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Research

Current trends in West African universities, students' psychological distress, and quality of life: a quantitative study

Tendances actuelles dans les universités ouest-africaines, détresse psychologique des étudiants et qualité de vie : une étude quantitative

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Abstract

Terrorism threats on education in West Africa, massification, student pauperization, unemployment, living environments, university managements, and poor infrastructures have seemingly affected students' lifestyles, learning, achievements, mental health but also teaching, and learner-instructor interrelationship. In the light of this, it was argued that new difficulties have emerged on university and college campuses. This study aimed to find out the prevalence of the resulting depression, anxiety, and stress among university students in a French speaking West African university and to gauge their general quality of life. Instruments included the depression, anxiety, and stress scale (DASS-21), subscales of the Multidimensional Students' Life Satisfaction Scale and General Quality of Life (MSLSS), and a demographic questionnaire. Participants were 348 female and male students. Descriptive analyses revealed that 10.05% of the students had levels of depression ranging from mild to moderate, 19.25% had levels of anxiety ranging from mild to severe, and 3.15% of participants had stress levels ranging from mild to moderate. Multiple linear regression analyses showed that students' depression and anxiety predicted their quality of life. None of the different mean scores between female and male students, however, were statistically significant. Based on the findings, we argued that, although the studied population has psychological distress comparable to that of students elsewhere albeit current issues, cultural and

geographical differences, they reported older ages and lower grade point averages (GPA). Psychological distress, quality of life, social, economic factors, and lack of infrastructures impact university students' health, achievement, and the vision, mission, and quality of higher education.

Keywords: Higher education. Emergent issues. Learning. Psychological distress. Quality of life.

Résumé

Les menaces terroristes sur l'éducation en Afrique de l'Ouest, la massification, la paupérisation des étudiants, le chômage, les cadres de vie, la gestion des universités et la médiocrité des infrastructures ont apparemment affecté les modes de vie des étudiants, l'apprentissage, les acquis, la santé mentale mais aussi l'enseignement et l'interrelation apprenant-instructeur. À la lumière de cela, il a été soutenu que de nouvelles difficultés sont apparues sur les campus. Cette étude visait à déterminer la prévalence de la dépression, de l'anxiété et du stress qui en résultent chez les étudiants d'une université francophone d'Afrique de l'Ouest et à évaluer leur qualité de vie générale. Les instruments utilisés comprenaient l'échelle de dépression, d'anxiété et de stress (DASS-21), des sous-échelles de l'échelle multidimensionnelle de satisfaction de la vie des étudiants et de la qualité de vie en générale (MSLSS) et un questionnaire démographique. Les participants étaient au nombre de 348 étudiants féminins et masculins. Des analyses descriptives ont révélé que 10,05 % des étudiants avaient des niveaux de dépression allant de léger à modéré, 19,25 % avaient des niveaux d'anxiété allant de léger à sévère et 3,15 % des participants avaient des niveaux de stress allant de léger à modéré. Des analyses de régression linéaire multiple ont montré que la dépression et l'anxiété des étudiants prédisaient leur qualité de vie. Cependant, aucun des différents scores moyens entre les hommes et les femmes n'était statistiquement significatif. Sur la base des résultats, nous avons soutenu que, bien que la population étudiée ait une détresse psychologique comparable à celle des étudiants ailleurs, malgré les problèmes actuels, les différences culturelles et géographiques, ils ont signalé des âges plus avancés et des moyennes pondérées cumulatives (GPA) inférieures. La détresse psychologique, la qualité de vie, les facteurs sociaux, économiques et le manque d'infrastructures ont un impact sur la santé, la réussite, la vision, la mission et la qualité de l'enseignement supérieur.

Mots clés : Enseignement supérieur, Problèmes émergents, Apprentissage, Détresse psychologique, Qualité de vie.

1. Introduction

Higher education has been undermined by a multitude of difficulties that directly affect students (Chapleo & O'Sullivan, 2017) as the primary beneficiaries of the offered services in universities. The difficulties relate but are not limited to the academic governance (Rall, Morgan, & Commodore, 2019), the inclusivity and the experiences of students and staff in the higher education sector (Bozalek & Boughey, 2012), teaching and learning (Kebritchi, Lipschuetz, & Santiago, 2017), decaying infrastructures (Kobla, Mirriam, & Li-Hua, 2018), terrorism threats on

schools (Bene, 2022), and student mental health (Center for College Mental Health [CCMH], 2021).

Other known predictors of student learning and level of achievement encompass the student's full-time status, their degree of financial stress, whether they are perceived as young or old learners with ages ranging from 18 to 34, and whether the student is male or female, female students being more vulnerable to failure (Stallman, 2010). More literature reviews found other factors such as students' social and demographic, situational, and academic-based factors as possible causes of students' difficulties, resulting in psychological distress (Sharp & Theiler, 2018). Furthermore, the outcome of research in higher education suggests that most universities on the African continent have admitted students beyond their capabilities. The excess number of students resulted in massification, hence a reduction of the quality of higher education. It was argued that the quality of higher education has a considerable impact on students' psychological distress, learning and achievement. For example, the rate of graduation in higher education in Africa has remained relatively low (Mohamedbhai, 2014). The issues of massification have been addressed over the years and it appears to be at the core of most problems in African universities.

Massification in higher education.

The word massification was utilized regarding universities and colleges to refer to the quick augmentation in student enrolment (Scott, 1995). In West Africa, it was argued that enormous university student admission was not followed by increase in funding, resulting in decreasing number of teaching staff and poor infrastructures. Consequently, the quality of pedagogy, the effectiveness of student evaluation, and equity were undermined (Ntim, 2016). In Ghana, most universities lack sufficient resources to meet the needs that was brought about as the results of the augmented student numbers (Kobla, Mirriam, & Li-Hua, 2018). Clearly, massification considerably has negative impacts on teaching and learning. Compared to the large number of enrolled students, infrastructures such as lecture rooms, learning materials and research laboratories become insufficient or are simply inaccessible. Also, the increased learner to instructor ratio was found to create the instructor's lack of attention to the learner or the instructor's inability to control small group work. Instead, teachers were found to foster memorization techniques that are based on mere repetition as assessment methods. It was discussed that in several universities, the failure rates were as high as 70 percent for freshmen and sophomores (Mohamedbhai, 2008). It is in this light that Kipchumba (2019) argued that the lack of funding, weak university management and governance, alongside poor quality and overuse of the university infrastructures such as libraries, laboratories overcrowded lecture rooms, and student's student houses are significant burdens on the quality of higher education. Correlations were found between poor study conditions, failure, and psychological distress.

The role of psychological distress

Healthwise, over the past recent years, a substantial body of studies have indicated that university students undergo significantly higher levels of depression, anxiety, and stress (CCMH, 2021; Mackenzie, Wiegel, Mundt, Brown, Saewyc, Heiligenstein, & Fleming, 2011; Mahmoud, Staten, Hall, & Lennie, 2012). College and university students' mental health status have been equated to severe crises that have continually worsened both in number and in severity. International studies conducted with different undergraduate student participants have yielded moderate to high levels of depression, anxiety, and stress prevalence (Singh et al. 2017). The studies were conducted in Spain (Fernández-Rodríguez et al. 2019; Ramón-Arbués et al. 2020), Bosnia and Herzegovina

(Racic et al. 2017), Sudan (Dafaalla et al. 2016), China (Gao et al. 2020), Jordan (Dalky, & Gharaibeh, 2019), the US where college students are diagnosed for anxiety and depression (CCMH, 2021; Oswalt et al. 2020). Studies showed that the level of psychological distress alongside quality of life and other developments on campuses negatively affect student learning and achievement. Research revealed that college students' high degrees of psychological distress negatively affect their academic achievement and course completion as measured by the level of student dropouts. The Healthy Minds Study (Beiter et al. 2015) showed that undergraduate and graduate students' high occurrence of anxiety and depression impair their academic performance.

Student victimization and academic underachievement

It was argued that from main beneficiaries of higher education, university students' have become the main victims of massification. Life on campuses has become stressful because learners are challenged and must cope with a countless number of difficulties (Pedrelli et al.(2015). Frustrated students have become ungovernable and have been on the streets to demonstrate against their university managements or their countries' governments to improve their life and study conditions. Other major consequences of the deteriorated campus conditions involve graduating without gaining the employability skills, brain drain, poor research conditions, frequent clashes between students, or student unions and university administration (Makosso, 2006).

In the landlocked country Burkina Faso, university students' lives have undergone recent unenviable changes and challenges that contribute to the degradation of students' mental wellbeing and quality of life. Student idleness due to lack of course scheduling resulting in student demotivation, shortage of faculty members, lack of lecture rooms, significant extension of the number of years until graduation, student's perceived bleak future, instructors' attitudes, and plethora of students in auditoriums are a few of the new issues that have evolved over the past decades, and are believed to be factors that can affect students' psychological distress and quality of life. Although many studies have been conducted globally on the prevalence of depression, anxiety, and stress among college students, alongside their academic achievements, and quality of life, data pertaining to French speaking West African university students' psychological distress and quality of life have been non-existent. To the best of our knowledge, in the contexts of massification in higher education, increase in student mental disabilities, student victimization, academic underachievement, and terrorism threats, this is the first study that examines together, French speaking West African university students' perceptions and rankings of factors that could cause rises in their psychological distress, that assesses levels of psychological distress, that attempts to predict students' quality of life, and compares male and female students across levels of depression, anxiety, stress, and quality of life.

The current development of the social environment in West Africa, namely in institutions of higher education requires further investigations.

The Present Study

In the present study, the investigators utilized quantitative approaches to analyze the nature of students' psychological distress alongside their quality of life as the results of current social developments relating to institutions of higher education. The aim of the present study was to get insight into French speaking West African university students' psychological wellbeing and

quality of life in an era when terrorism threats, pauperization, exponential population growth contribute to lifestyle modification universities. The objectives were quadruple: The first objective was to examine French speaking West African university students' perception of factors that could cause rises in their psychological distress. The second objective was to gauge the students' levels of depression, anxiety, stress, and quality of life. Quality of life was measured as students' life satisfaction with themselves and life satisfaction with their living environments (Huebner, 1991). The third objective was to assess variables that predict students' quality of life, and the fourth objective was to compare male and female students' levels of depression, anxiety, stress, and quality of life. The present study attempted to answer the following questions: (a) What are college students' perception of factors that could affect their mental health? (b) What are college students' levels of depression, anxiety, stress, and quality of life? (c) To which extent do depression, anxiety, stress, age, and GPA predict students' quality of life? (d) Do female college students have higher levels of depression, anxiety, stress, and better quality of life than their male counterparts?

2. Materials and Methods

2.1. Study area and Population

Data collection took place in early January 2022, in Ouagadougou, the capital city of Burkina Faso, West Africa. The targeted population was university students, mainly from the Ki-Zerbo university. See table 1 for more detailed information regarding participants' characteristics.

2.2. Participants

This survey design used descriptive, correlational, and comparative analyses. The study used a convenient sampling method to recruit college students who were available on campus at the time of the data collection and volunteered to be part of the research. The data were collected through a paper and pencil questionnaire. Participants were 348 university students whose ages ranged from 18 to 35 with a mean of 25.06 (SD = 2.99). The sample size included 172 (49.4%) female and 176 (50.6%) male students. Green (1991) recommended a rule of thumb to determine sample size in which $N \geq 50 + 8K$ when testing R^2 , K being the number of variables. As the present sample size was deemed acceptable, we removed a dozen responses with multiple missing information. Considering the number of variables, the sample size was found sufficient to run regression analyses. Nationalities that were represented included Cote D' Ivoire, Niger, Tchad, Togo, and Burkina Faso. Participants' levels of education ranged from college first year to doctoral levels. Fields of study included Sciences, Social Sciences, and other fields clustered as Humanities. See table 1 for more details about specific areas of study. Participants provided demographic information regarding their gender, age, academic information such as GPA, current education attainment, and they rated their levels of stress, anxiety, depression, and quality of life. Students also indicated by levels of importance factors that they perceived as more likely to affect their learning and achievement. Data collection took place in early January 2022, in Ouagadougou, the capital city of Burkina Faso, West Africa. See table 1 for more detailed information regarding participants' characteristics.

Table 1. Descriptive statistics of sample characteristics

Variables	Demographics	<i>N</i>	%
Age ranges			
	Below 20 years	9	2.59
	From 20 to 24 years	150	43.10
	From 25 to 29 years	162	46.55
	30 years and above	27	7.75
Genders			
	Females	N= 172 Mean age = 24.62 y	49.4
	Males	N= 176 Mean age = 25.49 y	50.6
GPA (out of 20.0)			
	Below 10	81	23.27
	From 10 to 15	260	74.71
	Above 15	7	2.01
	Females' mean GPA	10.30/20	
	Males' mean GPA	11.27/20	
Levels of education			
	Freshmen	68	19.54
	Sophomores	150	43.10
	Juniors	75	21.55
	Master's students	52	14.94
	Doctoral students	1	.28
Areas of studies			
	Anglophone studies	48	13.79
	Biology	15	4.31
	Economics	46	13.21
	Geography	14	4.02
	German	33	9.48
	History	39	11.20
	Law	32	9.19
	Linguistics	17	4.88
	Management	4	1.15
	Mathematics	4	1.15
	Medicine	6	1.72
	Modern letters	37	10.63
	Philosophy	5	1.43
	Psychology	9	2.58
	Sociology	38	10.91

2.3. Variables

The first instrument used for the data collection was a demographic questionnaire that was carefully developed by the investigators and used to address the first objective of the study, that is, to examine French speaking West African university students' perception of factors that could cause rises in their psychological distress. It required participants to indicate their gender, age, academic information regarding their GPA, current education attainment. In a table that was provided, participants also were required to rank, from the most likely to the least likely, factors that could cause their levels of depression, anxiety, and stress to rise, the raw number 1 being the most important factor and the raw number 10 being the least important factor. The factors included (1) difficulty of field of study, (2) unemployment, (3) economic challenges, (4) sickness, (5) loneliness, (6) instructors' attitude, (7) friends' attitude, (8) family members' attitude, (9) self-esteem, and (10) other factors.

Next, the investigators used the Depression Anxiety Stress Scale (DASS-21) as the second but major tool for data collection to address the second objective, that is, to gauge the students' levels of depression, anxiety, stress, and quality of life. The same tools were used for the third and fourth objectives (to assess variables that predict students' quality of life (3) and to compare male and female students' levels of depression, anxiety, stress, and quality of life (4)). The DASS scale is a 21-item instrument that measures the underlying symptoms of depression, anxiety, and stress (Carmin, & Ownby, (2010). The DASS-21 (Lovibond & Lovibond, 1995) has been given increasing support because of its robust psychometric properties. It was discussed that the DASS-21 possesses good internal consistency, excellent convergent validity, and good discriminative validity. Studies indicated that the DASS-21 could be utilized with older individuals instead of other scales developed to gauge comparable concepts (Gloster et al. 2008). The internal consistency that was reported in the initial instrument validation study was .81 for Depression subscale .73 for Anxiety subscale; and .81 for stress subscale (Tonsing, 2014).

Finally, the Abbreviated version of the Multidimensional Students' Life Satisfaction Scale (MSLSS) was used for the data collection (Huebner, 2001) alongside the DASS-21 to address the same objectives. The MSLSS is a measure of happiness with parents, siblings, mates, neighborhood, educational settings, self, and overall quality of life. The investigators specifically utilized two subscales of the MSLSS of which were the 4 items that measure individuals' quality of life, namely their satisfaction with Self (*There are lots of things I can do well; I think I am looking good; I like myself; most people like me.*) and the 2 items that measure individuals' quality of life, namely their satisfaction with their Living Environment (*I like my neighborhood; I like where I live*). It was argued that the shortened 18-item version of the MSLSS offers a favorable substitute for the assessment of five life areas that are relevant to young people's quality of life. Reported Cronbach Alphas for the subscales were superior or equal to 0.85 (Zumbo et al. 2007).

The whole questionnaire which included the DASS-21, the two subscales of the Multidimensional Students' Life Satisfaction Scale and General Quality of Life (MSLSS) were the validations of the French adaptations (Ramasawmy, 2015; Coudronnière et al. 2018). In the present study Cronbach's Alpha was .88 for the DASS-21, with .70, .77 and .81 for Depression, anxiety, and stress respectively. Regarding the MSLSS, Cronbach's Alpha was .70.

2.4. Procedures

Ethical approval and authorization were granted prior to the data collection from the main campus of the Ki-Zerbo University in Ouagadougou, Burkina Faso. By taking the survey, participants also gave their consents. All participants were at least 19 years old. The age of 17 is the legal age in Burkina Faso. The DASS-21 scale contained a Likert scale ranging from 0 to 3, 0 being *did not apply to me at all*, 1 being *Applied to me to some degree or some of the time*, 2 being *applied to me to a considerable degree or a good part of the time*, and 3 being *applied to me very much or most of the time*. Students were required to read each statement and circle a number 0, 1, 2, or 3 to indicate the degree to which the statement has applied to them recently. The MSLSS subscales also contained a Likert scale ranging from 0 to 5, 0 being *totally disagree*; 1 being *disagree*; 2 being *slightly disagree*; 3 being *somewhat agree*; 4 being *agree*, and 5 being *completely agree*. Students were required to read each statement and circle a number 0, 1, 2, 3, 4 or 5 to rate their personal experience regarding the items. Using convenient sampling, all questionnaires were completed on campus within two weeks. Ten to 15 minutes were needed to complete each survey. The data were reported in excel sheet and transported to SPSS version 28.0 where they were cleaned, screened for missing data, outliers, and finally analyzed.

2.5. Data Analysis

To answer question 1 regarding college students' perception of factors that could affect their mental health to worsen, the investigators analyzed students' arrangement of the suggested 10 factors by levels of importance. The factors were the followings: (1) difficulty of field of study, (2) unemployment, (3) economic challenges, (4) sickness, (5) loneliness, (6) instructors' attitude, (7) friends' attitude, (8) family members' attitude, (9) self-esteem, and (10) other factors. See table 2 for the results.

To answer question 2 regarding student participants' levels of depression, anxiety, stress, and quality of life, the researchers computed total scores of all subscales independently. Regarding the DASS-21, interpretation of the total score was based on a table provided by the developers of the instrument (Basha & Kaya, 2016). Report of quality of life was also provided independently. The first 4 items addressed the participant's quality of life, especially their satisfaction with themselves. Total score ranged from 0 to 20. The last two items addressed participants' quality of life, especially their satisfaction with their living environments. Total score ranged from 0 to 10. The total scores were matched with the interpretation provided by the developer of the instrument in an attempt to classify participants (Michele Athay et al. 2012).

Inferential analysis

The investigators performed correlation analyses that involved the depression, anxiety, and stress subscales of the DASS-21 (Lovibond & Lovibond, 1995), the two subscales (*life satisfaction with self and life satisfaction with living environment*) of the MSLSS (Huebner, 2001), students' age, and GPA to describe the directions of relationships between the included variables. To answer the question 3, (To which extent do depression, anxiety, stress, age, and GPA predict students' quality

of life?) the investigators ran two multiple regression analyses. Quality of life was measured on two subscales that include life satisfaction with self and life satisfaction with living environment, indicating two dependent variables. The total score of the Life satisfaction with self and the total score of the life satisfaction with Living environment were used as the dependent variables. The independent variables in each of the regression analyses included student age, GPA, and the three subscales of the DASS-21.

The researchers checked for the several assumptions of multiple regression analyses prior to interpreting the results. Creswell (2009) argued that there is a danger of statistical inference validity that may occur in the events assumptions of an examination are inaccurate because of lack of statistical power or interference of the statistical probabilities. The following assumptions of which were the assumptions of linearity, reliability of measurement, homoscedasticity, and normality have been the most examined ones. Assumptions one and two were checked by simple visualizations and were met. They first required that the dependent variables be measured on a continuous scale and secondly required the inclusion of two or more independent variables which are either continuous or categorical variable. We used IBM SPSS software version 28.0, IBM Corp (2021) to assess all other assumptions that encompass the assumptions of linearity, reliability of measurement, homoscedasticity, and normality. Since all the assumptions were met and none of them was violated, results of the multiple regression analyses were interpreted.

Finally, to answer question 4 relating to gender differences, the investigators run independent t tests to compare female and male students on their levels of depression, anxiety, stress, and quality of life. Prior to interpreting the results, the six assumptions of the independent sample t test were verified.

Assumption one was met. The dependent variables were measured on a continuous scale. Assumption two was met as the independent variables consisted of two categorical, independent groups that were *male* coded 1 and *female* coded 2. Assumption three had independence of observations. In other words, there was no relationship between the observations in none of groups. We used SPSS statistics 28.00, IBM Corp (2021) to check assumptions four, five, and six. Regarding Assumption four, we had previously checked and removed outliers. The assumption was met. Our dependent variable was approximately normally distributed for each group of the independent variable, thus meeting assumption five. And finally, the assumption of homogeneity of variance was met, as observed in the output of the t test.

3. Results

Findings regarding students' perceptions of factors that could affect their mental health (Objective one) suggested economic challenges and unemployment with respectively 158 (45.40%) and 85 (24.43%) participants. Economic challenges and unemployment were ranked as primary causes alongside sickness with 41 (11.78%) participants and difficulty of the field of study with 21 (6.03%) participants. Table 2 shows more rankings of factors that were perceived as more likely to cause rise in the levels of depression, anxiety, and stress.

Statistical analyses regarding the second objective (the students' levels of depression, anxiety, stress, and quality of life) suggested that 313 (89.94%) participants had total scores ranging from zero to nine, indicating normal level of depression. Twenty-five (7.18%) participants had total scores ranging from 10 to 13, indicating mild depression, and 10 (2.87%) participants had total scores ranging from 14 to 20, indicating moderate levels of depression. Total scores ranging from 21 to 27 revealed severe depression and scores over 28 were considered extreme severe depression. In the present study, students did not report total scores that were larger than 21.

Further analyses suggested that 281 (80.74.34%) students had total scores ranging from zero to seven. The latter had normal levels of anxiety. Thirty-three (9.48%) students had total scores ranging from eight to nine and were classified as having mild anxiety. Twenty-seven (7.76%) students had total scores ranging from 10 to 14 and were classified as having moderate levels of anxiety. Seven (2.01%) students had total scores ranging from 15 to 19, indicating that they had severe anxiety. No participants had total scores above 20, which would have been an indication of extreme severe level of anxiety.

The analysis of the last subscale of the DASS-21, namely the stress subscale suggested that 337 (96.83%) participants had total scores ranging from zero to 14, indicating that the latter had normal levels of stress. Ten (2.87%) participants had total scores ranging from 15 to 18 and were classified as having mild levels of stress and 1 (.28%) student had a total score ranging from 19 to 25, indicating that that student had a moderate level of stress. No students had scores ranging from 26 to 33 which would have been severe levels of stress. No students had scores above 34 either, which would have been extreme severe levels of stress. See table 3 for students' levels of depression, anxiety, and stress results.

The researchers also analyzed students' quality of life. Total score ranged from zero to 20 for students' life satisfaction with self. Thus, total scores equal or higher than 18 were considered high level of life satisfaction. Thirty-two (9.19%) students were found in this group. Total scores between 13 and 17 were considered medium. Two hundred and fifty-one (72.12%) students were found in this group. Total scores lower than 13 were considered low levels of satisfaction. Sixty-five (18.67%) participants were included in this group. The last two items addressed participants' quality of life, especially their satisfaction with their living environments. Total score ranged from zero to 10. Total scores equal or higher than 9 were considered high level of satisfaction. Forty (11.49%) participants were found in this group. Scores between 6 and 9 were considered medium and 168 (48.27%) participants were found in this group. Scores lower than 6 were considered low level of satisfaction with one's living environment. One hundred and forty (40.22%) students were found who were not satisfied with their personal living environments. See table 4 for students' levels of quality of live.

Table 2. Students' ranking of the most important factors that could associate with their mental health

	Primary cause <i>n (%)</i>	Secondary cause <i>n (%)</i>	Tertiary cause <i>n (%)</i>
Difficulty of field of study	21 (6.03)	80 (23)	101(29.0)
Unemployment	85 (24.43)	73 (21.0)	71(20.4)
Economic challenges	158 (45.40)	84 (24.1)	39 (11.2)
Sickness	41(11.78)	63 (18.01)	64 (18.04)
Loneliness	14 (4.0)	24 (6.9)	23(6.6)
Instructors' attitude	20 (5.7)	9 (.6)	19 (5.5)
Friends' attitude	3(.9)	4(1.1)	9(2.6)
Family members' attitude	4 (1.1)	8(2.3)	14(4.0)
Self-esteem	1(.3)	2(.6)	7(2.0)
Other factors (unspecified)	1(.3)	0 (0.00)	1(.3)

Table 3. Prevalence of depression, anxiety, and stress

	Levels	%
Stress	Normal	96.83
	Mild	2.87
	Moderate	.28
	Severe	0
	Extreme severe	0
Anxiety	Normal	80.74
	Mild	9.48
	Moderate	7.76
	Severe	2.01
	Extreme severe	0
Depression	Normal	89.94
	Mild	7.18
	Moderate	2.87
	Severe	0
	Extreme severe	0

Table 4. Levels of students' quality of live

	Levels	%
Quality of life/ Satisfaction with Self	High	9.19
	Medium	72.12
	Low	18.67
Quality of life/ Satisfaction with living environment	High	11.49
	Medium	48.27
	Low	40.20

Inferential

Life satisfaction with self was positively correlated with Life satisfaction with living environment ($r = .172$, $P < 0.05$), was positively associated with students' age ($r = .180$, $P < 0.05$), negatively associated with depression ($r = -.276$, $P < 0.001$), negatively associated with anxiety ($r = -.221$, $P < 0.001$), and negatively associated stress ($r = -.210$, $P < 0.01$). Student GPA was not correlated with any of the other variables. Table 5 shows other correlation analyses.

Table 5. Correlations

	1	2	3	4	5	6	7
Life satisfaction with Self	-						
Life satisfaction with Living Environment	.165** .002	-					
GPA	.061 .258	.003 .954	-				
Age	.079 .142	.050 .355	.109* .043	-			
Depression	-.087 .107	-.246** <.001	-.031 .565	-.146** .006	-		
Anxiety	-.050 .356	-.244** <.001	.016 .762	-.094 .081	.550** <.001	-	
Stress	-.039 .467	-.109* .042	.001 .988	-.184** <.001	.583** <.001	.498** <.001	-

** $p < .01$, * $p < .05$.

Multiple regression analyses were conducted to address the third objective (to assess variables that predict students' quality of life) and the results showed a significant effect of students' life satisfaction with environment on life satisfaction with self ($F(6, 341) = 2.166$), $p < .05$, with Adjusted $R^2 = .020$, suggesting that 2 % of the variance were predicted by the listed factors. Student depression, anxiety, stress, age, and GPA did not significantly predict life satisfaction with self. The second multiple regression analysis showed a significant effect of students' levels of depression and anxiety on students' life satisfaction with living environment ($F(6, 341) = 6.598$), $p < .001$, with Adjusted $R^2 = .088$, suggesting that 8.8 % of the variance were predicted by the listed factors. Student stress, age, and GPA did not contribute significantly to predicting the outcomes. See table 6 and 7 for more details.

Table 6. Multiple regression analysis of depression, anxiety, stress, age, and GPA on life satisfaction with self

Variables	Beta	SE	95%		β	P
			LL	UL		
Depression	-.043	.056	-.152	.067	-.055	.443
Anxiety	.013	.052	-.090	.116	.017	.804
Stress	.009	.047	-.085	.102	.013	.855
Students' age	.058	.052	-.043	.160	.061	.260
Students' GPA	.069	.072	-.072	.211	.052	.335
Life Satis.with Environment	.170	.062	.049	.291	.153	.006

- Dependent variable: Life satisfaction with Self
- $P < .05$.

Table 7. Multiple regression analysis of depression, anxiety, stress, age, and GPA on life satisfaction with Living environment

Variables	Beta	SE	95%		β	P
			LL	UL		
Depression	-.134	.048	-.228	-.040	-.190	.005
Anxiety	-.127	.045	-.216	-.039	-.180	.005
Stress	.062	.041	-.019	.143	.100	.132
Students' age	.011	.045	-.077	.100	.013	.802
Students' GPA	-.012	.063	-.135	.111	-.010	.846
Life satisfaction with self	.129	.047	.037	.220	.143	.006

- Dependent variable: Life satisfaction with living Environment
- $P < .05$.

Regarding the fourth objective (to compare male and female students' levels of depression, anxiety, stress, and quality of life), the results of the independent *t* test regarding depression indicated a non-statistically significant difference between male ($M = 3.94$, $SD = 3.78$) and female students ($M = 3.99$, $SD = 3.50$), [$t(346) = -.116$, $P = .908 > .05$]. The comparison of anxiety revealed a non-statistically significant difference between male ($M = 4.35$, $SD = 3.79$) and female students ($M = 4.58$, $SD = 3.45$), [$t(346) = -.560$, $P = .576 > .05$], the comparison of stress showed a non-statistically significant difference between male ($M = 4.83$, $SD = 4.24$) and female students ($M = 4.85$, $SD = 3.94$), [$t(346) = -.044$, $P = .965 > .05$]. Furthermore, the comparison of life

satisfaction with self indicated a non-statistically significant difference between male ($M = 14.40$, $SD = 2.83$) and female students ($M = 14.41$, $SD = 2.85$), [$t(346) = -.050$, $P = .961 > .05$], and finally, the comparison of life satisfaction with living environment indicated a non-statistically significant difference between male ($M = 5.88$, $SD = 2.52$) and female students ($M = 5.65$, $SD = 2.60$), [$t(346) = .837$, $P = .403 > .05$]. See table 8 for more details about the results of the comparisons.

Table 8. Differences between male and female college students on five tests

	Male		Females		df	t	P	Cohen's d
	M	SD	M	SD				
Depression	3.94	3.78	3.99	3.50	346	-.116	.908	-.012
Anxiety	4.35	3.79	4.58	3.45	346	-.560	.576	-.060
Stress	4.83	4.24	4.85	3.94	346	-.044	.965	-.005
Life satisfaction with Self	14.40	2.83	14.41	2.85	346	-.050	.961	-.005
Life satisfaction with living environment	5.88	2.52	5.65	2.60	346	.837	.403	.90

- Levene's test indicated that the homogeneity of variance assumption was met.

4. Discussion

Results suggest that out the 348 participants, 25 had mild depression, and 10 reported moderate level of depression. Both mild and moderate groups accounted for 10.05% of all participants. Thirty-three students had mild anxiety, 27 had moderate level of anxiety and seven had severe anxiety. Overall, mild, moderate, and severe levels of anxiety accounted for 17.24% of participants. Ten participants had mild level of stress and one student had moderate level of stress. Overall, all students who reported having stress were 3.16% of participants. The rest of participants reported normal level of mental health. We however acknowledge that the present findings are not a replacement for a medical diagnosis. Compared to past studies with similar objectives, it may be argued that college students have various levels of depression anxiety, and stress across the globe that impact both the process of learning and its outcomes as regard participants low achievements.

The perceived psychological distress significantly affects student organization and learning outcome (Sousa et al., 2021). Higher degrees of procrastination were found to relate to increased psychological distress. Student procrastination and psychological distress also correlate with mental inflexibility. The outcomes showed that negative emotions and procrastination could be associated with mental inflexibility-related self-regulation (Eisenbeck, Carreno, & Uclés-Juárez, 2019). Psychological distress revealed increased test anxiety and results in student low

achievement whereas higher levels of student self-esteem were correlated with student success (Hyseni Duraku, & Hoxha, 2018). Only depression was found to be a psychological predictor of academic performance among Egyptian health students (Aboalshamat, Hou, & Strodl, 2015). Other negative impacts of psychological distress on student learning include in addition to academic self-regulation (Durand-Bush, McNeill, Harding, & Dobransky, 2015), lack of motivation (Bailey & Phillips, 2016), and low academic self-efficacy beliefs (Grøtan, Sund, & Bjerkeset, 2019).

Regarding student's quality of life, 32 (9.19%) students reported that they were highly satisfied with themselves, 251 (72.12%) were moderately satisfied, and 65 (18.67%) reported that they have low level of satisfaction. Considering students' satisfaction with their living environments, 40 (11.49%) participants were highly satisfied, 168 (48.27%) were moderately satisfied, and 140 (40.22%) 104 (52.26%) students were not satisfied with their living environments. Students' dissatisfaction with their living environments seems to relate with their economic challenges as suggested by their classification of factors that may cause rises in their psychological distress. Past studies found that the quality of the environment and students' physical health were the most important factors of depression, anxiety, and stress (Dafaalla et al. 2016). Students' quality of life was found to be moderate in 33.2% of participants and poor in 4.9% (Rezaei et al. 2007). In the same vein, Beiter et al. (2015) found statistically significant differences between anxiety and depression scores of college students who lived in the dorms and those who lived off-campus. More specifically students who lived off-campus had higher anxiety and depression mean scores. In this light, it was argued that on a demographic basis, students who had the highest levels of stress, anxiety, and depression lived off-campus. Clearly, off-campus living environments were poorer, thus resulting in more psychological vulnerabilities. Living-off campus could also be accounted for by students' low purchasing power.

Students who reported economic challenges as primary causes of psychological distress were 158 (45.40 %). Those who reported economic challenges as a secondary cause were 84 (24.1). Overall, economic challenges emerged as the first factors. Economic factors were followed by unemployment concerns, which were also followed by difficulties of the fields of study, and then sickness. The present findings are supported by Ray and Joseph (2010) who asserted that physical, environmental, and social factors, draining work times, corporal stress, poor boarding facilities, alongside rapport with peers and instructors, parental expectations, and peer pressure are strongly related to medical students' stress levels.

In the same light, Abdallah (2014) reported that several demographic, social, behavioral, and educational aspects have strong relationships with either depression, anxiety, or stress at statistically significant levels. Abdallah listed students' gender, quality of residence, perceived social economic status, loneliness, the absence of social activities previously held in the family of origin, sleeplessness, long-lasting physical sicknesses, factors related to difficulty of the field of study such as the use of the English language, exam related issues, and staff member-related issues. Beiter et al. (2015) ranked factors that caused students to have higher levels of psychological distress and reported that the top three factors included academic accomplishment, pressure to succeed, and prospective graduate study projects. Ramón-Arbués (2020) reported factors such as student age, gender, and self-esteem.

The present study revealed that undergraduate participants with an average age of 25 and ages ranging from 18 to 33 appear to be older than their counterparts in western and Asian universities and their average GPA appear lower. In Hoyt et al. (2021), 707 undergraduate students were recruited across the US whose mean age was 20 years. Similar mean age was found in Kim et al. (2011) in which American students' ages ranged from 18 to 24 years, with a mean age of 20 and from 18 to 28 for Korean students with a mean age of 23. Students' ages that were perceived as old were found to be a factor of failure in the existing literature (Stallman, 2010) and could be a possible reason for students in West Africa to be worried about life, especially if they are full time students and heads of families.

Regarding correlational analyses, findings suggested that Life satisfaction with self correlates positively with life satisfaction with living environment, depression correlates with life satisfaction with living environment and negatively with student age. Student age correlates positively with GPA. Anxiety correlates negatively with living environment and positively with depression. Finally stress correlates negatively Living Environment, negatively with student age, positively with depression and anxiety. Regression analyses revealed that students' levels of depression, anxiety, and Life satisfaction with self predicted life satisfaction with students living environment. Correlational analyses in past studies found similar results. Fooladi et al. (2014) found statistically significant results with inverse relationships between depression, anxiety, stress, and participants' life quality, indicating that the higher the level of depression, anxiety, and stress, the lower the quality of life. Yael et al. (2013) also argued that stress, anxiety, and depression had a direct relation with one another and an inverse relation with quality of life.

The quality of pedagogy, the effectiveness of student evaluation, and equity were undermined (Ntim, 2016). Most universities in west Africa lack sufficient resources to meet the needs that was brought about as the results of the augmented student numbers (Kobla, Mirriam, & Li-Hua, 2018). The success rates were as low as 30 percent among first- and second-year's students (Mohamedbhai, 2008). Kipchumba (2019) argued that the lack of funding, weak university management and governance, alongside poor quality and overuse of the university infrastructures such as libraries, laboratories, overcrowded lecture can reduce the quality of student life and cause psychological distress.

Comparative analyses did not show any differences between male and female students in the present study. Although some past studies found differences between male and female students, other reported no significant differences. Abdallah (2014) reported that Egyptian male students were more likely to develop depression than their female counterparts whereas Egyptian female students were found to be more at risk for anxiety and stress than their male counterparts. Ramón-Arbués et al. (2020) found that factors such as being a female student, dwelling with one's family members, relationship instability or loneliness, and poor food intake among others were related to symptoms of stress whereas relationship instability or loneliness was strongly associated with depressive symptoms.

Although the underrepresentation of girls and women in science, technology, engineering, and mathematics (STEM) fields is a continual concern for social scientists and policymakers (Stoet, & Geary, 2018), college male and female students have undergone the same hardship of new the trends in colleges due to massification. In most universities male and female students, once admitted share the same infrastructures and suffer from the same difficulties.

Study Limitation

Convenient sample method was used for data collection and may not provide a representative result of all university students in the targeted population. Since self-reported data was utilized in the present study, it is possible that students' responses could be biased. Using only two subscales of the MSLS could also have limited the scope of the findings about students' life satisfaction with self, life satisfaction with living environment, and general quality of life.

5. Conclusion and Implications for academic development practice

The findings and the existing literature suggest a correlation between the mentioned difficulties that hinder students' learning and achievement. In other words, when students' quality of life and quality of learning conditions are improved, they are more likely to achieve at higher levels and graduate early. Since psychological disorders, namely anxiety and depression can obstruct college students' wellbeing and performances, it is essential to gauge their mental health and provide them with psychological intervention early. To accomplish this, interventions on campuses should be organized that must prevent psychological distress, large scale survey on mental health should be given and follow-up provided. Stress reduction plans should be provided in the form of elective courses and students should be encouraged to engage in multiple extra-curricular activities. The presence of mental health services and infrastructures is highly recommended on all university campuses. Furthermore, globally, university students should be provided with courses on resilience to tackle emerging difficulties such as terrorism and pandemics that are unpredictable. To tackle the issues of university massification that affect both instruction and learning, African universities should shift significantly to hybrid types of course delivery, initiate and foster faculty members' professional development in the area of teaching technology, and facilitate the democratization of internet use. Taking online courses from students' homes or families can alleviate the burden of psychological distress. Online courses can separate students yet were found to be less negatively influential on learning (Guppy et al., 2022).

Conflict of interest

There is no conflict of interest to declare

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