South African Journal of Psychology 2021, Vol. 51(1) 67–80 © The Author(s) 2020
Article reuse guidelines: sagepub.com/journals-permissions
DOI: 10.1177/0081246320977759 journals.sagepub.com/home/sap
SAGE

PsySSA
Psychological Society of South Africa

Special Section on University Student Depression

Trends in the prevalence and severity of depressive symptoms among undergraduate students at a South African University, 2016–2019

Kim-Louise Rousseau, Sabrina Thompson, Lea-Ann Pileggi, Michelle Henry and Kevin GF Thomas

Abstract

University students are particularly vulnerable to mood disorders. This vulnerability may be increasing, with recent investigations reporting sharp rises in the prevalence of depression and other psychiatric disorders. Moreover, previous studies indicate that first-year undergraduates tend to show more depression and suicidal ideation than students in subsequent years. However, most studies in the extant literature emerge from high-income countries in the global north; relatively few focus on university students in low- and middle-income countries such as South Africa. Because students in low- and middle-income countries are more likely to be exposed to crime and trauma, and less likely to have easily accessible mental health services, they might be at even higher risk for developing mood disorders than their counterparts in high-income countries. Furthermore, most previous studies of mental health in university students analyse cross-sectional data and therefore cannot comment on longitudinal patterns in the data. To fill these knowledge gaps, the current study aimed to describe recent trends in depression and suicidal ideation among South African university students. We analysed both archival ($n = 2593$) and original ($n = 499$) Beck Depression Inventory-Second Edition reports, sampled between 2016 and 2019. As expected, depression and suicidal ideation scores increased significantly over time, and first-year students reported significantly more depression and suicidal ideation than students in subsequent years of study. These findings suggest that preventive interventions during sensitive periods of undergraduate study are imperative and provide a foundation for treatment strategies tailored to the needs of the most vulnerable South African students.

Keywords

Beck Depression Inventory-Second Edition, depression, students, suicidal ideation

ACSENT Laboratory, Department of Psychology, University of Cape Town, Cape Town, South Africa

Corresponding author:
Kim-Louise Rousseau, ACSENT Laboratory, Department of Psychology, University of Cape Town, Rondebosch, Cape Town 7701, South Africa.
Email: rsskim004@myuct.ac.za

Globally, the clinical syndrome of major depressive disorder (MDD; commonly referred to as *depression*) has the highest lifetime prevalence of all psychiatric disorders (Kessler et al., 1994; Lim et al., 2018). Moreover, this prevalence appears to be increasing: The World Health Organization (WHO) estimated an 18.4% global rise between 2005 and 2015, with more than 320 million people diagnosed at the end of that 10-year period (Vos et al., 2017; WHO, 2017). The most recent Global Burden of Disease Study found that depressive disorders were among the leading causes of years lived with disability (YLDs) and disability-adjusted life years (DALYs) in 2010 (Ferrari et al., 2013). Epidemiological projections estimate that, by 2030, depression will be the leading contributor to the global burden of disease (Lépine & Briley, 2011; WHO, 2004).

Even within this epidemic of depression among the general population, the vulnerability of university students to mood disorders is concerning (Cuijpers et al., 2019). A systematic review of 24 studies (Ibrahim et al., 2013), with samples taken from countries in North America, western Europe, east Asia, north Africa, and the Middle East, indicated that the prevalence of depression among students was 10%–85%; in contrast, prevalence among the general population of similarly aged individuals is estimated at 3%–21% (Kessler et al., 2007). More locally, the Caring University Project found a prevalence rate of 24.68% in students from 18 universities across eight African countries (Lochner et al., 2018).

University students may be particularly vulnerable to depression because they face high levels of academic, interpersonal, and financial stressors, and may lack sufficient resources (e.g., social support and effective coping strategies) to manage those challenges (Doyle-Baker et al., 2018; Ngin et al., 2018). Furthermore, undergraduate students are usually within the age range (18–24 years) that defines a sensitive period within which mood disorders might manifest (Kessler et al., 2007). One illustration of this vulnerability, especially at the very beginning of university, emerges from a study reporting that one-sixth of first-year students ($N = 686$) from Stellenbosch University reported having experienced depression during the previous year (Mall et al., 2018).

Left untreated, depression leads to reduced quality of life. It has cognitive consequences that, in university students, might compromise academic performance and lead to increased risk of failing courses or dropping out entirely (Cavanagh et al., 2016; Ibrahim et al., 2013). It also has negative consequences for psychosocial development and interpersonal relationships and interferes with activities of daily living (Beiter et al., 2015). Hence, experiencing depression as an undergraduate student can have a lifelong impact on the likelihood of successful social relations and career advancement.

Adding to the concern about high rates of depression among students is the well-documented association between depression and suicidal ideation (i.e., cognitions about death and a will to die). Kirsch et al. (2015) reported that 55% of their sample of 540 American university students reported a history of suicidal thoughts, and that 12% had attempted suicide. Similarly, Bantjes et al. (2016) reported that South African students had a higher than average (compared to the national population and to international student populations) rate of suicidal ideation (25%), predicted most reliably by depressive symptoms.

The current study

South Africa has not been spared the global epidemic of depression: A national household survey estimated an increase in prevalence from 22.31% in 2010 to 26.05% in 2015 (Mungai & Bayat, 2019). These relatively high numbers might be at least partially attributable to the fact that depression is often comorbid with, or a secondary feature of, post-traumatic stress disorder (PTSD). Because most South Africans will be exposed to at least one traumatic event during their lifetimes, and rates of both interpersonal (e.g., sexual violence) and community (e.g., violent crime) trauma

are much higher than international averages, people in this country may be at a relatively higher risk for PTSD and, concomitantly, for MDD (Hatcher et al., 2018; Mall et al., 2018; Sui et al., 2018). Consistent with this conjecture, Bantjes et al. (2016) found an association between prior experiences of trauma and a history of suicidal ideation in South African university students.

In this clinical context, and especially following a recent series of high-profile campus suicides, there are increasing concerns about the mental health of South African university students (Bantjes et al., 2019; Schreiber, 2018). However, despite global increases in the prevalence of psychiatric disorders in the student population, and despite the fact that undergraduate academic performance is a strong predictor of short-term professional success and long-term occupational achievement and life adjustment (Lekena & Bayaga, 2018), few published studies have investigated depression and suicidal ideation in South African students.

The primary aim of the present retrospective and cross-sectional study was to describe trends in depressive symptoms and suicidal ideation in undergraduate students at a South African university over the period 2016–2019. We tested the specific prediction that, over the 4-year period, there was a linear increase in the prevalence and severity of both depressive symptoms and suicidal ideation. Although a small body of research suggests a higher prevalence of depression and suicidal ideation in South African students than in the general population (see, e.g., Bantjes et al., 2016; Schreiber, 2018), no studies specifically explore year-by-year trends.

A secondary aim was to investigate whether students in their first year of undergraduate study would present with more depressive symptoms and suicidal ideation than those in subsequent years. Previous South African research (see, e.g., Mall et al., 2018; Young & Campbell, 2014) suggests that students display a pattern of early undergraduate vulnerability, where they are more sensitive to difficulties in adjustment to university and are less equipped to cope with academic, financial, and interpersonal stressors. However, this study is the first to describe the relative prevalence of depressive symptoms in first-year students using a large sample and reports taken across multiple years.

Method

Participants

Archival data. We searched the OpenUCT database (http://www.psychology.uct.ac.za/psy/graduateprogrammes/honours/projects; http://open.uct.ac.za/handle/11427/29115) for University of Cape Town (UCT) Department of Psychology research studies that administered the Beck Depression Inventory-Second Edition (BDI-II; Beck et al., 1996) to undergraduate students. We set the search limits for the period 2016–2018, and used the keywords *depression*, *depression in students*, *Beck Depression Inventory*, and *BDI-II*. We contacted the authors of relevant studies and asked them to share their raw data.

Regarding eligibility criteria, we only gathered data from research studies that (a) were conducted within the UCT Department of Psychology, (b) administered the English version of the BDI-II to UCT undergraduate psychology students aged 18–24 years, and (c) reported item-by-item BDI-II scores. Eventually, all the studies from which we gathered archival data used convenience sampling to recruit participants and administered the BDI-II electronically and as a screening measure before formal in-person research procedures commenced.

Original data. We used convenience sampling to recruit 499 undergraduate students. Our sole eligibility criterion was that all participants were aged 18–24 years. We limited participation to individuals within this age range because this is a sensitive period within which mood disorders

commonly manifest (Davey, 2014). Furthermore, restricting the sample to this age range allowed for comparison with other studies conducted on depression in university students. We made no exclusions based on race or sex because the BDI-II has shown measurement and factorial invariance across race- and sex-based groups in samples of South African students (Makhubela, 2016; Makhubela & Debusho, 2016).

Instruments

Sociodemographic questionnaire. As part of the current data collection, we administered a short self-report sociodemographic questionnaire that collected information about age, sex, education level, and country of origin. Although these variables were not used in the statistical analyses reported here, they provided information useful for situating the sample within its context.

BDI-II. This 21-item self-report instrument assesses the presence and severity of depressive symptoms in clinical and non-clinical samples. The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5) suggests the BDI-II as the recommended depressive scale (American Psychiatric Association [APA], 2013).

Each of the instrument's items enquires about a specific depressive symptom. The respondent is asked to choose one of the four statements that most accurately describes their mental state over the previous 2 weeks. A score of 0 (no symptom present), 1 (symptom present and of mild intensity), 2 (symptom present and of moderate intensity), or 3 (symptom present and of severe intensity) is assigned. Hence, a respondent's total score can range from 0 to 63. These cut-off scores are conventionally used to differentiate between severity levels: 0–13 = minimal depression; 14–19 = mild depression; 20–28 = moderate-severe depression; 29–63 = severe depression (Beck et al., 1996).

Regarding psychometric properties, a recent meta-analysis reported excellent cumulative test–retest reliability ($r = .93$) and high internal consistency among both clinical ($\alpha = .91$) and non-clinical ($\alpha = .88$) samples (Erford et al., 2016). The same study found good convergent validity, with large effect sizes, between the BDI-II and 43 other measures of depression (including screening tools and gold standard clinical diagnostic interviews). The instrument appears to retain these excellent psychometric properties when used in samples of South African university students (Makhubela, 2016; Mall et al., 2018; Schreiber, 2018). For instance, Makhubela and Mashegoane (2016) showed that it displayed high levels of internal consistency reliability (Cronbach's $\alpha = .84$) when tested in a sample of 919 students ($M_{age} = 21.7$ years) from the University of Limpopo and the University of Pretoria.

Suicidal ideation measure. Item 9 on the BDI-II measures suicidal ideation. The four statements associated with this item are understood as levels of severity, and scores on the item have previously been used as a predictor of depressive symptoms in South African university students (Bantjes et al., 2016). A score of 0 indicates an absence of suicidal ideation; 1 indicates passive suicidal ideation (i.e., thoughts of killing oneself without an intention to complete the action); 2 indicates suicidal desire (i.e., the wish to commit suicide); and 3 indicates suicidal intention (i.e., if given the chance, the respondent would kill themselves).

Procedure

Archival data collection. Once we received BDI-II data from researchers willing to share them with us, we collated them in an MS Excel workbook. Datasets had different sample sizes and types of

information to offer because researchers followed different protocols alongside their collection of BDI-II reports. We utilised the year of data collection, participant's registered year of study, score for each BDI-II item, BDI-II total score, and year of study.

Original data collection. Undergraduate students were invited to participate via an email containing a link to an online survey. Participants could only complete the survey once, in one sitting. The survey consisted of an informed consent document, followed by the sociodemographic questionnaire, the BDI-II, and a debriefing form.

Ethical considerations

The study was granted ethical clearance by the Psychology Department Research Ethics Committee at the UCT. All study protocols were conducted following the Declaration of Helsinki (World Medical Association, 2013) directives.

Data analyses

Our overall database, created from the combination of archival and original data, included two key predictor variables (viz., year of data collection and participant's registered year of study) and two key outcome variables (viz., BDI-II total score and BDI-II Item 9 score). Data analyses were conducted using SPSS (version 26.0). We excluded no outliers from our dataset as extreme values (>3.5 *SD* from the sample mean) comprised less than 1% of the total sample.

We created a full set of descriptive statistics for each of the primary outcome variables, for each year individually and for the entire study period. One-way analyses of variance (ANOVAs) with post hoc pairwise comparisons and trend analysis investigated year-by-year changes in the prevalence of depressive symptoms and suicidal ideation. Chi-square contingency analyses investigated year-by-year changes in the severity of depressive symptoms and suicidal ideation. Independent-samples *t* tests investigated differences in symptom prevalence and suicidal ideation between first-year and non-first-year undergraduates. For each analysis, we calculated effect size estimates (η_p^2 for ANOVAs, Cohen's *d* for *t* tests, Cramer's *V* for chi-square tests).

Results

Sociodemographic characteristics

The total sample size was 3092 ($n_{2016}=1260$, $n_{2017}=956$, $n_{2018}=377$, $n_{2019}=499$), with an average age of 20.44 ± 1.47 years. All participants were from Southern African Development Community (SADC) countries, with the majority (92.15%) being South African. South African students ($M=12.78 \pm 9.89$) scored significantly higher on the BDI-II than students from other SADC countries ($M=10.85 \pm 8.76$), $t(2114)=2.44$, $p=.015$, Cohen's $d=0.21$. Of the 2455 participants for whom sex-related information was available, the vast majority were female ($n=1844$; 79.40%).

Trends over time

Prevalence of depressive symptoms. Although the overall mean BDI-II total score across the years 2016–2019 fell within the range conventionally described as 'minimal depression' (i.e., a score between 0 and 13; Beck et al., 1996), the mean score increased from year to year, so that in both 2018 and 2019, it fell within the range conventionally described as 'mild depression' (i.e., between

Table 1. Descriptive statistics: BDI-II total scores and suicidal ideation scores, 2016–2019 ($N = 3092$).

	2016	2017	2018	2019	Overall
	($n = 1260$)	($n = 956$)	($n = 377$)	($n = 499$)	($N = 3092$)
BDI-II outcome variable					
Total score	10.53 (8.66)	11.82 (9.98)	13.89 (10.34)	16.03 (10.40)	12.23 (10.40)
Suicidality (Item 9 score)	0.17 (0.39)	0.17 (0.46)	0.31 (0.57)	0.88 (0.85)	0.30 (0.59)

BDI-II = Beck Depression Inventory-Second Edition.
Means are presented with standard deviations in parentheses.

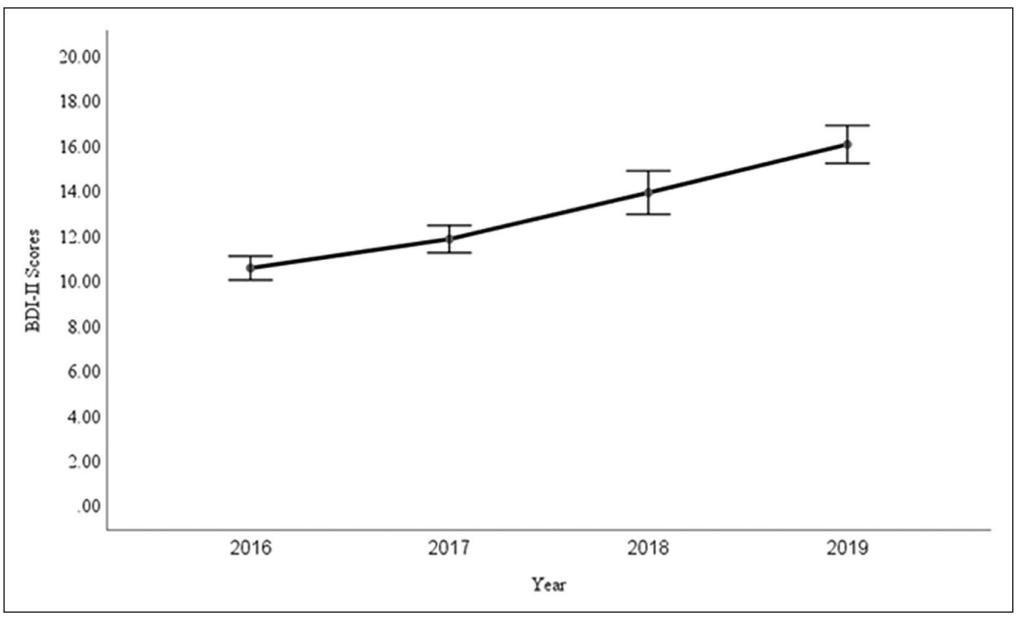

Figure 1. Beck Depression Inventory-Second Edition total scores, 2016–2019 ($N = 3092$).
$n_{2016} = 1260$, $n_{2017} = 956$, $n_{2018} = 377$, $n_{2019} = 499$. Possible score range = 0–63. Error bars are 95% confidence intervals.

14 and 19; see Table 1). This year-on-year increase was statistically significant, $F(3, 3088) = 43.75$, $p < .001$, $\eta_p^2 = .041$, as were all post hoc pairwise comparisons ($p < .05$ in each instance). Furthermore, trend analysis confirmed a linear pattern in our data: Total BDI-II scores increased significantly from 1 year to the next across all 4 years, $p < .001$ (see Figure 1).

Following precedent in the literature, we calculated for each year of data collection the proportion of individuals who reported a BDI-II total score ⩾20. These data indicated that the prevalence of BDI-defined 'moderate-severe depression' (Beck et al., 1996) increased year on year between 2016 and 2019 (2016 = 14.44%; 2017 = 19.14%; 2018 = 28.38%; 2019 = 31.66%).

Severity of depressive symptoms. The proportion of students reporting minimal depressive symptoms declined from 69.44% in 2016 to 45.90% in 2019, whereas the proportion reporting severe symptoms increased from 3.81% in 2016 to 12.63% in 2019 (see Figure 2). This change in severity across time was statistically significant, $\chi^2(3, N = 3092) = 50.00$, $p < .001$, Cramer's $V = .13$.

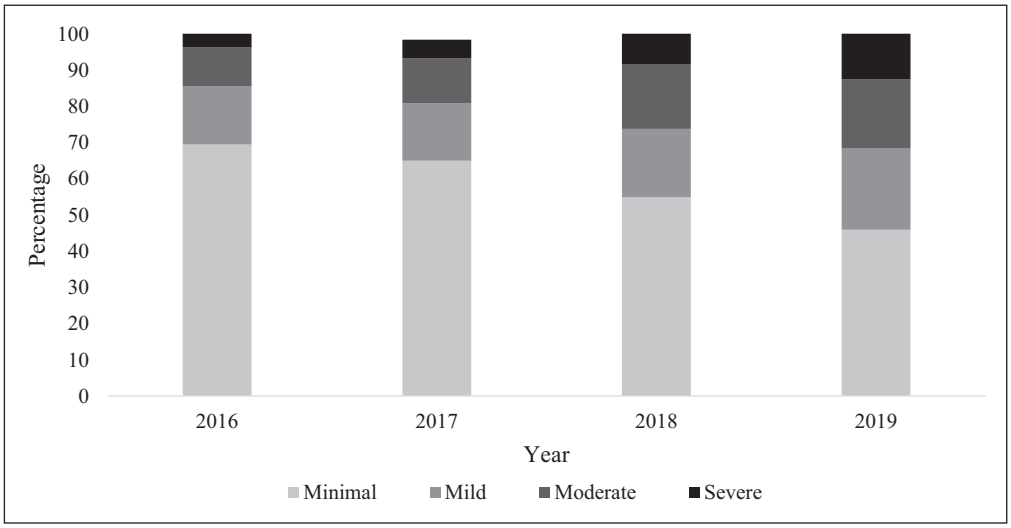

Figure 2. Distribution of Beck Depression Inventory-Second Edition total scores for the period 2016–2019 ($N = 3092$).
Scores are categorised by the conventional score ranges: minimal depression = 0–13; mild depression = 14–19; moderate depression = 20–28; severe depression = 29–63. $n_{2016} = 1260$; $n_{2017} = 956$; $n_{2018} = 377$; $n_{2019} = 499$.

Specifically, participants from the 2018 (standard residual = 2.3) and 2019 (standard residual = 4.8) subsamples were significantly more likely to report severe depressive symptoms than those from the 2016 and 2017 subsamples.

Prevalence of suicidal ideation. On average, participants did not self-report suicidal desire and intent (see Table 1). However, an omnibus ANOVA detected a significant main effect of year on BDI-II Item 9 scores, $F(3, 3088) = 243.42$, $p < .001$, $\eta_p^2 = .19$. Although suicidal ideation scores in 2016 and 2017 were not significantly different from one another, they increased significantly from 2017 to 2018 and from 2018 to 2019, $p < .001$, in each case.

Severity of suicidal ideation. The proportion of students reporting no suicidal ideation declined from 84.13% in 2016 to 39.28% in 2019, whereas the number reporting suicidal intent increased from 0.08% in 2016 to 3.61% in 2019 (see Figure 3). This change in severity of suicidal ideation across time was statistically significant, $\chi^2(3, N = 3092) = 456.76$, $p < .001$, with a moderate effect size, Cramer's $V = .38$. Severity was contingent on year, with significantly more participants reporting suicidal ideation in 2019 (standard residual = 16.6) and fewer reporting no suicidal ideation (standard residual = -9.4) than in previous years.

Differences across year of study

Across all datasets, we gathered year-of-study information for 676 participants. On average, first-year students had higher BDI-II total and suicidal ideation scores ($M = 16.42 \pm 10.22$; 0.89 ± 0.87) than non-first year students ($M = 14.66 \pm 10.32$; 0.66 ± 0.80). Both of these differences were significant, $t(674) = 2.06$, $p = .040$, Cohen's $d = 0.17$, and $t(674) = 3.32$, $p < .001$, Cohen's $d = 0.28$, respectively.

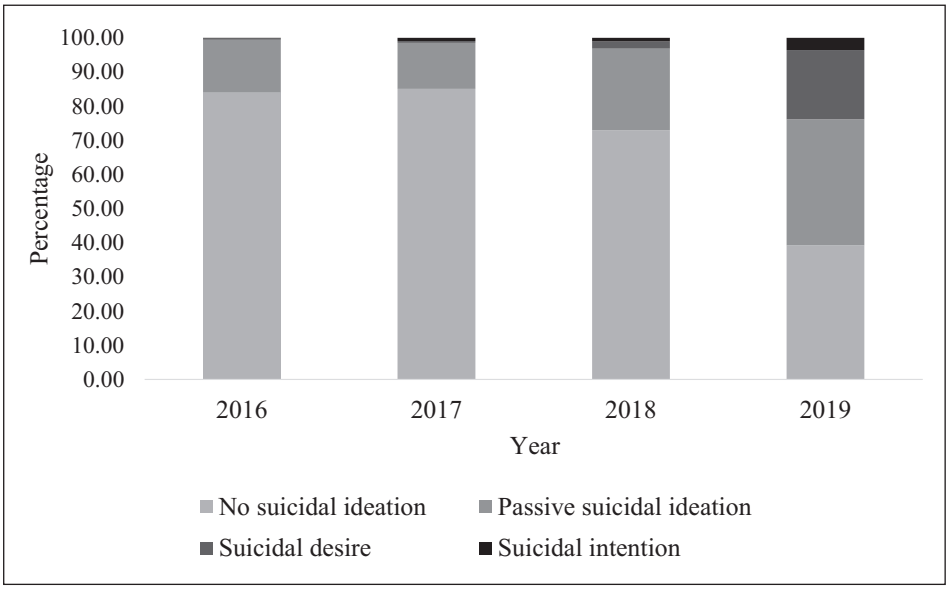

Figure 3. Distribution of suicidal ideation scores (estimated by Beck Depression Inventory-Second Edition Item 9 responses) for the period 2016–2019 ($N = 3092$).
Scores are categorised by the conventional severity ranges: no suicidal ideation = 0; passive suicidal ideation = 1; suicidal desire = 2; suicidal intent = 3. $n_{2016} = 1260$; $n_{2017} = 956$; $n_{2018} = 377$; $n_{2019} = 499$.

Discussion

The main aim of the current research was to describe, across the period 2016–2019, trends in the prevalence of depressive symptoms (estimated by total scores on the BDI-II) and suicidal ideation (estimated by scores on Item 9 of the BDI-II) in a sample of 3092 South African undergraduate students. A secondary aim was to investigate how differences in the current year of study influenced these trends.

Numerous recent studies describe consistent increases in both the prevalence and severity of depression among university students. Although these increases appear to be a global phenomenon and appear to be associated with the presence of universal early adulthood adjustment challenges and academic, financial, and interpersonal stressors, very few studies have been conducted in low- and middle-income countries (LAMICs) such as South Africa. Because students in LAMICs are more likely to be exposed to crime and trauma, and less likely to have easily accessible mental health services, their risk for depression and suicidal ideation might be higher than their counterparts in high-income countries (Hatcher et al., 2018). Hence, the current investigation of these trends in a cohort of South African undergraduates is an important addition to the literature.

Increasing depression and suicidal ideation in students

Our analyses suggested that both prevalence and severity of depression increased significantly over the period 2016–2019. On average, BDI-II total scores rose significantly year on year, in a linear trend. Furthermore, the proportion of students reporting minimal depression declined significantly from 2016 to 2019, whereas the proportion reporting severe symptoms increased significantly over the same period.

Our findings are consistent with previous foreign and South African studies that describe recent rises in the prevalence and severity of depressive symptoms among university students (see, e.g., Beiter et al., 2015; Cavanagh et al., 2016; Mungai & Bayat, 2019; Twenge et al., 2019). The trends we observed are therefore likely explained by the same underlying factors as identified in those previous studies. The increased pressures and expanded roles and responsibilities that accompany early adulthood are often associated with a spike in the appearance of mood disorders (Bantjes et al., 2016; Doyle-Baker et al., 2018). Furthermore, stressors accompanying the transition from secondary to tertiary education further elevate the risk of depression (Ibrahim et al., 2013; Sivertsen et al., 2019; Young & Campbell, 2014). Particular challenges facing undergraduates include academic stress, lack of familiar social support structures, increased cognitive demands, and concerns about prospects for post-graduate study and job attainment (Mall et al., 2018).

An additional factor that might be particularly salient in the rising prevalence of depression among university students relates to the notion that the disorder is a 'disease of modernity' (Hidaka, 2012, p. 206). That is to say, its prevalence has increased over time because modern society (especially in highly industrialised countries) is characterised by an unhealthy environmental mix of economic inequality, competition for financial security, sleep deprivation, and loneliness. In many LAMICs, including South Africa, modernisation is accompanied by even more stark disparities in socioeconomic status, pervasive violent crime, and a relatively high likelihood of exposure to traumatic events (Hatcher et al., 2018; Mall et al., 2018; Todd & Teitler, 2018).

Although exposure to such environmental factors increases the risk of depression in all individuals, university students have a particular vulnerability to the negative impacts of said modernity (Bantjes et al., 2016; Ghaedi & Kosnin, 2014). The contemporary university environment is a concentrated amalgam of these toxic characteristics. For example, many students are in unstable financial situations (Doyle-Baker et al., 2018). This economic factor is particularly pertinent in the landscape of South African universities, which have become increasingly accessible to individuals from lower income strata and which therefore house more and more students who battle financial stressors as they attempt to graduate (Lekena & Bayaga, 2018). Moreover, the manner and frequency with which students tend to use technology and social media correlates with disrupted sleep quality, less social interaction, and a sedentary lifestyle, each of which is a risk factor for manifestation and maintenance of depressive symptoms and, in some cases, suicidal ideation (Lawson et al., 2019; Peltzer et al., 2017; Wei-Lin & Jen-Hao, 2019).

Our analyses also confirmed the a priori expectation of increased prevalence and severity of suicidal ideation over the 4 years under consideration. On average, BDI-estimated suicidal ideation scores increased significantly, especially from 2017 to 2019. Moreover, the proportion of students reporting no suicidal ideation declined significantly from 2016 to 2019, whereas the proportion reporting suicidal intent increased significantly over the same period.

These results are consistent with numerous studies suggesting that characteristics of modernity have had a particularly significant effect on suicidal ideation in young adults (see, e.g., Naghavi, 2019; Sivertsen et al., 2019; Twenge et al., 2019). Moreover, common risk factors for suicidal ideation and intention (e.g., early adulthood adjustment, exposure to illicit substances, and relationship changes) are often a part of the normal student experience (Sivertsen et al., 2019; Taliaferro & Muehlenkamp, 2015).

The raw numbers suggest that the actual prevalence of suicidal ideation in the sample was quite low. For instance, even at its highest point in 2019, only 18 students (3.61% of the sample) self-reported the presence of frank suicidal intent, and across the period 2016–2019, the average score for the BDI-II suicidal ideation item was much closer to 0 (no suicidal ideation) than to 3 (suicidal intent). Bantjes et al. (2016) found, in their cross-sectional study of 1337 South African undergraduates to whom they administered Item 9 of the BDI-II, a similar pattern of low raw numbers

and low average scores. As they did, we submit that despite these seemingly trivial prevalence rates, one should not underestimate the significance of the increasing frequency of students reporting suicidal intent. Not only should any report of suicidal ideation, at any level, be taken as an indication of severe mental distress, but any cognition surrounding suicide is predictive of later suicide attempts and death by suicide (Sivertsen et al., 2019).

Early undergraduate vulnerability

Our analyses suggested that first-year undergraduate students are more vulnerable to depression and suicidal ideation than their peers in later years of study. On average, first years had significantly higher BDI-II total scores and significantly higher BDI-II Item 9 scores than students in subsequent years of study. Our findings are consistent with previous research on early undergraduate vulnerability and suicidal ideation in university students (see, e.g., Bantjes et al., 2016; Pluut et al., 2015; Sivertsen et al., 2019).

One explanation for this pattern of data is that, for many undergraduate students, the stressors mentioned previously (e.g., those related to early adulthood adjustment and the demands of the university environment) are particularly salient in the first year of study when they have not developed the requisite coping skills and when they may be less certain of their future than students in subsequent years of study (Mall et al., 2018; Young & Campbell, 2014). An alternative explanation relates to the notion of attrition: The cohort of upper level undergraduates may represent those who have adjusted successfully to the university environment (i.e., those who did not drop out during or shortly after their first year of study) and who therefore display fewer and/or less-severe symptoms of depression and suicidal ideation (see, e.g., Beyers & Joubert, 2016).

Despite the substantial contribution our findings make to this field, we acknowledge the following limitations of the study's methods. First, the sample consisted of three times more women than men. Hence, the study might not have adequately captured male experiences of depression. This disparity in our sample also explains why we did not investigate sex-based trends. Second, both archival and original data were collected using convenience sampling (i.e., studies recruited volunteers from the UCT Department of Psychology). As Sivertsen et al. (2019) suggest, a reliance on convenience sampling may underestimate actual prevalence rates in student populations because those that are more depressed are less likely to volunteer (see also Ibrahim et al., 2013). Third, all our data were gathered using a single instrument, the BDI-II. Although this instrument is used globally and is the recommended self-report depressive scale for *DSM*-5 MDD (APA, 2013), its self-report nature means it may not yield the most accurate behavioural data (Althubaiti, 2016; Lipinska & Thomas, 2017). Fourth, we cannot rule out the possibilities that (a) some students may have provided data for more than one of the archival studies, and (b) some of those studies may have collected data during exam periods or at other highly stressful times (e.g., during university-wide protests, or while particular residences were attempting to cope with the aftermath of a student suicide). Because participants did not answer questions about which particular occurrences (personal struggles, broad campus-based events) were affecting their mood, going beyond a description of the trends (e.g., attempting to find reasons for the observed increase in depression prevalence by examining campus-based events) would have required inferential leaps that our data do not support. In short, it is beyond the scope of this article to make detailed contextualised interpretations of the data.

Conclusion

This research contributes to the scientific literature describing an increasing prevalence of student mental health difficulties. More than simply reaffirming the results from previously published

studies, most of which adopted cross-sectional designs and were conducted in high-income countries of the global north, our research is novel and significant in that we analysed a large sample of longitudinal data collected from African university students. Our results suggested that, among a sample of 3092 undergraduate students at a South African university, the prevalence and severity of both depression and suicidal ideation increased over the period 2016–2019. First-year students reported significantly higher rates of depression and significantly higher rates of suicidal ideation than students in subsequent years of study.

Our findings confirm the need for concern about the mental health of South African university students, especially those in their first year of study. In light of this early undergraduate vulnerability, supportive efforts focused on intervention during orientation programmes may be helpful.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Kim-Louise Rousseau https://orcid.org/0000-0001-9530-2375
Kevin GF Thomas https://orcid.org/0000-0002-0807-6101

References

Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare*, *9*, 211–217. https://doi.org/10.2147/JMDH.S104807

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.

Bantjes, J., Kagee, A., McGowan, T., & Steel, H. (2016). Symptoms of posttraumatic stress, depression and anxiety as predictors of suicidal ideation among South African university students. *Journal of American College Health*, *64*(6), 429–437. https://doi.org/10.1080/07448481.2016.1178120

Bantjes, J., Lochner, C., Saal, W., Roos, J., Taljaard, L., Page, D., Auerbach, R., Mortier, P., Bruffaerts, R., Kessler, R., & Stein, D. (2019). Prevalence and sociodemographic correlates of common mental disorders among first-year university students in post-apartheid South Africa: Implications for a public mental health approach to student wellness. *BMC Public Health*, *19*, Article 922. https://doi.org/10.1186/s12889-019-7218-y

Beck, A., Steer, R., & Brown, G. (1996). *Beck Depression Inventory manual* (2nd ed.). Psychological Corporation.

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahn, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*, *173*, 90–96. https://doi.org/10.1016/j.jad.2014.10.054

Beyers, C., & Joubert, H. (2016). Investigating health factors as predictor of early dropout of first year accounting students at the University of the Free State. *Afrika Focus*, *29*, 9–20. https://doi.org/10.21825/af.v29i2.4729

Cavanagh, A., Caputi, P., Wilson, C., & Kavanagh, D. (2016). Gender differences in self-reported depression and co-occurring anxiety in a vulnerable community population. *Australian Psychologist*, *51*(6), 411–421. https://doi.org/10.1111/ap.12184

Cuijpers, P., Auerbach, R., Benjet, C., Bruffaerts, R., Ebert, D., Karyotaki, E., & Kessler, R. (2019). The World Health Organization World Mental Health International College Student initiative: An overview. *International Journal of Methods in Psychiatric Research*, *28*(2), Article e1761. https://doi.org/10.1002/mpr.1761

Davey, G. (2014). *Psychopathology: Research, assessment and treatment in clinical psychology* (2nd ed.). John Wiley & Sons.

Doyle-Baker, P., Verge, K., McClelland, L., & Fung, T. (2018). First year university students self-reported health outcomes over an academic semester. *Journal of Behaviour Therapy and Mental Health*, *2*(1), 21–29. https://doi.org/10.14302/issn.2474-9273.jbtm-18-2348

Erford, B., Johnson, E., & Bardoshi, G. (2016). Meta-analysis of the English version of the Beck Depression Inventory-Second Edition. *Measurement and Evaluation in Counseling and Development*, *49*(1), 3–33. https://doi.org/10.1177/0748175615596783

Ferrari, A., Charlson, F., Norman, R., Patten, S., Freedman, G., Murray, C., Vos, T., & Whiteford, H. (2013). Burden of depressive disorders by country, sex, age, and year: Findings from the global burden of disease study 2010. *PLOS Medicine*, *10*(1), Article e1001547. https://doi.org/10.1371/journal.pmed.1001547

Ghaedi, L., & Kosnin, A. (2014). Prevalence of depression among undergraduate students: Gender and age differences. *International Journal of Psychological Research*, *7*(2), 38–50. https://doi.org/10.21500/20112084.657

Hatcher, A., Gibbs, A., Jewkes, R., McBride, R., Peacock, D., & Christofides, N. (2018). Effect of childhood poverty and trauma on adult depressive symptoms among young men in peri-urban South African settlements. *Journal of Adolescent Health*, *64*(1), 79–85. https://doi.org/10.1016/j.jadohealth.2018.07.026

Hidaka, B. (2012). Depression as a disease of modernity: Explanations for increasing prevalence. *Journal of Affective Disorders*, *140*(3), 205–214. https://doi.org/10.1016/j.jad.2011.12.036

Ibrahim, A., Kelly, S., Adams, C., & Glazebrook, C. (2013). A systematic review of depression prevalence in university students. *Journal of Psychiatric Research*, *47*(3), 391–400. https://doi.org/10.1016/j.jpsychires.2012.11.015

Kessler, R., Amminger, G., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustun, T. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinions in Psychiatry*, *20*(4), 359–364. https://doi.org/10.1097/YCO.0b013e32816ebc8c

Kessler, R., McGonagle, K., Zhao, S., Nelson, C., Hughes, M., Eshleman, S., Wittchen, H., & Kendler, K. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry*, *51*(1), 8–19. https://doi.org/10.1001/archpsyc.1994.03950010008002

Kirsch, D., Doerfler, L., & Truong, D. (2015). Mental health issues among college students: Who gets referred for psychopharmacology evaluation? *Journal of American College Health*, *63*(1), 50–57. https://doi.org/10.1080/07448481.2014.960423

Lawson, H. J., Wellens-Mensah, J. T., & Nantogma, S. A. (2019). Evaluation of sleep patterns and self-reported academic performance among medical students at the University of Ghana School of Medicine and Dentistry. *Sleep Disorders*, 2019, *1278579*. https://doi.org/10.1155/2019/1278579

Lekena, L., & Bayaga, A. (2018). Trend analysis of first-year student experience in university. *South African Journal of Higher Education*, *32*(2), 157–175. https://doi.org/10.20853/32-2-1934

Lépine, J., & Briley, M. (2011). The increasing burden of depression. *Neuropsychiatric Disease and Treatment*, *7*(1), 3–7. https://doi.org/10.2147/NDT.S19617

Lim, G., Tam, W., Lu, Y., Ho, C., Zhang, M., & Ho, R. (2018). Prevalence of depression in the community from 30 countries between 1994 and 2014. *Scientific Reports*, *8*, Article 2861. https://doi.org/10.1038/s41598-018-21243-x

Lipinska, G., & Thomas, K. (2017). Better sleep in a strange bed? Sleep quality in South African women with posttraumatic stress disorder. *Frontiers in Psychology*, 8, Article 1555. https://doi.org/10.3389/fpsyg.2017.01555

Lochner, C., Roos, J., Taljaard, L., Bantjes, J., Saal, W., & Stein, D. (2018). *The Caring Universities Project* [Paper presentation]. The SU DSAf Research Programme.

Makhubela, M. (2016). Measurement invariance of the Beck Depression Inventory-Second Edition across race with South African university students. *South African Journal of Psychology*, *46*(4), 449–461. https://doi.org/10.1177/0081246316645045

Makhubela, M., & Debusho, L. (2016). Factorial invariance and latent mean differences of the Beck Depression Inventory-Second Edition across gender in South African university students. *Journal of Psychology in Africa*, *26*(6), 522–526. https://doi.org/10.1080/14330237.2016.1219555

Makhubela, M., & Mashegoane, S. (2016). Validation of the Beck Depression Inventory-II in South Africa: Factorial validity and longitudinal measurement invariance in university students. *South African Journal of Psychology*, *46*(2), 203–217. https://doi.org/10.1177/0081246315611016

Mall, S., Mortier, P., Taljaard, L., Roos, J., Stein, D., & Lochner, C. (2018). The relationship between childhood adversity, recent stressors, and depression in college students attending a South African University. *BMC Psychiatry*, 18(1), Article 63. https://doi.org/10.1186/s12888-017-1583-9

Mungai, K., & Bayat, A. (2019). An overview of trends in depressive symptoms in South Africa. *South African Journal of Psychology*, *49*(4), 518–535. https://doi.org/10.1177/0081246318823580

Naghavi, M. (2019). Global, regional, and national burden of suicide morality 1990 to 2016: Systematic analysis for the Global Burden of Disease Study 2016. *British Medical Journal*, *364*, Article l94. https://doi.org/10.1136/bmj.l94

Ngin, C., Pal, K., Tuot, S., Chhoun, P., Yi, R., & Yi, S. (2018). Social and behavioural factors associated with depressive symptoms among university students in Cambodia: A cross-sectional study. *BMJ Open*, 8, Article e019918. https://doi.org/10.1136/bmjopen-2017-019918

Peltzer, K., Pengpid, S., & Sodi, T. (2017). Happiness and health behaviours among university students from 24 LAMICs. *Journal of Psychology in Africa*, *27*(1), 61–68. https://doi.org/10.1080/14330237.2016.1219556

Pluut, H., Curseu, P., & Ilies, R. (2015). Social and study related stressors and resources among university entrants: Effects on well-being and academic performance. *Learning and Individual Differences*, *37*, 262–268. https://doi.org/10.1016/j.lindif.2014.11.018

Schreiber, B. (2018). Mental health at universities: Universities are not in loco parentis – Students are active partners in mental health. *Journal of Student Affairs in Africa*, *6*(2), 121–127. https://doi.org/10.24085/jsaa.v6i2.3318

Sivertsen, B., Hysing, M., Knapstad, M., Harvey, A., Reneflot, A., Lonning, K., & Connor, R. (2019). Suicide attempts and non-suicidal self-harm among university students: Prevalence study. *BJPsych Open*, *5*(2), Article e26. https://doi.org/10.1192/bjo.2019.4

Sui, X., Massar, K., Kessels, L., Reddy, P., Ruiter, R., & Sanders-Phillips, K. (2018). Violence exposure in South African Adolescents: Differential and cumulative effects on psychological functioning. *Journal of Interpersonal Violence*, 1–27. Advance online publication. https://doi.org/10.1177/0886260518788363

Taliaferro, L. A., & Muehlenkamp, J. J. (2015). Risk factors associated with self-injurious behavior among a national sample of undergraduate college students. *Journal of American College Health*, *63*(1), 40–48. https://doi.org/10.1080/07448481.2014.953166

Todd, M., & Teitler, J. (2018). Darker days? Recent trends in depression disparities among US adults. *American Journal of Orthopsychiatry*, *89*(6), 727–735. https://doi.org/10.1037/ort0000370

Twenge, J., Cooper, A., Joiner, T., Duffy, M., & Binau, S. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005-2017. *Journal of Abnormal Psychology*, *128*(3), 185–199. https://doi.org/10.1037.abn0000410.supp

Vos, T., Abajobir, A., Abate, K., Abbafati, C., Abbas, K., Abd-Allah, F., Abdulkader, R., Abdulle, A., Abebo, T., Abera, S., Aboyans, V., Abu-Raddad, L., Ackerman, I., Adamu, A., Adetokunboh, O., Afarideh, M., Afshin, A., Agarwal, S., Aggarwal, R., . . . Murray, C. (2017). Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *Global Health Metrics*, *390*(10100), 1211–1259. https://doi.org/10.1016/S0140-6736(17)32154-2

Wei-Lin, C., & Jen-Hao, C. (2019). Consequences of inadequate sleep during the college years: Sleep deprivation, grade point average, and college graduation. *Preventive Medicine*, *124*, 23–28. https://doi.org/10.1016/j.ypmed.2019.04.017

World Health Organization. (2004). *The global burden of disease: 2004 update*. http://www.who.int/entity/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf

World Health Organization. (2017). *Depression and other common mental disorders: Global health estimates*. https://www.who.int/mental_health/management/depression/prevalence_global_health_estimates/en/

World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *Journal of the American Medical Association*, *310*(20), 2191–2194. https://doi.org/10.1001/jama.2013.281053

Young, C., & Campbell, M. (2014). Student wellbeing at a university in post-apartheid South Africa: A comparison with a British university sample using the GP-CORE measure. *British Journal of Guidance & Counselling*, *42*(4), 359–371. https://doi.org/10.1080/03069885.2013.779638