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The unbearable loneliness of COVID-19: COVID-19-related correlates of loneliness in South Africa in young adults

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ABSTRACT

This is the first study to examine the association between COVID-19 related variables and loneliness among young adults in South Africa during COVID-19. Participants (N=337) were university students who completed the UCLA Loneliness Scale and five selected subscales of the WHO COVID-19 Behavioural Insights Tool. The mean loneliness scores were significantly higher than previous studies in other contexts as well as studies conducted in the time of COVID-19. Correlational analysis found that greater perceived risk of infection, limited perceived knowledge of COVID-19 and lower appraisals of resilience were associated with increased loneliness. In a regression analysis, when all COVID-19 variables were considered simultaneously, only resilience, self-rated knowledge, and risk perception emerged as significant correlates of loneliness. These findings suggest that loneliness is a significant public health concern in South Africa in the time of COVID-19. It also suggests that self-efficacy and resilience can potentially be reinforced by public health campaigns that focus on enhancing COVID-19-related knowledge and preparedness.

1. Introduction

In January 2020, the World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern (WHO, 2020b). The first confirmed case of COVID-19 in South Africa was identified in March 2020. The government rapidly declared a national state of disaster and implemented a national lockdown, which was enforced by the military and national police. All outdoor social movement was severely restricted, local and international travel were banned, social gatherings and in-person socializing were prohibited, and non-essential services including restaurants, shops, schools, and universities were closed (South African Government Gazette, 2020). Though crucial to limiting further transmission of the virus, these government actions have resulted in a sudden and drastic suppression of direct interpersonal interactions and a potential erosion of social bonds. These social impacts may have severe psychological consequences (Stanton et al., 2020).

Recent findings emerging from the international literature (Luchetti et al., 2020; Killgore et al., 2020) indicate that the most salient mental health consequence of prolonged isolation and social distancing is loneliness. Loneliness is a psychological state characterized by a perceived discrepancy between the individual's desired and achieved levels of social interaction (Perlman and Peplau, 1981). It is considered the psychological embodiment of social isolation and reflects an individual's dissatisfaction with the frequency and closeness of their social contacts. Prior to the pandemic, loneliness had already been identified as a significant public health concern, particularly among young adults (Matthews et al., 2019). It has been associated with a wide range of mental and physical health conditions, including premature mortality, depression, suicidal risk, substance use, cardiovascular disease, and cognitive decline (Chiao et al., 2019; Maguire et al., 2019). Studies in developed countries (Australia: Stanton et al., 2020; United Kingdom: Li and Wang, 2020; United States: Rosenberg et al., 2020) have found escalating rates of loneliness, and researchers have suggested that loneliness must be a priority focus to fully understand the psychological impact of COVID-19 prevention measures.

Limited research has documented the mental health consequences of the COVID-19 pandemic in developing countries in sub-Saharan Africa (Frissa and Dessalegn, 2020). In these settings, the online and digital platforms typically used in high-income countries to maintain social connections and circumvent prohibitions on in-person contact are not readily available or accessible to the majority of the population (Frissa and Dessalegn, 2020). This can aggravate the individual's sense of isolation and social disconnection, enhancing feelings of loneliness.

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The current study aims to expand existing research through an exploration of the impact of pandemic-related social restrictions on loneliness among young adults in South Africa. The investigation will identify potential correlates of loneliness among this population group. Existing studies suggest that young adults may be disproportionately affected by disease containment policies that increase social isolation and risk of loneliness. Young adults are also less likely than others to perceive COVID-19 as a threat and therefore more likely to disregard pandemic-related restrictions, which may have significant public health implications (Okruzek et al., 2020). The current study also examined pandemic-related variables such as COVID-19-related knowledge, worries, risk perception, self-efficacy, and resilience.

Lack of knowledge about COVID-19—including routes of transmission, nature of symptoms, risk of infection, and availability and effectiveness of vaccines—has been found to worsen mental health by increasing anxiety, depression, interpersonal problems, and substance use (Yıldırım and Güler, 2020; Zhao et al., 2020; Zhong et al., 2020). Worries about contracting the disease and fears of infecting loved ones can lead to self-seclusion or staying at home solely with family members. This reduction in the frequency of social contact represents an extreme disruption to social life and can enhance loneliness (Killgore et al., 2020). In addition to the potential loss of loved ones as a result of infection, other types of losses include job security, participation in physical and social activities, connection with others in the context of one's job and loss of the care and support provided by professionals (e.g. social workers and psychologists). These types of personal losses and unfulfilled needs for support have been found to increase the sense of perceived risk associated with the pandemic and aggravate loneliness (Van Tilberg et al, 2020)

Psychological characteristics such as resilience and self-efficacy are important factors that shape an individual's response to stressors. Resilience refers to a stable trajectory of mental health despite exposure to adversity (Chen and Bonanno, 2020), whereas self-efficacy refers to an individual's belief that they have the competencies and capacities to cope with life stressors (Yıldırım and Güler, 2020). Prior studies have reported significant associations between resilience and mental health outcomes, as well as between self-efficacy and mental health outcomes (e.g. Yıldırım and Güler, 2020).

2. Method

2.1. Study population and sample

The current exploratory study used a cross-sectional survey design and random sampling. Participants were young adults (N = 340) enrolled at a South African university. The majority of participants were female (77.2%), and the mean age of participants was 21.95 (SD = 4.7).

2.2. Procedure

An electronic survey comprised of the self-reported instruments detailed below was generated using Google Forms and distributed during the period of national lockdown from March–June 2020. Random sampling was done in the Registrar's office, using an Excel spreadsheet where all undergraduate student numbers were loaded and then a formula was used to select a random sample of students. The Google link was distributed from the Registrar's office. Reminders were sent to participants twice per month for a four-month period. The response rate was 28%. The majority of students at the university are from historically marginalized groups and working-class backgrounds, which impacts on their access to online technologies (Padmanabhanunni, 2020). To facilitate access to online modes of learning during the pandemic, all students were provided with laptops and free data for their electronic devices. In addition, the University website and electronic learning platforms were "zero rated", meaning that they could be accessed at no cost. The survey was hosted through the University's electronic platform to ensure that students could access the survey without incurring any costs.

2.3. Instruments

Participants completed five selected subscales of the WHO COVID-19 Behavioural Insights Tool (WHO, 2020a), the UCLA Loneliness Scale (Russell et al., 1980) and a demographic questionnaire that focused on age, gender, and area of residence. The five selected subscales from the COVID-19 Behavioural Insights Tool included Self-Assessed Knowledge (one item adapted from Krawczyk et al., 2013), COVID-19 Risk Perception (three items adapted from Brewer et al., 2007), Preparedness and Self-Efficacy (two items adapted from Bandura, 2006), Resilience (three items adapted from Smith et al., 2008), and Worry (14 items adapted from McCarthy-Larzelere et al., 2001).

The UCLA Loneliness Scale is a 20-item measure of an individual's general loneliness and degree of satisfaction with their social network. It consists of a total loneliness scale and three subscales that correspond to three self-related facets of loneliness and social connectedness: Isolation (feelings of isolation that is presumed to underlie loneliness), Relational Connectedness (a measure of satisfaction of the need for close friendships), and Collective Connectedness (a measure of satisfaction of the need to belong to a meaningful group). Responses are collected on a four-point Likert scale that ranges from "*I often feel this way*" to "*I never feel this way*." The UCLA loneliness scale has demonstrated good internal consistency and reliability, with Cronbach alphas ranging from .94–.96 (Doğan et al., 2011). In the current sample a Cronbach alpha of .92 was obtained for this scale.

2.4. Data analysis

Data were captured and analysed using the Statistical Package for the Social Sciences (SPSS-26). Descriptive statistics, means, and reliabilities were generated. Correlational analysis was used to identify associations between the COVID-19 variables and loneliness subscales, and regression analysis was used to determine the COVID-19 correlates of loneliness when all the variables were entered simultaneously into the regression analysis.

2.5. Ethical considerations

Ethical approval for the study was obtained from the Humanities and Social Sciences Research Committee of the University of the Western Cape. The survey was completed anonymously, and participants provided informed consent prior to accessing the survey.

3. Results

The means, standard deviations, as well as indices of reliability (coefficient Alpha) are reported in Table 1, as are the intercorrelations between the COVID-19-related variables and loneliness subscales.

3.1. Normative information

The data was screened for normality. The indices of kurtosis ranged between -.02 to .39 while those of skewness ranged between -.02 to .96. Since none of the skewness and kurtosis indices exceed -1 and +1 (Huck, 2009) the data for all the scales can therefore be assumed to be approximately normally distributed.

The means and standard deviations of the loneliness scale and subscales are as follows: Loneliness: M = 49.1, SD = 11.6; Collective Connectedness: M = 8.6, SD = 2.7; Isolation: M = 29.9, SD = 7.4; Relational Connectedness: M = 10.6, SD = 3.7. The theoretical ranges for the scores are 20–80 for Loneliness, 4–16 for Collective Connectedness, 11–44 for Isolation, 5–20 for Relational Connectedness. In all instances, the total scale score and subscale scores exceed the midpoint of

Table 1
Descriptive statistics, reliabilities, and correlations for study variables.

	1	2	3	4	5	6	7	8	9	10
1. Loneliness	—									
2. Collective Connectedness	.73***	—								
3. Isolation	.91***	.45***	—							
4. Relational Connectedness	.81***	.67***	.54***	—						
5. Worries	.04	.00	.05	.03	—					
6. Resilience	-.25***	-.19**	-.23***	-.20***	-.32***	—				
7. Knowledge	-.16**	-.14*	-.14*	-.13*	.06	.06	—			
8. Preparedness	-.10	-.09	-.07	-.11*	-.01	.03	.42***	—		
9. Self-Efficacy	-.03	-.03	-.01	-.03	-.26*	.17*	.12*	.24**	—	
10. Risk Perception	.13*	.13*	.15**	.03	.14*	-.20***	-.08	-.17**	-.26***	
Mean	49.1	8.6	29.9	10.6	52.3	8.6	4.1	4.3	2.7	8.4
SD	11.6	2.7	7.4	3.7	10.8	2.9	0.7	0.7	1	2.2
Alpha	.92	.78	.91	.86	.86	.65				.57

Note: Knowledge, self-efficacy and preparedness are single items therefore they do not have alphas;
* $p < .05$
** $p < .01$
*** $p < .001$

the theoretical range. The mean loneliness score is substantially higher than the mean score reported among a similar sample in South Africa in 1993 (Pretorius, 1993; $M = 38.8$, $SD = 7.8$). It is also higher than mean scores more recently reported in the literature, which typically range between 34–38 (e.g., Auné, 2020; Shevlin et al., 2015). Additionally, the mean loneliness score in this sample is higher than the mean score reported in a COVID-19 study (Killgore, 2020; $M = 43.8$, $SD = 13.5$) recently conducted in the United States.

Women scored significantly higher on Loneliness ($M = 49.9$, $SD = 11.5$, $t_{(332)} = 2.87$, $p = .004$), Isolation ($M = 30.3$, $SD = 7.2$, $t_{(332)} = 2.66$, $p = .008$), and Relational Connectedness ($M = 10.86$, $SD = 3.69$, $t_{(332)} = 2.37$, $p = .018$) than men (Loneliness: $M = 45.6$, $SD = 11.5$; Isolation: $M = 27.8$, $SD = 7.4$; Relational Connectedness: $M = 9.7$, $SD = 3.3$). Rural respondents scored higher than urban respondents on all scales: Loneliness ($M = 52.6$, $SD = 10.3$, $t_{(333)} = 3.12$, $p = .002$), Isolation ($M = 31.8$, $SD = 6.8$, $t_{(333)} = 2.61$, $p = .010$), Collective Connectedness ($M = 9.2$, $SD = 2.5$, $t_{(333)} = 2.33$, $p = .020$), and Relational Connectedness ($M = 11.6$, $SD = 3.5$, $t_{(333)} = 3.06$, $p = .002$).

3.2. Reliability

Estimates of internal consistency for the loneliness scale and each subscale are reported in Table 1. The alpha coefficients are as follows: Loneliness: a = .92, Collective Connectedness: α = .78, Isolation: α = .91, Relational Connectedness: α = .86. These estimates of reliability suggest that the loneliness scale and the three subscales have acceptable levels of internal consistency in this sample. Similarly, Pretorius (1993) reported an alpha coefficient of .81 for the total loneliness scale in a South African sample. These reliability estimates compare favourably with those reported in the literature (e.g., Tull et al., 2020). The Worries scale also demonstrated satisfactory reliability (α = .86). In terms of conventional standards (Hulin et al., 2001) the reliability of the Resilience scale can be regarded as acceptable but the Risk Perception scale (α = .57) had relatively low reliability.

3.3. Intercorrelations

The intercorrelations between the loneliness scales and the COVID-19-related variables are reported in Table 1. All of the subscales were significantly associated with the total score, with coefficients that ranged from .73–.91 ($p < .01$). The intercorrelations between the subscales were all moderate, ranging from .45–.67 ($p < .01$); these results indicate that the subscales are somewhat interrelated but represent distinct constructs.

Loneliness was positively related to risk perception ($r = .13$, $p = .02$) and negatively related to resilience ($r = -.25$, $p < .001$) and self-rated knowledge ($r = -.16$, $p = .003$). The three subscales were also negatively related to resilience (Collective Connectedness: $r = -.19$, $p = .001$; Isolation: $r = -.23$, $p < .001$; Relational Connectedness: $r = -.20$, $p < .001$) and self-rated knowledge (Collective Connectedness: $r = -.14$, $p = .011$; Isolation: $r = -.14$, $p = .012$; Relational Connectedness: $r = -.13$, $p = .018$) and positively related to risk perception (Collective Connectedness: $r = .13$, $p = .019$; Isolation: $r = .15$, $p = .007$). While these relationships were statistically significant, it should be noted that most of them are quite low (< .20) with a few moderate relationships (> .30).

Significant correlations were also observed among the COVID-19-related variables. COVID-19-related worries were negatively related to perceived self-efficacy ($r = -.26$, $p < .001$) and resilience ($r = -.32$, $p < .001$) and positively related to risk perception ($r = .14$, $p = .013$). Resilience was positively related to perceived self-efficacy ($r = .17$, $p = .001$) and negatively related to risk perception ($r = -.20$, $p < .001$). Self-rated knowledge was positively related to perceived preparedness ($r = .42$, $p < .001$) and self-efficacy ($r = .12$, $p = .034$). Perceived preparedness was positively related to self-efficacy ($r = .24$, $p < .001$) and negatively related to risk perception ($r = -.17$, $p = .002$). Self-efficacy was negatively related to risk perception ($r = -.26$, $p < .001$) and perceived susceptibility ($r = -.21$, $p < .001$). The probability of becoming infected was positively related to both perceived susceptibility ($r = .46$, $p < .001$) and perceived severity of becoming infected ($r = .16$, $p = .004$).

3.4. Regression analyses: COVID-19 correlates of loneliness and subscales

The results of the regression analyses are reported in Table 2. Given the significant gender and location (rural/urban) differences these variables were controlled for by entering them as covariates together with the COVID-19 variables.

The only COVID-19 variables that were significantly associated with loneliness and the three subscales when all COVID-19 variables were considered together in a regression analysis, were resilience, self-rated knowledge, and risk perception. Resilience was significantly associated with loneliness ($\beta = -.23$, $p < .001$), Collective Connectedness ($\beta = -.15$, $p = .008$), Isolation ($\beta = -.23$, $p < .001$) and Relational Connectedness ($\beta = -.23$, $p < .001$). Self-rated knowledge was significantly associated only with loneliness ($\beta = -.12$, $p = .030$) and Collective Connectedness ($\beta = -.13$, $p = .029$). Lastly, perception of risk was only associated with Isolation ($\beta = .13$, $p = .022$). In the case of resilience, the association was negative, indicating that higher resilience was associated with less loneliness, less feelings of isolation, lower need for close friendships (Relational Connectedness), and lower need to belong to a meaningful group (Collective Connectedness). Similarly, higher self-rated knowledge was associated with less loneliness and lower need to

Table 2
COVID -19 related correlates of loneliness and subscales.

Variable	B	SE B	β	R^2	95% CI
Loneliness					
Resilience	-.91	.22	-.23***	.16	[-.1.34, -.49]
Knowledge	-1.93	.89	-.12*		[-3.68, -.19]
Gender	4.83	1.32	.19***		[2.24, 7.42]
Area	5.16	1.40	.19***		[2.40, 7.92]
Collective Connectedness					
Resilience	-.14	.05	-.15**	.10	[-.24, -.04]
Knowledge	-.46	.21	-.13*		[-.87, -.05]
Gender	.72	.31	.12*		[.11, 1.33]
Area	.93	.33	.15**		[.28, 1.58]
Isolation					
Resilience	-.57	.14	-.23***	.15	[-.84, -.30]
Risk perception	.42	.18	.13*		[.06, .78]
Gender	2.90	.83	.18**		[1.27, 4.53]
Area	2.75	.88	.16**		[1.01, 4.49]
Relational Connectedness					
Resilience	-.21	.07	-.17**	.11	[-.34, -.07]
Gender	1.21	.42	.15**		[.38, 2.03]
Area	1.48	.45	.18**		[.60, 2.36]

* $p < .05$
** $p < .01$
*** $p < .001$

belong to a meaningful group. In the case of risk perception, the association was positive, indicating that a higher perception of being at risk was associated with higher levels of feeling isolated.

4. Discussion

Ample international research evidence suggest that loneliness is the signature mental health consequence of the COVID-19 pandemic (Killgore et al., 2020; Luchetti et al., 2020). However, little is known about its mental health impact in the context of developing countries in Africa. This study aimed to assess levels of loneliness among young adults in South Africa during the period of COVID-19. The study also assessed correlates of loneliness, including self-assessed knowledge of COVID-19, perceptions of risk, resilience, preparedness, self-efficacy and levels of worry.

Significantly, the mean loneliness scores in this study sample were higher than those encountered in any published literature to date (e.g., Killgore et al., 2020). Causation cannot be inferred from cross-sectional data; however, it is conceivable that the alarming level of loneliness in the study is related to COVID-19 prevention measures. This potential relationship would be consistent with existing findings on loneliness during the pandemic (Li and Wang, 2020). It is also probable that limited access to digital modes of social contact and networking—a common problem in developing countries (Oyedemi and Mogano, 2018)—may have contributed to increasing loneliness among study respondents. As previously indicated, although students had free access to online University platforms, their ability to electronically connect with family and friends may have been severely limited. Alternatively, heavy reliance on digital technology for social contact could have paradoxically amplified the sense of social disconnection, thereby aggravating loneliness. The magnitude of loneliness observed in this study highlights the current COVID-19-related public mental health crisis in South Africa. These levels of loneliness are particularly concerning because of established associations between loneliness and other risk factors, including depression, suicide risk, substance use, cardiovascular disease, and premature mortality (Courtet et al., 2020; Tull et al., 2020). In South Africa, loneliness related interventions delivered through electronic messaging applications such as WhatsApp have demonstrated some success (Jarvis et al., 2019). These applications are available at no additional costs through certain mobile networks and could represent an avenue for targeting loneliness among young adults.

Gender differences were evident with women reporting more loneliness and less satisfaction of close friendship needs than men. This finding contrasts with recent studies (e.g., Groarke et al., 2020), which have found no gendered differences in loneliness. In patriarchal societies such as South Africa, women are expected to be family-oriented and to disproportionately shoulder responsibility for the support and care of significant others. Coupled with pandemic-related social restrictions, these societal expectations may limit women's access to supportive social networks outside of the family. Further, South Africa has experienced an increase in gender-based violence during the pandemic, which may lead women to experience a greater sense of isolation, loneliness, and dissatisfaction with close relationships (Bradbury-Jones and Isham, 2020; McCain, 2020).

Additionally, the study revealed certain key correlates of loneliness. On the basis of their scores on the instruments, it was determined that young adults who perceived themselves as being at higher risk of infection, those who appraised themselves as less knowledgeable about COVID-19, and those who perceived themselves as less resilient, reported greater loneliness. Living in a rural area was also associated with heightened loneliness. Enhanced risk perception may lead an individual to practice strict social distancing and self-isolation practices, which may contribute to the rupture of social bonds, increase fear and worry, and compromise the individual's sense of affiliation and belonging (Okruszek et al., 2020). Respondents who reported having little knowledge about the disease may not have access to the digital technologies that are the predominant source of information dissemination about the pandemic; lack of access to digital technologies can contribute to a sense of social exclusion (Oyedemi, and Mogano, 2018). This study's finding that low perceived resilience is associated with high loneliness is consistent with existing studies of the role of resilience in psychological outcomes. The need for social distance is a distinctive feature of the COVID-19 pandemic; social distancing restrictions may contribute to the rupture of social bonds, strain support networks, increase fear and worry, and compromise an individual's sense of affiliation and belonging (Li and Wang, 2020). Rural communities in South Africa are particularly impacted by lack of access to digital technologies, which can aggravate loneliness (Oyedemi, and Mogano, 2018).

Finally, this study generates important insights regarding the factors that are associated with individual responses to the COVID-19 pandemic, including perceptions of resilience, self-efficacy, and perceptions of knowledge, risk, and preparedness. There were gender differences as well as rural/urban differences in the predictor role of these variables. These findings may be of critical importance in mitigating the burden of prolonged social isolation and social distancing measures on mental wellbeing. Young adults who have high perceived resilience and self-efficacy and appraise themselves to be at low risk of infection have fewer COVID-19-related worries than their peers. High self-efficacy and resilience were associated with low risk perception, and high perceived knowledge was associated with high preparedness and self-efficacy. It is likely that those with high perceived resilience and self-efficacy are more knowledgeable about the disease than their peers and are therefore better equipped to engage in preventive measures to protect themselves from infection. As a result, these individuals may have less worries about the impact of the pandemic than their less well-equipped peers (Yıldırım and Güler, 2020). These findings also suggest that self-efficacy and resilience can potentially be reinforced by public health campaigns that focus on enhancing COVID-19-related knowledge and preparedness. In South Africa, public health campaigns have been a critical component of HIV/AIDS prevention strategies. National surveys have demonstrated that combining multimedia campaigns with community outreach and support programmes have led to improved knowledge of HIV/AIDS and changes in behaviour (Peltzer et al., 2012). A similar approach could be used to enhance knowledge and preparedness in relation to COVID-19 among the general public.

5. Limitations

This study relies on cross-sectional data, which limits the ability to draw causal inferences. However, the results are consistent with emerging findings in the international literature on loneliness and its correlates (e.g. Groarke et al., 2020). The study should be seen as very exploratory, especially since the WHO measures were very limited in terms of the number of items used to assess certain constructs. Although we have offered some potential explanations for the obtained findings with respect to gender, it could also be that this finding was a result of the imbalance of women and men. However, this imbalance is mirrored in the undergraduate student composition of the university with a higher proportion being women.

6. Conclusion

A review of the literature suggests that this is the first study to examine the mental health impact of the COVID-19 prevention measures in South Africa. The time period of the study matched the period of national lockdown in the country; the findings therefore provide significant preliminary insights into the mental health needs that may arise in the post-pandemic era.

CRediT authorship contribution statement

A. Padmanabhanunni: Conceptualization, Writing - review & editing. **T.B. Pretorius:** Conceptualization, Methodology, Formal analysis.

Declaration of Competing Interest

None.

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