Prevalence and Determinants of Depressive Disorders among PhD Students at a Local University in Masvingo, Zimbabwe

Wilfred Chinhanho

Lecturer, Department of Psychology, Julius Nyerere School of Social Sciences; Great Zimbabwe University

Abstract

Research on mental wellbeing among university students has predominantly focused on experiences of undergraduate students while overlooking doctoral students. This study sought to examine the prevalence and determinants of depressive disorders, as well as coping strategies employed by PhD students at Great Zimbabwe University in Masvingo, Zimbabwe. A convergent mixed methods research design, wherein both quantitative and qualitative data were collected simultaneously in a single-phase approach, was utilised on a convenience sample of 20 PhD students. Quantitative data were collected through a self-administered survey instrument comprising: (i) a socio-demographic questionnaire and, (ii) the patient health questionnaire (PHQ-9) to screen for depression; while qualitative data were collected through in-depth interviews using a semi-structured interview guide. Quantitative data were statistically analysed, while qualitative data was thematically analysed to examine the prevalence, determinants and coping strategies for depression respectively. Findings revealed a moderate prevalence of depressive disorders among PhD students; while the university environment, high academic work-loads, financial hardships, lack of student support services, and concerns about an uncertain job market and future, were the key determinants precipitating depressive symptoms. On coping strategies, participants indicated that they sought family support, turn to religion, and talk over their feelings with friends or partners when they feel stressed rather than wait for physical problems to develop. The study recommends that universities should offer comprehensive psycho-social support to PhD students and that supervisors should strive to make use of participatory approaches that improve the mastery of new skills and performance of PhD students.

Keywords: depressive disorders, determinants, coping, PhD students.

Introduction

Mental health is just as important as physical health. It is considered an indispensable component of health by the World Health Organisation (WHO, 2017). Psychological and mental health problems among university students are identified as an escalating public health

problem worldwide (Aljaber, 2020; January, Madhombiro, Chipamaunga, Ray, Chingono & Abas, 2018). Studies have established that university students are more susceptible to depression and anxiety than the general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013). However, previous studies have tended to focus on either medical students only or undergraduate university students, and have largely ignored PhD research scholars. Lavecque, Anseel, De Beuckelaer, Van der Heyden and Gisle (2017) contend that the mental health and well-being of PhD students should be a genuine concern for policymakers and researchers given that the work of PhD students constitutes a major source of scientific advancement, which has a direct bearing on the quality of life in communities.

Depression is a common psychiatric disorder characterised by symptoms of persistent feelings of hopelessness, dejection, low mood and a reduced ability to enjoy life that significantly interferes with normal functioning (APA, 2013). It has been designated as the leading cause of social and physical disability and loss of productivity and the fourth leading cause of total disease burden worldwide (WHO, 2002). In the *Depression and other common mental disorders: Global health estimates report*, WHO (2017) estimated the prevalence of depression worldwide to be 322 million, and predicted that the condition would be the second driving reason for disability by the year 2020.

The key determinants for depression have been noted as a combination of personal, psychological, social, genetic and environmental factors (Ahmed et al., 2020; Leethu et al., 2021). Depression is generally described in layman's terms as low mood that lasts for a prolonged time (at least two weeks) and affects a person's everyday life. In Zimbabwe's Shona language, it is commonly referred to as '*kufungisisa*', meaning 'thinking too much', although the term is not specifically the equivalent of 'depression' as a common mental health condition (Patel, Simunyu & Gwanzura, 1995). Depression makes everything harder to execute and seem less worthwhile. A depressed student is likely to lose their self-confidence, find academic tasks too challenging and hard to do, perform poorly and perceive their education as nothing worthy, but an exercise in futility.

The more accurate term for depression in contemporary nomenclature is 'depressive disorders', which has a variety of clinical manifestations including disruptive mood dysregulation disorder, major depressive disorder, persistent depressive disorder, premenstrual dysphoric disorder, and depressive disorder due to another medical condition (Aljaber, 2020; APA, 2013). According to the Diagnostic and Statistical Manual of Mental Disorders (5th edition),

depressive disorders are characterised by the presence of sadness, emptiness, or irritable mood, accompanied by somatic and cognitive changes (APA, 2013). Other symptoms include persistent feelings of hopelessness, dejection, low mood and a reduced ability to enjoy life that significantly interferes with normal functioning. The psycho-social demands of university education in general pose the risk of depressive disorders among tertiary students.

Depression is widely identified as a bane in university students. Prevalence rates among tertiary students are estimated to be six times more than the general population (Evans et al., 2018). In an extensive review of literature on the prevalence of depression among university students globally, Ibrahim et al. (2013) revealed that reported prevalence rates among students ranged from 10% to 85%. The authors suggested that depression rates as reported by students are far higher than those found in the general population (Ibrahim et al., 2013).

According to January et al. (2018), there has been a remarkable growth of university student numbers in sub-Saharan Africa within the last 30 years, and hence the need to understand the prevalence and antecedents of common mental disorders among this group in the population. Several studies have investigated the prevalence of depressive disorders amongst university students (Asante & Andoh-Arthur, 2015; January et al., 2018; Ibrahim et al., 2013). A study among undergraduate students in Nigeria found a prevalence rate of 32.2% (Peltzer et al., 2013). Among Kenyan university students, a moderate prevalence rate of 35.7% was found whilst 5.6% reported severe depressive symptoms (Othieno et al., 2014). An equally high level of depression was recorded by Ibrahim et al. (2012) in Egypt with 37% of the students scoring above the threshold for moderate depression.

In keeping with the challenges of depression in university settings, there is scant literature on affected students in postgraduate programmes. A multiplicity of studies on common mental disorders among university students have predominantly focused on medical or undergraduate students (Aljaber, 2020; Asante & Andoh-Arthur, 2015; Maziti & Mujuru, 2021) and largely ignored doctoral level students, notwithstanding the growth and increase in PhD enrolments globally. The few studies on PhD students conducted in high income countries (HICs) have revealed that they also face significant mental health challenges. According to Lavecque et al. (2018), approximately one-third of PhD students are at risk of having or developing a common psychiatric disorder. According to their survey, 51% of respondents had experienced at least two symptoms of poor mental health, indicating psychological distress. Moreover, 32% reported at least four symptoms, indicating a risk for common psychiatric disorders, which was

more than twice the prevalence among highly educated comparative groups. A similar survey on PhD students in two public universities in Kerala, India, reported that close to 70% of the students suffered from mild to severe depressive disorders (Leethu, Hense, Kodali & Thankappan, 2021). The study revealed that factors that commonly caused depressive disorders in PhD students were extended working hours, academic stress, lack of supervisory support, financial insecurities and uncertainties over future career prospects .

There is a high number of PhD candidates and graduates in many countries including Zimbabwe. This could be due to encouragement by government policy both at national and international levels. Although universities were traditionally regarded as low stress environments, research on occupational stress among academics indicates that it is alarmingly widespread and on the rise (Lavecque et al., 2017). Consequently, there are increasingly high numbers of media reports on incidents of depression, anxiety, burnout, emotional exhaustion and suicide among academics. Although a couple of studies have been conducted on prevalence of depression among undergraduate university students, (January et al., 2018; Maziti & Mujuru, 2021), no study known to the researcher has specifically examined the prevalence and determinants of depressive disorders among PhD students in Zimbabwe. It is in light of this general dearth of research on depressive disorders among doctoral students that this study sought to fill the apparent gap and add to the growing global body of literature on the prevalence of mental health issues in academia.

In order to effectively deal with the problems of common mental disorders (CMD), particularly depressive symptoms in PhD students, there must be an understanding of the prevalence, stressors or determinants, as well as coping strategies against depression in this sample of students. The objectives of this study were: 1) to measure the prevalence of depressive symptoms among PhD students at Great Zimbabwe University; 2) to establish the determinants and/or stressors that precipitate depressive disorders among PhD students at Great Zimbabwe University; and 3) to establish the coping strategies that PhD students at Great Zimbabwe University employ to minimise the stressors and their undesirable effects.

Method

Approach and design

The study employed the mixed methods research approach. According to Johnson, Onwuegbuzie and Turner (2007: p123), “Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative

research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration". Integration of qualitative and quantitative methods allowed for both depth and breadth in understanding the prevalence and determinants of depressive disorders, as well as the coping strategies.

The study adopted the convergent mixed methods research design wherein both quantitative data (survey) and qualitative data (in-depth interviews) are collected simultaneously in a single phase approach (Creswell & Creswell, 2018). The key assumption of this approach is that both quantitative and qualitative data provide different types of information (scores on instruments and detailed views/ meanings of participants) yielding complementary results (Campbell & Fiske, 1959; Creswell & Creswell, 2018). This design allowed for simultaneous measurement of different variables notably socio-demographic characteristics such as age, gender, employment status, number of children/dependants, amongst others, to observe how such differences might correlate with depression, which was the critical variable of interest (Bethlehem, 1999).

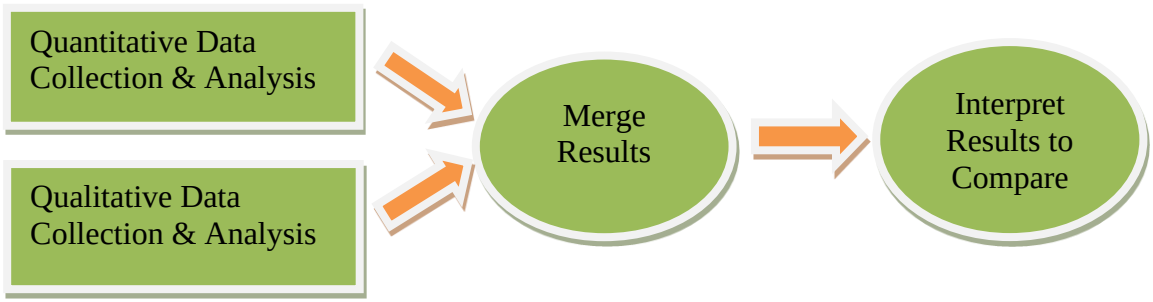

Figure 3.1: Convergent Design (One-Phase Design) by Creswell and Creswell (2018)

Participants

GZU consists of 7 schools, 35 departments, and offers over 40 post-graduate study programmes, including those at doctoral level. The target population for this research was the PhD students enrolled at GZU. Guided by records kept by relevant departments at the university, a representative simple random sample was drawn. A sample of 30 students was targeted for the study, because this was big enough to generate significant quantitative data while also small enough for manageable qualitative in-depth interviews. Eligible participants in this study were currently the registered PhD students, and those willing to participate. Unregistered PhD students, those who exhibited serious psychological distress or crisis, and those unwilling to participate in the study were excluded.

Data collection

Data were simultaneously collected through a survey instrument and semi-structured in-depth interviews prearranged as follows:

Section A: Quantitative survey

Part A of the questionnaire probed participants for socio-demographic characteristics such as gender, age, number of children/dependants, doctoral year/level, income ranges of the research participants, amongst others. Part B comprised the patient health questionnaire 9-item scale (PHQ-9). The patient health questionnaire (PHQ-9) identifies psychological distress and potential cases of depressive symptoms (Kroenke, Spitzer & Williams, 2001). It is a 9-item scale based on the DSM-IV-TR criteria for major depression. The scale is used routinely in general practice and has been used extensively across many low-to-medium income countries (Ferrari, 2016; MacLean et al., 2017; Abas, Weiss, Simms, Verhey, Rusakaniko, Araya & Chibanda, 2020). Each item is rated on a 4-point Likert-type scale ranging from 0 (*not at all*) to 3 (*nearly every day*). Example items include 'feeling down, depressed or hopeless' and 'feeling tired or having little energy'. The maximum score is 27, indicative of severe depression and the minimum is 0, denoting no experiences of depression in the past two weeks. Scores can fall into one of five categories of severity of depression from minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), to severe depression (20-27). The PHQ-9 has been locally validated in a Zimbabwean primary care population with Cronbach's $\alpha = 0.86$ (Chibanda et al., 2016).

Section B: Qualitative semi-structured in-depth interview

The last section of the instrument solicited in-depth answers on the determinants and coping strategies typically employed by PhD students to cope with the challenges, distress and depressive symptoms.

Ethical considerations

All the pertinent ethical principles guiding research were observed in conducting this study. Comprehensive details about the study were disclosed to the PhD students to obtain their express informed consent. Participants were requested to append signatures on pre-designed written informed consent forms that specified and reiterated their rights to privacy, anonymity, voluntary participation and right to withdraw at any point during the study. Confidentiality was emphasised and participants were guaranteed that no identifying information would be used on any manuscripts or in the final research report. Care was taken to minimise any risks and to

ameliorate any psychological distress that participants may experience during the course of research.

Data analysis

Quantitative data were statistically analysed, while thematic analysis was utilised for the qualitative component. Quantitative data analysis included descriptive analyses of univariate statistics to describe prevalence and determinants of depressive mental health symptoms, and socio-demographic variables. Qualitative data was thematically analysed to understand the coping strategies. Descriptive statistical techniques enabled the researcher to organise, summarise and describe observations so as to make accurate and credible conclusions.

Findings

Quantitative component

Socio-demographic characteristics

Age

The respondents were asked to indicate the age ranges they could be identified in. Age bands were used which ranged from 25 to 60 years as the researcher felt that some respondents could feel uneasy at revealing their exact ages.

Table 1: Age *(n =20).*

Age range	No. of Respondents
25-34	7
35-44	4
45-54	6
55-60	3
Total	**20**

Most respondents were in the 25 to 34 age band. This was followed by respondents in the 45 to 54 age bracket. There were fewer respondents in the 35 to 44 and 55 to 60 age bands.

Gender

The participants in the study were made up of 60% female and 40% male.

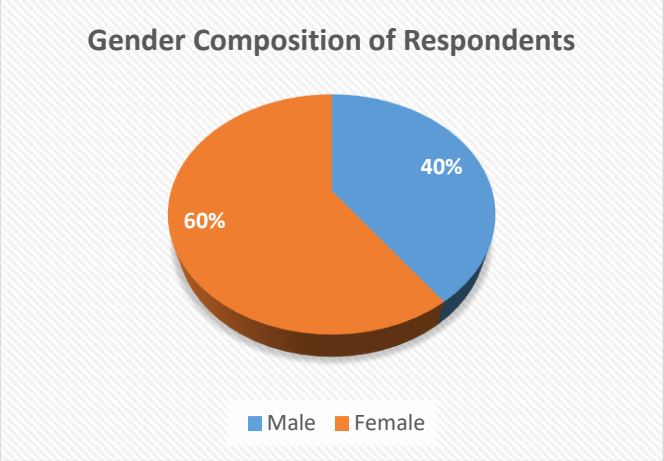

Figure 1: Distribution by gender

Prevalence of depressive disorders

The first objective of this study was to measure the prevalence of depressive symptoms in PhD students at Great Zimbabwe University. A frequency histogram showing results from the patient health questionnaire (PHQ-9) is presented below:

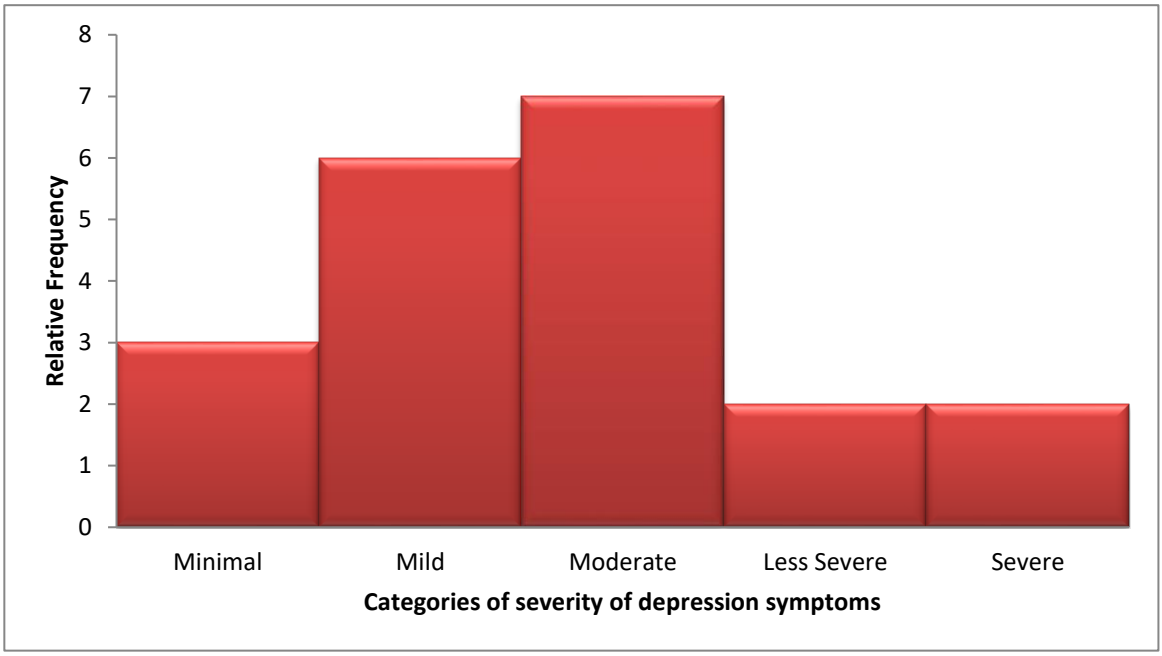

Figure 2: Results from the Patient Health Questionnaire (PHQ-9)

The above relative frequency histogram shows an increase in the number of pupils obtaining high marks in the first three questions of the developmental exercise. The range of 4 shows that most pupils did well in the second developmental exercise.

Item analysis from the PHQ-9

Table 2: Item-wise analysis of PHQ-9 *(n=20).*

Item	Not at all	Several days	Often	EveryDay
Little interest	2	8	10	0
Feeling down	1	9	10	0
Sleep problems	1	9	10	0
Tiredness	3	7	10	3
Eating problems	5	5	10	5
Family problems	0	10	10	0
Speech problems	0	0	0	0

In Table 2 above, the results from the depression screening tool show that the majority of participants showed symptoms ranging from little interest in daily activities; feeling down; having sleep problems; tiredness; eating problems; and family problems. No respondent indicated having experienced any speech problems.

Determinants of depression among PhD students

The second objective of the current study was to establish the determinants and/or stressors that precipitate depressive disorders among PhD students at Great Zimbabwe University. The main stressors or determinants of depressive disorders among PhD students at Great Zimbabwe University included the university environment; difficulty in mastering new skills; student's age; economic or financial hardships; student-supervisor disagreements; amongst other factors. These determinants are elaborated below:

The effect of the university environment on symptoms of stress

Below are the respondents' perceptions on the effect of the university environment on stress.

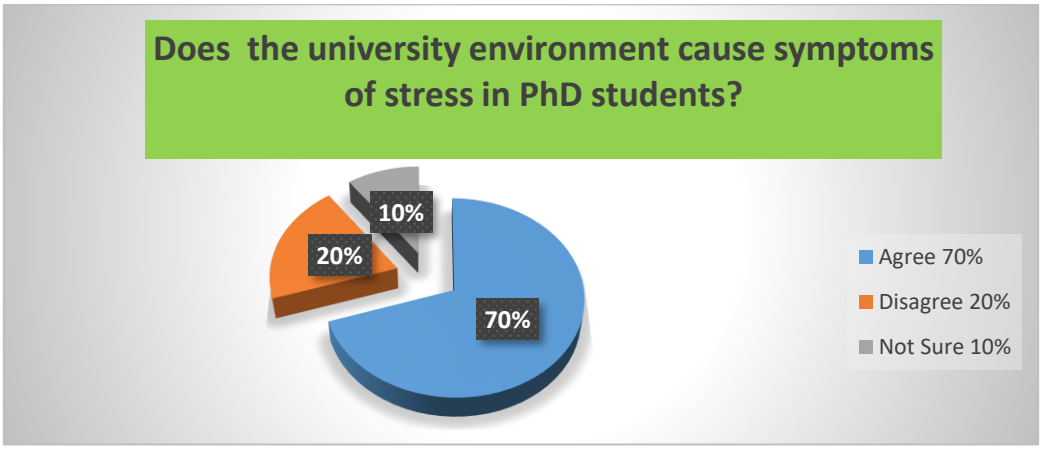

Figure 3: The effect of the university environment on symptoms of stress

The pie chart above shows that 70% of the participants agreed that they had challenges in adjusting to the university environment which caused them to experience symptoms of stress. On the other hand, 20% of the respondents disagreed that the university environment had a bearing on their stress symptoms. The other 10% indicated that they were not sure whether they were experiencing stress symptoms as a result of failing to adjust to the university environment or not. Basing on the responses of PhD students who took part in the study, the respondents felt that the university environment had a bearing on their suffering from stress, which is a determinant of depression.

Difficulties in mastering new skills

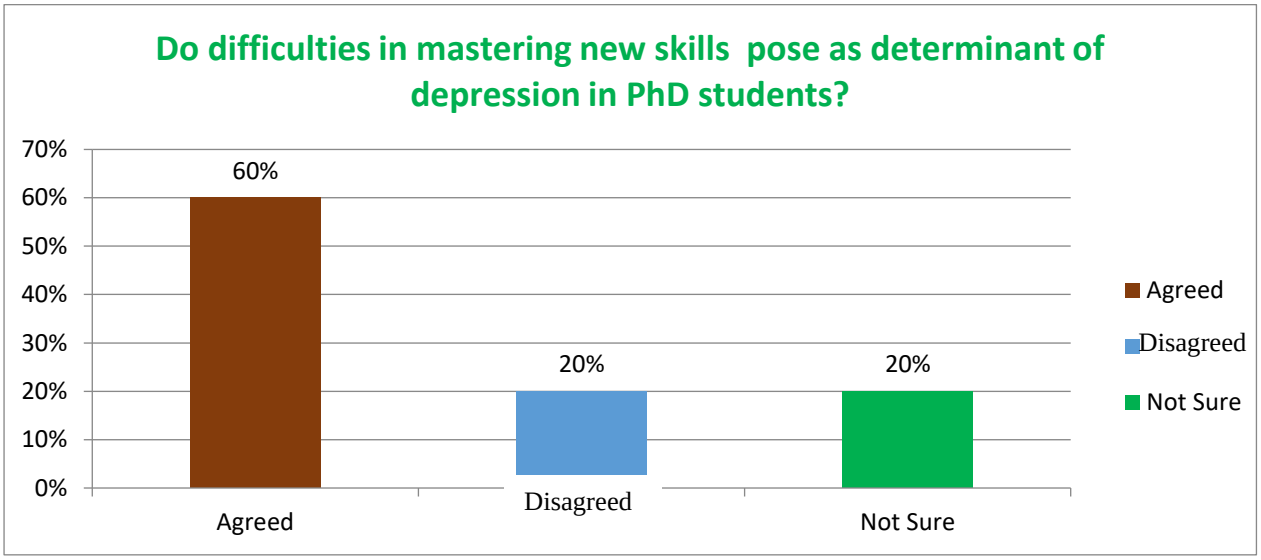

Figure 4: The effect of difficulties in mastering new skills as a determinant of depression

As shown above, 60% of respondents agreed that they identified difficulties in mastering new skills as stressors or determinants in causing depression. On the other hand, 20% of the respondents disagreed that failure to master new skills had an effect on suffering symptoms of depression. Only 20% of respondents were not sure as to whether failure to master new skills had an effect in causing symptoms of depression.

Age as a determinant of depression symptoms in PhD students

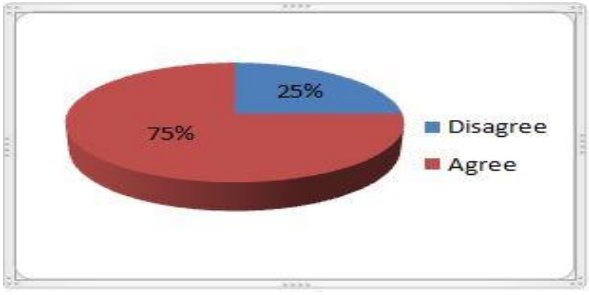

Figure 5: Age as a determinant of depressive symptoms

Results from figure show that most of the respondents, (75%) felt that a student's age had a bearing on one's susceptibility to depression; and (25%) believed that age had no effect on vulnerability to depression. It can be deduced from the responses that the students believed age is a risk factor for depression.

Qualitative component

Determinants of depression experienced by PhD students

The determinants of depressive disorders among PhD students at GZU were also qualitatively explored. The following is data collected from the qualitative questions that solicited and probed for stressors which precipitate symptoms of depression.

Table 3: **Determinants of depressive disorders**

Main Theme	Sub-themes
▪ Determinants or precipitants of depressive disorders	▪ Economic/ financial hardships ▪ High work-loads ▪ Student-supervisor disagreements ▪ Inadequate or lack of student support services ▪ Uncertain future / job market ▪ Social problems ▪ Health problems

Economic or financial hardships

Financial challenges emerged as one of the key concerns, potentially inhibiting students' academic performance and their mental health. All the students indicated that they were not on scholarship or receiving any grants to pursue the doctoral studies which strained their financial situation. One participant said:

> "I am paying my own tuition fees and given the economic situation prevailing in the country I am living from hand to mouth." (PhD Participant, male).

Another participant added that:

> "I am having challenges in balancing the financial costs of pursuing a PhD while at the same time paying my two children's school fees. My salary and total income is never enough. I am considering withdrawing and rather give my children the chance to learn." (PhD Participant, Male)

High work-loads

The respondents complained of high academic work-loads which were affecting the academic-work-life balance resulting in feelings of distress and life dissatisfaction. One respondent complained:

> "I have high workloads as a result of attempting to produce original research work. I search databases for hours on end trying to find and fill research gaps." (PhD Participant, female).

Another one simply stated that:

> "I never thought the PhD would be this demanding. I hardly spend any time with my family nowadays. Sometimes I ask myself if it is worth it at all". (PhD Participant, female).

Student-supervisor disagreements

The supervisor-student relationship was also fraught with disagreements, which often led to mistrust and strained relations. One of the respondents felt that the supervisors:

> "……. did not devote adequate time in guiding us or in making us adequately understand our research challenges." (PhD Participant, Male).

Another participant added that;

> "My supervisor seems to be always pre-occupied with their own livelihood activities and rarely gives feedback on time." (PhD participant, female).

Inadequate or lack of student support services and infrastructure

Some of the challenges indicated by respondents were primarily related to access to e-learning, library, administrative support, communication, student support services, and general use of technology outside campus. One respondent explained that:

> "These challenges compromise the quality of our PhD research work, inhibiting learning opportunities, and leaving us feeling demotivated and dejected." (PhD Participant, Female).

Another PhD student corroborated by pointing out that:

> "The GZU introduced doctoral level studies recently but unfortunately the infrastructure ordinarily expected of institutions awarding PhDs is not yet fully in place." (PhD participant, male).

Uncertain future / job market

Concerns about an uncertain job market and future were one of the key factors precipitating depressive symptoms in PhD students and inhibiting their academic performance. One participant said:

> "I registered for a PhD to enhance my chances to join University lectureship, however I leant of two other PhD holders in my field who are jobless as we speak. I am fearful by the time I complete my PhD there won't be any job opportunities anywhere" (PhD student, male).

Another participant simply stated that:;

> "It is not a surprise anymore, to come across an unemployed Doctor here in Zimbabwe. I hope I won't be an addition to the statistics." (PhD student, female).

Social problems

There were certain respondents who had to address pressing social problems as well as meeting the demands of academic work. This had a negative effect on coping as this respondent noted:

> "I am failing to effectively sail in my PhD course as a result of social problems that are affecting me. Presently, my wife is hospitalized, and she needs my assistance in running around procuring drugs and expects general spousal care from me." (PhD male participant).

Health problems

There were other students with lifelong and chronic health problems which made them susceptible to stress as this participant mourned:

> "I have pressing health problems which affect my PhD study. I am hypertensive and the stresses of my health condition sometimes limit my performance academically." (PhD Participant, female).

Coping strategies or mechanisms by PhD students

The qualitative component of the current study was also fully utilised to establish the coping strategies or mechanisms typically employed by the PhD students at GZU to ameliorate the stress and depressive disorders related to doctoral studies.

Table 4: Coping strategies by PhD students

Main Theme	Sub-themes
▪ Coping strategies by PhD students	▪ Turning to friends and spouses ▪ Spirituality or Religiosity ▪ Support groups ▪ Smoking and drinking

Friends and spouses

A significant number of participants indicated that they turned to friends and spouses for social support each time they suffered stress or symptoms of depression. Support received differed from tangible material things to emotional encouragement to continue working on their doctoral studies. One participant stated:

> "PhD work is so demanding sometimes you end up overwhelmed with work, and become withdrawn and isolated. Keeping social contact with friends is a sure way to cope with demands of academic life." (PhD Participant, female).

Another participant shared similar sentiments and pointed out that:

> "The emotional support from my wife and children gives me strength and motivates me to keep going to make them proud". (PhD Participant, Male).

Spirituality or religiosity

The majority of participants were firm believers in Christianity and believed that their belief in God helps them cope with all the adversity they encounter on their PhD journey. One participant mentioned that:

> "I believe in God, and I see all the hardships I come across as normal challenges of life meant to strengthen and not break you." (PhD Participant, female).

Support groups

Most of the respondents also shared that they joined support groups of fellow PhD students where they had discussions and shared latest developments. One participant brought out the dimension of a WhatsApp group by stating:

> "I belong to a WhatsApp group of Zimbabwean PhD students who are studying in different parts of the world, from USA, UK, China, India and across the Limpopo in South Africa. This group has helped me a lot in my PhD journey." (PhD Participant, Male).

Smoking and drinking

Although considered a maladaptive coping strategy, a notable number of male PhD students indicated that they do regularly turn to drinking alcohol and even smoking to ease the tension and pressure wrought by doctoral studies. One male participant stated:

> "I usually take a few drinks with my friends at a local bar in my home area to just relax and refresh my mind." (PhD Participant, Male).

Another PhD student mentioned that:

> "Without a cigarette I get nervous and tense. Smoking relaxes my nerves and helps me cope with tense and stressful situations." (PhD Participant, Male).

Discussion

The purpose of this study was to establish the prevalence and determinants of depressive disorders, as well as the coping strategies of the PhD students at a local university in Masvingo, Zimbabwe. The discussion is therefore organised around the three major headings of prevalence, determinants and coping strategies.

Prevalence of depressive symptoms

The current study established that PhD students at GZU exhibited mild to moderate symptoms of depression, with very few severe cases. Although there is a general dearth of literature on the prevalence of depressive symptoms amongst PhD students in Zimbabwe, the findings of this study generally concur with findings of studies conducted in other low-to-medium income countries such as India (Leethu et al., 2021; Deb et al. 2016); Ghana (Asante, & Andoh-Arthur, 2015); Kenya (Othieno et al., 2014) and even China (Liu, 2019). These studies reported mild to moderate prevalence of 37.7%, which is also consistent with a global survey by Evans et al. (2018). A study by Maziti and Mujuru (2021) also established a modest 37.5% general prevalence of depression among undergraduate students at GZU.

It remains notable that prevalence rates of depression among tertiary students are more than the general population by at least six times (Evans et al., 2018). Estimates range from 23.7% to 37.5% (Ahmed et al., 2020; Maziti & Mujuru, 2021; Liu et al., 2019; Levecque et al., 2017;

Leethu et al., 2021). The consistently high prevalence rate of depressive symptoms amongst tertiary students, particularly PhD scholars, is a cause for concern. There is a need for concerted efforts by universities to address the increasing mental health needs of all students. Doctoral level studies are especially quite demanding and PhD students require special attention if their studies are to make a meaningful contribution to knowledge and impact society socially, economically or politically.

Determinants of depressive disorders

Factors that expose PhD students to depressive symptoms were also investigated. This study established a multiplicity of factors leading to depressive disorders. These include the university environment that presents many challenging and demanding situations such as adjusting to new environments, frequently high academic-workloads, economic and financial challenges, student-supervisor relations, mastering new skills, and uncertainty about the job prospects after graduation. These factors dovetail with what Wilstoon (2017), Leethu et al. (2021) also discovered in their earlier studies.

Respondents highlighted many factors by that predisposed them to depressive symptoms. These were related to access to administrative support, communication, student support services, and general use of technology outside campus. Due to the increased student populations and the attendant work load, most students did not get individual help like counselling as expected when they were experiencing psycho-social problems. This myriad of factors is enough for the students to fall into depression.

Some participants highlighted other key factors precipitating depressive symptoms in PhD students and inhibiting their academic performance. These factors included financial hardships, disagreements between student and supervisor, lack of student support services, and concerns about the uncertainty of the job market and the future. These findings are related to a related survey carried out by the WHO (2018). In the current study, financial challenges emerged as one of the key concerns, potentially inhibiting students' academic performance and their mental health. Some research scholars have also faced many financial hardships even when they got scholarships as such university sponsorship could be inadequate to meet their expenses (Woolston, 2017; Oswalt, 2018). Furthermore, such paltry amount would often be delayed, affecting even daily sustenance. All these determinants combine in complex fashion to elicit depressive disorders among PhD students.

Coping strategies or mechanisms

The study also established a number of notable coping strategies that were employed by PhD students to mollify the effects of distress. These include turning to friends and spouses for psychosocial support; spirituality or religiosity; support groups, and even other maladaptive mechanisms such as smoking and drinking alcohol. These findings are echoed by Atindanbila, and Abasimi (2011) who conducted a research on depression and coping strategies among university students in Ghana. Their research revealed that participants utilise cognitive coping strategies to cope with depression, more than other strategies such as medical, physical, social or spiritual strategies.

Findings of this study are consistent with, and validate Lazarus and Folkman's (1984) transactional theory of stress and coping (TTSC). The theory succinctly posits that there is a dynamic interaction between a PhD student and the university environment or the community that results in stress (Goh, Sawang & Oei, 2012). Stress occurs when the person–environment interaction exceeds coping resources and that threatens psychological and physical wellness of an individual (Merluzzi, Philip, Vachon & Heitzmann, 2011). If a PhD student does not possess sufficient assertiveness and cognitive coping skills, they may be at increased vulnerability to stress and depression.

Recommendations

After outlining the research findings and making some considerations the researcher came up with some recommendations for the stakeholders and future studies. The recommendations were as follows:

i) It is recommended that the supervisors should strive to make use of participatory approaches that improve the mastery of new skills and performance of PhD students.
ii) The universities should be capacitated to offer psychosocial support to those PhD students experiencing social and health problems.
iii) Universities should capacitate their student support services in areas like access to e-learning, library, administrative support and communication.

Conclusion

The results show that the participants mostly showed moderate symptoms of depression from the PHQ-9 test administered. There were few respondents reporting less severe and severe symptoms. Age and facing difficulties in mastering new skills were reported as risk factors for depressive symptoms among the PhD students studied. High workloads, social and health

problems were some of the environmental determinants of depressive symptoms. Respondents also highlighted other factors like economic or financial hardships, disagreements between student and supervisor, lack of student support services, and concerns about an uncertain job market and the future were other key factors precipitating depressive symptoms in PhD students and inhibiting their academic performance. Some of the challenges, as indicated by respondents, were primarily related to access to e-learning, library, administrative support, communication, student support services, and general use of technology outside campus. It was also established that most of the participants had challenges in adjusting to the university environment, which caused them to experience symptoms of stress. On coping mechanisms, most students experiencing depressive symptoms got help from professionals such as psychologists and counsellors while some resorted to drinking and smoking to mask up their symptoms of depression. Despite suffering from depressive symptoms, the students surveyed felt that the PhD programme was instrumental in preparing candidates for satisfying careers.

Acknowledgements

Sincere gratitude to the Great Zimbabwe University (GZU) management and the PhD candidates who participated in this study.

References

Abas, M.A., Weiss, H.A., Simms, V., Verhey, R., Rusakaniko, S., Araya, R., & Chibanda, D. (2020). The effect of co-morbid anxiety on remission from depression for people participating in a randomised controlled trial of the Friendship Bench intervention in Zimbabwe. *EClinicalMedicine, 23*, 100333.

Ahmed, G., Negash, A., Kerebih, H., Alemu, D., & Tesfaye, Y. (2020). Prevalence and associated factors of depression among Jimma University students. A cross-sectional study. *International Journal of Mental Health Systems*, *14*(1), 1-10.

Aliaga, M. & Gunderson, B. (2002). *Interactive statistics*. New Jersey: Prentice Hall.

AlJaber, M.I. (2020). The prevalence and associated factors of depression among medical students of Saudi Arabia: A systematic review. *Journal of Family Medicine and Primary Care*, *9*(6), 2608.

American Psychiatric Association. (2013). Highlights of changes from DSM-IV to DSM-5: Somatic symptom and related disorders. *Focus*, *11*(4), 525-527.

Asante, K. ., & Andoh-Arthur, J. (2015). Prevalence and determinants of depressive symptoms among university students in Ghana. *Journal of Affective Disorders, 171, 161-166.*

Atindanbila, S., & Abasimi, E. (2011). Depression and coping strategies among students in the University of Ghana. *Journal of Medicine and Medical Sciences*, *2*(12), pp. 1257-1266.

Auerbach, R.P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., ... & Kessler, R. C. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, *127*(7), 623.

Bethlehem, J. (1999). Cross-sectional research. *Research Methodology in the Social, Behavioural and Life Sciences*, *110*, 142.

Biggs, A., Brough, P., & Drummond, S. (2017). *Lazarus and Folkman's psychological stress and coping theory. The handbook of stress and health* (pp. 349–364).

Carver, C. S. (1997). You want to measure coping but your protocol is too long: Consider the brief cope. *International Journal of Behavioural Medicine*, *4*(1), 92-100.

Chandra, P.S., Satyanarayana, V.A., & Carey, M.P. (2009). Women reporting intimate partner violence in India: Associations with PTSD and depressive symptoms. *Archives of Women's Mental Health*, *12*(4), 203-209.

Chibanda, D. (2018). Programmes that bring mental health services to primary care populations in the international setting. *International Review of Psychiatry*, *30*(6), 170-181.

Creswell, J.W., & Creswell, J.D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Creswell, J.W. & Clark, V.L.P. (2017). *Designing and conducting mixed methods research*. Sage Publications, Ohio.

Deb, S., Banu, P.R., Thomas, S., Vardhan, R.V., Rao, P.T. & Khawaja, N. (2016), Depression among Indian university students and its association with perceived university academic environment, living arrangements and personal issues. *Asian Journal of Psychiatry*, *23*, 108-117.

Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J.L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American Journal of Orthopsychiatry*, *77*(4), 534-542.

Ibrahim, A.K., Kelly, S.J., Adams, C.E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*, *47*(3), 391-400.

January, J., Madhombiro, M., Chipamaunga, S., Ray, S., Chingono, A., & Abas, M. (2018). Prevalence of depression and anxiety among undergraduate university students in low-and middle-income countries: a systematic review protocol. *Systematic Reviews*, *7*(1), 1-5.

Johnson, R.B., Onwuegbuzie, A.J., & Turner, L.A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112-133.

Kerlinger, F.N., & Lee, H.B. (2000). *Foundations of Behavioral Research* (4th edn.). Holt, NY: Harcourt College Publishers.

Kroenke, K., Spitzer, R.L., & Williams, J.B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613.

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Leavy, P. (2017). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guilford Publications.

Leedy, P.D., & Ormrod, J.E. (2005). *Practical research: Planning and design* (8th edn.). Upper Saddle River, NJ: Prentice Hall.

Leethu, L.T., Hense, S., Kodali, P.B.B., & Thankappan, K.R. (2021). Prevalence and underlying factors of depressive disorders among PhD students: A mixed-method study in the Indian context. *Journal of Applied Research in Higher Education*.

Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). Work organization and mental health problems in PhD students. *Research Policy, 46*(4), 868-879.

Liu, C., Wang, L., Qi, R., Wang, W., Jia, S., Shang, D., & Zhao, Y. (2019). Prevalence and associated factors of depression and anxiety among doctoral students: The mediating effect of mentoring relationships on the association between research self-efficacy and depression/anxiety. *Psychology Research and Behaviour Management, 12*, 195.

Lyubomirsky S, Kasri F, Zehm K (2003). Dysphoric rumination impairs concentration on academic tasks. *Cogn. Ther. Res. 27*, 309-330.

Maziti, E., & Mujuru, A. (2021). *Prevalence of depression amongst university students during the 2nd wave of the Covid 19 pandemic in Zimbabwe*. Humanities Southern Africa. http://ir.gzu.ac.zw/8090. Accessed 12 February 2022.

Othieno, C.J., Okoth, R.O., Peltzer, K., Pengpid, S., & Malla, L.O. (2014). Depression among university students in Kenya: Prevalence and socio-demographic correlates. *Journal of Affective Disorders, 165*, 120-125.

Patel, V., Simunyu, E., & Gwanzura, F. (1995). Kufungisisa (thinking too much): A Shona idiom for non-psychotic mental illness. *Central African Journal of Medicine, 41*(7), *209–215.*

Phillips, D.C., Phillips, D.C., & Burbules, N.C. (2000). *Post-positivism and educational research*. Rowman & Littlefield.

Poulus, D., Coulter, T.J., Trotter, M.G., & Polman, R. (2020). Stress and coping in esports and the influence of mental toughness. *Frontiers in Psychology, 11,* 628.

Sverdlik, A., Hall, N.C., McAlpine, L., & Hubbard, K. (2018). Journeys of a PhD student and unaccompanied minors. *International Journal of Doctoral Studies, 13, 361-388.*

Woolston, C. (2017). Graduate survey: A love–hurt relationship. *Nature*, *550*(7677), 549-552.

World Health Organization. (2017). *Depression and other common mental disorders: global health estimates* (No. WHO/MSD/MER/2017.2). World Health Organization.

World Health Organization. (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak, 18 March 2020* (No. WHO/2019nCoV/MentalHealth/ 2020.1). World Health Organization.