV) escalated rapidly (Mbunge, 2020), and it is likely that many GBV cases went unreported (Nguse & Wassenaar, 2021).

The high rates of illness, loss, unemployment, financial stressors, as well as forced social distancing restrictions frequently resulted in poor mental health outcomes (Stiegler & Bouchard, 2020). Rates of individuals with clinically significant symptoms of Major Depressive Disorder, anxiety disorders, and Post-Traumatic Stress Disorder (PTSD) increased during the Covid-19 lockdown in 2020 (Pieh et al., 2021; Rossi et al., 2020). Many reported feeling an acute sense of loneliness and isolation as a result of the lockdown (McKinlay et al., 2022).

Connecting with others outside of the household, including friends, family members, partners, and colleagues, acted as buffers to the negative emotional impact of Covid-19 lockdown (Brown & Greenfield, 2021). However, given the social distancing restrictions during the lockdown, all communications took place through virtual platforms. Virtual interactions frequently provided social support in the face of stress and reduced the sense of

boredom and loneliness (Brooks et al., 2020; Norbury et al., 2021; Shah et al., 2020). This often had positive psychological implications, such as a more positive mood, increased calmness, and more energy (Forbes et al., 2021).

Transnationalism is a term that was adopted by Schiller and colleagues (1992) to define a group of migrants whose networks, behaviours, and customs are profoundly influenced by both their host country and their country of origin. They are profoundly influenced by their relationships in their country of origin (Silver, 2014). Prior to the Covid-19 pandemic, many transnational family members, friends, and romantic partners used technology-mediated communication to maintain connections with one another despite geographical distance (Aguila, 2009; Baldassar et al., 2016; Lobburi, 2012). In the globalised world of today, care and intimacy often transcend time and distance through the use of technology (Baldassar, 2016). Transnational families, friends, and partners are able to maintain relationships through the virtual exchange of care, including financial, practical, and emotional support (Baldassar, 2007). Providing emotional support virtually has involved engaging in emotional labour in the forms of scheduling phone calls, celebrating special occasions together virtually, and sharing photographs (Baldassar, 2007; Di Leonardo, 1987). Transnational literature has demonstrated the effective use of textual communication (Cabalquinto, 2020), voice calling (Neustaedter & Greenberg, 2012), and video calling (Baldassar, 2016) in maintaining closeness between people separated by distance. Although the fields of Covid-19 lockdown and migration are peculiar and differ greatly, they both involve making creative use of technology to maintain connections between loved ones despite physical separation. During the Covid-19 lockdown, people reported making creative use of video calling (Heshmat & Neustaedter, 2021), voice calling (Brown & Greenfield, 2021), textual communication (Esteve-Del-Valle et al., 2022), and social video gaming

(Bengtsson et al., 2021) to facilitate connections with others living apart from them, such as friends, family members, classmates, and colleagues.

Individuals' abilities to access technology differ vastly between and within countries (Aissaoui, 2022). This "digital divide" is particularly notable in South Africa (Venter & Daniels, 2020, p. 3251). While the majority of South African adults have their own cell phones, less than 40% of citizens' cell phones have access to the internet (Taylor, 2023). These limitations are in part the result of the high cost of smart phones and mobile data (Venter & Daniels, 2020). In a survey assessing the costs of mobile data in 233 countries, the cost of mobile data in South Africa was ranked 135th cheapest (Galal, 2022). Furthermore, individuals in more affluent socio-economic areas of South Africa tend to have greater access to various technological devices and more commonly have access to internet connectivity than those in poor socio-economic areas (Chisango & Marongwe, 2021). South Africans living in rural areas are at particularly high risk for connectivity and electricity problems, along with limited internet access (Landa et al., 2021; Pather & Booi, 2020). Thus, geographic and socio-economic factors play large roles in individuals' abilities to use technology-mediated communication to foster connections and buffer stress. There is a dearth of South African studies exploring how technology was used to maintain interpersonal connections outside of the home during Covid-19 lockdown. In particular, few studies investigating technology usage have been conducted with university students. Thus, this study endeavoured to explore how university students who lived with close family members during the 2020 Covid-19 lockdown made use of technology to maintain interpersonal connections with others outside of their homes.

Rationale

An abundance of literature has highlighted the vital role of technology-mediated communication in maintaining interpersonal connections. Particularly, technology usage

amongst transnational families, partners in long-distance romantic relationships, and long-distance friends have been researched fairly extensively (Aguila, 2009; Baldassar et al., 2016; Lobburi, 2012). However, few studies have investigated how technology was used to maintain connections with those living apart from one another during the Covid-19 lockdown.

The majority of studies exploring technology usage and social connections during the pandemic have been conducted in Western countries (Brown & Greenfield, 2021; Heshmat & Neustaedter, 2021; Pakdaman & Clapp, 2021), while the experiences of those in the non-Western countries, particularly African countries, remained largely unexplored. Norms surrounding social connectivity and technology usage are vastly different between countries (Urinboyev, 2021). Different countries have diverse levels of access to technological devices and internet connectivity. Thus, it may be beneficial to explore the use of technology-mediated communication to maintain relationships in South Africa.

The literature exploring technology usage and social connection amongst university students during Covid-19 is fairly limited. While a number of studies have investigated students' use of technology for virtual learning during Covid-19 (Lederer et al., 2021; Sharin, 2021), relatively few studies have discussed university students' use of technology to maintain social, romantic, and familial connections outside of the home. Students faced substantial stressors during Covid-19 and often experienced severe psychological impacts of the lockdown (Halliburton et al., 2021; Khan et al., 2022). Postgraduate students contended with distinctive stressors and had unique experiences of maintaining relationships with others. For example, postgraduate students often have large and time-consuming workloads. Their academic programmes are frequently face-to-face oriented and rely heavily on one-to-one contact with lecturers or supervision. Thus, physical distancing restrictions may have resulted in profound disruption of academic progress.

Finally, few studies investigating the virtual maintenance of relationships during Covid-19 have made use of a systemic framework. Exploring the impact of the lockdown on individuals situated within their family systems, friendship systems, and community systems may yield valuable insights about the dynamics within and between systems. Particularly, little research has used Family Systems Theory framework to interpret students' experiences during the lockdown. Investigating the impact of home confinement and the virtual maintenance of relationships outside of the home from a Family Systems perspective may generate unique insights about the experiences within family systems.

This thesis will follow the following structure:

Chapter 1: Introduction

The introduction aimed to provide background information about the phenomenon being studied and the context of the study. This chapter highlighted the rationale behind the study.

Chapter 2: Literature Review

The literature review will provide a summary of the relevant literature. Firstly, it will include a discussion of the impact of quarantines on individual and family well-being, as well as the importance of social interactions for psychological well-being during quarantines. The chapter will go on to discuss the impact of Covid-19 lockdown on interpersonal relationships. In addition, the literature review will explore the use of technology-mediated communication within transnational families and long-distance relationships. Finally, the chapter will discuss how technology was used to maintain interpersonal connections during the Covid-19 lockdown.

Chapter 3: Methodology

The methodology chapter will endeavour to describe the methodology used to conduct this study. This will include discussing the study's research aims and questions. The

research design will then be outlined, as well as the theoretical framework, Family Systems Theory. Following this, the chapter will describe the sampling process, as well as provide a description of the participants. The processes used in data collection and data analysis will also be outlined. Subsequently, this chapter will discuss the qualitative rigour of this study, as well as the ethical considerations. The chapter will conclude by outlining the reflexive considerations of this study.

Chapter 4: Findings

This chapter will outline the findings that emerged from data analysis. These themes will be explained with the facilitation of quotes from participants. Firstly, the chapter will outline participants' experiences of maintaining interpersonal relationships outside of their homes. Thereafter, participants' use of technology, particularly video calls and textual communication, will be outlined. The limitations of virtual communication will then be outlined. Finally, the psychological implications of the Covid-19 pandemic will be described.

Chapter 5: Discussion

The discussion chapter explores how the themes that emerged in this study are linked to the research questions posed at the beginning of the study. The chapter also contextualises the themes within a Family Systems approach, which was used as a theoretical lens, and the relevant literature.

Chapter 6: Conclusion

The last chapter summarises the study's key findings, discussing the limitations present in the study, and outlining the recommendations for future research.

Appendices

The appendices provide all documentation necessary for this study.

Literature Review

Introduction

A substantial body of literature has explored the impact of the Covid-19 pandemic on psychosocial well-being. Psychosocial well-being refers to various interconnected aspects of general wellbeing, including psychological, emotional, physical, social, and economic wellbeing (Negovan, 2010). Several researchers have shown that the pandemic had profound consequences for family well-being (Rudolph & Zacher, 2021; Wong et al., 2022; Gayatri & Irawaty, 2022) and individual well-being (Rossi et al., 2020; Zhou et al., 2020; Pieh et al., 2021), as well as interpersonal relationships with friends and extended family (Cairns et al., 2020; Rubinsky et al., 2021; MacLeod, 2022). At an individual level, well-being refers to an individual's level of positive affect and their degree of self-actualisation (Deci & Ryan, 2008). Whereas, at a family level, well-being is often referred to as the level of general life quality of the family unit as a whole, as well as the level of family functioning (Gong et al., 2021). The presence or absence of individual wellness has an acute impact on family wellness, and vice versa (Gong et al., 2021; Prime et al., 2020). A growing body of quantitative literature has explored the acute impact of the Covid-19 lockdown on students' psychosocial well-being (Hall & Zygmunt, 2021; McKinlay et al., 2022). Various South African studies have explored the social and psychological impact of the pandemic (Hunt et al., 2021; Davy et al., 2021; De Man et al., 2022). However, there is a dearth of qualitative studies exploring the stressors faced by students who were forced to live at home with their families during the pandemic, as well as their abilities to maintain and build relationships during this time.

Many research studies have explored the necessity of social connections in buffering stressors (Anwar et al., 2013; Bryant et al., 2017; Dar et al., 2018; Gariepy et al., 2016; Kawachi & Berkman, 2001; Taylor et al., 2012). Several studies have shown that when

individuals are separated from loved ones by geographical distance, technological tools can be used to bridge that distance and provide support (Aguila, 2009; Baldassar, 2007, 2016). This literature is echoed in studies conducted during the COVID-19 pandemic, which have highlighted the positive impact of staying connected with others via technology during the lockdown (Forbes et al., 2021; Gong et al., 2021; David & Roberts, 2021), and have explored the intricacies of using technology to maintain contact with loved ones (Watson et al., 2021; Pakdaman & Clapp, 2021; Heshmat & Neustaedter, 2021).

While the areas of migration studies and the Covid-19 pandemic may appear to be very diverse fields, the Covid-19 pandemic and its concomitant lockdowns created similar scenarios for people as they were separated from their loved ones, unable to see them in person and had to rely mainly on technology in order to maintain interpersonal connections. As such it was deemed relevant to explore the extensive amount of research done in the field of transnational families when trying to understand how young adults maintained significant relationships during the Covid lockdowns. Consequently, both the transnational literature and literature relating to Covid-19 reveal various creative means of maintaining connections between loved ones despite physical separation.

The following chapter will explore relevant literature on the psychological consequences of disasters, as well as the specific impact of quarantines, and their impact on family well-being and individual psychological well-being. Furthermore, the importance of social connections, as well as the psychological benefits of technology-mediated communication will be discussed. In addition, examples of the use of technology will be provided in the context of transnational relationships, as well as in the context of the Covid-19 pandemic.

Psychological Impact of Disasters

Disasters are characterised as chaotic occurrences which have the potential to disrupt social stability, which may include natural disasters, such as floods, earthquakes, or typhoons, or manmade disasters, such as gas leaks, building collapses, or ship sinkings (Kim & Ashihara, 2020). Furthermore, global health disasters, including outbreaks of Ebola, Severe Acute Respiratory Syndrome (SARS), Middle Eastern Respiratory Syndrome (MERS), as well as Covid-19 are severe threats to social order (Kim & Ashihara, 2020). Pandemics are a unique form of disaster, with specific behavioural and psychological impacts (Esterwood & Saeed, 2020). Recent outbreaks of infectious disease have been smaller in scale and less widespread than Covid-19. Due to the unprecedented nature of the Covid-19 pandemic, considering the psychological impact of past disasters may be a useful means of contextualising the Covid-19 outbreak (Esterwood & Saeed, 2020).

Disasters and Family Well-being

Disasters experienced by the family unit, as well as disasters experienced by a single family member, frequently have profound impacts on family functioning (Caruana, 2010). In the aftermath of the Covid-19 pandemic, as well as other natural and manmade disasters, families often experienced a multitude of various losses, including loss of loved ones, employment, life roles, and material resources (Hackbarth et al., 2012; Mbunge, 2020), all of which will be outlined in greater detail later in this chapter. Stressors that emotionally impact one family member are often likely to spill over and impact others within the family (Prime et al., 2020). The uncertainty and distress resulting from these stressors may lead to increased volatility in family relationships and may reduce positive interactions between family members (Hensley & Harris, 2022; Powell & Holleran Steiker, 2012). Given the numerous stressors experienced by families after disasters, there is often a period in which it is necessary for parents/ caregivers to provide good leadership, nurturance, and protection (Prime et al., 2020). However, due to the draining of mental and emotional resources during

times of crisis, parents/ caregivers may find it difficult to provide such guidance to their families. This may result in strain on the parent-child relationship (Peltz et al., 2021; Prime et al., 2020). These stressors may result in heightened substance abuse within families (Powell & Holleran Steiker, 2012), and may also result in increased instances of domestic violence (Gage, 2005). McDermott and Cobham (2012) found that families who had experienced a tropical cyclone in Australia were more likely to present with family dysfunction (assessed by the Family Assessment Device) than the general Australian population (McDermott & Cobham, 2012). Similarly, McFarlane (1987) found that individuals who had been exposed to a bushfire were more likely to display high levels of irritability, conflict, and withdrawal than families who had not experienced a disaster (McFarlane, 1987).

Disasters and Individual Well-being

Research exploring natural, man-made, and global health disasters suggests that there are large psychological implications for individual survivors (Beaglehole et al., 2018; Chaves et al., 2018; Kar & Bastia, 2006; Pieh et al., 2021). A survey-based study of Bangladeshi women who had experienced cyclone Mora revealed that 64.9% of the women endured symptoms of depression. The proportion is larger than that of other vulnerable populations in Bangladesh (Mamun et al., 2019). In addition, a study of adolescents who had experienced a super-cyclone suggested that large proportions of the population presented with symptoms of Post-Traumatic Stress Disorder (PTSD), depression, and anxiety (Kar & Bastia, 2006). Similarly, a questionnaire-based study conducted with evacuees from the site of a major earthquake and tsunami in Japan revealed that participants presented with high rates of PTSD and depression (Kukihara et al., 2014).

Survivors of Covid-19 and other disasters are faced with diverse challenges which have profound mental health consequences (Munro et al., 2017; Newman et al., 2022). In particular, disasters frequently have substantial medical outcomes, including injury as a direct

result of the disaster, as well as subsequent mid-to-long-term infections following the disaster (Bouchard et al., 2022). In addition, disasters result in damage to property or assets and may lead to forced relocation (Bouchard et al., 2022). Removal from the familiarity, safety, and security of one's home or possessions frequently results in feelings of insecurity (Makwana, 2019). Insecurity is also compounded by the deaths of loved ones (Makwana, 2019). Furthermore, post-disaster challenges – including lack of water, electricity, and sanitation – profoundly impact mental well-being (Bouchard et al., 2022). Disasters often result in loss of routines, change in community roles, and are often accompanied by a loss of identity (Makwana, 2019). Resources which are frequently used to cope with challenges – including physical resources, loved ones, and hope and plans for the future – may be lost or inaccessible post-disaster, making it difficult to adapt (Hobfoll et al., 1996).

Importance of Social Connections in Times of Disaster

Maintaining strong and consistent social connections with others, including friends, nuclear and extended family members, neighbours, and colleagues, is vital for one's psychological, social, and physical well-being (Baumeister & Leary, 2017; Gariepy et al., 2016; Heaney & Israel, 2008; Lebow et al., 2019; Pattison et al., 1975). Social relationships meet the fundamental needs of intimacy, security, belonging, companionship, and validation of one's worth (Heaney & Israel, 2008; Kawachi & Berkman, 2001). The meeting of these needs often results in increased motivation to partake in self-care behaviours and may modulate the impact of stress (Kawachi & Berkman, 2001). Furthermore, social connections often provide informational and instrumental support, such as information, advice, contacts, and tangible resources (Heaney & Israel, 2008). These resources may assist in achieving favourable outcomes, reducing uncertainty, and gaining a sense of control (Heaney & Israel, 2008). Social support is particularly important when undergoing change or in times of stress (Pitas & Ehmer, 2020). Positive emotions associated with social relationships, as well as

discussing one's difficulties with friends and family may provide emotional buffering during stressful periods (Gariépy et al., 2016; Taylor et al., 2012). Individuals with higher perceived social support are likely to appraise stressful situations in a more positive manner than those with lower perceived social support (Kawachi & Berkman, 2001). Thus, higher perceived social support frequently reduces negative emotional, physiological, and behavioural responses to stressful situations (Kawachi & Berkman, 2001).

There is a large body of research that supports the notion that social support acts as a psychological buffer in times of stress. Thus, social support can be viewed as an important topic in discussions regarding the Covid-19 pandemic. A community-based cohort study conducted with survivors of a bushfire indicated that individuals with fewer social connections were at higher risk for symptoms of depression and PTSD (Bryant et al., 2017). Similarly, a study of women of reproductive age who had experienced an earthquake suggested that reduced social participation increased the women's risk for symptoms of PTSD (Anwar et al., 2013). In addition, a study of survivors of a flood in Kashmir Valley suggested that support from family and friends reduced the impact of flood-exposure on PTSD symptoms, while lower support heightened the impact (Dar et al., 2018).

Psychological Impact of Quarantines

Quarantines are a means of preventing the spread of infectious diseases during widespread outbreaks. This is accomplished through the separation of those who may be exposed to the disease from those who have not yet been exposed (Huremović, 2019a). Quarantine is achieved by restricting the movement of individuals who have potentially been exposed to the disease (Brooks et al., 2020). Examples of previous quarantines include the 2003 SARS pandemic, during which city-scale quarantines were enforced in Canada and China, as well as during the 2014 Ebola outbreak, when numerous countries in west Africa

were quarantined (Brooks et al., 2020). The most recent widespread quarantine was that of the Covid-19 pandemic (Brooks et al., 2020), as will be further detailed later in this chapter.

Quarantine and Family Well-being

Quarantines resulting from widespread outbreaks of infectious disease have unique impacts on family functioning (McCleary et al., 2006). For example, individuals who are quarantined are often expected to isolate in medical facilities away from their families (McCleary et al., 2006; O'Sullivan et al., 2009). Thus, family members frequently report challenges with connecting with one another (Leong et al., 2004). They also report becoming distressed that they are not able to touch or hold each other (Leong et al., 2004). Furthermore, quarantine may interrupt the caregiving process between family members, where family members are no longer able to provide each other with physical care, spend quality time together, or assist chronically ill family members with medical care (McCleary et al., 2006). In the cases of community-wide quarantine measures, the closing of schools and day-care centres poses challenges in providing childcare for children. This is particularly challenging for those parents employed in healthcare settings who are often expected to work long hours or to regularly quarantine within medical facilities (O'Sullivan et al., 2009).

Quarantine and Individual Well-being

A wealth of literature has highlighted the negative psychological impact of quarantine on individuals. Those who have experienced quarantine may become anxious, worried, or fearful, and may also experience distress and anger (Brooks et al., 2020; Huremović, 2019b; Jeong et al., 2016; Lin et al., 2010). The stress associated with quarantine is likely to exacerbate existing mental disorders, as well as precipitate episodes of mental disorders in vulnerable individuals (Esterwood & Saeed, 2020). Hawryluck and colleagues (2004) investigated the psychological impact on those quarantined after the severe acute respiratory syndrome (SARS) outbreak in Toronto, Canada. The study found that 28.9% of participants

reported symptoms of PTSD and 31.2% reported symptoms of depression (Hawryluck et al., 2004).

These conditions may result from a sense of helplessness and loss of control, as well as the realisation that future plans have changed (Huremović, 2019b). In addition, they may result from the possibility of contracting the illness, or loved ones contracting the illness (Huremović, 2019b; Lin et al., 2010), as well as from the isolation and loneliness brought about by the quarantine (Lin et al., 2010). Quarantined individuals often long for in-person contact with their families and to share their worries with their loved ones to lessen the emotional toll of loneliness (Lin et al., 2010).

Importance of Social Connections during Quarantine

Several studies have discussed the benefits of social connection in buffering quarantine-related stressors (Cheng & Wong, 2005; O’Sullivan et al., 2009). A study conducted with those quarantined for SARS in Hong Kong found that individuals who experienced higher levels of social support were more likely to have positive self-perceptions regarding their infection than those who experienced lower levels of social support (Cheng & Wong, 2005). Furthermore, a qualitative study conducted with nurses during the SARS outbreak in Canada found that nurses reported valuing social connections as a means of buffering stress (O’Sullivan et al. 2009). The same study found that nurses often valued virtually connecting with their loved ones while self-isolating apart from one another (O’Sullivan et al., 2009). Similar results were obtained by McCleary and colleagues (2006), who conducted a study with families of residents at long-term care facilities who were quarantined during the SARS outbreak in Canada. This study found that residents greatly valued technology-mediated communication as a means of buffering the negative psychological impacts of quarantine (McCleary et al., 2006). Telephonic calls between family

members and exchanging photographs were reported to be particularly helpful (McCleary et al., 2006).

The Psychological Impact of Covid-19 Lockdown

The Covid-19 lockdown requires additional elaboration, as it had a number of distinct features, in comparison with previous quarantines. In order to prevent the spread of Covid-19, many countries put strict lockdown measures into place (Amir, 2022). This involved enforcing full-time, country-wide quarantines (Wilder-Smith & Freedman, 2020). All citizens were confined to their homes and they were only permitted to enter public places to obtain essential goods (Stiegler & Bouchard, 2020). Furthermore, schools, universities, and non-essential businesses were frequently forced to remain closed for the entirety of the lockdown (Stiegler & Bouchard, 2020). The South African government enforced a strict national lockdown from 26th March which continued for several months (Stiegler & Bouchard, 2020). Thereafter, in order to slow infection rates on a long-term basis, citizens were expected to adhere to self-isolation, physical distancing practices, and limited travel (Mboera et al., 2020). Isolation involved separating those likely to have been infected with Covid-19 from those who were not infected (Nishiura et al., 2012). Those who were exhibiting symptoms of Covid-19 or who were exposed to the infection were expected to self-isolate in their homes for 10-14 days. This section explores the psychological impact of the Covid-19 lockdown in particular, which had an extensive impact on the well-being of both individuals and families (Rossi et al., 2020; Rudolph & Zacher, 2021).

Covid-19 Lockdown and Family Well-being

Family Stressors. The Covid-19 lockdown acted as a significant stressor for families, as it altered many previously stable aspects of family life (Rudolph & Zacher, 2021). For example, orders to work from home resulted in adults shifting their work to their homes and working mostly online/virtually (Rudolph & Zacher, 2021). Furthermore, the closing of

schools resulted in children learning virtually from their homes (Rudolph & Zacher, 2021). This resulted in people with children having to spend more time caring for their children than they did before the pandemic (Ayuso et al., 2020). Home schooling was particularly challenging for families that lacked the knowledge and resources to facilitate learning (Gayatri & Irawaty, 2022). The balancing of childcare and work responsibilities presented similar challenges (Ayuso et al., 2020). Individuals also reported that spending the majority of time with family members became overwhelming and that they needed time away. However, this was not physically possible because of lockdown restrictions. Close confinement and regular contact with family members were likely to create or intensify conflicts (Wong et al., 2022). Additionally, the heightened stressors of the pandemic, coupled with home confinement, resulted in a rise in the number of domestic violence cases during the Covid-19 lockdown (Duby et al., 2022). Many women and girls within a South African cohort indicated that they were increasingly concerned about being physically, sexually, or emotionally abused during the lockdown (Duby et al., 2022). Family members frequently relieved the emotional impact of these stressors by connecting with friends, acquaintances, and colleagues via technology (Fraudatario & Zaccaria, 2020).

University students reported various difficulties associated with staying at home with their families during the Covid-19 lockdown (Hall & Zygmunt, 2021). They reported tension within the home, a sense of frustration at being “trapped” with their family members, as well as a lack of understanding and support from their families (Hall & Zygmunt, 2021).

University students reported feeling as though their families were invasive, often paying close attention to their study habits (Hall & Zygmunt, 2021). In addition, students frequently needed to take on additional domestic responsibilities, including caring for children, home-schooling children, and caring for older family members (Hall & Zygmunt, 2021; Neuwirth

et al., 2021). This often resulted in them having less time to work on their own goals and difficulties with completing schoolwork (Hall & Zygmunt, 2021; Halliburton et al., 2021).

Family Closeness. Despite the increase in stressors, some families reported that their relationships improved and that they felt closer to one another during the Covid-19 lockdown. A longitudinal study conducted in Germany during 2020 found that although family demands increased during the pandemic, there was also an independent increase in satisfaction with family life during this period (Rudolph & Zacher, 2021). In support of this, an interview-based study conducted in Spain during the 2020 lockdown, suggested that family members believed that their relationships with those they lived with improved during the lockdown (Ayuso et al., 2020). Similarly, a family network analysis conducted in Italy during 2020 found that there was a strong sense of cohesion between family members during Covid-19 (Fraudatario & Zaccaria, 2020). Being forced to share the same space as one's family members may have promoted mutual trust, support, and mutual solidarity (Fraudatario & Zaccaria, 2020). Spending more quality time with one's family members served to bolster family satisfaction (Rudolph & Zacher, 2021). A number of family members reported having honest, "difficult" conversations with one another, that they would have been unlikely to have, were it not for the pandemic (McKinlay et al., 2022, p. 6). A recent qualitative study conducted in South Africa suggested that family members were able to maintain mutual respect as well as open, amicable communication with one another (Rich et al., 2022).

In addition, a number of studies indicate that positive family functioning aided in buffering the stress of individual family members during the Covid-19 lockdown. A cross sectional study conducted in the United States found that greater engagement in family routines served as a buffer for stress during Covid-19 (Bates et al., 2021). Similarly, study conducted with participants from the United States and Hong Kong found that various aspects of family closeness, including communication, problem solving, and positive outlook

at a family level, buffered the negative association between Covid-19-related stressors and anxiety symptoms (Chan et al., 2021). A survey-based study conducted with university students in China found that respect for family members served as a buffer against the impact of economic stress during the Covid-19 pandemic (Cui & Hong, 2021).

Covid-19 Lockdown and Individual Well-being

Risk of Common Mental Disorders. A substantial amount of research suggests that the Covid-19 lockdown had a considerable impact on the mental health and well-being of individuals. A study conducted with an Italian cohort found that during the 2020 Covid-19 lockdown 17.3% of the population presented with severe symptoms of depression, 20.8% presented with severe symptoms of anxiety, 21.9% presented with a high level of perceived stress, and 14% presented with symptoms of post-traumatic stress, relatively higher rates of mental disorders than are usually found in the Italian population (Rossi et al., 2020).

Furthermore, during the Covid-19 lockdown, 41% of the United Kingdom population presented with clinically significant symptoms of depression, 39% presented with clinically significant symptoms of anxiety, and 28% met the criteria for clinical insomnia. This is a higher proportion than suggested by studies conducted prior to Covid-19 (Pieh et al., 2021). A further cross-sectional survey conducted with the Chinese population found that rates of depression and anxiety were higher than pre-pandemic, with 43.7% reporting symptoms of depression and 37.4% reporting symptoms of anxiety (Zhou et al., 2020). In addition, a meta-analytic review of mental illness within the general Eastern European population suggested high levels of clinically significant depression and anxiety, with a pooled prevalence of 30% for anxiety and a pooled prevalence of 27% for depression (Zhang et al., 2022).

South African literature indicates that the severity of mental disorders increased during the Covid-19 lockdown. A longitudinal, survey-based study conducted in South Africa

indicated that the risk of screening positive for symptoms of depression increased from 24% pre-pandemic to 29% during the pandemic (Hunt et al., 2021). In addition, a South African observational study found that symptoms of anxiety, depression, and insomnia worsened during the pandemic (Davy et al., 2021). A survey-based study conducted in the Western Cape during Covid-19 found that 46% of the sample presented with clinically significant anxiety, and 47.2% presented with clinically significant depression (De Man et al., 2022).

Isolation and Loneliness. The limited face-to-face interactions during the Covid-19 lockdown frequently resulted in a sense of isolation. Individuals in the United States reported experiencing heightened loneliness during the 2020 lockdown (Cairns et al., 2020). Similarly, a series of qualitative interviews of adolescents and young adults in the UK revealed increased isolation and loneliness (McKinlay et al., 2022). Several participants reported that the restrictions on seeing others face-to-face made them feel “trapped” and had a negative impact on their mental well-being (McKinlay et al., 2022, p. 5). In another study, individuals who were introverted reported that the Covid-19 lockdown felt like less of an intense change for them; although several felt a longing for socialisation regardless of their introversion (Cairns et al., 2020). The same study revealed that those participants who were extroverted felt greater frustration about the changes during the Covid-19 lockdown (Cairns et al., 2020).

Covid-19-Related Stressors. Numerous health-related, family, financial, and social stressors contributed to poor mental health during the Covid-19 lockdown. Individuals were often worried about being infected with Covid-19, or about others being infected (Brooks et al., 2020). Many who had been infected felt distressed about managing the symptoms of Covid-19, particularly in severe cases (Rwafa-Ponela et al., 2022). In addition, individuals often reported feeling anxious and uncertain about the future (Moore et al., 2021). Many were left unemployed or made redundant during Covid-19, resulting in worries about meeting current and future financial needs (Chandola et al., 2020; Rossi et al., 2020), while those who

remained employed reported feeling constant concern about the potential loss of employment (Rwafa-Ponela et al., 2022). These financial difficulties caused many South Africans to face food insecurities and many were forced to rely on government grants to afford food (Rwafa-Ponela et al., 2022). In addition, numerous individuals found adapting to working from home to be stressful, particularly with the added burden of childcare and home schooling (Chandola et al., 2020). Those who worked from home often worked longer hours than they had previously and experienced difficulty maintaining a mental separation between home and work, as rituals previously used to create separation between home and work life, such as getting dressed and driving to work, were no longer present (Adisa et al., 2022; Mukherjee & Narang, 2022). Furthermore, Covid-19 negatively impacted individuals' abilities to attend religious gatherings and cultural events, such as church gatherings (Rwafa-Ponela et al., 2022). Covid-19 regulations resulted in many South Africans being unable to attend the funerals of their loved ones, which often caused great distress and disruption in the grieving process (Rwafa-Ponela et al., 2022).

Student Well-being. University students may have been particularly vulnerable to the negative psychological ramifications of the Covid-19 pandemic (Khan et al., 2022). A study conducted with university students from Bangladesh found that students presented with high rates of anxiety and depression, with 40% of students presenting with anxiety symptoms and 72% presenting with symptoms of depression (Faisal et al., 2022). Similarly, Lee and colleagues (Lee et al., 2021) recorded high rates of depression, anxiety, and stress symptoms in undergraduate students within the United States, where 88% of students reported moderate-to-severe stress levels, 44% reported moderate-to-severe anxiety symptoms, and 36% reported moderate-to-severe depression symptoms. Likewise, in a sample of students from Guangdong Province in China, 26.60% presented with symptoms of anxiety and 21.16% presented with symptoms of depression (Chang et al., 2020). Furthermore, a sample

of undergraduate and postgraduate students at nine public research universities presented with high levels of depression and anxiety, where 35% of undergraduate students and 32% of postgraduate students screened positive for major depressive disorder and 39% of both undergraduate and postgraduate students met the criteria for generalised anxiety disorder (Chrikov et al., 2020). In addition, a survey-based study conducted at a South African university found that 45.6% of students presented with anxiety and 35% presented with depression (Visser & Law-van Wyk, 2021). However, a cross-sectional study conducted with first-year students at two South African universities found that the rise in prevalence of common mental disorders in 2020 was not larger than the rise in prevalence over previous years (Bantjes et al., 2023). The authors suggest that the impact of Covid-19 may have been less intense than in other regions and that Covid-19 may have been just one of the many disruptions and adversities faced by South African students (Bantjes et al., 2023).

Globally, university students reported a lack of stability, due to the rapid changes in academic structures (Halliburton et al., 2021; McKinlay et al., 2022). They often felt less able to cope with academic demands due to the shift to remote learning (Halliburton et al., 2021). This often resulted in stress about dropping grades and potential difficulty maintaining financial aid (Halliburton et al., 2021). At the start of the pandemic, many universities did not provide clear guidance about how examinations and coursework would proceed, resulting in heightened academic stress for many students (McKinlay et al., 2022). In addition, students often felt a sense of instability regarding employment, particularly those who had lost the opportunity for professional development, such as internships (Halliburton et al., 2021). They also felt distressed because of the loss of their freedom and independence, and a lack of autonomy (Hall & Zygmunt, 2021), as well as missed social opportunities (Halliburton et al., 2021). Many students felt distressed at missing social opportunities in their first year or their

final year at university, such as celebrating graduation with their friends and relatives or attending ‘Freshers Week’ (Halliburton et al., 2021).

Similarly, South African students reported multiple stressors when adapting to online learning. Students often felt that universities provided little support or clarity during the transition period (Ross, 2022). Students reported higher volumes of work during lockdown (Olawale et al., 2021; Ross, 2022) and described having difficulties with engaging in virtual learning and understanding the course content (Ross, 2022). A number of students also recounted time-management and work-schedule-related stressors, as they struggled to keep abreast with the high volume of work (Olawale et al., 2021).

Importance of Social Connections during Covid-19

Due to limitations on face-to-face communication between those living apart during Covid-19, individuals were only able to communicate with one another via virtual platforms. Nonetheless, various studies indicated the importance of technology-mediated communication for psychological well-being during the pandemic (Brown & Greenfield, 2021; Forbes et al., 2021; Gong et al., 2021).

Individuals in the United States who communicated via technology during the Covid-19 lockdown were likely to feel more satisfied with their lives, and they were more likely to experience greater positive emotions than those who communicated less frequently (Brown & Greenfield, 2021). Similarly, a survey conducted in Hong Kong during Covid-19 found that both video calls and voice calls within family e-chat groups were associated with greater reported personal happiness (Gong et al., 2021). Furthermore, during the 2020 Covid-19 lockdown in Austria, Germany, and Italy, increased social interactions – both virtual and face-to-face – were associated with a more positive mood, increased calmness, and more energy (Forbes et al., 2021). Those who experienced more frequent interactions were likely to have experienced a more positive mood and greater energy (Forbes et al., 2021). Similarly, a

diary study, conducted during the Covid-19 lockdown in the United Kingdom, found that those who had frequent phone calls with their families and those who had frequent video calls and texts with friends generally had higher levels of daily well-being (Sun et al., 2020). Similar findings were demonstrated in the work by David and Roberts (2021), who found that in undergraduate students in the United States, increased smartphone usage was associated with greater perceived social connection; this in turn was connected to better mental well-being (David & Roberts, 2021). However, Juvonen and colleagues (2021) reported that satisfaction with virtual social connections with friends, rather than the frequency of virtual social interactions, was connected with less depression, anxiety, and loneliness (Juvonen et al., 2021).

A questionnaire-based study conducted in Hong Kong found that the participation in e-chat groups, such as WhatsApp and WeChat, during Covid-19 was associated with a greater sense of family well-being (Gong et al., 2021). Sending and receiving photographs and videos, participating in video calls, as well as sending and receiving Instant Messages (IMs) were associated with higher perceived family well-being (Gong et al., 2021). However, video calling was most strongly associated with increased family well-being (Gong et al., 2021). Online group settings may have allowed for interactions between family members, and for simultaneous information exchange (Gong et al., 2021). Given the importance of social connections for both individual and family well-being, it may be important to explore the impact of Covid-19 on the maintenance of social connections.

Impact of Covid-19 on Interpersonal Relationships

Numerous people report that Covid-19 had a large impact on their personal relationships (Cairns et al., 2020). For some, Covid-19 provided an opportunity to prioritise the development of more intimate relationships with romantic partners, close friends, and family members (Rubinsky et al., 2021). Several individuals felt that these relationships

became stronger during Covid-19 (Rubinsky et al., 2021). Individuals often spent more time building deeper connections with certain friends, family members, and colleagues (Cairns et al., 2020), and reported having a new appreciation for social interactions since the start of the pandemic (Smallen, 2021; Todorova et al., 2021). They frequently realised the value of their family and friends and longed for physical contact with them (Todorova et al., 2021).

Many enjoyed spending more time interacting with a small, intimate group of family and friends (MacLeod, 2022). Individuals reported that they were increasingly willing to engage in prosocial behaviour. Caring and compassionate behaviours were viewed as being important for creating and strengthening relationships (Smallen, 2021), and many reported that they experienced increased emotional support and practical help after the Covid-19 lockdown began (Arpino et al., 2020). Participants stated that they became increasingly open to others and began prioritising their relationships. This involved, for example, increasing expressions of affection, providing support, being present in the moment, starting conversations, as well as increasing self-disclosure (Smallen, 2021; Todorova et al., 2021). Individuals also reported that they perceived others as more open and receptive to their affection, support, and self-disclosure (Smallen, 2021). Communicating with others assisted many people in coping with the stress of Covid-19, for example, through discussing daily activities, feelings, and decisions (Todorova et al., 2021).

However, some reported that interactions became more superficial and that their conversations lacked quality during the lockdown. Furthermore, students reported that they often purposefully avoided discussing emotionally heavy subject matters, as they did not want to “offload” on one another (Maloy et al., 2022, p. 5), which was seen to result in conversations that lacked emotional depth (Maloy et al., 2022). For several individuals, less-intimate relationships tended to wane over the course of the pandemic. Often people were reluctant to maintain contact with casual friends or acquaintances (Rubinsky et al., 2021), and

had difficulties maintaining group friendships and connecting with those on the peripheries of friend groups (Dedryver & Knai, 2021). Certain individuals reported that Covid-19 had been revealing as to whom one's true friends were (Cairns et al., 2020).

Many people reported purposefully reducing contact with friends or family whom they viewed as "toxic" (Todorova et al., 2021, p. 842) in an effort to improve the quality of their connections with others (Todorova et al., 2021). Whereas others felt a sense of obligation to keep in touch with friends (Maloy et al., 2022), despite finding maintaining contact to be draining. Furthermore, they often reported that they felt a sense of guilt when they did not maintain connections with friends (Maloy et al., 2022).

Thus, there was a great deal of variation in participants' descriptions of maintaining interpersonal relationships during Covid-19. Technology was the tool predominantly used in maintaining these relationships during the pandemic. Thus, it is important to consider the manners in which technology both facilitated and impeded the maintenance of these relationships. The use of technology to maintain connection, both prior to Covid-19 and during Covid-19, will be discussed below.

The use of Technology in Maintaining Social Connections

Technology played a vital role in maintaining personal relationships both prior to Covid-19 and during Covid-19. Prior to the Covid-19 lockdown, technology was used frequently by migrants and their families, long-distance romantic partners, and long-distance friends in order to maintain social connections (Aguila, 2009; Baldassar, 2016; Lobburi, 2012). Although the fields of transnational relationships and relationships during Covid-19 are vastly different, as already mentioned, both refer to situations in which individuals are unable to have face-to-face contact with loved ones and used technology to facilitate interpersonal communication. Therefore, it may be valuable to explore the wealth of literature

on the uses of technology by migrant transnational families. This may aid in contextualising the use of technology to maintain relationships during the Covid-19 lockdown.

Maintaining Relationships over Distance

A plethora of literature discusses the use of technology and its role in maintaining social connections among migrants and their families, partners, and friends (Aguila, 2009; Baldassar, 2016; Lobburi, 2012). Technology is frequently used to provide financial, practical, and emotional support to distant loved ones (Baldassar, 2007). In particular, ‘being there’ for loved ones, by putting effort into emotionally supporting others is an important component of maintaining and developing relationships (Baldassar, 2007). Technology can create a sense of *co-presence*, or a sense of proximity between individuals, despite not being physically close to one another (Baldassar, 2016). It often reduces the difficult barriers associated with physical distance (Nedelcu & Wyss, 2016) and allows those separated by distance to express loyalty and solidarity and to create a meaningful life together (Nedelcu & Wyss, 2016).

Numerous means of technological communication have become available in recent times, each with specific benefits and drawbacks (Madianou, 2016). It is common for distant loved ones to make use of multiple technological platforms, where the benefits of one platform compensate for the drawbacks of another (Madianou, 2016). For example, individuals may make use of video or voice calling platforms to provide a sense of connection and continuous dialogue between loved ones, to check in with one’s family and to gauge their emotions (Madianou, 2016; Madianou & Miller, 2013). On the other hand, text or email may be used when one feels embarrassed or uncomfortable being heard or seen by loved ones, for example when one feels embarrassed to request money from relatives or when one feels overwhelmed during an argument (Madianou & Miller, 2013). Individuals are able to select technological platforms that match their practical and emotional needs (Madianou &

Miller, 2013). In this *polymedia environment*, the type of technological platform used for communication plays a large role in the management and experience of relationships (Baldassar & Merla, 2013; Madianou & Miller, 2013).

Video Calling. Romantic partners and family members separated by distance frequently use video calling technology to maintain connection (Baldassar, 2016; Neustaedter & Greenberg, 2012). The use of video calls allows for real-time, immediate communication and provides a strong sense of ‘being together’ (Baldassar, 2016). Furthermore, partners in long-distance relationships often feel that the visual aspect of video calls provides greater emotional intimacy than other methods of communication (Neustaedter & Greenberg, 2012). Partners may feel that being able to see the other’s face, allows them to feel emotionally closer (Neustaedter & Greenberg, 2012). Furthermore, partners often feel that communication is clearer and that there are fewer miscommunications because they are able to see one another’s body language and facial expressions (Neustaeder & Greenberg, 2012). In a number of cases, being able to see one’s partner’s emotional state results in greater empathy (Neustaeder & Greenberg, 2012).

Romantic partners and family members separated by distance frequently engage in shared activities via video chat. Often, family members may communicate via video call while performing mundane activities, such as cooking or cleaning (Nedelcu & Wyss, 2016). This allows family members to gain a semblance of ‘normal’ family time, where everyday situations are shared with one another. Some individuals consider the content of these interactions to be less important than the act of spending time together (Nedelcu & Wyss, 2016). In addition, these shared activities allow social groups to create and recall collective memories, which often form integral parts of these groups’ identities (Bowlby, 2011; Broderick, 1993; Coyne et al., 2014). Families living far apart from one another frequently make use of video calls to take part in shared traditions or celebrations (Marchetti-Mercer et

al., 2020), which are subsequently discussed and reflected upon (Coyne et al., 2014). An example of this is how family members may be able to attend important event such as a Christening together and can contribute to the ceremony via video chat (Marchetti-Mercer et al., 2020). Similar behaviours have been observed in individuals in long-distance romantic relationships (Neustaedter & Greenberg, 2012). For example, partners frequently watch television or movies with one another, play video games together, and schedule to eat meals together via video chat (Neustaedter & Greenberg, 2012).

Voice Calling. Voice calls are an important means of maintaining connections for long-distance partners and friends, as well as migrants and their families (Aguila, 2009; Madianou & Miller, 2011; Pazil, 2018). The sound of a loved one's voice is reported to provide emotional depth to communication. That is, voice calls allow individuals to express their own emotions, as well as to gain insight into the emotions of others (Madianou & Miller, 2011).

Additionally, voice calls provide a greater level of privacy than is afforded in other methods of communication, such as video calling (Aguila, 2009). Many people living in shared spaces worry about disturbing their roommates or family members with their video calls (Neustaedter & Greenberg, 2012). This may be particularly concerning when engaging in activities via video call, such as fitness sessions (Heshmat & Neustaedter, 2021). Individuals who value privacy in their relationships appreciate that voice calls allow for emotional intimacy, while simultaneously providing boundaries in shared spaces (Aguila, 2009).

In addition, phone calls require less effort and planning to schedule than video calls (Pazil, 2018). Numerous people find it difficult to initiate video calls and often use other methods of communication, such as phone calls, to ascertain if it is a suitable time for a video call and whether their partners are in suitable locations (Neustaedter & Greenberg, 2012).

Textual Communication. Platforms that make use of textual communication are a prominent method of maintaining connection for family members separated by distance, as well as long-distance social and romantic relationships (Baldassar, 2016; Cabalquinto, 2020; Hampton et al., 2017; Pazil, 2018). Textual communication may be more discretionary and selective than other methods of communication, such as video calls and voice calls, as individuals can choose when to read and respond to messages (Baldassar, 2016). Therefore, it allows for a background, ever-present sense of presence between individuals (Baldassar, 2016). Individuals may value that there are fewer expectations to respond to communications immediately and that they have more time to think and edit communications before sending them (Pazil, 2018).

A number of people value the ability to share casual images of their everyday lives with one another on platforms used for textual communication (Cabalquinto, 2020). Cabalquinto (2020) argues that the sharing of such images creates a feeling of being present together to share a moment. Furthermore, family members report appreciating that they are able to archive and store images, videos, and messages (Cabalquinto, 2020; Baldassar, 2016). Such material may serve as proxies in the absence of the physical presence of a loved one (Cabalquinto, 2020).

The use of Technology during the Covid-19 pandemic

As a result of the fact that face-to-face connections were reduced during Covid-19, individuals made more frequent use of virtual platforms to maintain contact with friends and family members (Arpino et al., 2020). In a series of interviews conducted in Australia, participants reported making more frequent use of technologies for communication than they did prior to the pandemic (Watson et al., 2021). During the Covid-19 pandemic, technology-assisted in providing social support, reducing boredom and loneliness, and serving as a buffer for stressors (Brooks et al., 2020; Norbury et al., 2021; Shah et al., 2020).

An online survey conducted in France, Spain, and Italy found that during Covid-19, participants made use of video calling and instant messaging platforms more frequently than they had previously (Arpino et al., 2020). In the United States, those who communicated with friends and family virtually during the Covid-19 lockdown were likely to make frequent use of video calls, voice calls, as well as text messages (Brown & Greenfield, 2021). Individuals reported a hierarchy of preferences for mediums of communication, with in-person connections being the most favourable, followed by video communication, voice calling, and finally text communication (Cairns et al., 2020). However, each medium of communication was viewed as having unique benefits, which could be used to meet individuals' needs (Brown & Greenfield, 2021).

Video Calling. Similarly to what is described in the transnational literature, an appreciation for video calling technology was reported during the Covid-19 lockdown in order to maintain connections with those physically separated. Video calling platforms such as FaceTime, Skype, Zoom, and Discord were frequently used (Heshmat & Neustaedter, 2021). Many reported preferring video calls to other methods of communication because they allowed for the observation of facial expressions and body language (Brown & Greenfield, 2021; Cairns et al., 2020). This multi-sensory experience allowed for video calls to resemble face-to-face interaction more than other forms of technology (Watson et al., 2021).

Video calling was used for social encounters and check-ins that would normally have taken place face-to-face before Covid-19 (Watson et al., 2021). Several studies indicate that participants engaged in shared virtual activities via group video calls, such as participating in fitness sessions, shared meals, as well as virtual happy hours, which were often accompanied by games (Heshmat & Neustaedter, 2021; Pakdaman & Clapp, 2021; Watson et al., 2021). These interactions allowed social groups to create new shared memories and reflect on past memories (Morgan-Ellis, 2021; Young, 2021).

Voice Calling. During the Covid-19 lockdown in 2020, the number of voice calls between friends and family members increased (Brown & Greenfield, 2021; Hall et al., 2021). However, Hall and colleagues (2021) found that the use of voice calls did not increase to the extent that texting and video calling did (Hall et al., 2021). It is likely that video calls may have served as a preferred substitute for voice calls (Hall et al., 2021; Watson et al., 2021), because the multi-sensory aspects of video calls often provided an advantage over voice calls (Watson et al., 2021).

Textual Communication Platforms. During the Covid-19 lockdown, many individuals increased their usage of textual communication, particularly platforms such as WhatsApp and Facebook Messenger, to compensate for the lack of physical contact (Esteve-Del-Valle et al., 2022; Heshmat & Neustaedter, 2021; Seufert et al., 2022). These platforms were often used to check in with family members and friends, as well as to provide and receive emotional support (Esteve-Del-Valle et al., 2022). As was observed with migrant family members, those separated during the Covid-19 lockdown confirmed the importance of sharing photographs and videos with one another via WhatsApp (Costa et al., 2022). Photographs and videos of daily life were frequently shared between groups of close family and friends, which created a feeling of closeness amongst them (Costa et al., 2022). Furthermore, during the Covid-19 lockdown, many increased their use of emojis, which were viewed as a manner of expressing emotions, particularly love and care (Costa et al., 2022).

In addition, some individuals used messaging applications to maintain contact with less-intimate family, friends, and colleagues (Esteve-Del-Valle et al., 2022). Notably, many university students made use of textual communication groups, such as WhatsApp group chats, to maintain contact with their classmates (Thompson, 2022; van den Berg & Mudau, 2022). These group chats often provided students with a sense of belonging and support within their academic classes, despite the physical distance between classmates (van den

Berg & Mudau, 2022). Memes (humorous pieces of text, videos, or images that are usually spread rapidly with the use of the internet) were shared amongst large groups of classmates, friends, or colleagues (Bender et al., 2021; Costa et al., 2022; Literat, 2021). Individuals felt that these humorous exchanges helped to combat loneliness during the lockdown (Costa et al., 2022).

Video games. During the Covid-19 lockdown, young people viewed time spent playing online and multiplayer video games with friends and family, as a substitute for face-to-face socialisation (Bengtsson et al., 2021; Kleinman et al., 2021). While playing video games together, it was common to talk to one another via applications, such as Messenger (Bengtsson et al., 2021). Video games provided individuals with a fun, interactive activity to partake in together (Bengtsson et al., 2021). Certain individuals reported playing video games solely to socialise with their friends (Bengtsson et al., 2021). Many players indicated that they appreciated gaming sessions because it allowed groups of friends to maintain connection and cope with isolation (Krittanawong et al., 2021). Discussion topics included gameplay, as well as topics relating to everyday life (Bengtsson et al., 2021).

Disadvantages of Virtual Communication

Certain research findings indicate several limitations to virtual communication during Covid-19. Juvonen and colleagues (2021) found that the higher the frequency of virtual communication with friends, the greater participants' anxiety levels. These authors suggest that this heightened anxiety may have been due to a compulsive need to check in on friends since in-person communication became limited (Juvonen et al., 2021). Furthermore, individuals reported that it was often exhausting to keep up these online relationships during Covid-19 (Dedryver & Knai, 2021). This was frequently exacerbated by receiving numerous, irrelevant virtual communications, most commonly in group textual chats (Costa et al., 2022; Ningsih, 2020). This message "flooding" (Ningsih, 2020, p. 900) often caused reluctance to

respond to communications and in some instances withdrawing from people or groups entirely (Costa et al., 2022).

Furthermore, several individuals reported that they often felt “observed” and “on show” during virtual communications (Dedryver & Knai, 2021, p. 5). For example, some indicated that they often became critical of their own physical features when seeing themselves on camera for extended periods (Dedryver & Knai, 2021). Furthermore, individuals often found video calling to be draining (Dedryver & Knai, 2021).

In addition, many individuals reported that they lost connection with members of the older generation (particularly those within the 60-69 age group), as members of this generation were often not versed in modern video calling or messaging platforms (Fraudatario & Zaccaria, 2020).

Those who made frequent use of textual communication platforms reported that it was often challenging to interpret non-verbal aspects of communication (Amos et al., 2020; Blanchard, 2021). For example, it was difficult to determine others’ emotions and thoughts and to express oneself precisely during virtual communication (Amos et al., 2020). Complex social concepts, such as humour and sarcasm, were often perceived as difficult to interpret over text (Blanchard, 2021).

Individuals reported that they often longed for in-person connections, as they were viewed as more “meaningful” than virtual connections (Cairns et al., 2020, p. 284). For many, engaging in virtual activities together did not provide the same level of connectedness as in-person activities (Pakdaman & Clapp, 2021). However, many people felt that virtual communication was superior to having no communication with others whatsoever and that virtual communication was an adequate substitute given the unique conditions of the lockdown (Dedryver & Knai, 2021).

Face-to-face communication may still result in greater well-being than virtual communication. During the 2020 Covid-19 lockdown, both virtual and face-to-face interactions were associated with increased calmness, a more positive mood, and more energy (Forbes et al., 2021). However, in comparison with virtual interactions, those who participated in face-to-face interactions experienced greater calmness and lower levels of stress (Forbes et al., 2021). Furthermore, a diary study conducted during the Covid-19 lockdown in the United Kingdom found that face-to-face communication was associated with greater daily well-being. Both interactions within the home (for example with family or partners) and outside the home (for example, casual interactions at the grocery store) yielded similar results. Face-to-face interactions were more consistently associated with well-being in comparison with virtual communication (Sun et al., 2020).

Conclusion

This chapter has aimed to provide an overview of the use of technology to maintain relationships during the Covid-19 pandemic. Firstly, this literature review sought to highlight the negative psychological impact of the pandemic, as well as the importance of social connections in buffering the stressors during the turbulent times of the pandemic. In particular, this chapter drew attention to the vital role of social connections for South African students. Thereafter, the ways in which technology was used to maintain contact between loved ones during Covid-19 was explored. Technology use in transnational literature was used to provide a background for technology use during Covid-19. The following chapter will discuss the methodology of this study, including the research aims and research questions. Furthermore, the research design, theoretical orientation, and procedures for sampling, data collection, and data analysis will be discussed.

Methodology

Introduction

This chapter will describe the methodology that was used in this study. Firstly, the research aims and research questions will be outlined, followed by the study's research design and the chosen theoretical framework. Thereafter, details about sampling procedures will be provided, as well as descriptions of each participant. Subsequently, data collection and data analysis processes will be outlined. The chapter will then describe the steps taken to ensure qualitative rigour. Finally, the ethical considerations of this study and researcher reflexivity will be discussed.

Research Aims

This study aimed to explore how a sample of South African postgraduate students who lived at home with their families during the national lockdown, which was declared at the end of March 2020 to curb the spread of the Covid-19 pandemic, maintained interpersonal connections with others outside of their homes with the use of technology. In particular, the study aimed to reveal the benefits, limitations, and challenges that students encountered when using technology to maintain relationships. In addition, the study endeavoured to understand the impact of technology-mediated communication on students' mental well-being.

Research Questions

The following research questions were posed at the beginning of the study:

1. How did postgraduate students use technology to maintain interpersonal connections with those outside of their homes during the Covid-19 lockdown?
2. How did using technology benefit or limit the maintenance of existing social relationships?
3. How did the experience of connecting virtually compare to the experience of

connecting face-to-face?

4. How did the use of technology affect the psycho-social well-being of postgraduate students?

Research Design

This study made use of a qualitative research methodology, as well as an interpretivist paradigm. Methodology refers to a set of methods, rules, and principles that are specific to a research approach (Mackenzie & Knipe, 2006), whereas a paradigm refers to a set of ideas, assumptions, and world views that are shared by groups of researchers (Fossey et al., 2002). Such groups frequently share ideas about observing and interpreting the objects of study (Fossey et al., 2002). The methodology, as well as the paradigm that was used in this study, will be explained and their relevance will be discussed.

Qualitative Methodology

Qualitative research is focused on providing an in-depth and detailed account of important phenomena in the social world (Johnson & Waterfield, 2004). It is considered an interpretive approach to research, as it aims to uncover individuals' subjective behaviours, attitudes, and motivations (Aspers & Corte, 2019). Research frequently explores subjective experiences of particular places and institutions, as well as specific temporal and social contexts (Aspers & Corte, 2019; Goodwin & Horowitz, 2002). Qualitative research aims to gain flexible and valid interpretations of participants by taking a holistic research approach (Carr, 1994).

As this study aimed to interpret complex social concepts, a qualitative research methodology was deemed appropriate since it aided in understanding postgraduate students' experiences in a social context, as well as providing rich insight into students' lives (Johnson & Waterfield, 2004; Thyer, 2012). A qualitative research design facilitated the investigation into the thoughts, emotions, and behaviours of postgraduate students who were forced to

isolate with their families and connect with others via technology.

Interpretivist Paradigm

An interpretivist research paradigm was used to guide this study. The interpretivist paradigm has several ontological, epistemological, and methodological assumptions which will be outlined hereunder. Ontologically, it is derived from the constructivist framework, which holds that the world is made up of representations that are constructed by individuals (Fox, 2001). These constructions depend on an individual's contextual factors (Alwan, 2006). Therefore, unlike the positivist paradigm, in the interpretive paradigm the nature of reality differs between people and cultures and there are multiple different realities (Scotland, 2012). Epistemologically, the interpretive paradigm holds that knowledge is constructed by human actors and that information must be understood from the subjective perspective of these actors (Ponelis, 2015). The interpretivist paradigm aims to bring to the fore social forces and structures that may be hidden (Scotland, 2012). The methodology used in the interpretive paradigm serves to explore an individual's subjective perspective and the associated meanings (Alwan, 2006). Methods such as focus groups and open-ended interviews are often used (Scotland, 2012). The interpretive paradigm was deemed appropriate for this study because it allowed for an exploration of individuals' subjective perspectives of social connection via technology and of the psychological meaning that is attached to this. Furthermore, the interpretive paradigm is useful for research which aims to generate theory, rather than to verify theory (Alwan, 2006). As the subject under investigation in this study is still in its exploratory phase, the interpretivist paradigm allows for theory to be generated around social connection and technology during Covid-19.

Theoretical orientation

A theoretical framework is a group of related systematic statements that assist in understanding concepts or problems (Fain, 2020). They do so by providing insight into the

nature of the relationship between variables (Fain, 2020). This study made use of Systems Theory, with a focus on Family Systems Theory, as a theoretical framework. The basic concepts in the theory will be outlined below. Given that the focus of the study was on interpersonal relationships in the context of altered family dynamics/relationships this seemed an appropriate theoretical lens to use to make sense of the data.

General Systems Theory

General Systems Theory was developed during World War II as a mathematical construct aiding in predictability (Suppes, 2022). The theory gained popularity during the 1950s and 60s in the social sciences, where it was applied to families (Suppes, 2022). It is founded on the belief that systems, however complicated, have common elements in structure and organisation (Suppes, 2022). A system refers to a group of components that are dependent on one another and create a whole when considered together (Galvin et al., 2006). This perspective follows the notion that the whole system is greater than the addition of each of its separate parts (Von Bertalanffy, 1972). That is, when attempting to explain a system's behaviour, one cannot only examine a system's components, but one must also examine the relationships between these components (Von Bertalanffy, 1972). General Systems Theory can also be applied at the individual level (in the form of immune system and epigenetic processes), the wider community level (including emergency services and schools), as well as the macro-level (such as government) (Masten & Motti-Stefanidi, 2020). The influence of the Covid-19 pandemic can be viewed as permeating multiple different systems, including family, education, work, finances, recreation, manufacturing, and emergency services (Masten & Motti-Stefanidi, 2020). Hindrance of each of these systems may have resulted in risks for human survival and wellbeing (Masten & Motti-Stefanidi, 2020). In particular, the Covid-19 pandemic had profound impact on family systems (Prime et al., 2020).

Family Systems Theory

Family Systems Theory represents one of the most influential applications of Systems Theory (Goldenberg et al., 2017), which provides a novel way of making sense of family relationships (Suppes, 2022). When Systems Theory is applied to the family, the whole family becomes the system under investigation. The theory focuses on the relationships between family members, rather than focusing on individual family members (Goldenberg et al., 2017). In Family Systems Theory, communication is a vital tool through which relationships between family members are formed, maintained, and altered (Bavelas & Segal, 1982). Over time distinct patterns of communication may develop (Bavelas & Segal, 1982).

Circular Influence. Family Systems Theory distances itself from temporal cause-effect relationships and rather promotes the idea of circular causation (Bavelas & Segal, 1982). Circular causation broadly refers to the idea that one behaviour may serve as both a trigger and a response to a second behaviour (Galvin et al., 2006). Family Systems Theory pays less attention to past events that may have led to current events or behaviours but pays greater attention to circular trigger and response patterns that occur between family members (Goldenberg et al., 2017).

Boundaries. The concept of open systems is significant within Family Systems Theory since these systems are open to information, which circulates both within the system and between the system and its general environment (Galvin et al., 2006). A family system is profoundly influenced by the society, location, and time in which it occurs (Goldenberg et al., 2017). Furthermore, a system's boundaries determine how rigid or permeable a system is to another system or subsystem (Mehta et al., 2009). For example, family systems with rigid boundaries are less likely to have contact with other systems (Mehta et al., 2009).

Homeostasis. Family systems tend towards homeostasis, that is, family members frequently display patterns of behaviour that tend to enhance the stability of their family system (Carlson & Dermer, 2016). When the behaviours displayed by one or more family

members become unacceptable to the family system, tensions may begin to arise, which may lead to direct conflict between family members or family members isolating themselves from one another. After a period of time, one or more family members usually take action to resolve tensions, for example, by apologising, discussing the issue, or ignoring the issue altogether (Carlson & Dermer, 2016). During the Covid-19 lockdown, the financial, occupational, social, and emotional stressors that were discussed in previous chapters may have served to disrupt the homeostasis of family systems (Daks et al., 2020). Furthermore, stressors that emotionally impacted one family member are likely to have had a spill-over effect on others in their family system (Prime et al., 2020).

Roles, Rules, & Rituals. Each family member has a particular role within the family system (Suppes, 2022). Each has a specific responsibility that they must fulfil within the system, as well as a specific type and quality of influence within the system (Suppes, 2022). Examples of common family roles include that of the Scapegoat, Hero, Rescuer, Mediator, Lost Child, Clown, or Cheerleader (Suppes, 2022). The roles held by family members have a profound impact on their psychosocial well-being. Distress may occur when various role expectations are not compatible, when expectations are unclear, and when too many expectations are placed upon family members (Lebow et al., 2019). In addition, family members may find it difficult to adjust when their roles are redefined and renegotiated (Lebow et al., 2019). In addition, family members participate in various rituals, which are vital for creating a sense of togetherness (Suppes, 2022), and often hold emotional or symbolic significance (Prime et al., 2020). Furthermore, all families have sets of rules which each member follows (Dallos & Draper, 2015) and which regulate expectations for maintaining family stability and togetherness (Suppes, 2022). Rules may be explicit – such as rules regarding bedtimes for children or how to behave at the dinner table – or they may be implicit – including emotional or behavioural patterns between family members, for example,

which family members are likely to side with one another in an argument (Dallos & Draper, 2015). Rules often regulate both first and second-order changes in systems (Weakland et al., 1974). When first-order changes occur, the rules of the system remain consistent, resulting in the system remaining in equilibrium, while the observable behaviours of system members change (Weakland et al., 1974). Whereas, when second-order changes occur, the rules of the system change, resulting in changes in the functioning of the system (Weakland et al., 1974).

During the Covid-19 lockdown, family members may have been expected to alter their rules within the household, as well as their family roles (Hensley & Harris, 2022). Furthermore, families were often unable to perform rituals that they had prior to Covid-19 (Prime et al., 2020). For example, occasions of spiritual or symbolic significance, such as Easter, Passover, weddings, and funerals often draw families together (Prime et al., 2022). Changes in rules, roles, and rituals likely acted as additional stressors within family systems (Prime et al., 2022).

Family Life Cycle. An influential concept in Family Systems Theory is that of the Family Life Cycle. This refers to patterns of change and development of families that result from internal and external societal forces (Suppes, 2022). Changes that impact the composition of the family are particularly influential, for example, births, deaths, divorces, and remarriages (Suppes, 2022). The traditional Family Life Stages include bringing up children, adult children leaving the home, the empty nest phase, and the elderly couple stage (Bouchard, 2014; Feeney et al., 1994). Transitions to new life stages are often characterised by stress and tension as family members aim to uphold family identity and structure (Suppes, 2022). Carter and McGoldrick (1988) suggest that the Family Life Cycle is also influenced by intergenerational family patterns of functioning, including attitudes, expectations, and taboos. Furthermore, the Family Life Cycle is impacted by external stressors, such as chronic illness, war, or sudden death within a family (Carter & McGoldrick, 1988).

Young adults are often expected to begin taking emotional and financial responsibility for themselves (McGoldrick et al., 2014). An important part of most young adults' developmental expectations includes developing peer relationships, establishing a sense of community, finding a spouse, beginning to raise children, and establishing professional and financial independence (McGoldrick et al., 2014). In addition, an important expectation of young adults is the differentiation of self from their families (McGoldrick et al., 2014).

Differentiation of Self. Differentiation of self is an important component of Family Systems Theory (Bowen, 1966). This refers to an individual's ability to make autonomous choices, while simultaneously understanding one's interconnectedness within a relational system (Kerr & Bowen, 1988). It involves strong self-knowledge and no requirement for one's beliefs to be accepted by others (Bowen, 1966). Well-differentiated individuals are able to distinguish between their own thinking and feeling processes, display controlled emotional reactivity, and maintain a sense of self, without being overwhelmed by the family emotional system (Goldenberg et al., 2017). In contrast, when there is strong fusion within a relationship, one feels intense responsibility for the reactions of others. One often reacts to the needs of others quickly, without autonomous, intellectual decision-making (Kerr & Bowen, 1988).

Family Resilience. From a General Systems perspective, challenging life events result from multiple, interacting systems, including individual, family, and social systems (Walsh, 2003). An individual's ability to tolerate and rebound from challenging life events is influenced by the reinforcement and nurturance one receives from multiple, interacting systems, including family, peer, school, work, and community systems (Masten, 2021; Walsh, 1996; Walsh, 2003). Furthermore, the concept of family resilience is influential within the Family Systems Theory literature. The concept of family resilience describes the risk and the resilience of the whole family unit, rather than focusing on the impact of family

on individual resilience (Walsh, 1996). Family Systems Theory holds that challenging life events have the potential to disrupt homeostasis and impact the functioning of the whole family system (Minuchin, 1985; Walsh, 2003). Important family processes allow family members to respond adaptively to challenges, which may facilitate the recovery of all family members within the system (Walsh, 2003). In addition, life challenges may offer family members the opportunity to improve their relationships with one another and build their resources for tackling future challenges (Walsh, 2003). Developing and maintaining relationships between family members may have acted as an emotional buffer against the external and internal family stressors that arose during the Covid-19 pandemic (Prime et al., 2020).

Participants and Sampling

This study made use of purposeful sampling. That is, participants were selected based on their relevance to the purpose and objective of the research (Bhardwaj, 2019; Higginbottom, 2004). This allowed for information-rich participants who possessed appropriate knowledge about the subject matter to be selected (Bhardwaj, 2019; Higginbottom, 2004). Participants were sampled according to the following selection criteria:

1. Participants were required to be enrolled as postgraduate students at the time of the interview. Furthermore, participants must have attended a South African university during the level 5 lockdown that began in March 2020.
2. Participants must have isolated with their families during the Covid-19 lockdown.
3. Participants were required to have isolated with their families for a minimum of 2 months. This would have allowed participants to develop fairly consistent patterns of technology-mediated communication, social connectivity, and emotional reactions.

4. It was required for participants to have had access to a technological device, such as a cell phone or laptop, that was used to communicate with others during the Covid-19 lockdown.
5. Participants were required to have had access to a technological device that could be used for the video call interview, as well as sufficient data for the 45-75 minute video interview.

The process of sampling occurred as follows: firstly, ethical clearance to conduct research on students at the University of the Witwatersrand (WITS) was obtained, as described later in this chapter (see Appendix A). Secondly, advertisements were forwarded to postgraduate students by their course co-ordinators, and also circulated via social media. These advertisements described the aim of the study, detailed the interview process, and specified the exclusion criteria of the study. My contact details were also included, allowing potential participants to obtain further information about the study. Participants who directly contacted me were questioned to determine whether they met the inclusion criteria for the study. Participants were also sent the relevant information and consent forms (see Appendices C and D), as will be outlined later in the chapter. Finally, interview slots were scheduled, and video call links were sent to participants.

Six participants met all the criteria for the study and were allowed to participate. However, one participant did not meet the requirements for criterion 2; due to border closures she was unable to travel to her parents' home before the lockdown measures were put into place. However, she reported adhering to a strict self-imposed self-isolation at her parents' home for over two months after borders reopened. Thus, it was deemed appropriate for her to be included in this study as the focus of the research was on the use of technological devices to maintain outside relationships during the lockdown.

Initially, a sample size of 10 individuals was approximated; and whereas it may have been advantageous to have an increased sample size, it was extremely challenging to recruit participants due to various practical constraints that hindered the sampling process. Firstly, while many participants expressed interest in the study, few met the inclusion criteria. In particular, few postgraduate students had been attending university during the March 2020 lockdown. Furthermore, many stayed by themselves during the lockdown. Thus, many potential participants were deemed to be unsuitable. Secondly, it is likely that the time and context of data collection hindered sampling. Since data was collected at the tail end of the pandemic, it is likely that by this stage many students had spent a great deal of time thinking about and discussing Covid-19 and may have felt that the topic had become tedious. The constant presence of Covid-19 in individuals' daily lives frequently led to long-term Covid-19-related exhaustion (da Silva, 2021). This exhaustion often caused reduced inspiration and motivation (da Silva, 2021) and likely resulted in reluctance to participate in this study.

Thus, a total of seven participants were deemed suitable to participate in this study and were willing to participate. Qualitative studies frequently sample fewer participants than quantitative studies, as qualitative research places greater emphasis on gaining in-depth, meaningful understandings of concepts rather than making generalisations about a population (Dworkin, 2012). Furthermore, an appropriate level of saturation was reached in this study, as nearing the end of the interviewing process participants frequently began to repeat concepts and broader themes (Marshall et al., 2013). In support of this, Young and Casey (2019) suggest that qualitative studies that have made use of approximately eight participants generate strong, meaningful results.

Five participants were female and two were male. The ages of participants ranged from 21-40 years, with a mean age of 29.14. Five participants were South African, one participant was Zambian, and another was from Botswana. During the March 2020

lockdown, four participants were living with one or both of their parents, one participant was living with their aunt, and two were living with their spouse and children. Five participants were studying full-time during the lockdown, while two participants were studying part-time and were engaged in full-time employment for at least a portion of the lockdown. All participants were completing postgraduate courses within the Psychology department of a South African university.

I had anticipated that majority of the sample would be female, as these gender demographics mirror the typical demographics of postgraduate psychology students, who are predominantly female (Skinner & Louw, 2009). However, the mean age of the sample was higher than I had initially anticipated. In addition, I had expected all participants to be living with their parents, whereas several participants were living with their partners and children. Mature students may have been more likely to participate in this study than younger students because they were eager to share their unique stressors and challenging experiences of the Covid-19 lockdown. In addition, a number of mature students remarked that they understood the difficulty of finding research participants and were interested in furthering the subject of this research project.

In order to contextualise each participant's background, a brief case history for each participant will be provided below.

Ayanda

Ayanda was a 28-year-old female, who was completing her Psychology Honours degree at the time of the study. She was originally from Botswana but lived alone in a private student accommodation in Johannesburg during her university studies. Due to strict border regulations, she was unable to get home to Botswana before the March 2020 lockdown measures were enforced; she lived alone until mid-July when she was able to travel across the

border to Botswana and take up residence with her parents. Although she reported strictly self-isolating thereafter, she occasionally visited her sister and niece.

Ayla

Ayla was a 40-year-old female and was completing the first year of her Psychology Masters programme at the time of interview. She lived in Johannesburg with her husband and her three-year-old son prior to and throughout the pandemic. During the lockdown both she and her husband were working full-time from home, however, she was retrenched shortly after the lockdown commenced. Childcare centres were closed, requiring Ayla to provide full-time care for her son. Ayla's parents moved to Johannesburg a few months before the pandemic began and were living in the same complex as Ayla during the March 2020 lockdown.

Buhle

Buhle was a 39-year-old female, who was completing her Honours degree in Industrial Psychology at the time of interview. She lived in an apartment in Johannesburg with her husband and her two sons, aged five and eight, as well as a live-in nanny. She reports that both she and her husband were working remotely during the March 2020 lockdown. Furthermore, she was largely responsible for conducting home-schooling with her two children.

Emir

Emir, a 24-year-old male, was in the second year of his Psychology Masters degree at the time of the interview. He stayed with his mother, father, and his older brother in Cape Town both prior to and during the pandemic. Both he and his brother were attending the same university during the lockdown. His mother was working virtually for the university and his father was working in-person at a foundry.

Lerato

Lerato was a 21-year-old female who was completing her Honours in Psychology at the time of the interview. She was living in a student residence in Johannesburg prior to Covid-19 but moved back in with her family for the March 2020 lockdown. She lived with her mother, father, and younger brother from March until September 2020. Her mother was a stay-at-home mom and her father worked face-to-face during the lockdown.

Nandi

Nandi was originally from Lusaka, Zambia, but was living in an apartment in Johannesburg during her studies. She reported that at the start of the March 2020 lockdown, she moved in with her aunt, who was working from home, as well as her older cousin, who was completing a university degree.

Solomon

Solomon, a 27-year-old male, was completing his Honours in Psychology at the time of this interview. He was originally from the United Kingdom but moved to Mthatha in 2017. He was living at a student residence in Johannesburg prior to the Covid-19 lockdown but moved back home to Mthatha in March 2020 where he lived with his mother, who worked from home, and his cousins, who were also university students.

Data Collection

Data collection took place through the use of semi-structured interviews. With the assistance of my supervisor, I generated an interview schedule (see Appendix E) with several relevant questions in preparation for data collection. However, semi-structured interviews are designed to be flexible and to explore non-predetermined topics that are of interest to participants (Doody & Noonan, 2013). Semi-structured interviews allowed me to frequently alter my line of questioning based on what participants brought to the fore (Galletta, 2013). Thus, participants frequently discussed topics that were of personal significance to them. Semi-structured interviews proved useful, as they allowed for a detailed recounting of

participants' experiences of Covid-19 and technology-mediated communication. Many participants were able to provide vivid and unique insights, in addition to sharing a rich picture of each of their contexts. Furthermore, these interviews allowed me to develop a strong rapport with each participant, as recommended in the work of Doody and Noonan (2013). I asked clarifying questions, made empathetic remarks, and showed interest in topics that were important to each participant. However, the virtual nature of interviews caused several challenges when building rapport, as will be discussed below.

Interviews took place via video call, as at the start of the data collection many students were attending university online and virtual interviews were regarded as more convenient and safer for both the participants and myself. All video calls took place over Microsoft Teams. Video calling was deemed to be a superior method of data collection in comparison with voice calling, as it allowed for body language, facial expressions, and emotional nuances to be captured. However, video calling likely posed some challenges to the process of rapport building, as only certain portions of participants' bodies and spaces were visible on camera. Therefore, I was unable to respond to non-visible aspects of body language as well as the physical space occupied by the participant (Gray et al., 2020). In addition, several participants experienced challenges with connectivity during interviews, which often caused disruptions while they were discussing highly personal or emotional experiences. This likely hindered rapport building, as I was often unable to respond appropriately to participants' emotional cues. One participant had difficulty accessing her camera, and therefore she was allowed to participate using only voice calling. Interviews lasted for 45-75 minutes, depending on the participants' willingness to share information, as well as their availability. This amount of time allowed for a detailed exploration of research questions without creating interviewee fatigue. Interviews were conducted in English, in which all participants were fluent.

Video interviews were recorded, in order to capture both verbal and non-verbal information from each participant (Wang & Lien, 2013). These recordings were stored within the Microsoft Teams app, which was password-protected. Interviews were then transcribed verbatim. These interview transcripts and interview recordings were only reviewed by me and were not disseminated publicly, in an effort to protect the privacy and anonymity of participants. With the participants' consent, interview recordings were stored in password-protected files for use in future research. Any use of these recordings will maintain anonymity of participants and will be prohibited from publishing the recordings.

Data Analysis

Braun and Clarke's (2006) thematic analysis, which is used to find and describe the patterns of meaningful information across collected data, was utilised to analyse the data in this study. In addition to summarising the data, thematic analysis aids in interpreting the data and making meaning out of it (Maguire & Delahunt, 2017). Thematic analysis is a flexible framework, as it is not specific to one particular theoretical paradigm (Maguire & Delahunt, 2017). It is a well-established tool for data analysis (Braun & Clarke, 2006) and has been used in several studies that aim to understand social connection and technology-mediated communication (Marchetti-Mercer, 2017; Marchetti-Mercer et al., 2020). The use of thematic analysis proved useful as it allowed for an in-depth description and interpretation of students' experiences. Furthermore, this study made use of a bottom-up approach, that is, analysis is driven predominantly by the data collected, rather than on preconceived questions or aims (Braun & Clarke, 2006). The bottom-up approach is useful for studies in which the research areas are in their exploratory phases, which is the case in this study. Data analysis followed the six phases outlined by Braun and Clarke (2006), each of which will be described below:

Familiarising Yourself with the Data.

The first phase of a thematic analysis involves transcribing the data, as well as becoming well-versed in the content by reading and re-reading transcripts. I transcribed each interview verbatim, while noting any non-verbal information, or important background information. Thereafter, I repeatedly read transcripts and noted interesting or significant aspects within each data item.

Generating Initial Codes.

Secondly, thematic analysis involves generating initial codes, that is, significant or meaningful aspects present in the data. In order to achieve this, I systematically read through each data item and identified interesting aspects of the data. Important codes from each data item were copied from the transcript and collated together in a separate Microsoft Word file. Furthermore, during the coding process, I engaged in discussions with my supervisor regarding the relevance and significance of each code and potential themes that may arise.

Generating Themes.

Thirdly, analysis entails sorting initial codes into broader themes. This involved collating relevant codes into potential overarching themes and sub-themes. I made use of tables and mind-maps to aid in the theme-generation process.

Reviewing Themes.

Fourthly, thematic analysis involves refining the initial set of themes with the aim of creating distinct, coherent themes. This entailed reviewing coded data extracts and ascertaining whether the extracts within each theme formed a definite pattern. Furthermore, this involved determining whether themes accurately represented the whole data set.

Defining and Naming Themes.

The fifth phase of analysis entails identifying the fundamental qualities of each theme and defining these qualities. This involved organising all data extracts within each theme into coherent and consistent accounts that highlighted the significance of the findings.

Producing the Report.

The final phase of thematic analysis involves writing up the findings of the analysis. This entailed compiling all relevant information present in the data in a coherent, logical manner.

Qualitative Trustworthiness

Lincoln and Guba (1985) define trustworthiness in qualitative research as the means through which the researcher is able to persuade themselves and their audiences that their research findings are worth taking note of. Lincoln and Guba (1985) outline a number of criteria for achieving trustworthiness, which have become widely accepted in qualitative research: Credibility, Transferability, Dependability, and Confirmability. Each criterion will be outlined below, as well as the strategies employed to meet these criteria in each stage of thematic analysis.

Credibility

Firstly, researchers should ensure credibility within their research, meaning, there should be a large overlap between how a participant expresses their views during data collection and how the research represents these views in their report (Lincoln & Guba, 1985). It is often considered to be the level of congruency of the study's findings with reality (Shenton, 2004). Credibility in qualitative research is often aided by holding frequent debriefing sessions between the researcher and their colleagues, as well as welcoming frequent peer scrutiny (Shenton, 2004). In accordance with Nowell and colleagues' (2017) guidelines for achieving trustworthiness in thematic analysis, consultations between me and my supervisor took place throughout the data analysis process. In order to determine whether themes were clear and comprehensive, I consulted with my supervisor when coding for themes, as well as when defining and naming themes. Furthermore, themes were reviewed by my supervisor to ensure that they were relevant and an accurate representation of the data. In

addition, the study aimed to achieve credibility through reflective commentary (Shenton, 2004). That is, throughout the study, I recorded my reflective observations regarding the effectiveness of the research methodology, as well as the process of data analysis. I kept detailed notes throughout the coding and theme-development process during thematic analysis (Nowell et al., 2017).

Transferability

Secondly, researchers should place priority on ensuring transferability. This ensures that other researchers can make judgements about the applicability of the study's research findings to their own contexts (Lincoln & Guba, 1985). Therefore, it is the researcher's responsibility to include in-depth descriptions of the contextual setting of their own study (Lincoln & Guba, 1985). Therefore, I have aimed to provide a comprehensive description of the phenomenon being studied, as well as details about the study's background and participants (Shenton, 2004). In particular, I have endeavoured to write detailed descriptions of the context in which the study took place, as well as contextual details about each participant and the process of data collection (Nowell et al., 2017; Shenton, 2004).

Dependability

Keeping documents that detail the research's progress in a logical and traceable manner is a vital aspect of trustworthy research (Lincoln & Guba, 1985). Furthermore, it is necessary for researchers to provide enough detail about the process of conducting the study for future researchers to replicate the study (Shenton, 2004). Therefore, this study has aimed to provide an in-depth description of the reasons for each methodological and theoretical choice that was made (Nowell et al., 2017; Shenton, 2004). Furthermore, this study has provided a reflexive account of the methodology used, which has evaluated its effectiveness (Shenton, 2004).

Confirmability

In addition, researchers should prioritise confirmability - carefully describing how interpretations and conclusions were reached (Lincoln & Guba, 1985). Confirmability requires that researchers take measures to ensure that research findings are not the result of their own preferences, but of the participants' experiences (Shenton, 2004). To ensure confirmability I created audit trails, which provided rationales and evidence for my methodological and theoretical decisions (Nowell et al., 2017; Shenton, 2004). I added to the study's audit trail by keeping detailed notes throughout the coding and theme development process. Furthermore, as outlined previously, I sought to engage in reflective commentary and to consult with my supervisor regularly, particularly during data analysis (Nowell et al., 2017).

Ethical considerations

Awareness of potential ethical issues is of vital importance when conducting research. Ethical procedures are frequently implemented with the aim of avoiding harm and promoting good (Orb et al., 2001). Furthermore, ethical procedures frequently aim to avoid errors and uphold the truth, promote values such as trust and fairness, which are important in collaborative work, as well as promote accountability to the public (Resnik, 2015).

Ethical clearance for this study was sought from the Human Research Ethics Committee (Non-Medical) at the University of the Witwatersrand. Clearance was granted on 1 June 2021 (Protocol Number: MACC/21/02) (see Appendix B) and the study was deemed to be 'low risk'. Furthermore, ethical clearance was sought from the Deputy Registrar at the University of the Witwatersrand, who granted permission to sample students as participants (see Appendix A). In the following section, relevant ethical principles will be outlined and potential threats to these principles will be discussed, as well as means of mitigating these threats.

Beneficence

This research aimed to uphold the principle of beneficence, in other words, it aimed to maximise the amount of good done to others, while avoiding doing harm (Orb et al., 2001). The implementation of ethical procedures aims to uphold this principle and prioritise participants' well-being (Orb et al., 2001).

This study had a number of potential threats to beneficence. Firstly, as interviews frequently involved discussing negative social and emotional experiences of the Covid-19 lockdown, participants had the potential to become distressed. Therefore, after each interview participants were debriefed and were informed that if they had found the interview emotionally distressing, they had the opportunity to receive free counselling. Participants were provided with the details of the receptionist of the Counselling and Careers Development Unit, Ofentse Mogoane, for further details.

Informed Consent

Informed consent entails participants having the ability to exercise their rights to either accept or refuse to participate in research (Orb et al., 2001). Furthermore, participants are treated as autonomous persons who are capable of making their own, informed decisions (Orb et al., 2001). Upon expressing interest in participating in the study, participants were provided with a Participant Information Sheet (see Appendix C), which outlined the research aims, as well as relevant ethical information. In particular, participants were informed that the information that they would provide during interviews would be confidential. Furthermore, they were informed that they would be given pseudonyms in the research report to ensure that they remained anonymous. In addition, the sheet outlined that participants were allowed to stop the interview at any point and that there would be no repercussions for doing so. Additionally, they were informed that the interviews would be recorded and that the recordings may be used to inform future research, given that their personal and identifying information would be removed. Furthermore, participants were required to read and sign a

Consent Form (see Appendix D). The signing of the consent form indicated that they understood the aims of the study, as well as the potential risks and benefits of participating and that they knowingly consented to participate.

Confidentiality & Anonymity

Issues of confidentiality and anonymity are of particular significance. Confidentiality involves removing or altering participants' identifying information from the data (Coffelt, 2017). Whereas, anonymity involves not collecting any of the participants' personal or identifying information during data collection (Coffelt, 2017). Breaching confidentiality or anonymity may have large negative impacts on participants, such as making them vulnerable to embarrassment or severe harm, as well as potentially impacting their families and employers (Coffelt, 2017). In this study, anonymity could not be upheld in data collection, as participants engaged with me via their personal email addresses, as well as in video calls. However, the study strived to uphold the principle of confidentiality.

Online interviews create a number of potential breaches of confidentiality. For example, insecure platforms used for video calls may cause breaches of participants' confidentiality (Sullivan et al., 2012). Therefore, video calls were conducted on Microsoft Teams and platforms known for their privacy risks (e.g., Skype) were not used. In order to further protect participant confidentiality, participant recordings were stored within the Microsoft Teams app, which is password-protected. Furthermore, transcripts and video recordings that may be used in future research were stored in password-protected files.

Reflexivity

In qualitative research, it is vital for the researcher to recognise their own reflexivity in their research. It is important for the researcher to acknowledge their own subjective role in their research, while conceding that they are not separate from the world that they are studying (Denzin & Lincoln, 2011). The researcher's multiple intersecting identities play a

significant role in their choice of research focus, the participants selected, as well as their interpretation of the data (Alwan, 2006; Denzin & Lincoln, 2011). In the interpretivist research paradigm, the researcher is not expected to eliminate their own subjectivity, but is expected to acknowledge it and reflect upon it, so that it may provide a richer understanding of the context of the research (Alwan, 2006). Thus, in this study, I made a conscious effort to practice reflexivity within each research phase. This reflexivity was guided by my supervisor, as well as the process of reflexive journaling. In the following section, I will reflect on my own subjective role in the research.

The selection of the research focus, research questions, and research aims were largely influenced by my experience of the Covid-19 quarantine. During the March 2020 lockdown, I moved back home with my parents, which I found to be extremely challenging. I frequently used technology to maintain relationships with friends and acquaintances. Furthermore, while I experienced certain limitations of technology-mediated communication, I found that the use of such technologies helped to reduce the emotional burdens of the lockdown and provided a sense of normality. These experiences sparked my interest in the psychological benefits of technology-mediated communication, particularly in times of crisis. My interest in technology-mediated communication intensified as I was exposed to a social group that made frequent use of computer games to maintain interpersonal connections. I observed the effective, positive impact that technology-mediated communication had on individuals' social and emotional well-being.

My difficulty in adapting to moving back to my parents' home likely influenced the research assumptions and questions that were posed. In particular, I made assumptions about the universality of stress experienced by students in their family homes. Thus, research questions and aims focussed on the challenges of staying with one's family during lockdown and did not address the potential benefits of stress reduction and comfort. In addition, my

experience as a younger student living with my parents during the lockdown caused me to make assumptions about students' dependency on their parents. Thus, several research questions proposed in the interview schedule were aimed at students who were dependent on their parents during the lockdown, rather than independent students who were living with their partners and children. These assumptions about participants deviated from the actual sample of participants, many of whom were of more mature ages.

Furthermore, my selection of postgraduate students as participants was somewhat influenced by my own experiences. As a postgraduate student myself, I had pre-conceived ideas about the emotional impact of social isolation and the effectiveness of technology-mediated communication in maintaining interpersonal connections within a postgraduate context. I found it extremely difficult to maintain contact with my classmates during the Covid-19 lockdown and often felt a large disconnect within the academic group. In addition, my research supervision sessions took place virtually. I felt that the process of supervision became far less spontaneous and consistent than it would have been in person. Furthermore, I often felt regret at not being able to connect with my supervisor on a face-to-face level.

I aimed to be aware of the role of these preconceived notions about the benefits of technology-mediated communication, as well as the limitations thereof in the data collection and analysis phases. Supervision sessions were a helpful means of deliberating whether the questions posed, and themes identified were representative of the dataset or of my experiences.

In addition, I endeavoured to be aware of the role that my identity played in the data collection process. Both I and the participants were postgraduate Psychology students, and the majority were of similar age to me. In several cases, this resulted in a sense of equality and collegiality developing between myself and participants, and therefore caused a good rapport to develop, as participants often felt comfortable talking casually and using humour

with me, resulting in a relaxed environment during many interviews. In a number of cases, this resulted in greater self-disclosure from participants. However, in a few cases, the participants may have felt that there was too great a level of familiarity between us. This may have particularly been the case when the participant knew me personally, particularly when we had been in the same academic class. In one or two cases this likely resulted in less disclosure on the participant's part. Furthermore, I had the power to direct the conversation and ask particular questions, giving me inherent power in the interviewer-interviewee dynamic, as is seen in the work of Hart (2012). In addition, I was not required to disclose any information about myself but was able to ask the participant to self-disclose. This inherent power is likely to have made several participants feel apprehensive and potentially self-disclose less frequently.

Conclusion

This chapter has aimed to provide an in-depth discussion of the methodology used in this study. In particular, it has discussed the research aims and questions, outlined the sampling process, data collection process, and data analysis process. In addition, it described qualitative rigour in this study, ethical issues, as well as researcher reflexivity. The following chapter will discuss the results that were obtained in this study.

Findings

Introduction

This chapter will discuss the themes identified from the data through Braun and Clarke's (2006) thematic analysis. Data analysis indicated the presence of seven distinct themes emerging:

1. Changes in interpersonal relationships
2. Significance of textual communication
3. Importance of video calling
4. The inability of virtual connections to replace face-to-face interactions
5. The intrusive aspects of technology
6. Rise in individual stressors
7. Rise in family-related stressors

Each theme identified will be described in detail below and divided into sub-themes. The content of these themes will be demonstrated using quotes from interviews with participants.

1. Changes in Interpersonal Relationships

This theme describes the changes in participants' interpersonal relationships during the Covid-19 lockdown. In particular, the theme describes changes in participants' attitudes, behaviours, and experiences of social connectivity during the Covid-19 pandemic.

1.1 Longing for Social Connections

A number of participants reported the need for social connections as a result of being isolated from others during the Covid-19 lockdown. Participants reported a strong desire to spend time with people outside of their homes, including family members, friends, classmates, and colleagues. Ayla and Nandi's desire to see their friends and acquaintances can be seen in the following excerpts: "I longed for, uhm, the interaction with my co-workers

and friends” (Ayla); “it was difficult adjusting to...not being with my friends and my roommate at the time as well. Obviously, we lived together, you know, we were quite close. Uhm, we saw each other all the time. So, it was hard” (Nandi). This longing is reiterated in the following excerpt by Emir:

What was really hard, was the social isolation aspect, because my, my girlfriend had to go back to like her home in East London as well...we kept thinking like okay we’ll see each other in a month’s time and then it just kept going on and on and on.

Lerato reported developing a greater appreciation for social connections than she had had prior to the lockdown: “actually life is not...we are not meant to live by ourselves. We...crave human interaction, we are meant for human interaction. So, for me it was really interesting to, like, really observe that.” She reported gaining greater awareness of her own self isolation and her need to interact with others: “I’m very hyper aware of the time that I spend alone. Like I can already sense when I’ve... been by myself for, like, a long time.”

1.2 Increased Frequency and Effort of Virtual Communication

Numerous participants reported putting greater effort into maintaining contact with people outside of their homes, such as friends, family, colleagues, and classmates. They often communicated more frequently than they had prior to the Covid-19 lockdown. Several participants reported that they began to recognise the importance of showing their friends and family members who were living apart from them that they were cared for by virtually checking in with them. This is demonstrated in the following comment by Ayanda: “video calls come in handy just to show them [my friends] that ‘you know what? I’m still in your life. You’re still a really important person in my life’.” A similar appreciation for checking in was reiterated by Nandi: “[checking in] shows that you...you care. And even when you’re able to go out with them, you know that it’s important to...check in on this person to see if they are OK.”

Furthermore, participants felt that they became more conscious about having regular check-ins with one another. Lerato and Ayla reported deliberately checking in with friends and family members frequently: “I think when we started, like, getting into the habit of, like, interacting with each other there was always that sense of OMG so much has happened in our lives. You know, we need to catch up” (Lerato); “So I think it just became a habit to check to see who’s checking in, who needs something, who’s trying to contact, yeah” (Ayla). These habitual check-ins extended beyond friends and family living outside of participants’ homes. For example, Buhle recounts that she and her colleagues made a deliberate choice to virtually meet with one another more regularly:

so teams connected more because we had to obviously make up, you know, we’re not sitting together and seeing each other, you know, so you know you would take that for granted, but it actually goes a long way when you’re faced with a pandemic and you are unable to see people and can be lonely.

Ayla reported placing more effort into connecting with more of her contacts than she had prior to the pandemic, as can be seen in the following excerpt:

So I actually found myself connecting with more people than I usually would, uhm, with the use of technology to the point where I created a Facebook account, which I never have and I turned 40 this year. I just never found a need for Facebook. I used to always think that if I wanted to speak to you and you wanted to speak to me, would we not have each other’s numbers? It was quite a silly, narrow-minded way of thinking about it, but ja, I found myself connecting with more people.

Certain participants reported changing the way they interacted with others, in order to foster intimacy and support. For example, Ayla described putting greater emphasis on vulnerability and words of affection and appreciation:

And it became more so about, uhm, talking about your feelings and telling people how much they mean. And this could also be about Covid and how scary it is, and how many people have died, and how much loss this virus has brought...it connects in the way where the communication itself is not just about being available, but about being meaningful and that way of actually sharing and being vulnerable and speaking about how you feel...how I feel.

1.3 Maintaining Friendships and Family Relationships Outside of the Home

Several participants reported that they were able to maintain many of their relationships with friends and family members living apart from them. For example, Ayanda reported: "I've managed to maintain the most important group of friends that I have, which are friends that I've been with since primary school." Similarly, Lerato reported seeing few changes in her relationships with friends over the lockdown: "I think the relationship [with friends], it stayed the same although...I have friends that...I've never seen them like during the whole of 2020." Emir reported that his relationships with his family held a similar resilience: "With family, yeah, I'd definitely say so [I've managed to maintain relationships]" (Emir).

However, a number of participants noted that they were unable to maintain a small percentage of their friendships. For example, a lack of active effort from friends and acquaintances was often noted by participants and frequently resulted in difficulties within interpersonal relationships. This can be seen in the following comment by Emir, who felt that the pandemic allowed him to differentiate between stable friendships and fickle friendships:

And what I would notice is I would spend a lot of time checking up on other people, but very few people were actually trying to reciprocate and like actually trying to check up on me...I had some bad relationships socially, that the negativity in relationships was basically exposed more because of the, like, uhm, conditions of the

pandemic in some ways. And... conversely, it's like people who I was...I had good relationships with, their relationship kind of improved a lot because I would notice that, you know, they were actively trying to see how I was doing on something or check up on me and me on them.

While Nandi was able to maintain most of her friendships, she found the pandemic revealed that a certain friend's personality was not compatible with her own, making it difficult to maintain the friendship: "one [friend] in particular that I just kind of felt like, oh actually maybe we're not, uhm, really like compatible as friends and our personalities maybe don't, you know, gel too well with each other."

Lerato reported that although she maintained most of her close friendships, she was unable to maintain a short-term relationship, as they were unable to establish a foundation for good communication:

I had this person, I was dating them, and I think prior to dating I've only known them for like six months. Whereas with my other friends I've known them for longer. You know? So, I think that was one of the reasons, maybe we haven't, you know, figured a way on how to, like, communicate under normal circumstances, so it just became too much when you had to like communicate under, like weird, you know, circumstances such as Covid.

1.4 Maintaining Relationships with Classmates

A number of participants reported feeling regret that they had not had the chance to develop or strengthen relationships with their classmates during the Covid-19 pandemic. For example, Nandi reported feeling as though she had missed out on connecting with her classmates: "you missed out on, you know, just getting to know people and connecting with people as well. You know, that was, I think that was very important" (Nandi). Emir reported a similar disappointment at not getting to know more individuals in his class: "Even though

Honours year is actually often, people often say they made the best friends that they do in Honours. For a lot of our class, people say: ‘I spoke to like two people’.”

While Solomon reported engaging with his classmates on an academic level: “[classmates] see me engaging in class and then they’ll privately message me and ask all kinds of questions. So, through those private messages that’s how I actually get to know the person”. He reported that it was frequently difficult to connect on a more personal level:

It was harder because it was more, uhm, I don’t want to say a work relationship. But a lot of it was tied into classes and schoolwork and stuff like that. So, uhm, kind of getting to the frustrations of lockdown, or true like emotions and stuff like that, we didn’t really cover it too much unless we reached breaking point.

Two participants reported that their connections with classmates remained constant or improved when the Covid-19 lockdown began. Lerato reported that both in-person and virtually, she only interacted with a select few: “the contact it, it remains the same in person...I’ll probably be interacting with like a few people who are like my close friends and then the other people maybe I’ll be working with in groups and stuff like that.” However, Ayanda reported that her relationships with her classmates improved during Covid-19:

So, every time after [in-person] class, I would just rush home. I wouldn’t engage in those after class interactions with my classmates ‘cause, who would I be doing it with? I don’t know, I didn’t know anyone. Every time after class I would just rush home ...and we didn’t have a [WhatsApp] group at the time. We didn’t have a... well, we did, but it was not as active as it got after the online thing. So, after the whole lockdown I became closer to people...especially my, like, people that I would be in groups with or people that I would partner with for assignments.

2. Significance of Textual Communication

All participants reported communicating with other people outside their homes via text-based virtual platforms. The most commonly used platform was WhatsApp, which all participants reported using. This theme discusses the significance of textual communication in maintaining connections and the challenges faced by those who made use of textual communication.

2.1 Importance of WhatsApp Group Communication

Many participants commented on the importance of WhatsApp groups for keeping connected with those not living with them. For example, Buhle recalled the usefulness of her husband's family's WhatsApp group, consisting of members who were living in different countries:

You could get, like, a global experience of what people were going through and what was happening. And they can also connect to home because they also miss home. So, we can also...connect them to, to, to home. Uhm, yeah. So, I think they were extremely useful and continue to be.

Similarly, Ayanda remarked on the value of WhatsApp groups for maintaining relationships with her large friend group:

You're commenting there [on the WhatsApp group] and they [your friends] see "Oh, so this is what Ayanda has been up to." Unlike when you just go one by one by one into each of them [chats]. That one is more, it's more challenging and it's not easy to maintain or to manage. If you have, like, five friends...it could be easy to communicate in that [WhatsApp] group at once than when you would have to go to each one of them.

In addition, a number of participants remarked on the helpfulness of academic WhatsApp groups for maintaining relationships with classmates. Firstly, participants reported that groups were a useful means of keeping abreast with university tasks: "[Groups are used

for] sharing, like, information and helping each other out with assignments and stuff like that” (Lerato). Participants reported that these groups allowed for informal communication and bonding between peers: “we all still miss that [in-person] contact...we all missed it, but I...do think that, you know, even through WhatsApp, you know, the jokes were flying. The banter was nice, you know” (Lerato).

Ayanda reported that this sharing of information and informal communication allowed her to feel supported:

It felt like a community...you have those people who understand...what you’re going through in terms of workload and everything. So, it was nice to have people to see that “Oh, I’m not struggling alone. This person is also finding this particular concept difficult”; “Oh, I forgot about assignment that’s due in two weeks, but somebody just reminded us.”

2.2 Challenges with Non-Verbal Aspects of Communication

A number of participants reported that communication through text required a great deal of adjustment, as participants learned to interpret non-verbal cues through text. For example, Solomon reported finding it difficult to have coherent conversations in his class group chats on WhatsApp, as the normal conventions for conversations were foregone:

I felt as though people would talk all at once, even though it was not intentional. If there was a question asked by the tutor or the facilitator, uhm, everyone would have different response times.... Sometimes, we would get half way through the conversation and then some would say “oh, just waking up now” ...or someone would reference something that was spoken about early in the conversation. So, we would have multiple conversations within a singular conversation.

Similarly, Ayanda reported often finding it difficult to have coherent conversations with her friends in group chats due to the high volume of messages received:

It's easy to miss what the other person is saying...also sometimes you're not online in the room and when you come back you have like 300 chats. Like how, how? You can't reply to every single one of them 'cause...it's going to seem weird 'cause they've already spoken about whatever it is. So, you sometimes you find that you miss out.

Emir also reported feeling overwhelmed by interpreting textual communication, where the meanings of words, phrases, and symbols took on new meanings:

there's a whole new language of non-verbal interaction which you have to make sense of, and you have to think "is that intentional or is that just the way someone is typing?" I mean, on the topic of trying to read things, like, passive aggression over text is particularly difficult I've found. And similarly, I feel like if people don't have the same way of typing or texting, like excitement, then it's hard to understand what someone's saying. Like for example, some people will send like ten rows of laughing emojis right, and someone just sends the one laughing emoji as the large thing, and to them that means ten laughing emojis and to you that's like "oh, that's a thumbs up", "like a thumbs up", like a "haha".

2.3 Facilitating Connection through Text

Despite these challenges with non-verbal aspects of communication, several participants reported creatively incorporating these non-verbal elements to facilitate humour and closeness in virtual communication. For example, participants discussed the common use of emojis, stickers, and gifs to convey their emotions: "And the use of things like stickers and emojis, almost as like tonal shifts. And like sarcasm, and like, over 2020, people started collecting WhatsApp stickers like Pokémons [laughs]" (Emir). This was a particularly common occurrence in class WhatsApp groups and academic tutorial groups. Images, videos, and pieces of text, such as memes and gifs, were often used to convey humour in these

WhatsApp groups: “[in tutorial groups] we were sending like memes, even though it related to the topic at hand, uhm we were sending memes, gifs. And yeah, I liked the engagement, it was a lot more real, yeah” (Solomon).

Emir described the creative use of emojis to facilitate humour in a WhatsApp tutorial group for a group of students that he was tutoring:

This one student like, uhm, him and his friend, they sent me a message describing what Broca’s Area was, but after every word they’d put an emoji, for this very formal definition for what Broca’s area was. Like “Broca’s Area” [motions to emphasise both words] and I can’t remember the detail, but it would be like, “is in the inferior” and they put the hand emoji like this [👉] “inferior”, uhm, “portion, inferior sulcus”, and they’d put a filing cabinet emoji [🗄️], like a sulcus [laughs].

Emir also described the development of inside jokes between friends developing through non-verbal means:

there was this time where there was this, like, crazy Kanye West fan [on Reddit] that kept saying... “Kanye the GOAT”, then it’s a goat emoji, “No cap”, then it’s the cap emoji. And my one friend, they find this hilarious, so for example it’s like, I’ll tell them “I’m coming to campus, I’m bringing you some, I’m bringing you some leftover noodles” and then they’ll say “I’ll tell the GOAT, no cap” like using those little memes, using those little inside jokes kind of simulates like creative aspects of conversation, like witty little jokes and insights into stuff.

3. Importance of Video Calling

This theme describes the significance that participants placed on video calling in maintaining connections, highlighting the vital role of the visual aspects of video calls in maintaining connection as well as usefulness of video calls to foster authentic connection. All participants reported using video-calling technologies to keep in contact with either friends,

classmates, colleagues, or family members during Covid-19 lockdown. All participants reported using WhatsApp for video calls, while several participants reported using Zoom and Microsoft Teams. In some instances, video calling was used to re-create social activities online.

3.1 Importance of Visual Aspects

Six participants commented on the importance of visual aspects of video calls in providing meaningful connections. Participants reported that being able to see their friends and family-members who were living apart from them allowed them to feel closer to one another. In particular, a number of participants reported enjoying seeing others' faces: "I think just seeing someone's face also is, is nice. You know, they feel like a real person" (Nandi); "I think it was just nice to see their faces. It was just a more concrete aspect of it" (Ayla), as well as changes in others' appearances: "When I saw people on camera for the first time I was like 'what the hell, it's been ages, you have a beard now. Uhm, when did this happen?'" (Solomon). In addition, participants enjoyed sharing ongoing in their daily lives: "I'm in a different place to a lot of my family members, so I get to show them like: oh, this is where I am, you know...maybe you can show them what's happening around you" (Nandi).

Visual aspects of video calls allowed participants to feel connected to the happenings in others' lives, such as participating in video calls on friends' or family members' birthdays, weddings, or births of children. For example, Ayanda reported that engaging with her friends' children helped her to feel connected with her friends:

I haven't even been able to see [my friends'] kids, you know? So, it's not the same when you just send me pictures. Sometimes, like, a video call and me seeing your child there it makes me feel better because I feel like that way, I feel like I'm a little bit there for you. Yes, I'm not there in the moment, but at least like I was... I'm there for you like in the moment, you know. I don't know if I makes sense. 'Cause, I feel

like I'm missing out on a lot of the most important, like milestones, like [friends] having kids.

Lerato felt that seeing her friends in video calls reduced loneliness and helped her to feel that others were in the same position that she was:

It did help me feel connected, especially when we got to see that, yeah, we both crusty [laughs]. Especially when we got to see that, yeah, we're both in, like, sweaters and yeah, there's not cuteness, none whatsoever. So yeah, it was just a thing of, yeah, we are all in this together. I'm not the only one who's feeling anxious. I'm not the only one who is feeling, like, upset, you know, bored and stuff like that.

Participants reported creatively making use of the visual aspects of video calls in order to facilitate closeness. For example, Emir remarked that visual aspects of video calls added a layer of humour to communication, which would likely not have been present in face-to-face interactions:

I can remember messing around with like my friends and we were like - you start the call and hold the phone really, really still and you try not to make facial expressions, so it looks like you're frozen [laughs]. I remember doing stupid things like that, or like starting the call and making sure it's completely dark so you can't see anything. And then, like, they're like "are you there? Just turn on the light." And something ridiculous is happening. I remember doing stuff like that. Or uhm, like answering the call and then holding the phone like really close to your face and just not acknowledging that [laughs]. I remember that being kind of funny.

3.2 Authenticity of Video Calling

Numerous participants reported feeling that video calls were efficient tools for recreating face-to-face contact and provided a sense of authenticity in the connection that was not necessarily present in other methods of technological communication, as can be seen in

the following excerpts: “[video calls are] a well-oiled machine. Like, it it’s so organic. I think the reason I’m so obsessed with WhatsApp video calls is that we can sort of recreate that moment when we are all together at the same time” (Ayanda); “I think video calls do, uhm, provide that sense of, you know, you’re in the room with the person, having like a face to face call” (Lerato); “[Video calling] felt very personal in a way, a lot more personal than it was when we had been communicating via text” (Solomon).

Participants also felt that video calls resulted in greater engagement and involvement in communication than other means of virtual communication:

Sometimes video calls are more fun than just [text] chat ‘cause they are in the moment and everybody is present and everybody’s commenting, sharing what they’ve been through...Unlike [text] chatting, sometimes with the chat, someone can just be in the corner and decide to not comment...but with a video call, we’re all there together at the moment. (Ayanda)

3.3 Participating in Activities over Video Calls

A number of participants reported a desire to partake in activities over video calls. Participants felt that engaging in shared activities would allow an added layer of connection, novelty, and excitement to relationships. This desire for participating in activities via virtual platforms can be seen in the following extract by Ayanda, who felt that only talking in virtual communication became dull after a time:

We [my friends and I] were talking about the same thing over and doing it in the same way over and over and over again. Like, guys we are in the new era. Can we just have fun? Can we use technology to have fun and not just chat all the time about random things?

Buhle reported engaging in game nights, wine-drinking sessions, as well as novel social activities with her work friends, as can be seen in the excerpt below:

And it did get to a point where it just felt so inhuman, so distant. And we try to create spaces where teams could connect so we could only do it via Teams and have...a comedian come in. Or we'd have, like, wine Fridays or wine Thursdays. Everybody comes with a glass of wine on Teams.

Several participants reported that although they desired to engage in shared activities, they encountered a number of hindrances. For example, Emir reported that a lack of stable internet connection prohibited him from certain shared virtual activities: “[South Africans] don't have the internet connection for, like, Watch Parties for Netflix and, like, other streaming apps...it's pretty much never done.” Similarly, Ayanda reported that she found it difficult to engage in shared activities due to reluctance from her friend group:

[My friends] said “Ayanda you are crazy”, “Ayanda you watch too much TV”,
 “Ayanda you've been in South Africa for too long. Like, no we're not doing that.”
 So...they were boring if I'm honest, my friends were boring during lockdown.

4. The Inability of Virtual Connections to Replace Face-to-Face Interactions

This theme highlights how participants typically did not view virtual interactions as replacements for face-to-face interactions. The theme emphasises the lack of physical touch, organic interactions, and important visual elements in virtual interactions. The theme also outlines additional limitations of virtual communication, including discomfort during communication and connectivity problems.

4.1 Virtual Connections Lack True Connectivity

Most participants reported feeling that in-person connection could not be replaced with virtual connections. as can be seen in the following extract: “I still prefer face-to-face. There are certain things...that you kind of miss out in a... digital interaction. And yeah, no let's go back, it's the best way” (Solomon). Several participants reported feeling that face-to-

face connections provided greater connectivity and authenticity than virtual connections:

“[Virtual communication] makes it feel less nuanced, less uhm, less genuine” (Emir).

A number of participants reported feeling lonely and isolated despite frequently engaging in virtual interactions. Lerato’s feeling of isolation is described in the following extract: “Video calls and phone calls are nice, but they can only give you so much, uhm, interaction. And it’s also one of those times where you get to realize that you know what...? We are actually not meant to exist in isolation.” Solomon described a similar sense of loneliness: “And like in my room right now I’m alone but I’m talking with you, but I still feel that sense of ‘it’s just me’. So, the same thing can be translated over to WhatsApp I guess.”

The extract below highlights importance aspects of in-person interactions that facilitate connectivity:

It’s just my personality, I guess. I place emphasis on feeling out someone’s energy and being able to read body language and being able to...look at a person when I hear them and when I speak with them. (Ayla)

4.2 Need for Physical Touch

Several participants remarked that being able to physically touch their distanced friends and family members was an important part of relationships which was missing in virtual communication: “physical touch is my way of...giving and receiving love. So, you know, I hug people and...that’s important for me” (Nandi). Participants felt that a large disadvantage of virtual communication was the lack of physical touch, as can be seen in the following remark by Ayanda:

seeing someone, being able to hug your friend, it’s so different [from] like saying “Hi, how are you?” in a video call. It’s so different to when you are there hugging your friend and just seeing how they have grown. Like, even if you can't see how all these, how big they got like. Like you can’t see that through video call.

4.3 Missing Spontaneous Face-To-Face Interactions

Six participants remarked that they missed engaging in shared face-to-face activities with others, which many reported were difficult to simulate over virtual communication platforms. Participants felt that engaging in activities together was an important part of relationships, as can be seen in the following extracts: “[When interacting face-to-face] you, you know, share an experience with someone, whether you're in the kitchen cooking together or you go out for drinks or, you know, you go and do an activity together” (Nandi); “a lot of time is spent being by yourself with other people, whether it's, someone's lying on the couch next to you while they work, and you're, I don't know, watching tv. Like, you can't simulate that as easily” (Emir). The following extract reiterates how participating in shared activities with loved ones was an important aspect of maintaining and strengthening relationships:

‘cause our friendships, our friendship was maintained a lot by us going out to have fun, you know, visiting places that we've never been, just that type of thing. Uhm, even if people are busy with their lives, we could have that date and say that: “Okay ...during the Easter holidays let us take a trip to this place” (Ayanda).

Participants reported that they missed the spontaneous aspect of in-person activities. Some remarked on the calculatedness and rigidity of virtual interactions: “in real life you can, like, spontaneously meet up and talk about everything and anything. But then when you are using like video calls, sometimes you actually have to schedule” (Lerato). This point was reiterated by Solomon:

If we went to Starbucks, uhm, we could end up anywhere, uhm, based off the conversation. It could be literally, okay we're going to Starbucks and then we end up going home, like our separate ways or we could end up at the cinema, we could go shopping, we could go to the park, we could take a walk, it could go anywhere.

Whereas, with this [virtual interaction] I know exactly when this is ending, I know

what's going to happen once it ends. It's a bit too clean in a way, uhm, too structured.

(Solomon)

Spontaneous in-person interactions seemed to be particularly important for creating more intimate relationships with colleagues and classmates. A number of participants felt that there were more opportunities to socialise when together with others in the workplace or at university. This is displayed in the following excerpt:

Whereas in work I could take a break and I could walk towards the porch area to get tea and my colleague will come with me. And it's during those walks back and forth, where we would connect and we'll talk and come in the morning before we start working, would just mingle. (Buhle)

Ayla reported a similar desire for spontaneous quality time with her colleagues in the office:

I missed the little things, of walking into the office and then having my favourite people, and then we have our shared humour and shared jokes. And we would interact while having coffee or having a smoke break or just eating lunch together. So, I missed those little things.

Similarly, Solomon discussed the importance of spontaneous interactions with classmates:

It was much easier to break that boundary of peers or colleagues to actual friends, because even if you're actually walking outside a tutorial, you might extend the conversation and realise "oh we might have more in common than I actually thought".

4.4 Visual Limitations

Four participants felt that there were important aspects of face-to-face interaction that could not be simulated through virtual communication. For example, aspects of body language, facial expressions, gait, and posture were often difficult to extrapolate: "It's so

different to when you are there hugging your friend and just seeing how they have grown” (Ayanda); “I think the main thing you’d miss really [in video calling] is that like, hmm, the genuine interaction with the person, being able to read their expressions, yeah, body language, their gait, their postures” (Emir). Similarly, the following extract demonstrates how visual aspects, such as height, have a profound impact on communication:

Like for example, in video chat we are all the same height. And when you meet someone and they’re shorter than you or taller than you, like unconsciously that creates different kinds of interactions. Whereas, over video call... it just removes that element and makes it, perhaps even, uhm, perhaps even, makes it feel less nuanced, less uhm, less genuine. (Solomon)

Video calling may conceal important aspects of one’s physical surroundings:

You can’t tell by this kind of [virtual] connection, you can’t see whether my room is messy. Am I actually in a state? So, it’s those little things I suppose, uhm, you get the whole background picture. Whereas this I can present a very uhm, studio set in a way. (Solomon)

Furthermore, difficulties with one’s internet connection, as well as limitations of technological devices frequently resulted in visual shortcomings during video calling, as can be seen in the following extracts: “[video calling] distorts someone’s face, like you don’t see them the same way, like quite literally” (Emir); “you have little glitches where things freeze and if the person was saying something really significant and it does that, I wouldn’t catch the emotions all the time” (Ayla).

Several participants felt that this lack of nuance with visual elements of communication resulted in a lack of authenticity. As a result of these missing visual aspects, participants reported that important non-verbal cues were more difficult to interpret virtually. This can be seen in the below excerpt.

But if I was sitting with you, I'd be able to pick up off your energy. Like what sort of mood are you in and I don't mean telepathically or anything like that but it's just about being aware and observant in a different sort of way. So online, yeah...I find myself asking more questions and clarifying more than I would in person. So, I think there's just something to be said about a person's presence and what their presence emanates. (Ayla)

4.5 Connectivity Issues

Five participants remarked that they had difficulties with virtual connectivity. This presented challenges for academics and communication with friends and relatives. Several participants mentioned having to expand their data bundles to accommodate increased internet usage: "I know our data usage definitely increased. So we had to...we as in my husband and I...uhm, we had to increase our packages for data" (Ayla), frustration at poor connection: "yeah I'd say [WhatsApp video calls were] kind of positive, except when your connection is shit, then your connection is shit and that was frustrating as hell" (Emir), and navigating the sharing of internet within families: "My mother is an academic...so she's a university lecturer. And my cousin is also at university, so we're all within some sort of institution. And we all had different lecture times, and some people were hogging the internet" (Solomon). Several participants recounted that they were unable to engage in activities requiring heavy data usage; "we [South Africans] don't have the internet connection for, like, Watch Parties for Netflix and like other streaming apps" (Emir); "we were reluctant to use voice notes because of data issues" (Solomon). However, a number of participants reported that data limitations had profound implications for them, as can be seen in the following excerpt:

But when I got home, I had classes, but I didn't have Wi-Fi. I remember before going out to buy my modem...before that I remember I used to ask for airtime from my parents so that I, at least buy data for my one class (Ayanda).

A further extract indicates how electricity difficulties limited Ayanda's ability to connect virtually.

And my laptop, I need electricity, it doesn't have a battery...it's always plugged in. So sometimes I would I remember there was a time there was no electricity and I was so stressed because my phone, the phone that I was using at the time, it also needed to always be plugged in in order to work. And I missed a class one time, I was so sad. I remember I borrowed my dad's phone trying to download Teams. Eish, it was, it was a long process, and I don't think I ended up being able to be in that class because downloading Teams in his phone, he didn't have enough storage.

5. The Intrusive Aspects of Technology

This theme highlights the intrusiveness of technology and the blurring of boundaries between different spheres of life due to technology. In particular, participants often experienced pressure to respond to virtual communication, lack of work-home boundaries, and fusion of virtual and physical spaces.

5.1 Pressure to Respond to Virtual Communication

A number of participants commented on the expanded accessibility that was created because of virtual communication, particularly textual communication. For example, Buhle commented on the ease with which people could contact her: "my cell phone is kind of like my work phone as well and so it made it easy for people to be able to reach me." Similarly, Ayla commented on the ease with which she was able to receive communications: "I do have WhatsApp downloaded on my laptop, but I can take my phone with me anywhere in the house and talk to people." Due to this increased accessibility as a result of technological

devices, many participants found that they received a continual influx of virtual communication and that they were constantly expected to respond to these communications.

The overwhelming nature of these expectations is exemplified in the below comment by

Solomon:

it's too easy to communicate nowadays. And I don't want to talk to you all the time and the thing is with me I'm a very, uhm, present person. So, if you have my attention, well, if I'm in your presence, you have my full attention. Uhm, same thing over WhatsApp, I don't multitask and do other things while I'm doing that. So, it can be very exhausting for me, and I haven't learned the tricks of the trade.

Participants often felt that it was difficult to respond to all the messages they received. Nandi reported feeling so overwhelmed by the influx of messages that she frequently did not respond for a number of days.

[Pressure to respond to messages] made me not want to respond to them. So, I left them, you know, most of the time. And then when I think about the person, then I'll go back and check. And I'm like, oh, man, it's been three days, you know, and I haven't responded, or it's been a week, and I haven't responded.

Similarly, Solomon reported that he had to carefully navigate who he responded to and when:

So, if my grandmother messages me for example, this is my grandmother, of course I'm going to message back straight away. Whereas, if a peer messages me, depending on what they're saying to me, I might take an hour or two, might reply the next day, it all depends on what they're saying.

5.2 Lack of Personal-Professional Boundaries

Participants recounted that due to the ease with which they could communicate with colleagues, classmates, or tutors, they frequently developed weakened boundaries between

their personal and professional lives. For example, Solomon reported a lack of boundaries between tutors and students, resulting in frequent, informal communications: “we would forget that [tutors] had their own lives and their own responsibilities so sometimes the communication would be a bit too frequent or a bit too familiar, personal, uhm, or asking lazy questions, like ‘what time is lectures?’” Likewise, Buhle remarked that it became the norm to respond to work communication after work hours because technological platforms were easily accessible from one’s personal cell phones:

It's very difficult to say officially log off at this time. I could log off and I still have access to everything on my phone, so someone could still call me on Teams, and it rings on my phone. My WhatsApp, my emails, everything is connected to my phone. Like, so, my laptop and my phone are duplicated, so I would still answer emails, even at all times of the day.

Ayla similarly reported finding it difficult to create a division between personal and professional life: “So you couldn't detach work mode from home mode, so we found ourselves working more hours a day than we would have at the office.” Solomon also reported that frequent communication with classmates, tutors, and lecturers caused challenges in switching between his “professional” self and his “casual” self:

When I was communicating so much on WhatsApp like that I started writing in a very academic and like paragraphy way [in personal communication]. Even inserting punctuation, and when I say punctuation, I don't mean commas and full stops. I'm adding semi-colons and...[laughs]. So yeah, it was, it was messing up my... outside identity in a way. The two were blending too much. Not even blending, the one was overlapping the other.

Certain participants felt that lack of personal-professional boundaries had a large ripple effect on family relationships. For example, Ayla reported that longer work hours resulted in a lack of quality time between her and her partner:

With my husband, sjoe...I realised that... this is horrible because it took us six to eight months to realise we were doing this, but we would sort of live past each other. So, when I went back to work as well, I was working longer hours, he was working longer...super long hours - as long as eight or nine some nights. And we would sort of just live past each other and talk about random things that just sort of kept the house going.

5.3 Discomfort during Virtual Communication

Three participants noted that they felt uncomfortable with the visual aspects of virtual communication. They felt that video calls were often intrusive and caused them to become uneasy. Participants recounted feeling self-conscious about their appearance, clothing, or body language during video calls: “I have to make sure that I look nice. Maybe that’s also like just me being full of myself, but like even now it’s a bit weird. I’m just looking at myself, like, oh do I look presentable?” (Nandi). Similarly, Lerato voiced her discomfort for others seeing her on video calls: “most of the time you know I’m out here looking homeless so [laughs]. Yes. So, I don’t want to have you see me when I’m looking like that.” Likewise, Solomon discusses his discomfort with seeing himself on camera.

The reason I don’t like intimacy [in video calls] by the way, is because I don’t like seeing myself on camera. Mirror is okay, but on camera I just start analysing body language and things like that. So, it just gets a bit odd, I get a bit too in my head about the interaction, so I don’t like doing that too much.

Participants reported that they preferred to be informed in advance before others video called them, so that they had time to ready themselves, as can be seen in the excerpt below:

I think maybe I like them [video calls] better if somebody tells me that they want to video call me and then maybe I can prepare myself [laughs]. I think I don't know, yeah, I find them a bit invasive. Yeah, think I find it invasive. I don't mind someone just giving me a phone call just you know, out of the blue and stuff like that. But if you going to video call me, just give me time to prepare myself [laughs]. (Lerato)

5.4 Fusion of Physical and Virtual Spaces

Several participants reported finding it difficult to separate their physical spaces within their family homes and their technological 'spaces' where they interacted with others outside of the home. In particular, participants felt that their family members frequently interrupted and interfered with virtual interactions. Two participants recounted being disturbed or distracted by young family members: "[My niece] would scream at the door wanting to come get in. Eish it was hard to be in online classes with her around 'cause she doesn't understand when I need her to be quiet" (Ayanda); "I had to constantly like tell my little brother 'Hey, don't make noise. Don't do this. Don't be running around the house.' " (Lerato). In addition, one participant felt that their parents did not understand her need for a private space to conduct work, as can be seen in the following excerpt:

But this whole, uh learning online thing was weird for them [my parents] 'cause I remember there were times they could just come into my room and just look at me while I was in class... They were surprised of the whole being in class while you are home situation so they were always like waking up and just staring at me. (Ayanda)

The encroachment of family members into professional spaces was not always experienced as negative. This can be seen in Buhle's account of the contact between her work colleagues and family members during Covid-19 lockdown:

We saw a lot of that - kids coming in and we now knew each other's pets because it's either while you're working, your cat is across the, you know, your screen, your

dog...you know? We know the husband that walks behind and we greet them. So, it definitely made people connect, uhm, you know, in a different way than...before.

In addition, the merging of individuals' physical and virtual spheres extended beyond professional and family spheres. For example, Solomon reported the boundaries between his family members and his friends began to dwindle due to technology:

My family got involved with my friendships a lot more and their families got involved with their friend groups. So, I was speaking a lot more to people's moms and siblings more than I'd usually do. And I don't know if my mom just needed company, but sometimes she would just take the phone and say, "Oh I've heard your name so often it's about time I get to meet you, in a way." Uhm, yeah, so my home life and my friends kind of merged together a bit more, because you can't, it's hard to avoid in a way, we're all in one space.

6. Rise in Individual Stressors

Although not strictly relevant to the research questions posed at the beginning of this study, all participants shared the stressors that they experienced as a result of the Covid-19 pandemic during interviews. This theme discusses the various individual stressors experienced by participants during the Covid-19 lockdown, including fear of infection and increased academic stressors.

6.1 Fear of Infection

Three participants reported fear of infection of both self and others. Participants felt that the novelty and uncertainty of the pandemic also influenced their anxiety about infection, as they were unaware of how the pandemic would impact them: "It was quite scary because we didn't know enough about COVID initially to understand what it was doing and how it was going to affect us" (Emir). Ayla recounted having similar worries:

But it was an unknown virus...that in itself was really scary with not knowing, uhm, what exactly we had to do to protect ourselves. And uhm, PPE was not readily available...there was a point where you couldn't even get masks at the local pharmacies, uhm, even hand sanitizer ran out, so that in itself was scary.

In particular, several participants found themselves worrying about their elderly or immunocompromised family members. Two participants reported worries about the impact of the virus on their parents "my parents were elderly and vulnerable, or more vulnerable, uhm, physically and to think who's going to get infected that's close to me" (Ayla); "So like you know, the added stress of Honours, mom's got cancer, immunocompromised or weakened immune system on top of, you know, there being coronavirus around" (Emir). Ayla reported relief that her parents were living nearby during the lockdown: "But yeah it's nice that, uhm, my parents are close by, and I think it's also a relief to my siblings as well, that they know that I'm, you know, just a few doors down if something does happen." In addition, Emir remarked that the lack of adherence to Covid-19 restrictions caused anxiety, "I think when my mom got her cancer diagnosis, it's like I started taking the precaution super seriously, and it used to frustrate me because I would see friends posting images [outside of the home] and stuff."

6.2 Increased Academic Stressors

Although several participants reported advantages to online learning, numerous participants reported that the transition to online learning involved a number of challenges. For example, participants found that they were forced to adjust to a new way of learning, which was often difficult: "you basically teaching yourself sometimes because you would get material that you have to read, you know" (Ayanda). Some felt that it was sometimes difficult to pay attention in online classes: "I didn't pay as much attention online as I would in person, and I'm not sure why. So yeah, it was easier to shut off because you could have your camera

off” (Nandi); “When I'm in an in-person class, it's just, I feel like I'm disrespecting a lecturer when I'm on my phone. But during an online, uhm, type of class I would be, I can be on my phone, and you know, nobody sees me” (Ayanda); “But then I also notice that I tend to, like, use my phone, especially if the lecture is more than 30 minutes and stuff like that” (Lerato).

In addition, participants reported that there was a lack of interaction in online classes, often causing challenges for students and lecturers: “Like one thing I remember like, trying to communicate with my tutorial online was horrible over video because of everyone's cameras being off” (Emir); “Everyone initially has the black screen and the microphones off and of course...a lot of people talk about microphone issues or data issues and I feel as though... sometimes it's true but a lot of the time...” (Solomon). This change in interaction caused lectures to feel dull to certain participants:

Sometimes it can feel a bit robotic or bland. The best way to describe it is like getting pap with no gravy. That's how I felt about MS Teams. And, yeah, people do warm up, I must admit, but it's only taken...I don't know, we're in the second semester now and it still happens. Lecturers sometimes have to read through the register to get engagement. (Solomon)

Other participants felt that lack of spontaneous engagement was anxiety-provoking: Some of the lecturers that would just be like, “...what is the answer to this question?” You're like, “Girl no!” So that was the only thing. It's like shucks...if they choose me to answer this question, I don't know anything. (Nandi)

7. Rise in Family-Related Stressors

Many participants reported a rise in family-related stressors during the Covid-19 lockdown. This theme describes the stressors experienced by participants and their family members, including balancing professional and household duties, childcare challenges, and challenges of being in close proximity to family.

7.1 *Balancing Study and Household Duties*

Students living with their parents often felt that their parents tasked them with increased household tasks. These students often found it difficult to balance their household tasks with their academic responsibilities: “Even though I was going home for the, uhm, lockdown, I’m a student, so it’s not as if I’ve, like, stopped studying or anything like that. And at home sometimes I feel as though, uhm, family can forget that” (Solomon); “Sometimes I’d help my mom out with the cooking, but it wasn’t something that I was always consistent with, because I always had like a lot of work” (Lerato); “sometimes I couldn’t get a break from [work] to go and cook, you know, to make lunch, sometimes I felt like, you know, I’m on a deadline and I can’t leave my computer for hours” (Ayanda).

In addition, students frequently felt they needed time to relax after engaging in academic work. However, participants often felt that they were expected to partake in household duties in their spare time: “When I leave my computer for a break I don’t want to be cleaning or cooking. I just want to lay in my bed and just be relaxing ... ‘cause cleaning and cooking is also work. It’s also draining” (Ayanda). This was further elaborated on by Lerato:

Most of the time I was so tired I didn’t really feel like, you know, helping out and I felt bad, but I don’t know. I was just reaching that point where mentally...I just couldn’t do it. You know, I was way too stressed out with school.

Several participants reported that their parents viewed the use of technological devices as an indication of engaging in leisure activities, as can be seen in the following excerpt:

So even though they [your family] see you sitting...not necessarily doing nothing, but let’s say I’m on my tablet or laptop, they’ll see the device and think I’m just having games or watching Netflix or something along those lines. And then the home duties

come in, so you might have to clean, I don't know, something or feed the dog or whatever it is. (Solomon)

Other participants reported using technology as an escape from their duties at times: “Sometimes they [my parents] ...they would feel that I'm... dodging to do household chores by saying that I'm in class, which I did, sometimes [laughs]. And watch YouTube videos so that I don't get to do the dishes” (Ayanda).

Two participants reported that their inability to complete both household and academic tasks caused tensions within their families, as can be seen in the following extract:

Sometimes I couldn't get a break from [studying] to go and cook, you know, to make lunch, sometimes I felt like, you know, I'm on a deadline and I can't leave my computer for hours and hours and hours...So sometimes my mom wouldn't understand that...there's no food. The house is not as squeaky clean as she wants it to be, and she asked me “What were you doing the whole day?” If I said I was studying, she would feel like “No, that's too much. You can't be studying for the whole day. You need breaks.” (Ayanda)

Similarly, Lerato reported developing a strained relationship with her mother when she did not complete her portion of the household duties:

It became a bit difficult for me to juggle like their household work and school and everything, and then at some point I think, yeah...the relationship with my mom... it got a bit strained because now she was actually the one who was responsible for like everything else because I was just too tired to do everything else.

7.2 Child Care Challenges

The two participants who were living with their partners and children described feeling overwhelmed by increased child-care tasks. In particular, participants found it quite an adjustment to have to engage in child-care tasks with various other responsibilities:

I struggled to adjust, you know, in, in terms of helping my boys and also the increased demands of my environment and also trying to figure out what my work was. Because over and above my normal work, we just took on different things. (Buhle)

This is further demonstrated in the following excerpt:

[My son] was at home and I was trying to balance...how do I work and still take care of my child? And at the same time my dad needs surgery. So, I would go to the hospital and drop stuff off for him, but then they wouldn't let me see him. So it was trying to find a balance between taking care of everybody and still trying to find out, well, what's actually going on with Covid and what is our country doing and are we doing enough? (Ayla)

Furthermore, Buhle described the large emotional impact of having to take on home-schooling duties for her child:

And I remember one day when I was speaking to...my eight-year old's teacher, cause I had to help him [my son] a lot with school, we basically, I had to be a teacher, on top of that. And I broke down, you know, without even realizing. I started crying...and they were so supportive. They tried to get a counsellor for me...the principal contacted me. Uhm, you know, I had underestimated the role that teachers play.

7.3 Challenges of Close Proximity to Family members

Many participants reported that it was difficult for them to adjust to being in continuous, close proximity to their families. Several participants described challenges of being confined in a small space together and the practical toll that this had on families: “We live...in a complex, like two bedrooms. And so, it's pretty hard having a couple shared with two kids. And they are very active, they're boys, and having a nanny” (Buhle); “the apartment, it was quite small. It was a two-bedroom apartment. So, yeah, I slept...I used to

sleep on the couch, or I'd sleep in my cousin's room" (Nandi). Several participants recounted that confinement had a large emotional toll. At times this caused tensions in relationships between family members:

We all [my family] don't have the option of like going outside, getting some fresh air, you know, socializing and stuff like that. So, it just...yeah it was just starting to be tense even in the house, you know, the relationship was just...starting to be a little bit more strenuous because of that. (Lerato)

Similar frustrations were voiced by Ayla, regarding her child:

I actually felt myself wanting to get away from my child and I felt really bad about that because he would be at day-care usually. And so, uhm, yeah it was harder. I just wanted to get out of the house, and I wanted...I longed for my routine and I longed for, uhm, the interaction with my co-workers and friends and just being able to drive... it was such a silly thing and I realized just how much driving de-stresses me. Uhm, so yeah, it was just being irritated and feeling smothered and not being able to get out and get away. (Ayla)

Several participants found that they often wished for time alone from their families. A number of participants detailed the importance of having time away from their families to relax, de-stress, and emotionally process information. For example, Ayanda remarked on finding peace in spending time alone and feeling overwhelmed by being expected to spend time with family frequently:

Sometimes...I don't want to watch those soapies and stuff. Sometimes I just want like my brain to be silent. I don't want to be engaged in a conversation. I think it was also a matter of...I was alone in Joburg right? Like you know when you get used to staying by yourself, you also get used to being silent and you also get used to your brain being, not being overworked by conversations. (Ayanda)

Ayanda coped with her need to be alone by spending time alone in her room. This caused tension within her family: “There was another thing that they used to complain about - that was I'm always in my room...they were like ‘[you’ve] been gone since February and when you come back, you're always in your room’.”

Similarly, Nandi recalls enjoying time alone and wishing to process her emotions privately:

I like my alone time, and I like to kind of process things before I start to speak about them. So...I tend to like, shut down and withdraw before I do that. And so ...it was difficult to obviously do that because you can't, you can't, uhm [pauses], impose those kind of feelings on people, project, you know, those feelings on people when they have nothing to do with it. It's unfair. But I didn't really understand that then. (Nandi)

Furthermore, spending time alone was important for decompression and reflection.

Ayla recalls missing having private time to decompress after her day:

And so, I realised how I actually find ways to de-stress - driving to and from work - I actually used to enjoy that because I play loud music and I sort of decompress and figure things out, whatever went on during the day. And by the time I got home, I felt that work wasn't on my mind as much.

While most participants felt unable to spend time alone within their homes, one participant reported being able to have her own space within her home:

And so, I draw energy from my own company in my own space and Covid allowed me to do that. You know, I'm literally set up in my own bedroom, and I've been here for two years, and I would lock the door. And my husband was on the other side, the kids on the other side and just allowed me to just be. (Buhle)

Conclusion

This chapter describes the themes that emerged from the data collected during the semi-structured interviews. The themes highlighted how the Covid-19 lockdown impacted interpersonal relationships with people outside of participants' homes. Participants made creative use of technological platforms to facilitate connectivity with those living outside their homes. However, the challenges of virtual communication in comparison with face-to-face contact were also highlighted. The following chapter will contextualise these findings within the relevant literature and interpret the findings from a Family Systems theoretical framework.

Discussion

Introduction

This study aimed to contribute to the growing body of literature on the psychological impact of the Covid-19 pandemic. This study's specific focus was on the use of technology-mediated communication to maintain social connections during the lockdown that was implemented in March 2020 to curb the spread of the pandemic. In particular, it aimed to investigate how postgraduate students who spent the lockdown with close family members, either parents or spouses and children, used technology to maintain connections with other people outside of their homes, such as friends, classmates and other family members. At the beginning of the study the following research questions were posed:

1. How did postgraduate students use technology to maintain interpersonal connections with those outside of their homes during the Covid-19 lockdown?
2. How did using technology benefit or limit the maintenance of existing social relationships?
3. How did the experience of connecting virtually compare to the experience of connecting face-to-face?
4. How did the use of technology affect the psycho-social wellbeing of students?

In this chapter the themes identified as a result of data analysis will be discussed and linked to the research questions, in the context of a Family Systems approach, which was used as a theoretical lens. Furthermore, the research results will be contextualised using empirical research conducted during Covid-19, as well as migration literature, using research predominantly conducted with transnational families.

Technological Platforms and Connectivity

Research conducted during the Covid-19 lockdown, as well as during previous quarantines, has highlighted the prevalence of loneliness amongst those isolated from their

loved ones (Cairns et al., 2020; Lin et al., 2010; McKinlay et al., 2022). Similarly, in this study participants reported longing to have in-person interactions with family, friends, romantic partners, and colleagues from whom they were isolated as a result of the lockdown. “It was difficult adjusting to...not being with my friends and my roommate at the time as well. Obviously, we lived together, you know, we were quite close. Uhm, we saw each other all the time. So, it was hard” (Nandi). Furthermore, in accordance with other findings of research carried out during the Covid-19 pandemic (Smallen, 2021; Todorova et al., 2021), this study found that individuals often had a new appreciation for social connections and frequently longed to spend time with others outside of the home.

The negative psychological impact of isolation and the longing for social relationships outside of the home is consistent with a systemic perspective, which argues that resilience when faced with an adverse circumstance is influenced by multiple, interacting systems (Masten, 2021; Walsh, 2003), including individual, family, community, as well as societal systems (Masten, 2021). Extended kinship systems (including friends, extended family, neighbours, and other associates) outside of the nuclear family system provide substantial contributions to both individual and nuclear family wellbeing (Lebow et al., 2019). Pattison and colleagues (1975) suggest that kinship systems provide individuals and families with financial and practical support, as well as psychological support and involvement. The reduced physical interactions and altered care practices that occurred during the pandemic potentially had a profound impact on individuals’ ability to receive social support from their extended kinship system who they were not in physical proximity with. Thus, technology-mediated communication can be viewed as having played an important role in compensating for the lack of physical support received from others outside of the home.

As was observed in other studies conducted during Covid-19 (Pakdaman & Clapp, 2021; Watson et al., 2021), participants reported maintaining connections with people outside

of their homes through the creative use of various technological platforms. Many remarked that both textual communication and video calling were used to foster relationships. The innovative means used to maintain authentic connections were akin to the concept of “virtual co-presence” that is frequently discussed in the transnational literature (Baldassar, 2008, p. 253). That is, technology was used to maintain a sense of togetherness with others outside of the home, despite not being physically present together (Baldassar, 2016). Participants often aimed to re-create the intimacy of physical contact within virtual platforms.

Systems theory proposes that all systems tend toward homeostasis, behaving in a manner that ensures stability within the system (Carlson & Dermer, 2016). Social systems outside of the home likely ensured stable levels of intimacy, support, and caregiving through technology-mediated communication. Thus, despite disruptions in these systems, which prohibited previously established patterns of communication and connectivity, technology allowed systems to maintain a sense of steadiness.

Participants frequently discussed the importance of textual communication in maintaining contact with others during the lockdown. In particular, all participants frequently used WhatsApp. They often made creative use of aspects of textual communication in order to convey emotions. For example, participants reported using emojis, stickers, and gifs to convey emotion in text. Similarly, Costa and colleagues (2022) found that individuals made more frequent use of emojis after the Covid-19 lockdown began, as a means of expressing emotion and empathy to loved ones. In addition, participants frequently used text, images, and emojis to convey humour and create shared, private jokes in social groups.

Correspondingly, the broader literature conducted during Covid-19 suggests that the sharing of memes within both intimate groups of friends and larger groups of acquaintances and colleagues was a meaningful part of maintaining connections (Bender et al., 2021; Costa et al., 2022; Literat, 2021).

Typical methods of expressing emotion and conveying humour within social systems likely became less prevalent, due to social distancing restrictions. For example, physical means of expressing affection, such as hugging or holding hands, were not permitted outside of one's household. In addition, it is likely that typical, verbal means of conveying collegiality, humour, sarcasm, and satire became less prevalent. This may have particularly been the case amongst acquaintances, and peripheral friends, who predominantly communicated with textual communication platforms, such as WhatsApp groups (Esteve-Del-Valle et al., 2022). Many adapted to these changes by switching to novel means of expressing their emotions, such as through memes, emojis, and gifs.

These novel expressions of emotion allowed individuals to maintain stable levels of connectivity within systems, despite disruptions to pre-existing patterns of communication. These deviations from the norm may be considered first-order changes in systems (Weakland et al., 1974), as the observable behaviours of system members changed, while the overall stability of the systems was preserved. That is, while individuals altered the manners in which they expressed intimacy to others, their fundamental rules regarding maintaining connections were upheld. Furthermore, given the vital role of interpersonal intimacy and humour in coping with adverse environmental conditions (Akram et al., 2021; Pitas & Ehmer, 2020), it is likely that the sharing of these emojis, gifs, and memes was an important method of buffering the stress of the pandemic.

Participants reported that virtual groups made it easier for groups of family members and friends to maintain contact with one another: "If you have, like, five friends...it could be easy to communicate in that [WhatsApp] group at once than when you would have to go to each one of [the individual chats]" (Ayanda) and allowed dispersed individuals to feel a sense of unity: "You could get, like, a global experience of what people were going through and what was happening. And they can also connect to home because they also miss home"

(Buhle). This appreciation for WhatsApp groups has often been reported in research conducted during the Covid-19 pandemic (Costa et al., 2022; Esteve-Del-Valle et al., 2022). Such research has revealed that interacting with groups via WhatsApp frequently resembled in-person group interactions and gave a semblance of proximity between loved ones (Costa et al., 2022). Furthermore, participants recounted making frequent use of university class WhatsApp groups to maintain contact with peers and to assist classmates with academic tasks. These groups allowed classmates an informal space to communicate with one another: “the jokes were flying. The banter was nice, you know” (Lerato) and to provide each other with emotional and academic support. Research conducted during Covid-19 has found that students are often able to keep in contact with their classmates via WhatsApp groups (Thompson, 2022; van den Berg & Mudau, 2022). For example, a recent study conducted with South African students reported that WhatsApp groups provided a feeling of belonging within students’ academic classes, as well as a sense of support from students’ classmates (van den Berg & Mudau, 2022).

Numerous participants discussed the value of video calls in maintaining interpersonal connections. Video calls have widely been reported to be an effective means of maintaining emotional intimacy and connectivity between loved ones both during the Covid-19 lockdown (Brown & Greenfield, 2021; Heshmat & Neustaedter, 2021) and amongst transnational families (Baldassar, 2016; King-O’Riain, 2015; Nedelcu & Wyss, 2016; Neustaedter & Greenberg, 2012). Participants greatly appreciated the multi-sensory aspects of video calling, particularly the visual qualities of video calls. These results were echoed in research conducted during Covid-19 (Brown & Greenfield, 2021; Cairns et al., 2020) and in transnational families (Neustaedter & Greenberg, 2012). It has been argued that the audio as well as visual elements of video call communication can bring about a more authentic experience of co-presence than other forms of technology (Baldassar, 2008). Participants

particularly appreciated seeing others' faces, changes in appearance, and sharing daily activities.

Technology, particularly video calling, provided opportunities for loved ones to engage in shared experiences together, which facilitated in maintaining and deepening connections. Literature surrounding long-distance relationships (Nedelcu & Wyss, 2016; Neustaedter & Greenberg, 2012) and research conducted during the Covid-19 pandemic (Heshmat & Neustaedter, 2021; Watson et al., 2021) has demonstrated the importance of participating in shared activities over video chat, such as eating together, watching television with one another, and doing mundane activities such as cleaning while video calling. Similarly, several participants in this study reported engaging in novel activities over video calling with friends, colleagues, and family members. However, in some cases, unique contextual factors resulted in challenges to participating in shared activities over video call, including connectivity problems: "[South Africans] don't have the internet connection for, like, Watch Parties for Netflix and, like, other streaming apps...it's pretty much never done" (Emir) and cultural differences in social groups: "For [my friends] it was, they said 'Ayanda you are crazy', 'Ayanda you watch too much TV', 'Ayanda you've been in South Africa for too long. Like, no we're not doing that'" (Ayanda). These results support the systemic framework, which holds that individuals are impacted by multiple, interacting systems (Walsh, 2003). Cultural systems, government systems, and socio-economic systems played a large role in participants' abilities to maintain intimacy virtually.

Shared activities, such as going to events, watching movies, or eating at restaurants together, are often reflected upon by members of a social system and may become shared memories (Bowlby, 2011). A number of systemic theorists maintain that collective memories can be established or continued with the use of technology (Broderick, 1993; Coyne et al., 2014). For example, technology can be used in the creation of rituals and traditions, which

can be looked back upon, discussed, and celebrated (Coyne et al., 2014). Participants' creative use of technology can be seen as an attempt to create collective memories within relationship systems. For example, attending 'wine dates' together with friends may have served as an occasion to look back on, reflect about, and aid in creating a collective history of that social group. Similarly, collective memories may have been created by the sharing of humorous virtual material between friends, followed by discussions and expansions of this humorous material. Usual face-to-face means of creating and recollecting memories became less prevalent during the lockdown, due to social distancing restrictions. Thus, these virtual means of creating collective memories may have become increasingly important. In addition, isolation during lockdown likely caused heightened nostalgia for shared memories and desire to create new memories within social systems, as has been observed in other research studies conducted during Covid-19 (Morgan-Ellis, 2021; Young, 2021). In addition, social systems likely felt the need to continue with previous traditions and rituals despite physical distance.

Participants' use of multiple virtual platforms to maintain contact with their loved ones based on their relational needs may be akin to Madianou and Miller's (2013) Polymedia Theory. This theory maintains that the disadvantages of one technological platform are likely compensated for by the use of other platforms, and people choose particular platforms to fulfil specific purposes in relationship maintenance (Madianou, 2016). For example, participants made use of video calling with the aim of creating a strong, direct, and immediate connection between loved ones, whereas textual communication was a means of reaching larger social groups, particularly groups of classmates or colleagues.

Maintenance of Existing Relationships

This study found that several participants altered their manner of interacting with others and placed greater emphasis on maintaining social connections with friends and family members outside of their homes. Consequently, they put an increasing amount of time and

effort into social connections. This mirrors other research during Covid-19, which suggested that people often began to prioritise building deeper connections with their loved ones outside of their homes (Cairns et al., 2020). This study's findings supports other Covid-19 research which suggests that individuals displayed greater likelihood of showing care and support for their friends and family members than they did prior to the pandemic (Arpino et al., 2020; Smallen, 2021). This was seen in several participants' attempts to make others feel cared for through checking in with others: "video calls come in handy just to show [my friends] that 'you know what? I'm still in your life. You're still a really important person in my life'" (Ayanda) and displaying increased vulnerability to loved ones "the communication itself is not just about being available, but about being meaningful and that way of actually sharing and being vulnerable" (Ayla). Participants often reported interacting more regularly than they had previously, as checking in with friends and family members outside of their homes became habitual. Participants recounted the strong role of these frequent, vulnerable check-ins in maintaining their relationships with loved ones. These changes in communication with loved ones were also observed in previous research during the Covid-19 pandemic (Smallen, 2021; Watson et al., 2021).

Participants may have compensated for the lack of physical intimacy during the lockdown by finding novel ways of expressing their affection, such as through greater frequency of contact and greater vulnerability. Thus, the overall stability of systems may have been preserved, despite reductions in typical means of expressing intimacy. Increased frequency and vulnerability of contact may also be attributed to the frequent loss experienced during the pandemic, which may have emphasised the importance of relationships with family, friends, and classmates, and highlighted the significance of expressing one's appreciation for loved ones.

Participants' willingness to provide support and care for their distanced loved ones corresponds with Baldassar's (2007) research conducted with transnational families, which highlights how family members frequently exchange emotional support virtually (Baldassar, 2007). Each party puts time and effort into virtual interactions with the goal of relationship maintenance (Baldassar, 2007). Maintaining family relationships requires emotional labour in the forms of scheduling phone calls, celebrating special occasions together, sharing photos etc. (Baldassar, 2007; Di Leonardo, 1987). Individuals actively contribute to their relationships and reinforce their own family membership by incorporating these actions into their daily routines (Baldassar, 2007; Madianou, 2016). Similarly, in the context of the present study, participants appear to have displayed a willingness to engage in habitual virtual interactions, which provided care and emotional support to their loved ones. Therefore, it is likely that during the lockdown, like transnational families, students were willing to expend emotional effort through regularly arranging textual and video check-ins. These virtual means of exchanging care may have replaced previous face-to-face care practices, such as organising and attending shared face-to-face activities and celebrations for significant events.

Research conducted during the Covid-19 lockdown has reported that many people were able to maintain close relationships with those outside of their homes, with some reporting that they were able to foster deeper connections and strengthen their relationships over the course of lockdown (Rubinsky et al., 2021; Smallen, 2021). These findings are echoed by this study, in which many participants reported that they were able to maintain the majority of their relationships with family members and friends living outside of their homes: "I've managed to maintain the most important group of friends that I have, which are friends that I've been with since primary school" (Ayanda).

However, Covid-19 lockdown frequently revealed the difference between stronger friendships and weaker friendships (Cairns et al., 2020; Todorova et al., 2021). This is

demonstrated in the following comment by Emir: “I had some bad relationships socially, that the negativity in relationships was basically exposed more because of the, like, uhm, conditions of the pandemic in some ways.” Several participants reported being unable to maintain a small percentage of their relationships with distanced friends over the Covid-19 lockdown. Participants commented that several factors resulted in deteriorating of relationships over the course of lockdown, including length of relationship, personality differences, and the effort made by others to maintain contact. A number of these factors are reflected in literature conducted during the Covid-19 pandemic. Casual, less well-established, and poorer quality relationships with friends or acquaintances were often allowed to peter out or were deliberately ended over the course of the lockdown (Dedryver & Knai, 2021; Rubinsky et al., 2021).

In addition, a number of participants in this study reported finding it difficult to maintain and strengthen relationships with their university classmates over the Covid-19 lockdown. Several participants remarked that it was often difficult to get to know their classmates on a personal level: “a lot of it was tied into classes and schoolwork and stuff like that. So, uhm, kind of getting to the frustrations of lockdown, or true, like, emotions and stuff like that, we didn’t really cover it too much” (Solomon). This may have been particularly challenging for postgraduate students, who typically have fairly small, interactive classes. This may have resulted in feelings of missing out on an integral part of the postgraduate student experience.

In general, motivation to maintain connections with casual acquaintances, peripheral friends, classmates, or colleagues, is often lower than the motivation to maintain stronger relationships (Haythornthwaite, 2002). Individuals in casual relationships are less likely to put active effort into connecting with one another, for example individuals often do not initiate conversations unless present within the same setting (Haythornthwaite, 2002). Thus,

interactions often take place when people are physically present in certain places, such as libraries, grocery stores, or restaurants, where frequent, spontaneous interactions can arise (Parsons, 2022). Therefore, it is likely that during the lockdown, social distancing restrictions resulted in limitations of opportunities to maintain or strengthen ties with casual friends and acquaintances. Individuals may have been more motivated to actively initiate virtual communication with close friends or family members, whereas casual relationships may have dwindled. Furthermore, although classmates may have been likely to communicate with one another within academic WhatsApp groups, they may have been less likely to actively initiate private discussions with one another. Therefore, it is likely that few classmates had the opportunity to have non-academic discussions and strengthen their relationships.

Drawbacks of Technology-Mediated Communication

Baldassar (2007, 2016) holds that rapid advances in technology may have resulted in a “death of distance” (Baldassar, 2007, p. 401) where virtual communication has overcome the boundaries of distance and time within transnational relationships. However, several researchers have reported on the limitations of technology in transnational relationships. These authors suggest that important aspects of human relationships and connections cannot be replaced in virtual interactions (Aguila, 2009; Lobburi, 2012; Marchetti-Mercer, 2017). Similarly, a prominent theme in this study was that of the inferiority of virtual communication in comparison with in-person communication. Participants frequently felt that virtual communication did not provide the same level of authenticity as face-to-face contact. Throughout the Covid-19 pandemic, research has suggested that virtual interactions provide a less meaningful and authentic connection than in-person interactions (Cairns et al., 2020; Pakdaman & Clapp, 2021).

This study’s findings indicated a need to physically touch those who lived apart from them while in lockdown. Participants reported that a particular disadvantage of virtual

communication, as well as of Covid-19 in general, was that they could not express their affection for others physically, for example, through hugging them. A similar desire for physical touch has been reported in the transnational literature (Baldassar, 2008; Marchetti-Mercer, 2017). This highlights the fundamental role of physical intimacy as a means through which people express their affection and intimacy for their loved ones (Baldassar, 2008). In addition, participants often wished to see one another, as they maintained that a number of important aspects of intimacy could not be simulated over virtual interactions, such as body language, facial expressions, gait, and posture. Participants also reported wishing to spend time partaking in shared activities together. They looked back fondly on organic and spontaneous in-person time spent together: “our friendship was maintained a lot by us going out to have fun, you know, visiting places that we've never been” (Ayanda). This longing for shared, spontaneous interactions has been observed in transnational families (Marchetti-Mercer et al., 2020).

Participants often found that it was difficult to adapt to connecting with others via textual communication platforms. Namely, it was difficult to adjust to non-verbal cues and conversational conventions in textual communication, which often made it difficult to detect complex concepts, such as humour or sarcasm (Blanchard, 2021). Participants recounted that it was often difficult to have coherent conversations, particularly in WhatsApp group chats: “It's easy to miss what the other person is saying...also sometimes you're not online in the room and when you come back you have, like, 300 chats. Like how, how?” (Ayanda). Furthermore, it was often difficult interpreting words, phrases, and symbols: “trying to read things like passive aggression over text is particularly difficult I've found. And similarly, I feel like if people don't have the same way of typing or texting, like excitement, then it's hard to understand” (Emir).

Another prominent concern for participants was the difficulties with virtual connectivity. Challenges ranged from mild annoyance: “And we all had different lecture times, and some people were hogging the internet” (Solomon) to profoundly impacting their ability to work and socialise: “I used to ask for airtime from my parents so that I, at least buy data for my one class” (Ayanda). Connectivity difficulties were a wide-spread problem for South African students during the Covid-19 pandemic (Landa et al., 2021; Pather & Booi, 2020). Students frequently did not have internet access at home and the areas in which they lived often have connectivity and electricity problems, particularly those living in rural areas (Landa et al., 2021; Pather & Booi, 2020). As was previously discussed, these findings demonstrate the multisystemic influence on one’s ability to receive social support. Governmental and socio-economic systems play crucial roles in access to virtual communication tools. In addition, these findings support the idea that Covid-19 perpetuated the digital divide in South Africa, whereby the challenges faced by South Africans living in poorer socio-economic areas with limited access to technology and internet connectivity were emphasised during the lockdown.

Technology-Mediated Communication and Boundaries

This study’s findings also highlight numerous boundary-related issues in relation to technology. According to systemic theory, boundaries play a vital role in interpersonal systems (Galvin et al., 2006). The boundaries of the family system determine how rigid or permeable the family is to other systems or subsystems, such as friendship or colleague social systems (Mehta et al., 2009). The introduction of technology or changes in technology usage within a family system frequently result in alteration in family boundaries and a need for boundary redefinition (Hertlein, 2012). The prevalent use of technology during the lockdown may have resulted in elevated permeability of system boundaries, as various systems and subsystems had additional opportunities to access one another, irrespective of time or

physical location. For many participants, this caused several boundary-related concerns and a need to readjust boundary-specific system rules.

Firstly, participants commented on the accessibility of virtual communication, which frequently became overwhelming: “it’s too easy to communicate nowadays. And I don’t want to talk to you all the time” (Solomon). Participants recounted finding it difficult to keep up with the influx of communication, particularly textual communication, that they received. In addition, they often reported not being able to respond to all virtual communications at once and having to prioritise certain communications over others. Correspondingly, other research conducted during the Covid-19 pandemic has reported the phenomenon of message “flooding” (Ningsih, 2020, p. 900), in which text chats, particularly group chats, become inundated with numerous, often irrelevant, messages (Costa et al., 2022; Ningsih, 2020). This message flooding frequently resulted in annoyance and often resulted in withdrawing from contact with people or groups (Costa et al., 2022).

Participants found that the accessibility of virtual communications often resulted in the blurring of work-home boundaries. These findings correspond with other research conducted during Covid-19, which suggests that individuals often worked longer hours than usual and found it difficult to maintain a mental separation between work and home tasks during the pandemic (Adisa et al., 2022). Working from home often resulted in the blending of daily tasks and responsibilities, such as work-related tasks and home responsibilities, that were separated by distance and time prior to Covid-19 lockdown (Wethal et al., 2022). Pre-existing rituals which separated home life and work life, such as readying oneself in the morning and driving to work, were curtailed during lockdown restrictions (Mukherjee & Narang, 2022).

In addition, a prominent sub-theme that emerged was that of discomfort with the intrusiveness of video calls. Several people felt that video calling was intrusive and often

became embarrassed about others seeing their appearance, body language, or clothing on camera: “I have to make sure that I look nice. Maybe that’s also like just me being full of myself, but like even now it’s a bit weird. I’m just looking at myself, like, oh do I look presentable?” (Nandi). Similarly, in their study conducted during Covid-19, Dedryver and Knai (2021) found that young adults often felt as if they were on show during virtual communication and became self-conscious about their physical features being displayed. Consequently, several participants reported preferring that others inform them before initiating video calls, so that they had time to prepare physically and psychologically. Many participants also indicated that they wished to dress presentably and present a neat, clean background space during video calls.

Furthermore, participants often found it difficult to separate their physical spaces in their family homes from their virtual ‘spaces’ which were used to communicate with others outside of their homes. They reported that family members interrupted virtual communication with others: “I had to constantly like tell my little brother ‘Hey, don’t make noise. Don’t do this. Don’t be running around the house.’” (Lerato). These results echo other literature findings during Covid-19, which suggest that many people experienced disruptions from cohabitants when engaging in virtual working or studying (Hall & Zygmunt, 2021; Rudnicka et al., 2020). Similarly, research conducted with transnational family members or friends often reports frequent difficulties with boundaries and privacy (Judge & Neustaedter, 2010; Neustaedter & Greenberg, 2012). For example, Neustaedter and Greenberg (2012) reported that long-distance couples were often concerned about roommates or family members disturbing or being disturbed by their virtual communication.

The sense of discomfort resulting from the blurring of boundaries may have served as an indication that social systems were no longer in equilibrium. Pre-lockdown system rules, which stipulated levels of openness, restraint, and discretion within and between systems,

were challenged by the prevalent use of virtual communication during lockdown. For example, video calling provided opportunities to see others in intimate moments, at all hours of the day and night, which often conflicted with typical rules of social engagement. This led members of social systems to create new expectations for practices around video calling, such as rules for how to initiate video calls, how to dress, who was allowed to participate, and the appropriate backgrounds, which served to re-establish equilibrium.

However, a number of participants described these blurring of boundaries to be positive. For example, several participants described interconnections between others in various spheres of their lives: “[there were] kids coming in and we now knew each other's pets because it's either while you're working, your cat is across the, you know, your screen, your dog...you know? We know the husband that walks behind and we greet them” (Buhle); “My family got involved with my friendships a lot more, and their families got involved with their friend groups” (Solomon). This supports the idea that technology provides the opportunity to reduce the boundaries between the family system and other systems, for example, through introducing new friends and acquaintances into a family system (Hertlein, 2012).

Psychological Implications of Covid-19

Research conducted during infectious disease outbreaks has emphasised the rise in stressors as a result of being placed in quarantine (Hawryluck et al., 2004; Jeong et al., 2016; Lin et al., 2010). Likewise, the negative psychological impact of quarantines have been revealed in research conducted during Covid-19 lockdown. The findings of this study also highlight the rise in quarantine-related stressors.

Fear of infection was a common concern during the Covid-19 pandemic (Brooks et al., 2020; Rwafa-Ponela et al., 2022) as well as during prior quarantines (Huremović, 2019b; Lin et al., 2010). Similarly, in this study a prominent worry among participants was that

either themselves or their loved ones would become infected with Covid-19. Participants noted that the novelty of the pandemic and uncertainty of its consequences contributed to their anxiety: “It was quite scary because we didn't know enough about Covid initially to understand what it was doing, and how it was going to affect us” (Emir). This concern about infection was also highlighted in two South African studies conducted during the Covid-19 lockdown, which suggested that individuals often felt afraid of themselves and their families becoming infected with Covid-19 and the consequences thereof (Duby et al., 2022; Theron et al., 2021).

In addition, participants reported heightened stressors related to their academic commitments. Several participants reported challenges in the transition to virtual learning: “you basically teaching yourself sometimes” (Ayanda). Students often struggled with the loss of in-person classes and felt that the adjustment to the new methods of learning were challenging (Halliburton et al., 2021). This was likely particularly challenging for postgraduate students, who were forced to adjust to new methods of learning, while simultaneously coping with heavy, challenging workloads. A particular challenge of online learning was difficulty with giving one’s full attention to classes: “I didn't pay as much attention online as I would like in person, and I'm not sure why” (Nandi). Students frequently became distracted and began completing other tasks, including using their cell phones to check social media and answer messages (Shetty et al., 2020), as is demonstrated with Ayanda’s comment: “When I'm in an in-person class, it’s just, I feel like I'm disrespecting a lecturer when I'm on my phone. But during an online, uh, type of class... I can be on my phone and, you know, nobody sees me”.

Furthermore, participants reported a rise in family-related stressors. A number of participants reported feeling frustrated, tense, and overwhelmed within family relationships. External stressors are likely to disrupt the homeostasis within the family system (Minuchin,

1985). Thus, the myriad of financial, occupational, social, and emotional stressors that family members faced during the Covid-19 lockdown likely caused a lack of stability in family systems (Daks et al., 2020). Stressors that emotionally impacted one family member are likely to have spilled over to others within the family system (Prime et al., 2020). There was likely a profound difference between the family-related stressors experienced by participants who were living with their parents, in comparison with stressors experienced by participants living with their spouses and children. For example, people living with spouses and children often had responsibilities to care for their children, assist with home schooling, and take on the majority of household tasks. In addition, these participants were employed, and simultaneously had to balance their academic responsibilities. The differences between the experiences of participants living with parents and participants living with spouses and children are likely a limitation of this study.

It is also important to note that although family-related stressors increased during the Covid-19 lockdown, positive family dynamics may have played a role in providing comfort and reducing the stress of individual family members. Previous literature conducted during Covid-19 has suggested that increased family communication, better problem solving, greater engagement in family routines, and mutual respect within a family served to buffer Covid-19-related stressors (Bates et al., 2021; Chan et al., 2021; Cui & Hong, 2021). During both virtual learning and virtual work participants recounted finding it difficult to balance their home duties with their academic duties. Students were often expected to take on new, challenging domestic responsibilities, which often made it difficult to complete their university work (Hall & Zygmunt, 2021). At times this caused frustration with family members: “I’m a student, so it’s not as if I’ve, like, stopped studying or anything like that. And at home sometimes I feel as though, uhm, family can forget that” (Solomon). It also caused a sense of exhaustion at times: “Most of the time I was so tired I didn’t really feel like, you know,

helping out and I felt bad” (Lerato). Participants with children found it particularly difficult to balance childcare tasks and their professional responsibilities, frequently having to juggle between them: “how do I work and still take care of my child, and at the same time my dad needs surgery” (Ayla).

Thus, Covid-19 restrictions, work-from-home orders, and home schooling of children resulted in large changes in family routines (Hensley & Harris, 2022; Prime et al., 2020). Participants often had to adjust their usual schedules to accommodate all the additional tasks that were required of them. Family members were frequently expected to alter their roles within the family (Hensley & Harris, 2022). Changes in roles likely acted as additional stressors within family systems (Prime et al., 2020). The changes caused by Covid-19 called for family members to display greater flexibility and to create new roles within their family system (Prime et al., 2020).

Participants found that living in close, continuous proximity with one’s family was often extremely challenging. They recounted often becoming irritated, tense, and frustrated by their family members: “it was just starting to be tense, even in the house, you know, the relationship was just...starting to be a little bit more strenuous because of that” (Lerato). Furthermore, participants frequently wanted to spend time alone away from their families. These results are consistent with other studies conducted during the Covid-19 lockdown, which suggest that being confined with one’s family caused a rise in tensions (Hall & Zygmunt, 2021; Wong et al., 2022), during which individuals often longed to spend time alone (Fraudatario & Zaccaria, 2020).

These desires to distance oneself from one’s family may be viewed as attempts to maintain differentiation of self within the family system, despite constant, close physical proximity. Time spent alone may be regarded as an attempt to maintain a sense of self, as well as reduce emotional reactivity, which are key components of differentiation (Goldenberg

et al., 2017). This is reflected by a number of participants, such as Nandi and Ayla, who reported the importance of time alone in reducing emotional reactivity and processing their emotions before interacting with their families: “I like to kind of process things before I start to speak about them.” (Nandi); “I sort of decompress and figure things out, whatever went on during the day” (Ayla). Thus, participants were often able to remain fairly objective during family interactions. The desire for self-differentiation was likely particularly strong amongst the five participants who were living with their parents, due to the strong social expectations on young adults to differentiate themselves from their family of origin (McGoldrick et al., 2014).

Conclusion

The findings of this study have demonstrated how individuals made creative use of technology to keep in contact with friends, family members, colleagues, and classmates outside of their homes during the March 2020 Covid-19 lockdown. This study has shown the importance of using multiple communication technologies, in accordance with participants’ emotional and relational needs, to maintain connections. People made use of both textual and video communication to facilitate a sense of co-presence with others. In addition, these findings have demonstrated how technology benefited and limited the maintenance of existing social relationships. Participants were able to maintain the majority of their close interpersonal relationships with people outside of participants’ homes. This was often achieved through more frequent, empathetic, caring virtual interactions with their friends and family members. However, many participants were unable to maintain a small proportion of their more casual, less well-established relationships. Furthermore, the study has revealed that face-to-face communication provided a level of authentic connection that virtual communication did not provide. Participants particularly valued seeing one another face-to-face, physically touching others, as well as spontaneous in-person interactions. The findings

also emphasise that the use of technology resulted in blurring of boundaries. This included participants becoming overwhelmed by “message flooding”, difficulty maintaining personal-professional boundaries, and their physical and virtual spaces becoming interconnected.

However, the study’s findings have indicated that technology-mediated communication was an important stand-in for in-person communication and had a positive-impact on the psychosocial wellbeing of students. The connection, support, and encouragement gained during virtual interactions were vital in buffering against stress.

Conclusion

Overview of the study

This study endeavoured to add to the emerging body of research investigating the psycho-social implications of Covid-19. In particular, it aimed to explore how postgraduate students who were living at home with their close family members during the initial lockdowns used technology to maintain connections with friends, family members, colleagues, and classmates outside of their homes. Postgraduate students provided a unique perspective on technology-mediated communication and psycho-social well-being, given the distinctive academic, psychological, and social challenges that they experienced during the lockdown.

The study's findings reflected others previously conducted during Covid-19 (Pakdaman & Clapp, 2021; Watson et al., 2021) which emphasised the importance of virtual communication for maintaining relationships with others outside of the home. Students used both textual communication and video calling to facilitate closeness with others. WhatsApp groups were particularly important means of creating intimacy within groups and simulating in-person group interactions. Creative use of emojis, stickers, and gifs were used to express affection and convey humour. Additionally, in accordance with other Covid-19 literature (Brown & Greenfield, 2021; Cairns et al., 2020) as well as the transnational literature (Neustaedter & Greenberg, 2012), participants found the visual aspects of video calling to be an important means of maintaining authentic connections.

While generally participants reported maintaining the majority of their most meaningful and important relationships, those friendships which had not been very established prior to the pandemic tapered off during the lockdown. These findings seem to confirm other findings conducted during the pandemic, which suggest that the pandemic separated strong, well-established friendships from less-established friendships (Dedryver &

Knai, 2021; Rubinsky et al., 2021). Participants found that they were able to maintain friendships through displays of care and empathy. They reported checking in with others more frequently than they would have prior to the lockdown.

This study also emphasised the drawbacks of technology-mediated communication to maintain relationships. Consistent with the transnational literature (Aguila, 2009; Lobburi, 2012; Marchetti-Mercer, 2017), participants felt that virtual communication did not provide the same level of intimacy as face-to-face interactions. In particular, participants felt that physical touch was a vital aspect of intimacy. Participants also missed being able to partake in spontaneous in-person activities together. In addition, the study's findings echo previous literature which provides insight into the disadvantages of specific technological platforms (Amos et al., 2020; Blanchard, 2021). For example, participants found it difficult to adjust to non-verbal cues and conversational conventions when communicating textually. In addition, participants felt that video calls provided limited visual information in comparison with face-to-face communication. Many participants also reported difficulties with internet connectivity, leading to challenges in social and academic areas.

This study's findings also emphasise how technology usage during lockdown resulted in blurring of interpersonal boundaries. In particular, participants reported becoming overwhelmed by pressure to respond to virtual communication. In addition, the boundaries between virtual 'spaces' and physical spaces became blurred, frequently leading to interconnections between different spheres of participants' lives. Lack of work-home boundaries also became a large concern for many participants. In addition, participants found the visual aspects of video calls to be intrusive.

The findings of this study highlighted the psychological implications of the Covid-19 pandemic. Similarly to literature conducted during the Covid-19 pandemic (Brooks et al., 2020; Halliburton et al., 2021; Landa et al., 2021), particularly fears of themselves and their

families becoming infected, as well as a rise in academic stressors. Furthermore, this study draws attention to the rise in family-related stressors during lockdown, including additional household responsibilities and childcare responsibilities, as well as stress associated with close, constant proximity with one's family. Finally, this study highlighted the positive psychological impacts of technology and the role of technology-mediated-communication in buffering loneliness and isolation.

Limitations

It is vital that the weaknesses of this study are acknowledged, as they may aid future research in improving upon the shortcomings of this study. These limitations will be outlined below.

Limited Sample Size

Challenges with recruiting participants limited this study's sample size. Long-term Covid-related fatigue may have reduced students' motivation to discuss Covid-19-related topics and thereby reduced the number of students who were willing to participate in this study. Although I was satisfied that saturation was reached during data collection, this study is likely limited by its small sample size. Given the number of postgraduate students who were living at home with their families during Covid-19 lockdown, the sample size of seven likely provided limited data. A larger sample size may have promoted broader and richer understanding of participants' experiences (Hennink et al., 2019) and may have provided a more nuanced conceptualisation of how technology was used to maintain connections and how this impacted psycho-social well-being.

Heterogeneity in Sample

Participants in this study were heterogenous in many respects, including their ages, socio-economic backgrounds, and family structures. Thus, they likely experienced unique psychological stressors during the lockdown and had diverse experiences of maintaining

relationships. In particular, the experiences of students living at home with their parents may have been profoundly different from the experiences of students living with their partners and children, who faced unique individual and family-related stressors. The heterogeneity of the sample combined with the small sample size may have caused difficulty in recognising subtle themes within the data (Robinson, 2014). Therefore, it may have been beneficial to incorporate additional exclusion criteria, such as a criterion limiting participants' ages.

Power Dynamics

In addition, the moderately symmetrical balance of power between participants and myself led to challenges during data collection. Specifically, the demographic similarities between participants and myself, such as age, level of education, and area of study, may have resulted in a sense of trust and collegiality in participants. While this likely caused certain participants to self-disclose more frequently than they would have otherwise, other participants felt that there was too great a degree of familiarity between us. These participants were often reluctant to provide in-depth accounts of personal experiences. These tendencies were particularly prevalent in participants who I had contact with prior to this study.

Interview Schedule

Many of the research questions that were initially proposed in the interview schedule were closed-ended and leading. Upon retrospective reflection, it may have been beneficial for more broad and open-ended research questions to be posed. This may have allowed richer descriptions and deeper understandings of students' experiences to be gained.

Recommendations

This study aims to contribute to the gaps in the literature surrounding the psycho-social impact of Covid-19 in South Africa. The findings echo some of the other Covid-19 literature (Forbes et al., 2021; Gong et al., 2021; Sun et al., 2020) and the transnational migration literature (Baldassar, 2007; Madianou, 2016; Nedelcu & Wyss, 2016) which

highlight the vital role of technology in maintaining social and psychological well-being and specifically the role that it played during the pandemic. Thus, it is essential that future research conducted in South Africa adds to and expands on the results of this study. Specific recommendations will be provided below.

At present, there are few qualitative research studies exploring how technology-mediated communication was used by students to sustain connections with others outside of their homes during the Covid-19 lockdown. Therefore, more qualitative literature is necessary to provide an in-depth understanding of students' experiences during the Covid-19 pandemic. Additional South African studies are also necessary to present nuanced insights into technology-mediated communication patterns of South African students.

Few studies have investigated the impact of virtual communication during the pandemic on relationships with cohabiting family members. In addition, few studies have made use of Family Systems Theory as a framework for interpretation. This is a valuable framework for understanding impact of technology-mediated communication within and between systems. Thus, it may be beneficial for future research to expand upon and add to the findings obtained in this study. Understanding the impact of technology-mediated communication on families may have large implications for both individual and family therapists in the wake of the pandemic.

An important sub-theme that emerged from this study was that of challenges with connectivity. These findings suggest that the Covid-19 lockdown may have emphasised the existing digital divide in South Africa. However, a detailed exploration of the impact of connectivity problems on psycho-social well-being and the implications thereof for the digital divide in South Africa were beyond the scope of this study. Therefore, it may be beneficial for future research to explore the impact of connectivity problems in greater detail. However, the findings of this study suggest that it may be advisable for policymakers to prioritise

policies aimed at providing reliable and affordable internet connectivity, given the importance of technology-mediated connections in maintaining relationships and buffering stress.

The findings of this study indicate that technology-mediated communication buffered against the impact of loneliness and isolation and had positive impacts on participants' mental well-being. There have been few studies, particularly South African studies, exploring the association between technology-mediated communication and student well-being during the Covid-lockdown. It may be useful for future South African studies to explore the process through which technology-mediated communication buffers stressors and improves mental well-being in greater detail.

Participants in this study indicated that during the lockdown they put greater time and effort into virtual interactions and gained a new appreciation for interpersonal relationships. It may be worthwhile for future research to explore whether Covid-19 had long-standing impacts on students' attitudes toward interpersonal relationships and the manner and frequency with which students interact with others. Furthermore, it may be beneficial for future research to explore the psycho-social impacts of the lockdown on non-student populations, including children and older adults.

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Appendices

Appendix A



OFFICE OF THE DEPUTY REGISTRAR

21 July 2021

Angela Bonheim
Student number (2449803)
Masters Community-based Counselling
School of Human and Community Development

TO WHOM IT MAY CONCERN

“Students’ Experiences of Technology, Social Connection, and Psycho-social Wellbeing during the COVID-19 Pandemic”

This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants’ rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. Protocol number: **(MACC/21/02)**

Research expiration: (31 December 2021)

Nicoleen Potgieter
University Deputy Registrar

Appendix B



SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:

PROTOCOL NUMBER: MACC/21/02

PROJECT TITLE:

Students' Experiences of Technology, Social Connection, and
 Psycho-social Wellbeing during the COVID-19 Pandemic

INVESTIGATOR

Bonheim Angela (2449803)

SCHOOL/DEPARTMENT OF INVESTIGATOR

SHCD/Psychology

DATE CONSIDERED

01 June 2021

DECISION OF THE COMMITTEE

Approved unconditionally

RISK LEVEL

Low Risk

EXPIRY DATE

31 December 2023

ISSUE DATE OF CERTIFICATE

21 June 2021

CHAIRPERSON

(Dr Vinitha Jithoo)

Cc: Prof. Maria Marchetti-Mercer (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature

Date

21 / 06 / 21

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix C

Participant Information Sheet



Dear Participants,

My name is Angela Bonheim and I am a Masters student in Community-based Counselling at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating technology and social connection under the supervision of Professor Maria Marchetti-Mercer. The aim of this research project is to investigate students' experiences of technology, social connection, and psycho-social well-being during the Covid-19 lockdown.

As part of this project, I would like to invite you to take part in a virtual interview. This will involve answering a series of questions about your experiences of maintaining social connections through technology during the Covid-19 lockdown last year. With your permission, I would also like to video record the interview on Zoom/ Microsoft Teams. This recording will be stored in a password-protected file and only the researcher will have access to this recording. With your permission, the information you provide may be used in an anonymized format after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.

There will be no personal costs to you if you participate in this project. You will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time. If you need some support or wish to book a counselling session following the interview, please contact Ofentse Mogoane at the Counselling and Careers Development Unit at info.ccd@wits.ac.za.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. This study will be written up as a research report. With your permission the data collected from this research project may be used by other researchers in an anonymized format. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,
Angela Bonheim

Researcher:
Angela Bonheim, 2449803@students.wits.ac.za

Supervisor:
Maria Marchetti-Mercer, maria.marchetti-merc@wits.ac.za

Appendix D

Consent Form

Students' Experiences of Technology, Social Connection, and Psycho-social Well-being during the COVID-19 Pandemic Angela Bonheim

I, ..., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that in my identity will remain confidential.	YES	NO
---	-----	----

I agree that the researcher may use anonymous quotes in her research report.	YES	NO
--	-----	----

I agree that the interview may be video recorded.	YES	NO
---	-----	----

I agree that the information I provide may be used in an anonymized format after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO
--	-----	----

..... (signature)
 (name of participant)
 (date)

Appendix E

Interview Schedule

1. When did you move back home last year?
2. Why did you decide to move back to your parents' home specifically for the lockdown?
3. How many people live in your home?
4. Were they working/studying from home?
5. Where did you live before the lockdown / what are you studying?
6. Did you manage to continue your studies during the lockdown/what challenges did you encounter?
7. How did you structure your days during the lockdown?
8. What were the major stressors of self-isolating with your family during lockdown?
9. Which technological platforms did you use to communication with friends and family outside of your home?
10. Why did you choose to use each of these platforms?
11. Did you find communicating with ICTs helpful/unhelpful?
12. What did you like/dislike about each of these platforms?
13. What did you enjoy/did not enjoy about communicating via technology?
14. How was communicating via technology different from communicating face-to-face?