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# Prevalence of Depression among University Students in Nairobi County, Kenya: A Comparison of Two Public Universities.

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**ABSTRACT**

Depression is a serious mental disease that affects both young and old people in the society. Depressed people harbor negative thoughts, and this makes them perceive life issues negatively. Depression is common among university students and despite the methods provided for its intervention, the prevalence of depression among university students remain higher than in the general population. The objective of this study was to determine and compare the current prevalence of depression among engineering students at the University of Nairobi and at the Technical University of Kenya. A quasi-experimental research design was adopted, where two Kenyan public universities were conveniently sampled. Engineering students from the University of Nairobi and those from The Technical University of Kenya who were studying undergraduate degree in any engineering courses were sampled for the study. The study data was collected using questionnaires and the Beck's Depression Inventory (BDI). The prevalence of depression was determined through proportions obtained from the data from the BDI in the two different universities. The findings indicated that 66.4% of the respondents from University of Nairobi had no depression, 16.9% registered moderate depression levels, 15.5% had mild depression, while 1.2% of the respondents exhibited severe depression. Further, results revealed that 67.1% of the respondents from Technical University of Kenya exhibited had no depression, 16.9% registered mild depression levels, 14.8% had moderate depression, while 1.2% of the respondents exhibited severe depression. The study concluded that about a third of the students studying engineering degree courses at the University of Nairobi and at the Technical University of Kenya are currently going through different levels of depression ranging from mild, moderate and severe depression. The implication of the findings is that depression is a serious concern among university students and therefore should not be ignored.



## Introduction

Depression is a serious mental disease that affects both the mind and the body. It can be defined as a state of intense sadness or despair that has progressed to a level that negatively affects an individual's social functioning and the basic activities of daily living. Depressed people harbor negative thoughts, and this makes them perceive life issues negatively. This negative perception to life issues further complicates the treatment of depression. Many people who experience depressive symptoms lack the motivation to get through the day's activities and they experience feelings of sadness and loneliness. According to the World Health Organization [25], those experiencing depression may often lose interest in daily activities, suffer from low self-esteem, recognize a loss of energy, and experience difficulty with sleep patterns. Other symptoms of depression include irritability, fatigue, apathy, and sadness. When these feelings become stronger and more consistent, substance abuse and risky sexual behavior tend to become outlets for young adults who experience frequent low feelings. It has further been observed that untreated depression can result in poor health, substance abuse, and suicide in more severe cases [7]. .

Depression is a significant public health concern worldwide and it has been ranked as the leading cause of disability worldwide in terms of total years lost due to disability. There are numerous forms of depressive disorders, whose classification depends on duration, timing, and etiology of the depressive symptoms. According to the American Psychiatric Association, the most common type of depression is Major Depressive Disorder (MDD). Individuals with the neuropsychiatric MDD express its behavioral, physiological, as well as emotional effects in varied ways. Often, it makes those with it have suicidal thoughts and tendencies owing to the damage it exerts on their quality of life over time. MDD is referred to by different names depending on the context. The names include unipolar depression, clinical depression, and major depression [1].

All over the world, studies have shown high prevalence rates of depression. In the adult population, prevalence rates for depression have been shown to be between 5.0% and 10.3% in the United States of America [15] and 14.6% in South Africa [22]. In Kenya, the prevalence of depression in the adult population has been reported to be 6.8% [10].

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However, higher rates of depression among university students have been reported in many parts of the world. A survey of Association for University and College Counseling Center Directors (AUCCCD) revealed that depression ranked second from anxiety as the top presenting psychological concern among college students (36.4%), followed by relationship problems (35.8%). The survey which was done in United States, Canada, Europe, the Middle East, Asia, and Australia, also reported that the average age of onset for many mental health conditions is the typical college age range of 18 to 24 years old [13]. This is not surprising because adolescence being a transitional period from childhood to adulthood is a stage of emotional instability resulting from demand for separation and independence, and this may be stressful and result in depression. Evidence suggests that early intervention for depression can improve long-term outcomes [13]. Other studies confirm high rates of depression among university students. In one study done in Canada, university students were sampled from four university clinics and tested for depression using a self-reported Beck's Depression Inventory (BDI). The study revealed that the prevalence of depression in this population was 25% for males and 26% for females [12]. Another meta-analysis study done among Iranian university students revealed that the prevalence of depression was 33% [19].

In another study, it was observed that depression was a leading psychological problem among university students, and it is a common cause of morbidity [20]. Depressed students cannot attain their life goals since depression affects many areas of their functionality. When students get depressed, they are not able to identify the symptoms of depression and in the confusion they engage in unacceptable behaviors. As noted in another study [17], depressed students of the University of Nairobi manifested risky sexual behaviors such as engaging in many sexual partners and having sex while under the influence of alcohol and drugs. Both of these are risk factors to HIV infections. As depression progresses without effective interventions, it may lead to loss of lives through suicide. In another study among university students in Kenya, it was revealed that depression takes the highest percentage of all the causes of suicide [23].

Depression is highly prevalent among university students, and despite current intervention measures, depression continues to persist at substantially high levels in this population. Several studies have shown that incidences of depressive symptoms have been increasing among college and university students. A study of college students receiving counseling services between the years 1988 and 2001 found out that a 20% increase occurred in the number of students seeking help for depressive symptoms during that period [3]. In a survey of university counseling center directors completed in 2006, it was noted that 91.6% of the respondents reported that they had observed an increase in the number of students experiencing psychological problems in the recent years [4]. In another study done in America, 43% of college students reported feeling so depressed that it was difficult for them to study [2]. The development of depressive symptoms may have a significant impact on the ability of college students to successfully complete academic requirements. Students experiencing depressive symptoms report greater amounts of emotional suffering. This suffering may impact their life satisfaction and academic performance [5].

Several important issues are relevant to depression prevalence rates among university students. Students' transition from high school to college is associated with many challenges which the student has to overcome. Geographic changes, academic pressure, and an entirely new interpersonal environment are some of the changes that the college student must face [8]. From a developmental perspective, the age at which many students begin their university education is late teenage or early adulthood. This age has important implication for adjusting effectively to college life since it is the stage at which the process of identity development takes place. Navigating the process of identity development can lead to self-doubt, social withdrawal, loneliness, lowered self-esteem, and even depression [9]. Further, the four commonly cited reasons for depression among university students are academic problems, loneliness, economic problems, and relationship difficulties [8]. In addition, depression during this period is correlated with impaired social functioning, substance abuse, and school difficulties [24]. Other adverse outcomes of depression among university students include increased use of alcohol and risky HIV sexual behavior [17].

There are a number of professionals in the university setting charged with the responsibility of responding to the challenges experienced by the students. Dean of students, counseling units, university chaplain, and peer counselors, all have important roles of assisting students in their daily challenges in the campus. Together with these, there are university clinics and psychiatric services offered at the universities. However, despite all these services, depression still persists at substantially high rates among university students.

This persistence of depression suggests that the interventions used are not effective enough to lower depression levels and therefore the need for an alternative intervention. In order to effectively intervene for depression among university students, monitoring the rates of depression prevalence becomes necessary. Because of that, this study aimed to assess and compare depression prevalence in two Kenyan public universities, University of Nairobi and the Technical University of Kenya. The study targeted undergraduate students from the School of Engineering at the University of Nairobi and School of Engineering Science and Technology at the Technical University of Kenya (TUK). Such interventions should aim at imparting skills which would enable the students to deal with problems and symptoms associated with depression in their environment before they become pathological, thereby reducing the likelihood of future morbidity.

**Methodology**

The study adopted a quasi-experimental research design, where two Kenyan public universities were conveniently sampled. Students studying engineering courses at the University of Nairobi and at the Technical University of Kenya formed the study population. The sample size was determined depending on the prevalence of depression in this population, the significance level which was 0.05, and the confidence level which was 95%. The minimum required sample size for the study was 246 participants. A total of 852

participants were interviewed for this study, out of which a sample of 273 was obtained. Of these, 136 were from the School of Engineering of the University of Nairobi and the rest 137 were drawn from the School of Engineering Science and Technology of the Technical University of Kenya.

A structured questionnaire was used to collect socio-demographic data of the participants while Beck's depression Inventory (BDI) was used to assess levels of depression. The BDI used in the present study contained twenty-one questions, each being scored on a scale value of 0 to 3. Scoring was done by adding up the score for each of the 21 questions, by counting the number to the right of each question that had been marked. The highest possible total for the whole test was sixty-three and the lowest possible score for the test was zero. A total score of zero (0) to thirteen (13) was taken as indicating minimal depression and was considered to be within normal limits. A score of fourteen (14) to twenty-eight (28) was taken as indicating mild or moderate depression. Scores of twenty-nine (29) and above were taken as indicating severe depression or MDD. Those with scores of twenty-nine (29) and above were referred to the student counseling departments in their universities.

The study data which was collected using socio demographic questionnaires and the Beck's Depression Inventory (BDI) was then analyzed to determine the prevalence of depression. The prevalence of depression was determined through proportions obtained from the data from the BDI in the two different universities. The Statistical Package for Social Sciences (SPSS version 22) was used to analyze the data.

**Results**

The aim of the study was to determine and compare the current prevalence of depression among students studying engineering degree courses at the University of Nairobi (UON) and at the Technical University of Kenya (TUK). The results were as presented in table 1 for UON and table 2 for TUK.

**Table 1. Prevalence of Depression among UON students**

| Level | Frequency | Percent (%) |
|---|---|---|
| Normal limits | 289 | 68.8 |
| Mild Depression | 65 | 15.5 |
| Moderate Depression | 61 | 14.5 |
| Severe Depression | 5 | 1.2 |
| Total | 420 | 100 |

The findings in Table 1 indicate that 66.4% from UON exhibited normal levels of depression, 16.9% registered moderate depression levels, 15.5% had mild depression, while 1.2% of the respondents exhibited severe depression. According to these results, the prevalence of depression at UON was 33.6%.

**Table 2. Prevalence of Depression among TUK students**

| Level | Frequency | Percent (%) |
|---|---|---|
| Normal limits | 290 | 67.1 |
| Mild Depression | 71 | 16.4 |
| Moderate Depression | 62 | 14.4 |
| Severe Depression | 9 | 2.1 |
| Total | 432 | 100 |

The findings in Table 2 indicate that 67.1% of the respondents from TUK exhibited normal levels of depression, 16.9% registered mild depression levels, 14.8% had moderate depression, while 1.2% of the respondents exhibited severe depression. These results show that the prevalence of depression at TUK was 32.9%.

The following graph illustrates the prevalence of minimal depression, mild or moderate, and severe depression or MDD among the students.

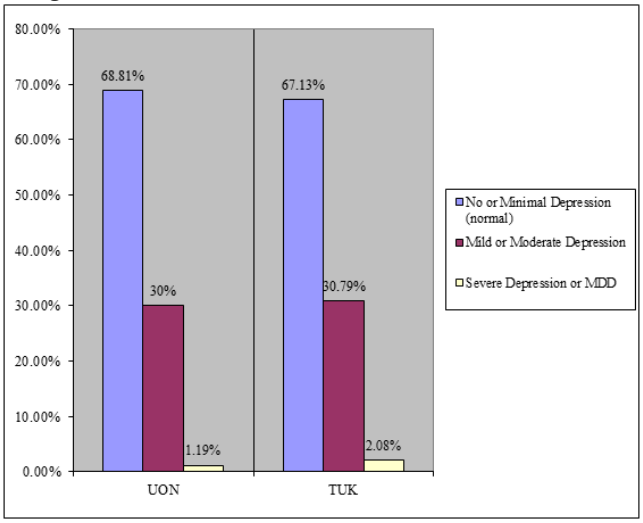


**Figure 1. Prevalence of depression among students of the UON School of Engineering and at the TUK School of Engineering Science and Technology**

From the above graph, it is clear that among the students in the UON School of Engineering (N= 420), the prevalence of minimal depression was 68.809% (N = 289), mild or moderate depression was 30% (N = 126), and severe depression or MDD was 1.19% (N= 5). The total percentage of students who had mild or moderate depression or severe depression or MDD was 31.19%. The five students with severe depression or MDD were advised to seek assistance from their university's students' counselors. It can also be observed from the graph above that among the students in the TUK School of Engineering Science and Technology (N = 432), the prevalence of minimal depression was 67.129% (N = 290), mild or moderate depression was 30.787% (N = 133) and severe depression or MDD was 2.083% (N = 9 ). The total percentage of students who had mild or moderate depression or severe depression or MDD was 32.87%. The nine students with severe depression or MDD were advised to seek assistance from their university's students' counselors. An unpaired t-test was ran between the BDI scores for the TUK School of Engineering Science and Technology students (N = 432) and the BDI scores for the UON School of Engineering students (N= 420) at a 95% confidence interval.

The test resulted into a p-value of 0.365. In most statistical analyses, a p-value equal to 0.05 is taken as the significance cut-off. If the p-value between two sets of data is less than 0.05, the conclusion is that the means of the two sets of data are significantly different and thus there is a significant difference between the sets. In this study, the p-value of 0.365 meant that there was no significant statistical difference between the BDI scores for the TUK students and the BDI scores for the UON students. This means that there was no significant mean difference in depression levels between UON and TUK students and that both UON students and TUK students had more or less the same level of depression.

**Table 3. Independent t test for the two sets of data.**

| | Groups | N | Mean | Std. Deviation | Std. Error Mean | F statistics | P value |
|---|---|---|---|---|---|---|---|
| BDI | UON | 136 | 19.31 | 2.983 | 0.256 | 1.082 | 0.365 |
| | TUK | 137 | 18.97 | 3.171 | 0.271 | | |

**Table 4. t test on relationship between prevalence of depression and gender.**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean | F statistics | P value |
|---|---|---|---|---|---|---|---|
| BDI | Female | 201 | 8.69 | 8.738 | 0.616 | 10.976 | 0.119 |
| | Male | 651 | 9.77 | 8.197 | 0.321 | | |

Relationship between gender and depression prevalence was assessed. Findings of a t test that was done to assess the relationship between the two factors were as shown in the table above:

The findings in Table 4 indicate that there was no significant mean difference in depression between male and female. This was supported by a p value of 0.119, which was greater than the critical p value of 0.05 at 95% confidence interval. Based on the results, the implication is that the likelihood of male and female students falling into depression is more or less the same.

The study revealed that year of study was significant in determining depression prevalence. A cross tabulation was conducted between year of study and students' depression levels so as to check if there was statistical significant association between the variables. The results were as presented in the table below:

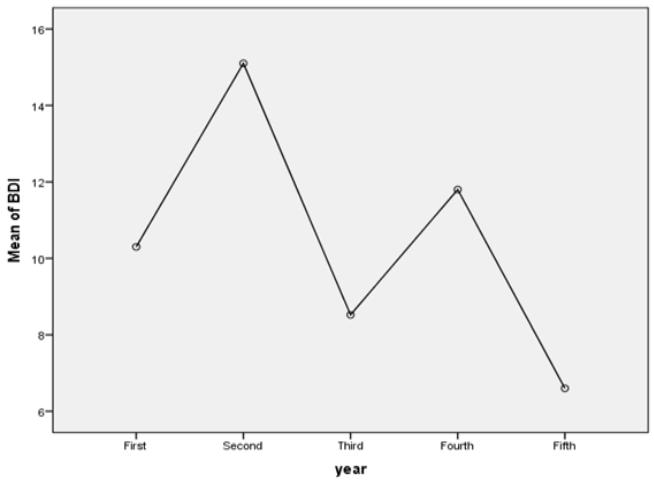


**Figure 2. Means Plots.**

Based on the means plot above, second year students have a high likelihood of falling into depression, followed by fourth year, first year, then third year, while fifth year students are less likely to fall into depression. The findings imply that a second year student taking engineering course in either UON or TUK is likely to register higher depressive symptoms compared to students in other years.

Relationship between age and depression prevalence was also assessed. The table below showed the results:

The regression results in Table 6 indicate that there is a negative and significant relationship between age and depression. This is supported by a coefficient of -0.791 and p value of 0.000 which is less than 0.05 at 95% confidence interval. The findings imply that the level of depression among the students decreases with age. That is, as the students become older, their depressive symptoms decline.

**Discussion**

Depression is a significant public health concern worldwide and has been ranked as one of the illnesses having the greatest burden for individuals, families, and society [26]. University students are likely to have more stressors than the general population which predisposes them to depression. There are several general signs that are characteristic of depression which can affect university students negatively and hinder them from achieving their life goals. Among University students, depression has also been identified as a gateway for more serious health risks and unproductive behavior such as suicidality, substance abuse, and risky sexual behavior [16]. This makes screening and intervention for depression among university students very vital. Among 852 students who were screened for depression, the findings revealed that majority of the students studying engineering degree courses at the University of Nairobi and at The Technical University of Kenya exhibited normal levels of depression symptoms. However, a third of these students registered different levels of depression ranging from mild, moderate and few cases of severe depression.

The total prevalence of mild or moderate depression and severe depression or MDD among the students in the UON School of Engineering and among the students in the TUK School of Engineering Science and Technology compares well with the depression prevalence found among other university students in the past. In a study on depression among university students in Kenya, it was found out that the overall prevalence of depression among Kenyan university students was 41.3%. This was higher than what was observed in the current study. The study also established that the overall severe depression prevalence among Kenyan university students was 5.6% [16].

Other studies have observed lower levels of depression among university students. A study among Chinese university students revealed that depression prevalence stood at 23.8%

**Table 5. Chi Square test on relationship between year of study and depression levels**

| | | Normal limits | Mild Depression | Moderate Depression | Severe Depression | Total | Chi Square (P value) |
|---|---|---|---|---|---|---|---|
| year | First | 57 | 24 | 11 | 1 | 93 | |
| | Second | 45 | 44 | 45 | 4 | 138 | |
| | Third | 226 | 43 | 56 | 4 | 329 | |
| | Fourth | 23 | 8 | 8 | 1 | 40 | |
| | Fifth | 11 | 2 | 2 | 0 | 15 | |
| Total | | 362 | 121 | 122 | 10 | 615 | 60.347(0.000) |

The findings in Table 5 revealed that year of study and depression levels were significantly associated (chi=60.347, p value=0.000).

**Table 6. Relationship between Age and Depression**

| Model | | Unstandardized Coefficients | | t | Sig. |
|---|---|---|---|---|---|
| | | B | Std. Error | | |
| 1 | (Constant) | 26.552 | 2.697 | 9.845 | 0.000 |
| | Age | -0.791 | 0.125 | -6.35 | 0.000 |
| | R square | 0.045 | | | |
| | F statistics | 40.327 | | | |

Dependent Variable: BDI

[11]. This is lower than that observed in the current study. However, another study found out that the overall depression prevalence among the Iranian university students who were the study's subjects was 33% [19]. The current study found out that the total prevalence of depression among University of Nairobi students stood at 32.87% while that among students of The Technical University of Kenya was noted to be 31.19%. This compared quite closely with the findings of the study among Iranian university students [19].

According to WHO, the prevalence of depression among the general Kenyan population was estimated to be only 4.4% in 2015, portending that the prevalence of depression among Kenyan university students is way higher than the prevalence among the general population. The WHO estimate is presented in a report titled "Depression and Other Common Mental Disorders - Global Health Estimates". According to the report, about 1,952,981 Kenyans representing 4.4% of the total Kenyan population expressed clinical depression in 2015 [27]. That suggests that undergraduate Kenyan students are between seven and eight times more likely to suffer depression than the general Kenyan population.

In the current study, Beck's Depression Inventory (BDI) was used to assess the levels of depression. Accordingly, it was revealed that the most common type of depression was mild depression in both universities (19.1%), followed by moderate depression (14.4%) then severe depression (1.6%). This trend is similar to findings of another study done in 2014 [16], where 35.5% of the students manifested symptoms of mild and moderate depression while 5.6 % showed symptoms of severe depression. However, other studies have shown trends which are different from the ones observed in this study. In a study among university students in Mengalore city India, it was observed that moderate depression was the most common with a prevalence of 41.2%. This was followed by mild depression with a prevalence of 26.6% and severe depression with prevalence of 11.4% [14].

According to the current study, prevalence of depression had no significant difference between male and female students in both universities. The likelihood of male and female students falling into depression was more or less the same. This is because both male and female students experience similar life challenges in campus. This is similar to findings of a previous study [16] which found out that a male student had similar chances of falling into depression with a female student. However, there are studies that have observed different results in relation to gender. In a study among university students in India, it was noted that prevalence of depression was slightly higher among males compared to females. This difference was attributed to coping styles or hormonal differences, where it was observed that females had better coping styles than males. It was also noted that among Indian students, male students can often develop anxiety arising from need for timely employment to enable them take up various responsibilities as society demands [14].

The current study observed that depression prevalence was highest among second year students and lowest amongst fifth year students. This was surprising because earlier studies had indicated that depression was more prevalent among students who were in their first years of study compared to those in other years [16]. Probably first years are still adjusting to the university environment with high expectations of the future given that these are the students who were always top in their secondary schools. However in their second year, they realize that things were more difficult than they thought. The first year exams are released and they realize that they are no longer the top in their classes.

Those who do not pass all exams are either referred to repeat various units or discontinued from proceeding to the next year of study. This can cause stress which may later lead to depression. Fifth year is where lowest depression prevalence was observed. This could be due to the realization that the students have gone through the other four years successfully and now they are looking forward to completing their courses successfully and adopt the coveted title 'Engineer' which is quite exciting to the students.

This study also observed that younger students had a higher risk of getting depression compared to the older ones. These findings differ from those of a study on depression among university students in Malaysia. According to the study, there was no relationship between age and depression among university students in Malaysia [6]. Findings of the current study also differ with those of another study done in Mengalore city, India. The study which was on depression among Indian university students showed that prevalence of depression and its severity increased with age of the student [14]. In the current study, some students were as young as eighteen years old meaning that they were still in their teenage years. Others were nineteen years old and therefore were just transiting from teenage to adulthood. This transition could be a main cause of stress and therefore depression.

**Conclusion**

Based on the findings, the study established that about a third of the university students were suffering from mild, moderate and severe cases of depression. The implication of the findings is that depression is a serious concern among university students and therefore should not be ignored. The study also noted that there were much higher levels of depression among university students compared to the general population. The difference between the depression prevalence among university students and the depression prevalence across the general population should move policy makers, as well as the academia, to consider the best approaches of dealing with the depression challenge among the university students. The markedly high depression prevalence among the university students supports the widespread calls for establishing and expanding counseling and mental health resources for university students. This should also be extended to other young people in general who could be going through similar challenges as the university students.

**Recommendations**

Considering the high prevalence of mild and moderate depression among university students, university counselling units are very important. The students should be educated on how to recognize and deal with depression symptoms before they become pathological. The counselling units should have qualified staff to carry out clinical assessment aimed at identifying the symptoms of depression as well as the factors that lead to depression among students. By so doing, non-pharmacological interventions can be effective in dealing with the factors associated with depression.

The study recommends the need for these students to seek help in dealing with depressive symptoms before they become pathological. For the few cases identified as severe depression, the institutions through their counseling department need to facilitate these students in getting the necessary medical help. The study also recommends to all students to seek psychological help freely when they observe depressive symptoms. This will ensure that students perform better and have good interpersonal relationships and this will help them adjust better to the university environment.

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