Prevalence And Determinants of Depression Among University Students: Case Study, Technical University of Mombasa

Adem Aggrey[1], Dianah Otieno[1]*, Beatrice Mumbe[1], Arnold Otieno[1], Brian Kamande[1], Mishael Otieno[1] and Mwilu Nicholas[2]

[1]*Technical University of Mombasa Kenya*

[2] *Taita Taveta University, Kenya*

**Corresponding author: dianao@tum.ac.ke*

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Abstract

Depression is a significant global mental health issue that affects countless individuals annually and can lead to severe consequences, including suicide. One area that has seen an increase in mental health concerns is among public university students, with many struggling with depression-related challenges and even dropping out of school. Unfortunately, there have been several reports of suicide among university students in the mainstream media. To better understand the situation, a study was conducted to determine the prevalence of depression among Technical University of Mombasa students and identify the risk factors that contribute to this condition. The study surveyed 390 students using structured questionnaires, with depression as the dependent variable and family, school, environment, and economic factors as the independent variables. Through the use of the chi-square test of independence and multiple linear regression model, the study found that 57.7% of students experienced depression, with students in year four and above being more likely to be affected than those in lower years. The study found that family, school, environment, and economic factors significantly influence depression among students, with 34.2% of the variations in depression explained by these factors. Family, school, environmental, and economic factors were found to increase depression levels by 23.8%, 12.7%, 10.6%, and 17.7%, respectively. Based on these results, the study recommended establishing peer counselling programs, raising awareness of mental health issues, creating online platforms for students to share their concerns, promoting participation in extracurricular activities, and incorporating mental health education into the university curriculum. These recommendations aim to address the rising cases of depression and promote the overall well-being of students in public universities in Kenya.

Keywords: Depression, Prevalence, Regression

Introduction

Depression is a common mental disorder, affecting an estimated 280 million people worldwide (WHO, 2021). It's a state where persistent low mood and a loss of interest are joined by a cluster of other symptoms. These can include disrupted sleep or appetite, feelings of guilt or worthlessness, constant fatigue, difficulty focusing or making decisions, restlessness, sluggishness, a sense of hopelessness, and even thoughts of hurting oneself (WHO, 2016).

As adolescents transition into adulthood, university students navigate a significant change in their lives. One in five students worldwide experience mental disorders such as depression and anxiety at some point in their life (World Health Organization, 2021). There are numerous factors such as academic stress, financial problems, social isolation, and personal crises, which affect the students' mental wellbeing. For example, nearly 40% of all college students feel extremely anxious according to a national survey conducted across the United States; this result was similar for a larger study that yielded evidence of depression in about 30% of patients (American College Health Association, 2021; Cheng et al, 2022). The range of rates for depression among university students was found to be between 10% and 50%, depending on the variation in demographics and local context, in the European systematic review (Huang et al., 2022). Hence, this has prompted several universities around the world to boost their efforts in student support and mental health services for the student population (Eisenberg et al., 2022).

Mental health issues among university students in sub-Saharan Africa have attracted considerable attention recently, especially with the increased enrollment in higher education in conjunction with social and economic problems. A study in South Africa revealed that approximately 35% of university students had experienced severe depressive symptoms, often precipitated by academic stress and financial constraints (Sibanda et al., 2021). On the other hand, studies in Nigeria spoke much about the toll of peer pressure and academic expectations on many students whose access to mental health care is quite problematic (Atilola et al., 2021). Hence, these findings call for urgent, targeted mental health interventions to be designed especially for the unique experiences of students within this region.

Different students from various universities in Kenya are usually faced with different challenges that affect their mental well-being. The increase in the rate of enrollment in higher education has not been matched with an increase in the availability of mental health services. The latest estimates show that 60% of university students in Kenya have mental health problems, with a high percentage of them having depressive symptoms (Mutwiri et al, 2023). Financial strains and relational issues increase the pressure on students, while society's stigma concerning mental illness prevents them from seeking help. Disturbingly, reports from the recent past have cited suicide cases among university students arising mainly from untreated mental health conditions (Muchangi et al., 2021). It is on this ground that researchers have called for comprehensive mental health support systems in Kenyan universities, with a focus on counselling services, peer support initiatives, and sensitization campaigns on mental health (Othieno et al., 2014). Thus, not only is the rising incidence of mental illnesses, especially depression, amongst university-going students a source of alarming concern at an international, regional, and local level, but also such mental health problems need to be addressed. The general objective of this study was to determine the prevalence of depression among public university students. This general objective was achieved through the following specific objectives.

i. To determine the proportion of students suffering from depression among university student.
ii. To determine factors influencing depression among university student.

These specific objectives were measured by answering the following research questions;

i. What is the proportion of students suffering from depression among university student?
ii. What is the influence of family factors on depression among university student?
iii. What is the influence of economic factors on depression among university student?
iv. What is the influence of school factors on depression among university student?
v. What is the influence of environmental factors on depression among university student?

The independent variables were family, school, environment, and economic factors, and the dependent variable was depression. This study used a multiple linear regression model to analyze the linear relationship between a single dependent variable and several independent variables.

Literature Review

Research has investigated the prevalence rate of depression among university students, having serious implications on academic performance and quality of life. Haq et al. (2018) noted that the frequency of depression, anxiety, and stress among university students is prevalent and impacts academic success and quality of life. According to the National Institute of Mental Health (NIMH, 2021), depression is connected to several psychological factors and genetic predispositions and environmental effects. This link is strengthened by meta-analysis conducted by Beiter et al. (2015), who found that more than 30% of college students claim to suffer chronic and overwhelming anxiety, which very closely correlates to depression symptoms.

In a survey conducted by Othieno et al. (2014) focusing on medical and paramedical students, a strong link was identified as 43% of these students were perceived as needing medical intervention for mental health-related issues. Thus, there is a dire need for mental health resources in institutions of higher learning. Heckman, Lim, and Montalto (2014) reported that several issues such as academic pressure, interpersonal problems, financial difficulties, and loneliness are major contributors to depression among students. From the findings, self-financing students experience higher levels of depression mainly due to financial anxiety and pressures of meeting academic expectations, as reported by Huang et al. (2021). A specific study dedicated to financial stress carried out by Bittner and Rodin (2020) revealed that students who experience financial crises are 50% more likely to show symptoms of anxiety and depression. Such prevalence of mental health disorders among young adults due to internet addiction has been described, with Saunders and Chester (2018) stating that internet addiction is a correlate of personality traits that may serve as predispositions to mental health problems. The study found varied prevalence rates for internet addiction among the youth from 1.5% to 24.2%, suggesting that there could be different levels of behavioral adjustment to the digital age. Like the research of O'Reilly et al. (2021) which discovered that increasing use of the internet brings about social withdrawal, which further worsens loneliness and depression.

More evidence on the role that identity development in late adolescence plays regarding mental health outcome can be traced in future studies. Hames, Hagan, and Joiner (2013), for instance, established that identity exploration in the college years typically seems to motivate self-doubt and create low self-esteem

which are potent precursors for depression. Self-esteem according to a study by Krieger et al. (2020) inversely relates to symptoms of depression among diverse student populations which is another indication that undergraduates with low self-esteem tend to develop a significant probability for depression.

Further, the adverse effect of depression on higher academic performance is immeasurable. Valides (2012) found that students suffering from clinical depression can significantly suffer in academics and student engagement. The research, in fact, indicates that depressive symptoms can be observed at a varying rate of prevalence from 10%, extending to a terribly high level of 40% (Eskin et al., 2007; Melchior et al., 2010). Notably, the students had more depressive symptoms than those who were not students (Green et al. 2003). There is a great surge towards counseling in the universities with students reporting depressive symptoms more than 27% of those who consulted (Moise et al., 2021). It is simply the extent of seriousness that mental conditions get to since most are seen as the primary causes of suicidal tendencies among students (Faeq, 2016). As reported by Calati et al. (2019), Xiang et al. (2020), depression is typically correlated to suicidal ideation in adolescents, a few of whom have a previous history of attempts to end their life.

Indeed, while statistics around mental health across the globe may raise an alarm, conditions specific to the Kenyan context are few and far between. The recent evidence by Mutiso et al. (2022) suggests that nearly 37% of university students in Kenya actually confessed to depressive symptoms, with the currently cited common stressful situations being: academic pressure, poor financial standing, and familial expectations. Despite this global concern, limited research exists on depression prevalence among students in Kenyan public universities. This study aimed to address this gap by investigating both the prevalence and significant factors influencing depression in this specific population.

Methodology

The study used a descriptive survey design because the design focuses on characterizing the variables present in a scenario and outlining the connections between those variables (Johnson & Christensen, 2012). In order to establish the range and distribution of social characteristics that can be linked to the causes of depression and how students and the institution carry out their activities to help the students, a descriptive survey was preferred for this research. A variety of aspects of a phenomenon are described using descriptive investigations (Fox & Bayat, 2007). The target population was undergraduate students in one of the public universities in Kenya. The population in this university was 15,000. Since the population size was more than ten thousand

Israel formula was used to determine the sample size as given by equation 1, Israel (2015)

$$n = \frac{N}{1 + Ne^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ldots (1)$$

$$n = \frac{15000}{1 + 15000 \times 0.05^2} \approx 390$$

Where: n = is the sample size.
N = Population size
e = level of precision (margin of error/confidence interval)

Self-administered structured questionnaires were used to collect the data to draw factual, truthful, and descriptive responses. The dependent and independent variables were constructed with sub-constructs on a Likert scale of 1 (strongly disagree) to 5 (strongly agree). Cluster sampling technique was used where participants were grouped in terms of year of study. From each cluster simple random sampling was used to pick participants in the study.

A multiple linear regression model was used to model depression and the covariates: family, school, economic, and environmental factors. Assumptions of the linear regression model were examined before the regression model was fitted. These assumptions included normality of the error terms, multicollinearity, autocorrelation, and homoscedasticity.

Results and Discussion

SPSS software version 27 was used to analyze the data. Demographic characteristics of the participants were obtained as given by Table 1.

Table 1: Descriptive Statistics

Variable		**Frequency**	**Proportion**
Age	18-22	215	55.1
	23-26	168	43.1
	27-30	7	1.8
Gender	Male	232	59.5
	Female	158	40.5
Year of study	1	64	16.4
	2	100	25.6
	3	105	26.9
	4	118	30.3
	5	2	0.5
	6	1	0.3
School	Applied & Health Sciences	128	32.8
	Business	57	14.6
	Engineering & Technology	86	22.1
	Institute of computing & Informatics	49	12.6
	Humanities & Social Sciences	70	17.9

The results given in Table 1 show that the majority of the sample (55.1%) were between the ages of 18 and 22, while a smaller proportion (43.1%) is between the ages of 23 and 26. A tiny percentage (1.8%) is between the ages of 27 and 30. The data suggests that the sample comprises young adults, with a smaller representation of individuals in their mid to late 20s. Majority of the respondents were male (59.5%). 30% of the respondents were fourth-year students, 27% of the respondents were third-year students, 26% of the respondents were second-year students, 16% of the respondents were first-year students, 0.5% of the respondents were fifth-year students and 0.3% of the respondents were sixth-year students. Therefore, all the years were represented. The results further showed that the majority of the sample is from applied and health sciences (33%), while 22% are from engineering, 18% are from humanities, 15% are from business

and 12% are from computing. The results further show that all demographic segments were fairly represented in the study.

Prevalence of Depression

Depression was measured using two indicators namely mental breakdown and reported incidences of depression.

Results obtained shows that prevalence of depression was 57.7% among students (as given in Table 1). This is slightly higher than what Eskin et al. 2007, found in a study among Turkish University students, which found that depression prevalence ranges between 10%-40%.

Table 2: Prevalence of Depression

Elements of depression		**Frequency (%)**
Awareness	Yes	325 (83.3)
	No	65 (16.7)
Mental breakdown occurrence	Yes	244 (62.6)
	No	146(37.4)
Depression prevalence	Yes	225(57.7)
	No	165 (42.3)

The results in Table 2 shows that the majority of the respondents (83.3%) were aware of depression, while a smaller proportion (16.7%) were not aware of depression. This implies that majority of the students are familiar with depression and are aware of its existence. Cases of mental breakdowns were reported by 62.6% of all the students. This suggests that majority of the students have been suffering from mental breakdowns at some point during their study in the University. Finally, the result shows that majority of the students (57.7%) have experienced depression at some point within their student life in the University. This prevalence is higher than 35% prevalence rate that was found by Sibanda et al 2021 among South African university students. It is further noted that this is slightly higher than what Eskin et al 2007, found on a study among Turkish University students which found out that depression prevalence ranges between 10%-40% and Huang et al 2022 found on a study among European University students whose prevalence rate ranged between 10% and 50%. However, the findings were not that different from those of Mutwiri et al 2023 who noted that 60% of university students in Kenya have mental health related problems.

Chi-square test of association was used to determine whether there is a significant association between depression prevalence and demographic factors. Table 3 presents results of Chi square test of association.

Table 3: Depression Prevalence across demographic factors

Demographic factors		**Prevalence (%)**		**Df**	**Chi square value**	**P value**
		YES	NO			
Age	18-22	54.4	45.6	2	2.679	0.262
	23-26	62.5	37.5			
	27-30	50	50			
Gender	Male	59.3	40.7	1	0.503	0.479
	Female	55.7	44.3			

Year of study	Year 1	48.4	51.6	3	12.838	0.000
	Year 2	51	49			
	Year 3	55.2	44.8			
	Year 4 and above	70.8	29.2			
School	Applied & Health Science	65.4	34.6	4	6.573	0.160
	Business	49.1	50.9			
	Engineering & Technology	55.8	44.2			
	Computing & informatics	49	51			
	Humanities & Social Sciences	57.8	42.2			

Results obtained showed that there was a significant association between depression prevalence and year of study only. The cases of depression were higher among years 4,5 and 6 students (70.8%) compared to the lower years. Regarding age, the 23-26 age groups had the highest cases of 62.5%, though there was no significant association between age and depression prevalence. Depression cases were higher among male students (59.3%) than female students (55.7%) without any significant difference. The School of Sciences reported the highest cases of depression at 65.4%, followed by the School of Humanities and Social Sciences at 57.8% and the School of Engineering and Technology at 55.8%. However, there was no significant association between School and Depression cases.

Model Assumptions

It is always desirable to ensure that none of the assumptions of linear regression are violated before any regression model is fitted. This research checked four assumptions: normality, autocorrelation, homoscedasticity, and multicollinearity. None of these assumptions were violated and the data was found to be adequate for linear regression.

Correlation and Regression analysis

Pearson correlation coefficient was computed between every independent variable and dependent variable. The results indicated a strong positive correlation between depression and family ($r = 0.505$), school ($r = 0.492$), environmental ($r = 0.446$), and economic ($r = 0.478$) factors. This implies depression increases as certain factors increases at the level of family, school, environmental, and economic factors.

A multiple linear regression model was fitted to determine the influence of the independent variables on depression. The coefficient of determination (R square) was found as 0.342. This implies that family, school, environment, and economic factors cause 34.2% of all the variations in depression among students.

Regression coefficients were obtained to determine which independent factors were significant. The p value for all the independent variables were found to be less than 0.05 as shown in Table 1. This implies that all the independent variables had significant influence on dependent variable.

Table 4: Regression Coefficients

Model	Unstandardized B	Coefficients std. error	Standardized coefficients Beta	T	Sig
Constant	1.530	0.200		7.653	0.000
Family	0.238	0.070	0.262	3.421	0.001
School	0.127	0.039	0.120	3.256	0.001
Environmental	0.106	0.021	0.100	5.048	0.000
Economic	0.177	0.058	0.222	3.064	0.002

Results from Table 2 shows that Family, school, environmental and economic factors have significant influence on depression since the p values of their t test statistics is less than 0.05.

The resultant model is summarized by equation 3 as

$$Y = 0.153 + 0.238X_1 + 0.127X_2 + 0.106X_3 + 0.177X_4 \quad (2)$$

Where;
x_1 = Family factor
x_2= school factor
x_3 = Environment factor
x_4 = Economic factor

Equation 2 implies that while keeping other factors constant; a unit change in family will increase depression by 23.8%; a unit change in school factors increases depression by 12.7%; a unit changes in environment increases depression by 10.6%; while a unit change in economic status will increase depression by 17.7%.

These results are consistent with the National Institute of Mental Health 2011, which identified social and environmental factors to be contributing to depression. The results further support the findings of Heckman et al 2014 that identified academic pressure and economic hardships as contributors to depression among university students.

Conclusion

From this study it can be concluded that:

i. Prevalence of depression is high among university students as reported by 57.7% of the students sampled.
ii. Family dynamics have significant influence on depression prevalence. Toxic family climate can easily trigger depression among students.
iii. Academic pressures have significant influence on depression prevalence. When there is so much pressure from academic related activities students tend to develop depression like signs
iv. Environmental factors have significant influence on depression prevalence. Activities in the environment can trigger depression.

v. Economic factors have significant influence on depression among students in public universities in Kenya.

Recommendations

Based on the findings and conclusions of this study, this study recommends that the university adopts a comprehensive and multidimensional strategy on the issue of depression among students. Firstly, begin with setting up peer counseling programs by trained students. The peer counselors must be able to recognize the early signs of depression and communicate effectively so that they can identify at-risk-persons and refer them to mental health resources in liaison with the guidance and counseling department of the university. This will promote early intervention, as well as create a supportive community where students will feel comfortable seeking help. Establishing a platform for online support system that preserves anonymity is of utmost importance. This would enable students to seek help without being seen, thus meeting concerns regarding anonymity. Such might be equipped with chat support, self-assessment resources, and links for professional counseling services. In addition, the university should also emphasize social bonding and de-stressing among students. Trying to encourage participation in extra-curricular activities such as sports, clubs, academic and non-academic trips, and leisure spaces on their campuses like parks will provide opportunities for interacting socially and lessen isolation. In addition to improving physical health, the activities will also develop strong social bonds among students.

Another critical step is sound mental health education integrated into curricula. This will arm students with important knowledge about depression, coping techniques, and the resources available for support. Normalizing discussions on this highly sensitive issue will ultimately bring down the stigma and promote cognizance on the subject.

Finally, creating an open culture of support on campus is one of the most vital steps toward making the environment more inclusive and understanding. Events like awareness campaigns, workshops, and seminars could engage the entire university community in open dialogue on issues regarding mental health. It would, thus, help curb the prevalence of depression among students and promote a culture of mental wellness on the campus.

This study used self-reported data only, therefore, future studies should therefore apply a mixed-method method. Data should be collected from both reported incidence levels and experiences of people living with depression. This will give a more complete picture of how students experience and provide a basis for more effective interventions.

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