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Stress during SARS-COV-2 related lockdown in South Africa: a community based cross-sectional survey

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ABSTRACT

Introduction

The 2019 coronavirus disease (COVID-19) outbreak has become a global public health challenge that poses a threat to psychological resilience. It risks exacerbating stress, tension, worry, fear, panic, trauma, anxiety and depression as a result of protracted periods of lockdown, restrictions and closures of industries and educational institutions. The aim of this study was to assess the levels of stress in the general public in South Africa during the COVID-19 lockdown period and to evaluate the association of gender and age with perceived stress.

Methods

In a cross-sectional study, a total of 320 participants aged 18 years and above were recruited via non-probability sampling – specifically, convenience and snowball sampling techniques – to take part in an online survey that included the Perceived Stress Scale (PSS-10) as a measure of stress, as well as sociodemographic information. Descriptive statistics, bivariate correlation and independent t-tests were conducted.

Results

The majority – about three-quarters of the participants (228, 71%) – were female and most who completed the survey were in the age group 18–44 years (236, 74%). Overall, 59.5% percent of the participants reported moderate levels of perceived stress (mean = 18.60, SD = 7.73). A significant inverse correlation was observed between perceived stress and age ($r = -0.165$, $p<0.01$). While women reported slightly higher levels of perceived stress than men, this difference was not statistically significant. Younger adults aged 18–44 years reported statistically significantly higher levels of perceived stress compared to middle-aged and older adults.

Conclusion

The findings suggest that peoples' personal experiences of the pandemic differ. Younger adults are more vulnerable to stress related to COVID-19 and lockdown than older age groups. Given the vulnerability of young adults' mental health, providing psychological support to build coping strategies to mitigate the risk of poor mental health outcomes is indicated.

Keywords: Perceived Stress, COVID-19, Lockdown, Psychological stress, Severe Acute Respiratory Syndrome Coronavirus-2

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INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) has had an extraordinary impact on people's lives around the world.[1] To protect populations from the danger of infection and limit the spread of coronavirus disease 2019 (COVID-19), regional and national containment measures, including isolation and social distancing strategies, have been implemented all over the world. The rapidly expanding pandemic saw tight restrictions enforced through the implementation of inter- and intra-country lockdown. South Africa went into mandatory nationwide lockdown in March 2020, following the international response to contain the spread of COVID-19.[2] During the periods of hardest lockdown (Level 5), travel restrictions were imposed in addition to the closure of educational institutions, retail businesses and industries, with the exception of essential services (e.g., hospitals, police, grocery stores). Citizens were confined to their homes and were encouraged to adhere to social distancing, while being permitted to leave only to access basic necessities (e.g. groceries and healthcare).[3] Even though the lockdown was essential to slow the spread of the pandemic, it affected people's everyday lives, particularly their livelihoods and in-person social interactions.[4] Research shows that regardless of its success in containing the disease, the widespread COVID-19 lockdowns had an unavoidable psychological impact.[5] Increasing evidence is showing that the circumstances imposed by the virus and the response to it – i.e. lockdown limitations – are beyond normal human experience and therefore caused worry, stress and a sense of helplessness in a significant number of people.[6]

Several studies have already been published on the emotional and psychological impact of the SARS-COV-2 pandemic and the reaction to the outbreak of people all over the world.[7–10] Luo and colleagues found a pooled prevalence of 32% for anxiety and 27% for depression in a comprehensive assessment of 62 publications from 17 countries.[10] Similarly, Salari and colleagues found pooled prevalence of stress, anxiety and depression of 30%, 32%, and 34% percent, respectively.[5]

These findings suggest that the COVID-19 pandemic has influenced mental health both directly and indirectly. COVID-19 has a direct influence on an individual's psychological functioning due to the danger of potentially encountering the viral infection.[11] The sense of threat to one's health has been demonstrated to raise feelings of dread and anxiety, as well as the development of emotional issues. Vulnerability to contracting COVID-19, an infectious and easily transmitted virus, raises tension, worry and anxiety in many people. In general, perceived vulnerability to disease influences peoples' mood, and negative mood, in turn, is associated with a heightened perceived threat and stress.[12] This may lead to psychological conditions such as stress disorders and depression.

Despite the role of crisis communication in informing and dispelling anxieties and uncertainties during the worldwide pandemic, the media can also be the primary source of societal distress.[13] A mix of disinformation, inaccurate reporting and misleading narratives concerning COVID-19 has had a negative psychological impact on some people.[14,15]

Never-ending newsfeeds on COVID-19 infection and death rates may have fueled excessive worries, anxieties and uncertainties about the virus; when paired with lockdown and mandated social distance, this significantly enhanced a sense of danger and raised the perception of risk and stress.

In South Africa, as in many other parts of the world, the government implemented severe public health measures to slow down the infection rate, impacting the majority of the population. Recognizing the influence of unanticipated public crisis events on mental health is important, as is understanding how to assist individuals to manage their mental health better during and after a public health crisis. The levels of stress this caused has not been widely studied. The aim of this study was to assess perceived stress in the South African general public during the COVID-19 lockdown period and to evaluate the association of gender and age with perceived stress levels.

METHODS AND MATERIALS

A cross-sectional quantitative study was conducted using a web-based survey. The study included 320 participants aged 18 and above. In this study, non-probability sampling approaches such as convenience and snowball sampling were used. Initial permission was granted by the university to distribute the survey to the university population (as a representative population) via the university intranet, allowing us to stay within the ethical frame of data protection and sharing of personal information. The contact list was de-identified and kept confidential. Individuals who chose to participate in the survey could share the survey link with family and friends outside of the university via social media (e.g., via Facebook, Twitter, LinkedIn, WhatsApp and email). University employees, including academics, administrative, support staff and general workers all have free access to the university wifi network and were able to participate if they wanted, and the same chain event could be repeated.

The survey took 15–20 minutes to complete. As a part of completing the survey in the study, no personal information, email addresses, or IP addresses were gathered. The survey cover page included information on the study's purpose and participants were asked to provide informed consent to participate and continue with the online survey. They had the right to not participate or discontinue participation at any point. The study was approved by the Sefako Makgatho University Research Ethics Committee (Ethics Clearance Certificate Number: SMUREC/M/73/2020) in Pretoria, South Africa. The study commenced after ethics clearance was granted. Information on free online psychological services were provided at the conclusion of the survey.

The online survey was constructed in Google Forms and the link was shared via various social media platforms. To ensure wide coverage, the form was also shared via private WhatsApp groups and emails. The participants were required to report on age, gender and educational level. In addition, the participants completed the 10-item Perceived Stress Scale (PSS-10) as a measure of subjective COVID-19 epidemic-related and lockdown stress.[16] The PSS-10 offers a five-response option from 0, 'never', to 4, 'always'. Items 4, 5, 7 and 8 are reversed scored from 4 to 0. PSS-10 has been shown to have acceptable internal consistency. The PSS-10 showed excellent reliability (α=.91) for this study. It has been used extensively as a reliable and valid measure of stress.

The data obtained from the completed and submitted Google Forms was edited, sorted and coded in Microsoft Excel 2010 and transferred into IBM SPSS. Descriptive statistics and Pearson's product-moment correlation, an independent student t-test, was conducted on perceived stress, age and gender. All tests were two-tailed, with a significance level of $p<0.05$. IBM SPSS version 27 for Microsoft Windows was used for the statistical analysis.

RESULTS

Descriptive statistics are shown in Table 1. The majority of the participants who completed the online survey in this study were in the age group 18–44 years (74%), the most frequently represented racial group was black African (44%), and more females (71%) than males participated. Nearly half the participants lived in the Gauteng province (46%) at the time of lockdown. Just over two thirds of the participants (67%) who completed the survey were required to continue working during the lockdown.

Table 2 provides reporting on the stress levels of the participants who completed the survey. The overall mean for the Perceived Stress Scale (PSS-10) was 18.60±7.73 with scores ranging from 0 to 37. More participants (194, 59.5%) reported moderate levels of perceived stress concerning COVID-19 and lockdown than those who reported severe levels of perceived stress (16%) or low stress (22.5%).

In terms of gender, 58% of women and 65% of men reported moderate levels of stress (18.87±7.69 and 17.93±7.83 on PSS-10 respectively). However, this was not a statistically significant difference, as seen in Table 4 for gender, t (318) = 0.983, p-value =0.327, two-tailed.

Table 1 Sociodemographic characteristics of participants in the study

Characteristics	All participants	
	n	(%)
Age (years)		
18-44	236	74%
45-65+	84	26%
Gender		
Male	92	29%
Female	228	71%
Race/ethnicity		
Black African	140	44%
White	50	16%
Coloured	15	7%
Indian/Asian	25	8%
Other	89	28%
Highest level of education		
High school	22	7%
Bachelor's degree	86	27%
Postgraduate degree	197	61.5%
Other	15	4.5%
Occupation status		
Employed	226	71%
Unemployed	27	8%
Student	45	14%
Self employed	22	7%
Required to work in lockdown		
Yes	215	67%
No	70	22%
No selection	35	11%

Table 2: Perceived stress recorded in the study population

Variables	N	Mean±SD	Range	Perceived stress severity levels		
				Low n (%)	Moderate n (%)	Severe n (%)
Total Score Perceived Stress	320	18.60±7.727	0-37	73 (22.5%)	194 (59.5%)	53 (16%)

Age, unlike gender, did have a significant correlation with perceived stress in our study, r(301) = -0.17, p-value <0.01, two-tailed). As seen in Table 3, on the following page, younger adults (18 to 44 years old) reported feeling more stressed (19.41±7.67) than the older adults (45 years and older: 16.06±7.63, p=0.003). Older adults were more likely to report lower levels of stress, whereas younger people reported more moderate to severe levels of stress, $t(299) = 3.389$, p-value < 0.01, two-tailed (Table 4). This suggests that younger age groups may be particularly in need of psychological support during such events.

Table 3 Level of perceived stress severity, gender and age

Variables		Perceived stress severity levels				
		N	Low n (%)	Moderate n (%)	High n (%)	P-value
Total		320	73	194	53	
Gender	Female	228	53 (23%)	134 (59%)	41 (18%)	.477
	Male	92	20 (22%)	60 (65%)	12 (13%)	
Total		301	70	182	49	
Age	18-44	218	40(18%)	138 (64%)	40 (18%)	.003**
	45+	83	30 (36%)	44 (53%)	9 (11%)	

*Statistical significance *p value<0.05; **p<0.01; # on age listwise deletion n = 19 not valid records.*

Table 4 Mean differences in perceived stress by gender and age

Variables	Mean±SD	SEM	t	df	p-value	Mean diff	95% CI	
							Lower	Upper
Gender								
Female	18.87±7.686	.509	.983	318	.327	.938	-0.94	2.8
Male	17.93±7.830	.816						
Age								
18-44	19.41±7.669	.519	3.389	299	**.001****	3.348	1.4	5.2
45+	16.060±7.630	.837						

*Statistical significance *p value<0.05; **p<0.01*

DISCUSSION

This countrywide online survey of South Africa is one of the first conducted to examine stress due to COVID-19 lockdowns among the general community. Existing research has been predominantly conducted among healthcare staff and the sick population in quarantine[17] whereas the COVID-19 outbreak has been exceedingly stressful and can be detrimental to the overall health and well-being of all people. Our study indicates moderate stress levels in the general South African community during the COVID-19 lockdown period, consistent with studies conducted in other countries.[18] This study found higher levels of moderate stress compared to study findings from China, which found a greater percentage of mild stress levels in the general population during that country's first lockdown. Only 8.1% of participants in the study from China had moderate and severe levels of stress.[19] The difference might be explained by the fact that the current study was conducted in a resource-limited setting. Unlike China and most European countries, where online mental health and support access is in place, South Africa and other resource-limited countries do not have readily accessible online mental healthcare support that could potentially promote protective coping behaviors during periods of social isolation. The SARS-COV-2 virus arrived against the backdrop of a protracted mental health crisis in South Africa and has thus exacerbated the country's persistent mental health provision gap and limited access to mental health care services.[20] Nevertheless, the pandemic has served as a catalyst for governments and regulators throughout the world to re-evaluate policies and respond rapidly to the public health crisis. Notably, the Health Professions Council of South Africa (HPCSA) issued conditionally approved telemedicine guidelines late in April 2020, allowing mental health services to be provided during the COVID-19 lockdown period.[21] However, in South Africa, as in many other resource-constrained countries, the digital divide (lack of internet access,

smartphones, digital illiteracy) remains a significant barrier to accessing online or phone-based mental health therapies, even when they are available.[20] In contrast to earlier studies,[12,22,23] the current study found no statistically significant difference in the level of perceived stress between men and women. This finding could potentially be due to methodological variability, especially since men were not equally represented in the study. Income level, relationship status and geographical locations were not analysed, all of which have been shown to significantly influence the amount of perceived stress.[11]

Our finding that age influences perceived stress is consistent with other studies, including a survey carried out across 41 countries during the first worldwide lockdown period[24] and another focussing specifically on students[25]. Although older persons have a higher risk of severe illness and mortality from COVID-19,[26,27] data shows that they tend to be less worried and less influenced by the psychological implications of quarantine and social isolation. It is younger people who have the highest levels of worry and stress related to COVID-19. The reason for this difference is that older people are more driven to regulate emotion than younger adults.[28,29] In addition, young people may be more vulnerable due to financial uncertainties, isolation, poor coping and loneliness, a finding confirmed in a study involving more than 60 countries.[30] This is an important finding in planning for diverse mental health services, particularly for young adults during and post-pandemics.[25] Young adults constitute a key part of the productive economy: psychosocial interventions that promote positive future orientation and coping skills are important.

The study had limitations that need to be noted. The results represent a single point in time, the first wave of the pandemic, within a strict national and international lockdown. As a cross-sectional design, it does not confirm the causal relationship. In addition, we did not analyze psychological challenges such as depression and generalized anxiety disorder that may already have been present in the study population. The online survey we used limits representativeness and is prone to bias due to self-reporting and social desirability. However, in line with national lockdown and social distancing restrictions, the online survey was a valuable alternative to the impracticalities of in-person research. This study may not be representative of a broad sociodemographic given the disparity in gender and lack of variability in age in the sample and therefore caution should be exercised before generalizing the findings to the larger community.

CONCLUSION

This is one of the few studies to investigate levels of stress in the general population during South Africa's national COVID-19 lockdown. The findings show that a large proportion of the general public had moderate levels of stress. Older adults reported lower levels of stress in relation to COVID-19 than younger adults. This age-based difference suggests that younger people have a more difficult time coping with the psychological demands imposed by the COVID-19 pandemic and therefore are more vulnerable to its negative effects. Given the vulnerability of young adults' mental health, providing psychological support to build coping strategies to mitigate the risk of poor mental health outcomes is indicated. This finding emphasizes the significance of psychosocial interventions aimed at increasing self-efficacy and fostering resilience in order for young adults to create a positive future outlook beyond the pandemic. Longitudinal studies will help to understand whether mental health problems improve over time or whether new stresses develop as nations face ongoing challenges associated with the pandemic.

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