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Impact of COVID-19 on the Mental Health of Academic Staff: A Cross-Sectional Study at a Higher Education Institution in Lusaka, Zambia

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Abstract **Original Research Article**

Background*:** The emergence of the coronavirus disease 2019 (COVID-19) posed problems to the educational sector and led to the closure of universities. This study assessed the psychological impact of COVID-19 on the mental health of academic staff at the University of Zambia. ***Methods: This cross-sectional study was conducted among 392 academic staff at the University of Zambia from August 2022 to September 2022 using the English version of the Hospital Anxiety Depression Scale (HADS). Data were analysed using SPSS version 28. Factors associated with anxiety and depression were determined by logistic regression analysis. ***Results*:** Of the 392 participants, 57.1% were males. The prevalence of anxiety was 89.5% while depression was 94.4%. Factors associated with anxiety included being a widow (AOR=13.5, 95% CI: 1.28-140.79), married (AOR=3.96, 95% CI: 1.11-14.25), and being negatively impacted by the physical closure of classes (AOR=3.67, 95% CI: 1.6-8.45). Finally, having a chronic condition compared was associated with reduced odds of suffering from depression (AOR=0.37, 95% CI: 0.14-0.99). ***Conclusions*:** Academic staff at the University of Zambia experienced significant anxiety and depression during the COVID-19 pandemic. These results form a basis for future interventions to protect the mental health of academic staff at the University of Zambia.

Keywords: academic staff, anxiety, COVID-19, depression, mental health, Zambia.

BACKGROUND

The coronavirus disease (COVID-19) is a viral disease caused by severe acute respiratory syndrome coronavirus two (SARS-COV-2) [1, 2], and was declared a pandemic by the World Health Organization (WHO) on 11th March 2020 due to its ease of transmission, rapid spread, and increased morbidity and mortality [3, 4]. Universities and colleges experienced significant disruptions in educational activities due to the pandemic [5, 6], which led to their closure to prevent further transmission of the virus [7, 8].

The closure of universities led to the cancellation of face-to-face learning, examinations, laboratory and practical sessions, graduation ceremonies, and official student extracurricular activities such as, but not limited to sports [5-10]. This shifted the mode of teaching and learning from traditional face-to-face methods to online learning [11, 12]. The change from face-to-face learning to online learning coupled with individual experiences including having friends or relatives sick of COVID-19, the death of loved ones, and lockdowns caused university students and lecturers to suffer from mental health problems [10]. Studies have shown that university students experienced anxiety, depression, and stress during the COVID-19 pandemic [13–15]. Studies conducted globally have reported that higher education educators also experienced stress, anxiety, and depression [16, 17]. Academic members of

staff in institutions of higher learning have faced unique challenges due to the abrupt transition to remote teaching, a sudden need to adopt new technological methods to deliver learning, disrupted research activities, increased workload, heightened uncertainty, and concerns about family and self-health [18–20].

In Zambia, some studies have reported mental health problems that students and the general population experienced due to COVID-19 [15-22]. However, there is little information about the impact of COVID-19 on the mental health of academic staff members in institutions of higher education. Therefore, this study evaluated the effect of COVID-19 on the mental health of academic staff at a higher education institution in Lusaka, Zambia.

MATERIALS AND METHODS

Study Design, Site and Population

This cross-sectional study was conducted among University of Zambia academic staff members. To be eligible, a participant had to be a lecturer at the University of Zambia and provided consent to participate in the study. The University of Zambia is the country's largest institution of higher education with various schools offering healthcare and non-healthcare courses [23].

Sample Size Estimation and Sampling Criteria

The sample size was estimated using Yamane's formula as reported by Charan and Biswas [24]. Since no previous study on the effect of COVID-19 on the mental health of academic staff at a higher education institution in Zambia was published during the data collection period, the authors assumed a conservative 50% prevalence. There was an estimated population of 807 academic staff at the University of Zambia and considering a margin of error of 5%, a minimum sample size of 268 was calculated. The researchers took into consideration a non-response rate of 10% and estimated the final sample size as 295. Participants were sampled conveniently based on those who were available during the COVID-19 pandemic because most members of staff were using blended teaching as was recommended by the institution. A total of 400 participants were invited to take part in the study.

Data Collection

Data were collected from August 2022 to September 2022, using a paper-based study instrument. Sociodemographic data of the participants, as well as information on anxiety and depression, were collected. The instrument used was a validated English version of the Hospital, Anxiety, and Depression Scale (HADS) [25, 26]. The HADS is reliable and valid for determining levels of anxiety and depression [25-28]. Additionally, other authors successfully used the HADS to determine anxiety and depression levels during the COVID-19 pandemic [29, 30]. The instrument had four sections including Section A which consisted of questions on sociodemographic characteristics of participants; Section B consisting of questions on anxiety levels; Section C consisting of questions on depression levels, and Section D comprises questions on the experiences of participants during the COVID-19 pandemic. The Cronbach's alpha coefficient for anxiety was 0.73 and that for depression was 0.77, indicating an acceptable rate as previously shown [28].

Data processing

The HADS has a minimum of 0 and a maximum of 21 scores. The anxiety and depression levels were categorised as normal (0-7 scores), mild (8-10 scores), and moderate-severe (11-21 scores) [25].

Ethics Considerations

The study proposal was reviewed and approved by the University of Zambia's Health Sciences Research Ethics Committee (UNZAHREC) under protocol approval number 2022112301182. The purpose of the research was communicated to the participants through an information sheet. Privacy, confidentiality, and anonymity of the participants were adhered to throughout the study period in line with the ethical principles in research. Furthermore, to ensure anonymity, all study participants were assigned study numbers and no names were used. There were no threats or hazards to the participants because there was no direct engagement.

Data Analysis

The collected data were entered into Microsoft Excel, cleaned, coded and thereafter exported to the Statistical Package for Social Sciences (SPSS) version 28, for analysis. Descriptive statistics of sociodemographic characteristics, levels of anxiety and depression, and factors influencing anxiety and depression were done and summarised using frequencies and percentages. Secondly, Pearson's Chi-square was used to examine the relationship between levels of anxiety and depression with all other independent factors, including (sociodemographics and factors influencing mental health). Lastly, to identify factors associated with mental health and control for confounding factors, univariate and multivariate logistic regression were fitted. In the univariate analysis, all predictor variables whose p-values were at least 0.2 (20%) or less were selected for modelling into the multivariate logistic regression. Adjusted odds ratios and 95% confidence intervals were reported in the logistic regression analysis after controlling for confounding factors. For all statistical analyses, the significance of the findings was determined at a 95% confidence level with a $p<0.05$.

RESULTS

Sociodemographic Characteristics of Participants (N=392)

Sociodemographic characteristics of study participants

Of a total of 400 University of Zambia academic staff members that were invited to participate in this study, 392 participated giving a response rate of 98.0%. The majority (n = 315, 80.3%) of the participants were between 34 and 49 years old. Most of the study participants were male (n = 240, 57.1%), 289 (73.7%) were Christians, 307 (78.3%) were married, 370 (94.4%) lived in urban areas, and 207 (52.8%) taught non-health courses (Table 1).

Table 1: Sociodemographic characteristics of Study Participants (N= 392)

Variables	Frequency (n)	Percentage (%)
Age category (years)		
26-33	4	1.0
34-41	155	39.6
42-49	160	40.8
50 and above	73	18.6
Sex		
Female	168	42.9
Male	224	57.1
Religion		
Christianity	289	73.7
Islamic	27	6.9
Hinduism	19	4.9
Others	57	14.5
Marital status		
Single	13	3.3
Divorced	39	10.0
Widowed	33	8.4
Married	307	78.3
Residence		
Rural-urban	22	5.6
Urban	370	94.4
Courses Taught		
Non-health	207	52.8
Health	108	27.6
Both health and non-health	77	19.6

Experiences of Participants during the COVID-19 Pandemic

One hundred and five (26.8%) participants suffered from COVID-19 while 142 (36.2% had a friend or relative who had suffered from COVID-19. A total of 91 (23.2%) participants practised physical and social distancing. Most participants (n = 354, 90.3%) were negatively affected by the closure of schools. The experiences of participants during the COVID-19 pandemic are shown in Table 2.

Table 2: Experiences of participants during the COVID-19 pandemic (N=392)

Variables	Frequency (n)	Percentage (%)
Suffered from COVID-19		
No	201	51.3
Yes	105	26.8
Maybe	86	21.9
Friend or relative had COVID-19		
No	183	46.7
Yes	142	36.2
Maybe	67	17.1
A friend or relative died from COVID-19		
No	239	61.0
Yes	87	22.2
Maybe	66	16.8
Quarantined due to COVID-19		
No	294	75.0

Variables	Frequency (n)	Percentage (%)
Yes	98	25.0
Practiced physical/social distancing		
No	87	22.2
Yes	256	65.3
Maybe	49	12.5
COVID-19 prevention measures are stressful to follow		
No	236	60.2
Yes	91	23.2
Maybe	65	16.6
Have a mental health problem		
No	390	99.5
Yes	2	.5
Had any chronic condition		
No	341	87.0
Yes	51	13.0
Income was affected due to COVID-19		
No	255	65.1
Yes	60	15.3
Maybe	77	19.6
Closure of physical classes had a negative impact		
No	38	9.7
Yes	354	90.3

Most of the participants experienced mild anxiety (53.8%) and moderate-severe depression (64.5%) (Table 3).

Table 3: Overall anxiety and depression levels of participants

Mental health	None, n (%)	Mild, n (%)	Moderate-severe, n (%)	Total, n (%)
Anxiety	41 (10.5)	211 (53.8)	140 (35.7)	351 (89.5)
Depression	22 (5.6)	117 (29.8)	253 (64.5)	370 (94.3)

Factors That Influenced Anxiety among Participants

The factors that influenced anxiety among participants are shown in Table 4. Academic staff who were widowed (AOR=13.45, 95% CI 1.28-140.79) and those who were married (AOR=3.97, 95% CI: (1.11-14.25) were more likely to have anxiety than their unmarried counterparts. Additionally, those who were negatively impacted by the physical closure of the university were more likely to have anxiety than those who were not (AOR=3.67, 95% CI: 1.60-8.45).

Table 4: Factors influencing anxiety among participants

Anxiety	Univariate Logistic Regression				Multivariate Logistic Regression			
Variables	*p*-value	COR	95% CI of COR		*p*-value	AOR	95% CI of AOR	
			Lower	Upper			Lower	Upper
Gender								
Male	Ref							
Female	0.067	1.93	0.96	3.91	0.074	1.93	0.94	3.99
Marital status								
Single	Ref							
Divorced	0.232	2.44	0.57	10.57	0.297	2.24	0.49	10.16
Widowed	0.024	14.22	1.41	143.67	0.030	13.45	1.28	140.79*
Married	0.025	4.10	1.19	14.13	0.034	3.97	1.11	14.25*
Closure of physical classes had a negative impact								
No	Ref							
Yes	0.001	3.72	1.65	8.37	0.002	3.67	1.60	8.45*

Key: AOR = Adjusted odds ratio, CI = Confidence interval, and COR = Crude odds ratio.
*Factors significantly associated with Anxiety after adjusting for gender.

Factors That Influenced Depression among Participants

The factors associated with anxiety are shown in Table 5. Academic staff who suffered from a chronic condition had reduced odds of experiencing depression than those who did not have a chronic condition (AOR=0.37, 95% CI: 0.14-0.99).

Table 5: Factors influencing depression among participants

Depression	**Univariate Logistic Regression**				**Multivariate Logistic Regression**			
Variables	*p*-value	COR	95% CI of COR		*p*-value	AOR	95% CI of AOR	
			Lower	Upper			Lower	Upper
Gender								
Female	0.136	2.08	0.79	5.43	0.162	2.0	0.8	5.3
Male	Ref							
Courses Taught								
Non-health	0.281	0.43	0.09	1.98	0.251	0.40	0.09	1.90
Health	0.172	0.33	0.07	1.62	0.326	0.44	0.09	2.25
Both health and non-health	Ref							
A friend or relative died of COVID-19								
No	Ref							
Yes	0.122	2.29	0.80	6.55	0.704	0.80	0.25	2.56
Maybe	0.618	1.35	0.41	4.39	0.411	0.62	0.20	1.94
Had any chronic condition								
No	Ref							
Yes	0.048	0.37	0.14	0.99	0.048	0.37	0.14	0.99*
Income was affected due to COVID-19								
No	Ref							
Yes	0.445	0.63	0.19	2.06	0.719	0.79	0.22	2.86
Maybe	0.113	0.45	0.17	1.21	0.225	0.53	0.19	1.49

Key: AOR = Adjusted odds ratio, CI = Confidence interval, and COR = Crude odds ratio.
*Factors significantly associated with Anxiety after adjusting for gender.

DISCUSSION

To the best of our knowledge, this was the first study to investigate the psychological impact of COVID-19 among university academic staff in Zambia. This study found that the prevalence of anxiety and depression among academic staff was 89.5% and 94.4%, respectively. Anxiety was positively associated with those who were married, widowed, and negatively affected by the physical closure of the university. Participants who had a chronic condition were less likely to have depression.

This study found that 89.5% of academic staff experienced anxiety (53.8% mild, and 35.7% moderate to severe). Our findings are comparable with those reported in Spain in which 34.19% of participants experienced moderate to severe anxiety [31]. Additionally, a study in Poland found that 50.71% of teachers experienced mild anxiety [32]. However, a lower moderate to severe anxiety of 18.7% was reported among Canadian school staff and teachers during the COVID-19 pandemic [33]. A study in Portugal also reported lower levels of anxiety among university lecturers [20]. The reported anxiety among university members of staff could partially be attributed to the closure of universities and colleges [7].

Our study also revealed that 94.4% (370/392) of academic staff experienced depression (29.8% mild and 64.5% moderate to severe). The prevalence of depression reported in our study was higher than those found in other studies [17,20,31,34–36]. In Canada, only 5.8% of school staff and teachers have experienced depression during the COVID-19 pandemic [33]. Similarly, a lower level of depression has been reported among Portuguese lecturers [20]. These findings could be attributed to stressful lecturing and the experience of negative emotions including fear, anger and frustration during the pandemic [32]. The fear of contracting COVID-19, socio-economic collapse, and worries have contributed to the depression that university staff faced [37]. Furthermore, the closure of physical classrooms also contributed to the mental health problems experienced by staff and students during the COVID-19 pandemic [7].

In the multivariate analysis, we found that married participants were about 4 times more likely to experience anxiety than those of single marital status. This finding is comparable to studies conducted in Malaysia, which reported that lecturers who were married were more likely to develop mental health problems than those who were single [20-38]. This could be attributed to increased family burdens and other societal burdens related to being married that they experienced during the pandemic.

Our study further revealed that academic members of staff who had chronic conditions were less likely to develop depression than their counterparts who did not have any chronic conditions. However, our findings are in contrast with a previous investigation that was conducted in Spain, which identified chronic conditions as a contributing factor to mental health issues during the COVID-19 pandemic [39]. The rationale behind this disparity lies in the clinical implications of chronic conditions, which escalate the morbidity and mortality rates associated with COVID-19. Consequently, individuals afflicted with such conditions experience heightened anxiety-driven in part by media information on disproportionate mortality among this risk group [40].

The high prevalence of depression among academic staff calls for close collaboration among those involved in teaching and learning, and university administrative authorities to institute mental health interventions that can adequately prepare university academic staff for future pandemics.

The findings of this study shed light on the significant mental health challenges faced by academic staff at the University of Zambia during the COVID-19 pandemic. The identification of specific risk factors, such as marital status and closure of physical classes, provides valuable insights for developing targeted interventions to mitigate anxiety among the affected individuals. Moreover, the protective role of chronic conditions against depression highlights the need for a holistic approach to mental health support. The results underscore the urgency of formulating comprehensive guidelines that address the unique needs of academic staff, ensuring their well-being and fostering a supportive environment. By implementing evidence-based interventions and guidelines, the University of Zambia can effectively support the mental health of its academic staff and promote a culture of well-being in its academic community.

CONCLUSION

This study found high levels of anxiety and depression among academic members of staff at the University of Zambia. Being widowed, married, and closure of physical classes were risk factors for anxiety, while those who had chronic conditions were less likely to be depressed than their counterparts with no chronic conditions. These results form the basis for future interventions and formulation of guidelines for the mental health of university lecturers in Zambia.

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