

Depression among health care students in the time of COVID-19: the mediating role of resilience in the hopelessness–depression relationship

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Abstract

COVID-19 spread rapidly across the world, and by March 2020, the first case of COVID-19 was identified in South Africa. Lockdown-related measures such as restricted movement and isolation were implemented to contain the virus. Combined with these measures, factors such as economic decline, job losses, and food shortages can cause numerous mental health sequelae such as depression. Feelings of hopelessness and helplessness as well as cases of suicide have been reported around the world due to the pandemic and the associated feelings of anxiety and depression. The aims of this study were to investigate levels of hopelessness and depression in a sample of health care students. A random sample of students ($N = 174$) enrolled in a health sciences programme at the University of the Western Cape completed the Beck Hopelessness Scale, the Center for Epidemiological Studies Depression Scale, and a three-item Resilience Scale. The results revealed high levels of hopelessness and depression compared to previously reported normative data for these scales. In addition, the indirect effects of hopelessness on depression were significant, demonstrating the mediating role of resilience in the hopelessness–depression relationship. These results highlight a call for universities to take proactive measures in providing students with free and easily accessible resources to help them cope and manage stress during a traumatic event. More importantly, at a national level, preventive measures should be implemented to strengthen resilience in young adults.

Keywords

COVID-19, depression, hopelessness, mediating, resilience

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In December 2019, a group of cases of pneumonia with an unknown cause were reported in Wuhan, China (World Health Organization [WHO], 2020). Days later, a novel coronavirus was identified as the cause of the spreading pneumonia cases (WHO, 2020). The virus, named COVID-19, spread rapidly across the world; by March 2020, the first case of COVID-19 was identified in South Africa (WHO, 2020). The South African government announced a national lockdown beginning on 26 March 2020 to contain the spread of the coronavirus. Due to the lockdown, universities and schools transitioned quickly from face-to-face teaching and learning to an online method of delivering education (Sahu, 2020). The regulations of the lockdown period further included restricted movement of persons: only essential travel was allowed (i.e., obtaining groceries and seeking health care), exercise in gyms and outside of homes was prohibited, the movement of children between two guardians or co-holders of parental responsibilities was prohibited, visiting of family and friends was not allowed, and a general rule of social distancing was enforced (South African Government, 2020a, 2020b). Social distancing encompassed the concept of keeping a distance of approximately two arm's length between you and another person not from your household (Centers for Disease Control and Prevention, 2020). The lockdown essentially created a period of isolation from a 'normal' way of life and from family and friends. Changes to a typical way of life can bring about anxiety, and isolation can impact a person's sense of connectedness (Dyson & Renk, 2003; Stroebe et al., 2002; Usher et al., 2020). Further repercussions of the lockdown included economic decline, job losses, and food shortages (Nicola et al., 2020). Individuals who were also physically active prior to the lockdown have been shown to be more susceptible to issues related to well-being due to the restrictions on exercise outside of homes. Social isolation can lead to numerous mental health sequelae such as depression, which can occur even in individuals who previously had adequate mental health (Usher et al., 2020). The mental health of university staff and students in particular has been adversely affected by rising levels of uncertainty, anxiety, and hopelessness regarding the future as well as increasing levels of stress (Sahu, 2020) due to the sudden closure of universities, the rapid switch to online learning and teaching, and issues with lack of access to data and resources. Students enrolled in health professionals' degree programmes are already a vulnerable group in that they exhibit a significant prevalence of depression; therefore, investigating the impact of the pandemic on their well-being is imperative (AlFaris et al., 2016; Silva et al., 2017). Feelings of hopelessness and helplessness have also been demonstrated in trainee doctors in the United Kingdom (Shaw, 2020).

In addition, feelings of anxiety and helplessness have been reported to be higher in health care workers due to the pandemic compared to other individuals in the community (Hacimusalar et al., 2020). Cases of suicide have been reported in India, Italy, Britain, and Saudi Arabia as a result of the effects of isolation, anxiety, and depression (e.g., Montemurro, 2020; Thakur & Jain, 2020). The rates of suicide ideation and suicide attempts appear to be high among those aged 18–24 years and particularly among students attending tertiary education institutions (Bagge et al., 2014). Depression and hopelessness have also been identified as risk factors for suicidal ideation and attempts (Bagge et al., 2014). Hopelessness may affect depression through the interpersonal stress construct of perceived burdensomeness (Nalipay & Ku, 2019).

A South African critical review of resilience theory proposed the following definition of resilience: 'The multilevel processes that systems engage in to obtain better-than-expected outcomes in the face or wake of adversity' (Van Breda, 2018, p. 4). In this regard, the use of the word 'systems' enables this definition to be used across various systems, such as cells, individuals, families, organisations, and communities. The use of the phrases 'in the face or wake of' refers to adversity which is either ongoing or adversity which has passed and therefore the system is in the process of recovering from the adversity. It has also been described by Hjemdal et al. (2012) as the maintenance of normal development, adjustment, or continued optimal functioning despite adversity or situations

Table 1. Participant characteristics.

Variables	Categories	<i>n</i>	%
Gender	Men	29	16.7
	Women	144	82.8
Age (<i>M</i> =21.8, <i>SD</i> =4.1)	17–21 years	114	65.4
	22–26 years	60	34.6
Area of residence	Rural	43	24.7
	Urban	129	74.1
Infection status	Suspected contraction but not confirmed	3	1.7
	Tested but results were negative	4	2.3
	No	141	81.0
	Don't know	26	14.9

that would place one at risk of poor adaption or mental disorders. Resilience is comprised of a combination of neurobiological factors (e.g., serotonin, norepinephrine, neuropeptide Y, and dopamine) and psychological factors (e.g., positive emotions and optimism, humour, cognitive flexibility, acceptance, religion/spirituality, selfless concern for others, social support, coping style, and coping skills to manage stress). The literature suggests that individuals who possess many of these factors are more likely to adapt following traumatic events (Hjemdal et al., 2012).

The aims of this study are twofold: to compare the levels of hopelessness and depression in the current sample of young adults to those previously reported in the literature and to investigate the potential mediating role of resilience in the hopelessness–depression relationship during COVID-19. A previous longitudinal study confirmed that hopelessness is likely a precursor to depression (Horwitz et al., 2017). Hopelessness is considered a key mechanism in cognitive-behavioural explanations for the development and persistence of depression (Henkel et al., 2002), and hopelessness is also a key precipitant to suicidal ideation and behaviour (Bagge et al., 2014).

Method

Participants

The current study used a cross-sectional survey design. Participants were young adults ($N=174$) enrolled in health sciences programmes such as Physiotherapy, Dietetics, Psychology, Occupational Therapy, and Nursing at the University of the Western Cape. A description of the sample is presented in Table 1. Most participants were female (82.2%) and resided in an urban area (73.4%). The mean age of the participants was 21.8 ($SD=4.1$) years. The race distribution of undergraduate students at the university is Black African (48%), coloured (45%), White (3.8%), and Indian (2.8%). At the time of completion of the survey, 1.7% of the participants suspected they had contracted the virus but it was not confirmed by a test, 2.3% had tested but it was found to be negative, 81% did not think they had contracted the virus, and 14.9% were unsure if they had contracted it.

Instruments

Participants completed the Beck Hopelessness Scale (BHS; Beck et al., 1974); the Center for Epidemiological Studies Depression Scale (CESD; Radloff, 1977); and the Resilience Scale, which is one of the subscales of the WHO COVID-19 Behavioural Insights Tool (WHO, 2020).

The BHS is one of the most widely used measures of hopelessness. It contains 20 statements for which individuals must select 'true' or 'false' and ultimately assesses the degree to which individuals' cognitive schemata are associated with pessimistic expectations (e.g., *I do not expect to get what I really want* or *My future seems dark to me*). Scores can range from 0 to 20, with higher scores indicating a greater degree of hopelessness. Internal consistency of .93 has been reported, along with concurrent validity of .74 with clinical ratings of hopelessness and .60 with other scales of hopelessness (Beck et al., 1974). The BHS was previously used in South Africa with a similar sample of young adults (Heppner et al., 2002), which resulted in an alpha coefficient of .82, for that study.

The CESD scale consists of 20 symptoms, 16 of which have descriptions that are worded negatively and four of which have descriptions that are worded positively. Respondents are asked to indicate how often they experienced each of the symptoms during the past week on a four-point scale ranging from *rarely or none of the time* (0) to *most or all of the time* (4). The items on the scale are assumed to represent all the major components of depressive symptomatology, which include (1) depressed mood, (2) feelings of guilt and worthlessness, (3) feelings of helplessness and hopelessness, (4) loss of appetite, (5) sleep disturbance, and (6) psychomotor retardation (Radloff, 1977). The scale was found to have very high internal consistency (.85 to .90) and test-retest reliability (.51 to .67). Validity was established through patterns of correlations with clinical ratings of depression. Research has consistently identified a four-factor structure for the CESD scale: positive affect, depressed affect, somatic activity, and interpersonal relations (e.g., Ferro & Speechley, 2013). The psychometric properties of the CESD scale as used with South African students had been reported previously (Pretorius, 1991).

The Resilience Scale consists of three items from the Brief Resilience Scale (Smith et al., 2008). The Resilience Scale assesses 'the ability to bounce back' (Smith et al., 2008, p. 194). Participants respond to the three items on a five-point scale that ranges from *Strongly Agree* (1) to *Strongly Disagree* (5). Scores may range between 3 and 15, with higher scores indicating greater resilience. The original Brief Resilience Scale had reliability coefficients that ranged between .80 and .91. No information was reported on the revised three-item scale.

Procedure

An electronic survey that consisted of the three scales was generated using Google Forms and was distributed between May and July 2020, the period characterised by the national lockdown.

Ethics

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 were provided with an information sheet that explained the nature and aims of the study. They were also asked to complete an informed consent form. Participants were informed that they had the right to withdraw from the study at any point without adverse consequences. They were provided with the contact details of the South African Anxiety and Depression Group and the Centre for Student Support Services, at the University of the Western Cape, in the event that they experienced psychological distress as a result of completing the questionnaire.

Data analysis

SPSS (version 26) was used to obtain descriptive statistics, reliability, and intercorrelations. Total, direct, and indirect effects of hopelessness on depression were determined using AMOS (version 26).

Table 2. Intercorrelations, descriptive statistics, and reliability indices of study variables.

	1.	2.	3.	4.	5.	6.	7.
1. Resilience	–						
2. Hopelessness	–.36***	–					
3. Depression	–.50***	.54***	–				
4. Positive affect	.35***	–.45***	–.61***	–			
5. Depressed affect	–.46***	.49***	.93***	–.44***	–		
6. Somatic activity	–.46***	.42***	.89***	–.40***	.75***	–	
7. Interpersonal relations	–.23**	.32***	.64***	–.20**	.59***	.49***	–
<i>M</i>	8.5	4.6	27.9	6.7	9.7	11.1	1.7
<i>SD</i>	2.8	4.2	12.6	2.9	5.9	4.7	1.7
Alpha	.60	.82	.91	.73	.88	.77	.09

p* < .01. *p* < .001.

Results

There were no gender differences in terms of any of the study variables, resilience: $t(170) = .99, p > .05$; hopelessness: $t(170) = .06, p > .05$; depression: $t(170) = -.65, p > .05$; therefore, the data for men and women were pooled. The intercorrelations, descriptive statistics, and reliability estimates (coefficient alpha) are reported in Table 2.

Normative information

The mean of the BHS ($M = 4.6, SD = 4.2$) was higher than the normative data for young adults found in the literature (e.g., Kocalevent et al., 2017; $M = 4.18, SD = 3.77$); the mean also falls outside the range of normative data for non-illness populations, which typically range from 1.70 to 4.45 (Lotfi-Kashani et al., 2018). For the CESD scale, the mean found in the current study ($M = 27.9, SD = 12.6$) was significantly higher than both the mean reported in a study by Radloff (1977) (range: 7.94–9.25) and the normative data reported for a sample of 18- to 24-year-old students (Crawford et al., 2011; $M = 14.08, SD = 10.91$). The mean reported in this study, in a sample of young adults during COVID-19, was also significantly higher than the mean reported in young adults during COVID-19, in the United States (Giuntella et al., 2020; $M = 14.59, SD = 9.64$).

Reliability

In terms of conventional standards (Hulin et al., 2001), the reliability of the Resilience Scale can be regarded as acceptable; for all the other scales, alpha was above .70, thus demonstrating good reliability. However, the two-item interpersonal subscale of the CESD was exceptionally low (.09). Eisinga et al. (2013) argue that Cronbach’s alpha is not appropriate to assess the reliability of two-item scales, but even the method they propose, that is, Spearman and Brown produced the same result. Given this low reliability, the interpersonal subscale was excluded from further analyses.

Intercorrelations

All the obtained correlation coefficients were in the expected directions. The CESD subscale intercorrelations were modest, ranging between –.40 and .75 (interpersonal subscale excluded), thus indicating that these subscales are somewhat related but still represent distinct constructs. Resilience

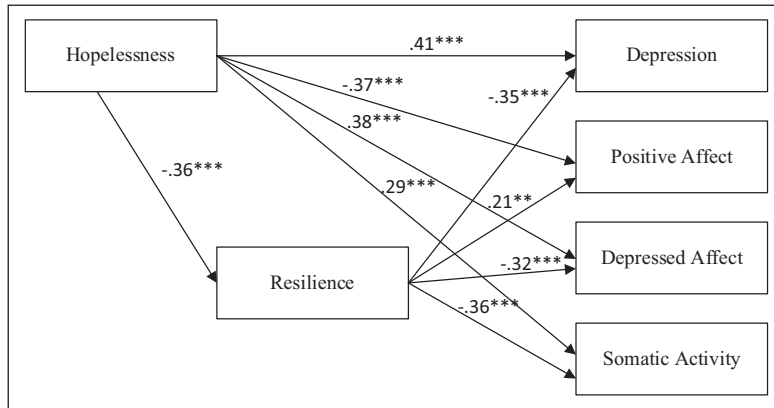


Figure 1. Direct effects of hopelessness and resilience on depression.

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

correlated positively with positive affect ($r = .35, p < .001$) and negatively (all $p < .001$) with all the other measures (hopelessness: $r = -.36$; depression: $r = -.50$; depressed affect: $r = -.46$; somatic activity: $r = -.46$). Hopelessness was positively associated with depression ($r = .54, p < .001$), depressed affect ($r = .49, p < .001$), and somatic activity ($r = .42, p < .001$) but negatively related to positive affect ($r = -.45, p < .001$).

Mediating role of resilience

The direct effects of hopelessness and resilience on depression are reported in Figure 1, while the indirect and total effects of hopelessness on depression are reported in Table 3.

All regression coefficients in both Table 2 and Figure 1 were statistically significant. The total effects of hopelessness on depression were as follows: for depression, $\beta = .54, p = .012$; for positive affect, $\beta = -.54, p = .009$; for depressed affect, $\beta = .49, p = .013$; and for somatic activity, $\beta = .42, p = .018$. Hopelessness had significant direct effects on depression ($\beta = .41, p = .009$), positive affect ($\beta = -.37, p = .008$), depressed affect ($\beta = .38, p = .012$), and somatic activity ($\beta = .29, p = .012$). Hopelessness also had significant indirect effects via resilience ($\beta = -.36, p = .009$) on depression ($\beta = .13, p = .005$), positive affect ($\beta = -.08, p = .011$), depressed affect ($\beta = .12, p = .004$), and somatic activity ($\beta = .13, p = .007$). These significant indirect effects are indicative of a partial mediating role for resilience in the hopelessness–depression relationship.

Discussion

The aims of this study were to descriptively compare the levels of hopelessness and depression to those previously reported in the literature and to investigate the potential mediating role of resilience in the hopelessness–depression relationship during COVID-19.

A growing body of international research has confirmed that levels of depression among young people have been increasing during the pandemic (Bäuerle et al., 2020; Chi et al., 2020; Hyland et al., 2020). However, there remains limited research on the psychological impact of COVID-19 in middle- and low-income countries. This study aimed to address this gap by assessing the prevalence of hopelessness and depression in undergraduate health care students at the University of the Western Cape.

There were several important findings: the study found no differences in hopelessness and depression between males and females; the prevalence of hopelessness and depression among

Table 3. Indirect and total effects of hopelessness on depression.

Variables	Indirect effects			Total effects		
	β	p-value	95% CI	β	p-value	95% CI
Depression	.13	.005	[.07, .21]	.54	.012	[.41, .64]
Positive affect	-.08	.008	[-.14, -.03]	-.45	.009	[-.60, -.30]
Depressed affect	.12	.007	[.06, .20]	.49	.013	[.38, .61]
Somatic activity	.13	.009	[.07, .22]	.42	.018	[.26, .54]

undergraduate students was significantly higher than elsewhere in the world during the pandemic as well as previously reported prior to the pandemic; resilience correlated negatively with hopelessness and depression and correlated positively with the subscale of positive affect; and finally, resilience partially mediated the relationship between hopelessness and depression.

While recent studies (e.g., Calvó-Perxas et al., 2016; Salk et al., 2017) found significant gender differences regarding the prevalence of depression and depressive symptoms – with women at greater risk than men – this study found no gender differences for the outcomes assessed (depression and hopelessness). These results suggest that subgroups that are typically perceived to be enjoying more of a positive sense of well-being, such as men, are not spared the psychological effects of the pandemic.

The current study demonstrates the effect of the COVID-19 pandemic on mental health. Levels of hopelessness and depression were observed to be significantly higher in this study than those previously reported for young adults elsewhere in the world (e.g., Kocalevent et al., 2017; Lotfi-Kashani et al., 2018). Suicide ideation and attempts have been previously highlighted as a cause for concern in the young adult population attending tertiary institutions (Bagge et al., 2014), and the observed significant levels of hopelessness and depression may warrant a higher alert level.

The intercorrelations between the variables were all in the expected directions. Resilience correlated negatively with hopelessness, depression, and all subscales of the CESD scale except for positive affect. These relationships support what is referred to in the literature as the ‘health-sustaining role’ (Pretorius, 2020) of protective factors such as resilience. This role implies that an increase in resilience would directly result in a decrease in hopelessness and depression irrespective of resilience’s position as the mechanism through which hopelessness impacts depression. This study also revealed that resilience partially mediates the relationship between hopelessness and depression in a sample of health science students during a pandemic. The impact of hopelessness on depression, depressed affect, positive affect, and somatic complaints depends on the individual’s level of resilience. Therefore, the greater an individual’s resilience, the lower the chance of hopelessness developing into depression. This affirms a study which found that resilience was a mediator between stressful events and depression in Grade 9 students (Tram & Cole, 2000). Similarly, that study found that when self-perceived competence (an aspect of resilience) was controlled for, the negative effects of stressful events on depression were reduced.

Future research should focus on a longitudinal follow-up assessing both the role of resilience in the hopelessness–depression relationship and the impact of varying levels of lockdown, with easing lockdown restrictions, on this relationship.

The implications of this study include a call for universities to take proactive measures in providing students with free and easily accessible resources to help them cope and manage stress during a traumatic event. It is also important for universities to implement programmes to educate students and increase awareness regarding mental health and the dangers of hopelessness symptoms developing into depression, the signs and symptoms of both hopelessness and depression, and the support centres to contact in the event that these symptoms develop.

The treatment of depression and hopelessness symptoms should aim to improve resilience in young adults. More importantly, at a national level, preventive measures should be put in place during the pandemic to strengthen resilience in young adults. The available literature supports the notion that interventions, such as training in coping, may be effective in reducing levels of depression and hopelessness (Houston et al., 2017). Thus, in addition to dealing with symptoms of depression and hopelessness, the implementation of interventions that focus on the development of resilience resources should be prioritised. In the current climate of social distancing, the use of digital technologies such as Zoom™ and mobile applications such as WhatsApp™ may also be valuable in reaching young adults to address depression and implement resilience programmes.

In terms of study limitations, the addition of a qualitative research design may have contributed to a better understanding of the presence of hopelessness symptoms and their impact on depressive symptoms during a traumatic event. This study used a cross-sectional design, which limits cause–effect interpretations; however, the findings are consistent with theoretical expectations as well as with prior research on these variables. The study also used an online survey, which may have created bias in that only students who had access were able to complete the survey.

Conclusion

The current levels of hopelessness and depression among young adult health care students are higher than those reported in earlier studies. This study demonstrated that a young adult health care student's level of resilience impacts the progression of hopelessness into depression during a traumatic event (e.g., a pandemic). Taken together, these findings suggest a looming mental health crisis and present an urgent call for education authorities to invest in programmes that can help address depression and hopelessness symptoms and build resilience.

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