Research Article

Koawo Edjah, Francis Ankomah*, Ebenezer Domey, John Ekow Laryea

Stress and Its Impact on Academic and Social Life of Undergraduate University Students in Ghana: A Structural Equation Modeling Approach

Abstract: Stress is concomitant with students' life and can have a significant impact on their lives, and even how they go about their academic work. Globally, in every five visits by patients to the doctor, three are stress-related problems. This study examined stress and its impact on the academic and social life among students of a university in Ghana. The descriptive cross-sectional survey design was employed. Using the stratified and simple random (random numbers) sampling methods, 500 regular undergraduate students were engaged in the study. A questionnaire made up of Perceived Stress Scale and Students' Life Satisfaction Scale was used to gather data for the study. Frequencies, percentages, means and standard deviation, and Structural Equation Modeling (SEM), with AMOS were used for the analyses. It was found that majority of the students were moderately stressed. Paramount among the stressors were academic stressors, followed by institutional stressors, and external stressors. Stress had a significant positive impact on the academic and social life of students. It was concluded that undergraduate students, in one way or the other, go through some kind of stress during the course of their study. It was recommended that the university, through its Students' Affairs, and Counselling Sections, continue to empower students on how to manage and deal with stress in order to enhance their academic life.

*Corresponding author: Francis Ankomah, Department of Education and Psychology, University of Cape Coast, Ghana,
E-mail: francis.ankomah@stu.ucc.edu.gh,
ORCID: https://orcid.org/0000-0002-7203-5750
Koawo Edjah, Department of Education and Psychology, University of Cape Coast, Ghana
Ebenezer Domey, Office of the Dean of Students' Affairs, University of Cape Coast, Ghana
John Ekow Laryea, College of Distance Education, University of Cape Coast, Ghana

1 Introduction

Stress is one of the unpleasant phenomena associated with the lives of humans. Several authors have defined the concept of stress in diverse ways (Jones, 1990; Lazarus, 1999; Lazarus & Folkman, 1984; Malach-Pines & Keinan, 2007; Selye, 1974; Stein & Cutler, 2002). For example, Malach-Pines and Keinan (2007) indicated that stress is the insight of incompatibility between a person's ability to fulfil the burden from the environment. This implies that there is always an environmental or social demand which has to be fulfilled based on a persons' ability. One's inability to fulfil these demands makes them uncomfortable and this causes stress.

Stress is concomitant with student life and can have a significant impact on students' lives, and even how they go about their academic work. Agolla (2009) explained that this occurs because academic work is always associated with stressful activities. Rawson, Bloomer, and Kendall (1999) found in their study that students experienced high academic stress at predictable times in each semester such as when mastering a huge amount of the syllabus in a comparatively short amount of time, preparing and taking exams, and ranking of examination positions.

It has been reported that globally, of every five visits by patients to the doctor, three are stress-related problems. In addition, the majority of people with stress have sleeping disorders (76%), suffer from headaches (58%), strained relations with family and friends (85%), and are short-tempered (70%) (Kumar & Bhukar, 2013). Students in the tertiary institutions have equally reported some signs of stress. Studies have shown that the transition of students from the high school environment to the university environment causes social, academic, and psychological shock to them. These educational systems largely differ: students encounter new type of relations between

students and faculties and even new relations among students themselves, new methods of teaching, and new academic requirements, among others (Edjah, Domey, & Ankomah, 2019; Amponsah & Owolabi, 2011; Birnie-Lefeovitch, 2000; Keup & Stolzenberg, 2004; Thawabieh & Qaisy, 2012). Edjah et al. (2019) further indicated that first-year undergraduate students in Ghana go through a number of challenges which have the tendency to make life very uncomfortable, when the students are not given the needed social and institutional support in order to cope and also reduce the stress associated with life on campus.

Research has again shown that stress negatively impacts students' academic performance (Khan, Atlaf, & Kausar, 2013; Veena & Shailaja, 2016). This suggests that students who are highly stressed performed more poorly academically than their counterparts who have low stress levels. The implication is that poorly performing students due to stress may be faced with persistent stress – a continuous struggle to improve academic performance. Thus, the quest to improve academic performance by these students will result in more stress. This, therefore, makes the stress persistent. In higher educational institutions like universities, the load placed on students is based on the time limit and difficulty to stand out in tests or examination, and this makes students prone to stress (Smith, Johal, Wadsworth, Smith, & Peters, 2000; Amponsah & Owolabi, 2011).

The University of Cape Coast is one of the public universities in Ghana that practices the semester system and assesses students using a combination of Continuous Assessment and End-of-Semester Examination. The components of continuous assessment include tests and class quizzes, take-home assignments, term papers, and practical work (Academic Programmes, Policies and Regulations for Undergraduate Studies, 2016, p. 39). From our personal interactions with some students on the mode and requirements of assessment, it appears they face a lot of pressure during their stay on campus. In addition, most students of the University of Cape Coast and others outside the university perceive academic work in the University of Cape Coast as tedious and very stringent. In view of that, it is perceived that most students in the university feel a great deal of pressure and are therefore stressed. The stress among students affects their academic work and their way of life. It is, therefore, important to conduct this study to determine the level of stress among university students, the causes, and its effects on the academic and social life of university students.

Amponsah and Owolabi (2011) found that among first-year university undergraduate students in University of Cape Coast, Ghana, 3.5% exhibited a high level of stress and 70% experienced moderate perceived stress. This implies that university students undergo a lot of stress during their stay on campus. It must be noted that Amponsah and Owolabi concentrated on only first-year students, and thus, the situation may not be so for all continuing students. A search through the literature reveals that several studies have been conducted on stress and academic performance among students (Khan, Atlaf, & Kausar, 2013; Thawabieh & Qaisy, 2012; Veena & Shailaja, 2016). However, little is known with regards to stress and its impact on the academic and social life of students. It is pertinent to note that an excellent academic performance of students thrives on a sound academic and social life. It is important to examine the effect of stress on the academic and social life of students because better academic and social life promotes students learning, which would, in the long run, enhance students' academic performance. This study focuses on examining stress and its impact on the academic and social life of students.

2 Objectives

The intent of this study is to examine the effect of stress on the academic and social life of undergraduate university students. Specifically, this study sought to:
1. explore the level of stress among undergraduate university students,
2. determine kinds of stress experienced by undergraduate university students,
3. ascertain the individual contribution of the kinds of stressors to the academic and social life of undergraduate university students, and also
4. examine the influence of stress on the academic and social life of undergraduate university students.

3 Methodology

The descriptive survey design was employed to carry out this study. This design was appropriate because the study aimed at gathering a one-point data from a number of respondents to describe their levels of stress, and the effect of stress on their academic and social life, without any form of manipulation (Amedahe & Asamoah-Gyimah, 2015). Specifically, the study was cross-sectional in nature. The study targeted all undergraduate students of the University of Cape Coast who registered for the 2017/2018 academic year, but the accessible population was regular

undergraduate students of the University of Cape Coast. Records from the Students Records Management and Information Section (SRMIS) of University of Cape Coast indicated a total of 19,635 regular undergraduate students. This comprised 6,483 females and 13,152 males (SRMIS 2017).

The sample size for this study was determined falling on Krejcie and Morgan's (1970) criteria for choosing sample size. In line with that, a population of 20,000 takes on a representative sample of 377. However, for the purposes of attrition and increasing generalisations, a sample of 500 was employed for the study. In terms of sampling, the multistage sampling procedure was used. First, the population was stratified into four levels of undergraduate study (Levels 100, 200, 300, and 400). The simple random (random numbers) method was employed to select the individual participants from each stratum.

3.1 Background Information of Respondents

Table 1 presents the distribution of the respondents based on gender and age categories.

There were more males (53.8%) than females (46.2%) in the study. The majority of the respondents were within the ages of 21 and 25 years (79.8%).

A questionnaire was used to gather data for the study. The study adapted two scales: Perceived Stress Scale (PSS), and Students' Life Satisfaction Scale (SLSS). In addition, a 13-scale was self-designed to gather information on types of stress experienced by students. The PSS was developed by Cohen, Kamarck and Mermelstein (1983), while the SLSS was developed by Huebner (1991). The former is a self-report measure of stress with 10 items on a 5-point Likert-type scale which was used to measure the stress levels of students. The latter is a 7-item on a 5-point Likert scale which was used to measure the quality of students' academic and social life. The various scales on the questionnaire were validated with Confirmatory Factor Analysis (CFA) through the use of AMOS software version 21. The factor loadings of all the items were .72 or more, which implies that, on the average, each item in the reflective model explained 52% or more of the variances in each of the latent constructs. Convergent validity was estimated using the Average Variance Extracted (AVE), and the least among all the latent constructs was .64. In addition, discriminant validity was assessed using Fornell and Larcker's (1981) criteria, and the result showed that all the square roots of the AVEs were greater than the cross-correlation among the latent constructs, and these suggest evidence of discriminant validity. The McDonald's

Table 1: Distribution of Respondents by Age and Gender.

Age/Gender	Male	Female	Total
16 – 20 years	19(3.8)*	34(6.8)	**53(10.6)**
21 – 25 years	213(42.6)	186(37.2)	**399(79.8)**
26 – 30 years	23(4.6)	11(2.2)	**34(6.8)**
30 – 35 years	14(2.8)	0	**14(2.8)**
Total	**269(53.8)**	**231(46.2)**	**500(100.0)**

*Percentages are in parenthesis

Table 2: Reliability Estimates.

Scale/subscale	No. of items	McDonald's Omega (ω)
Perceived Stress Scale	10	.87
Academic stressors	6	.80
Institutional stressors	4	.81
External stressors	3	.75
Students' Life Satisfaction Scale	7	.92

Omega reliability estimates ranged from .75 to .92 (see Table 2).

The reliability coefficients above .70, as shown in Table 2 are good indicators that the measures are, to a high extent, free from errors, as indicated by DeVellis (2017).

It must be noted that the conduct of the study adhered strictly to ethical issues regulating the conduct of any research. Ethical issues such as informed consent, confidentiality, anonymity, and privacy, among others, were adhered to. Consent of respondents were sought before data collection commenced. The data collected were analysed in groups and so it was not possible to trace the responses of each of the respondents.

3.2 Data Analysis

Data collected were analysed quantitatively using the Statistical Product for Service Solution (SPSS) software version 22.0 and Analysis of Moment Structures (AMOS) software version 21.0. Frequencies, percentages, means, and standard deviations were descriptive statistics used in presenting the results, whereas Structural Equation Modeling (SEM) was used to determine the effect of stress on the academic and social life of students. SEM is a second generational statistical procedure, with a

number of techniques embedded in it. This procedure is more powerful and robust in determining effects and/or relationships among latent variables compared to linear regression. Multivariate normality was checked, and the data was normally distributed. The maximum likelihood estimation procedure was used. The SEM procedure thrives on the Classical True Score Theory (CTT). With this, SEM is able to concurrently estimate errors of measurement and path coefficients. Specifically, the covariance-based approach to SEM was used. AMOS, with 5000 bootstrap samples was used. Bootstrap is a method of resampling with replacement. The use of this approach was efficient in estimating the standard errors and thereby given a better estimate for the confidence intervals.

4 Results

4.1 Levels of Stress

Total scores were computed for all the ten items of perceived stress, which ranged from 10 to 50. Respondents who had total stress scores from 10-23 were considered as having low stress level, 24-36 were considered as having moderate stress level, whereas scores from 37-50 depicted high levels of stress (Cohen et al., 1983). Table 3 shows the respondents' level of stress.

The results indicated that the majority of the respondents (93.4%) were moderately stressed, 6% were highly stressed, whereas few (3%) had a low level of stress.

4.2 Kinds of Stress Experienced by Students

This section comprised 13 items categorised under three main stressors: academic, institutional, and external stressors. The responses were on a 5-point Likert-type scale ranging from strongly disagree to strongly agree. A midpoint was calculated for the responses (thus, 3.0), and mean of means was computed for each kind of stressor. The mean scores ranged from 1 to 5, with scores above 3.0 indicating the existence of stress, whereas scores below 3.0 indicate the low level of stress. The kinds of stress are shown in Table 4.

From Table 3, the study basically, explored three main kinds of stressors. Paramount among the stressors were academic stressors (M = 3.23, SD = 1.21), followed by institutional stressors (M = 3.05, SD = 1.14), and then external stressors (M = 2.82, SD = 1.25). Among the academic stressors are pressure from studies (M = 3.63,

Table 3: Level of Stress.

Level of Stress	Range	Frequency	Percentage (%)
Low	10-23	3	0.6
Moderate	24-36	467	93.4
High	37-50	30	6.0
Total		**500**	**100.0**

Table 4: Kinds of Stress.

Stressors	*M*	*SD*
Academic Stressors		
Pressure from studies	3.63	1.06
High academic competition among colleagues	3.37	1.35
Course overload	3.04	1.27
Requirement to meet deadlines for assignment	3.21	1.16
Studying for examination	3.12	1.18
Unrealistic academic goals	2.98	1.21
Mean of Means	**3.23**	**1.21**
Institutional Stressors		
Overcrowded lecture halls	3.12	1.19
Inadequate resources for academic work	3.06	1.12
Test and time allocation for lectures	3.19	1.04
High examination pass mark	2.82	1.20
Mean of Means	**3.05**	**1.14**
External stressors		
Heavy demands from extracurricular activities	2.57	1.23
Conflicts with friends, spouse and/ or family	2.86	1.29
Decisions about an intimate relationship	3.04	1.23
Mean of Means	**2.82**	**1.25**

SD = 1.06), and academic competition among colleagues (M = 3.37, SD = 1.35). It was however found that setting of unrealistic goals did not pose stress to respondents (M = 2.98, SD = 1.21). Test and time allocation for lectures was the main institutional stress respondents experienced (M = 3.19, SD = 1.04). Decisions about an intimate relationship also posed stress to respondents (M = 3.04, SD = 1.23). In all, respondents experienced more of academic stress than the other forms of stress (*mean of means* = 3.23, SD = 1.21).
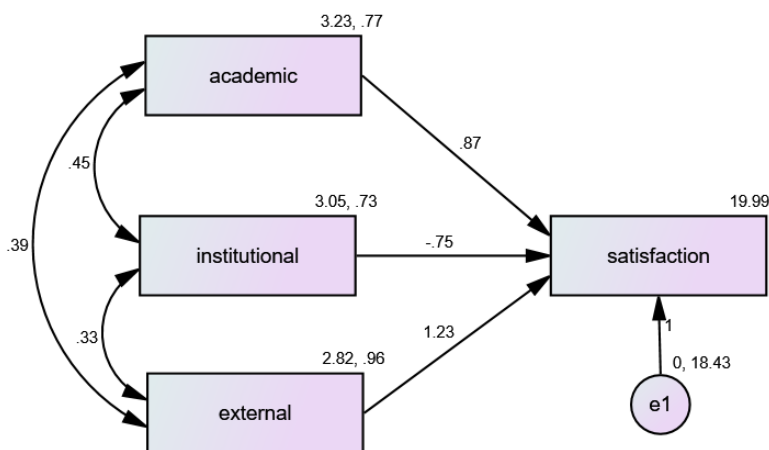
Figure 1: Path model for kinds of stressors and academic and social life.

Table 5: Influence of Various Kinds of Stressors on Academic and Social Life.

Kind of stress	Unstandardized Beta	Standardized Beta	CR	*BootLLCI*	*BootULCI*
Academic	.87*	.17	3.12	.31	1.41
External	1.23*	.27	5.32	.79	1.70
Institutional	-.75*	-.14	-2.73	-1.26	-.19

*Significant, $p < .05$; $R^2 = .103$

4.3 Kinds of Stressors and their Influence on Academic and Social Life

This objective sought to determine the influence of each of the kinds of stressors on the academic and social life of undergraduate students. Covariance-based Structural Equation Modeling (SEM) was performed to test data on this objective. The analysis was performed using Analysis of Moment Structures (AMOS) software version 21. Specifically, 5000 bootstrap samples, with bias-corrected and accelerated confidence intervals was performed. Academic stressors, institutional stressors, and external stressors jointly explained 10.3% of the variations in students' academic and social life (satisfac). Figure 1 presents the model.

From Table 5, the results of the SEM shows that the model was saturated and that the model perfectly fits the data. The results showed that while academic [$b = .87$, *Boot95%CI* (.31, 1.41)] and external stressors [$b = 1.23$, *Boot95%CI* (.79, 1.70)] were significant positive predictors of academic and social life, institutional stressor [$b = -.75$, *Boot95%CI* (-1.26, -.19)] was a negative predictor. A unit increase in academic and external stressors would lead to a .87 and 1.23, respectively, increase in satisfaction with the academic and social life of students. Also, a unit increase

in institutional stressors would lead to .75 decrease in satisfaction with the academic and social life of students. These results imply that pressure from studies, high academic competition and studying for the examination, among others; stress from extracurricular activities, and conflicts with friends, spouse and family help students enjoy better satisfaction with their academic and social life. This has a greater tendency to enhancing students' academic performance. It was, however, found that stress from the institution, such as overcrowded lecture halls, inadequate resources for academic work, among others, hinders students' satisfaction with academic and social life.

4.4 Influence of Stress on Academic and Social Life

SEM, specifically, path analysis was conducted to examine the influence of stress on the academic and social life of students. The results are presented in Table 6. The model was a saturated model.

The results, as indicated in Table 6, show a significant impact of stress on the academic and social life of students, $b = .14$, *Boot95%CI* (.05, .23). It was evident in
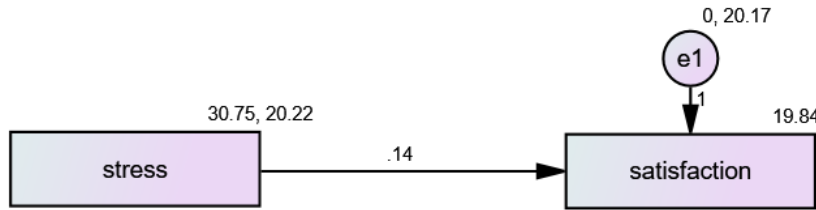
Figure 2: Path model for stress and academic and social life.

Table 6: Influence of Stress on Academic and Social Life.

	Unstandardized Beta	Standardized Beta	CR	BootLLCI	BootULCI
Stress	.136*	.135	3.02	.05	.23

*Significant, $p < .05$; $r^2 = .018$

the results that the extent of the variation in the academic and social life of students was explained by R square of .018 with stress. This implies that 1.8% of the variance in the academic and social life of students can be attributed to stress.

5 Discussion

The study revealed that the majority of university students (93.4%) had moderate stress level. This implies that the majority of university students experience one form of stress or the other. This finding agrees with that of Amponsah and Owolabi (2011), Pierceall and Keim (2007), Hudd et al. (2000). It must be noted however that in the case of Amponsah and Owolabi, they concentrated on only first-year students. The current study included all undergraduate students.

The study further revealed that students feel more academic stress than other forms of stress. This result is possible because, in any academic institution, and for that matter university, the focus of students is to excel academically. Students have to meet all the academic demands before they are awarded whichever degree they are studying. Interestingly, university certificates are considered by several stakeholders when they are making important decisions, such as selection and recruitment, and the awarding of scholarships among others. This makes the stakes attached to university examinations so high because students are given a class of degree based on their scores in the examination. This alone is more likely to pose stress to students. It was evident in this study that among the academic stressors, pressure from

studies happens to be the most prominent stressor. This finding supports other studies (Azila-Gbettor, Atatsi, Danku, & Soglo, 2015; Eswi, Radi, & Youssri, 2013). The authors found that two of the most important categories of stressors normally experienced in the tertiary environment are academic and institutional stressors. The authors further reported low grades, limited sleep, too many things required at the same time, struggling to meet academic standards, and finding courses too demanding as some causes of stress.

In addition, it was found that stress had a positive influence on the academic and social life of students. Stress explained 1.8% of the variance in the academic and social life of students. Stress predicted positively academic and social life of students. The results imply that an additional unit increase in stress will lead to .136 increase in the academic and social life of students. This result was confirmed by the results in Figure 1, where stress from academic and external sources had positive influence on academic and social life. These imply that pressure from studies, high academic competition, and studying for the examination, among others; stress from extracurricular activities, and conflicts with friends, spouse and family help students enjoy better satisfaction with their academic and social life. This has a greater tendency to enhancing students' academic performance. This result appears very strange in the sense that, generally, it is perceived that stress has a negative influence on life. This assertion may not always be the case. A study by Elfering et al. (2006) suggests that stress in academic institutions can have both positive and negative consequences if not well managed. Following on from Elfering et al.'s assertion, it is possible that although students were moderately stressed, they

were able to manage it well and that is why it is positively impacting on their academic and social life. It is also possible that since stress was self-reported, students were not honest in reporting their stress levels. In any case, and on the basis of evidence from this study, stress has a positive influence on students' academic and social life. This finding corroborates that of Linn and Zeppa (1984) who found that an optimal level can enhance learning ability. It was, however, found that stress from the institution, such as overcrowded lecture halls, inadequate resources for academic work, among others, hinders students' satisfaction with academic and social life.

6 Conclusions and Recommendations

Based on the findings, it can be concluded that undergraduate students, in one way or the other, go through some kind of stresses during the course of their study. These stresses are mostly derived from academic work, institutional demands, and some external stress such as making decisions on intimate relationships. These stressors together helped in enhancing the academic and social life of students in the university. The study recommends that the university through its Students' Affairs and Counselling Sections continue to empower students on how to manage and deal with stress in order to enhance their academic life.

Limitations: The findings of this study may not necessarily be applied to postgraduate and distance students since the study focused only on undergraduate regular students. The findings of this should be interpreted with much caution since stress was self-reported by students, and thus, any false information provided by respondents may affect the results. Again, this study does not assume a cause and effect relationship.

Conflict of Interest: It is pertinent to state that there is no conflict of interest, whether financial, personal or professional.

References

Agolla, J. E. (2009). Occupational stress among police officers. The case of Botswana Police service. *Journal of Business Management, 2* (1), 25-35.

Amedahe, F. K., & Asamoah-Gyimah, K. (2015). *Introduction to educational research*. Cape Coast: UCC Printing Press.

Amponsah, M., & Owolabi, H. O. (2011). Perceived stress levels of fresh university students in Ghana: A case study. *British Journal of Educational Research, 1*(2), 153-169.

Azila-Gbettor, E. M., Atatsi, E. A., Danku, L. S., & Soglo, N. Y. (2015). Stress and academic achievement: Empirical evidence of business students in a Ghanaian Polytechnic. *International Journal of Research in Business Studies and Management, 2*(4), 78-98.

Birnie-Lefcovitch, S. (2000). Students' perceptions of the transition from high school to university: Implications for preventative programming. *Journal of the First-Year Experience and Students in Transition, 12*, 61-88.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 385-396.

DeVellis, R. F. (2017). *Scale development: Theory and applications* (4th ed.). London: Sage Publications, Inc.

Edjah, K., Domey, E., & Ankomah, F. (2019). Experiences of level 100 undergraduate students in developing countries: A case study in University of Cape Coast, Ghana. *International Journal of Social Sciences & Educational Studies, 5*(4), 13-21.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50.

Jones, J. G. (1990). A cognitive perspective on the processes underlying the relationship between stress and performance in sport. In J.G. Jones & L. Hardy (Eds.), *Stress and performance in sport* (pp. 17-42). Chichester, England: Wiley.

Keup, J. R., & Stozenberg, E. B. (2004). *The 2003 Your First College Year (YFCY) Survey: Exploring the academic and personal experiences of first- year students (Monograph No. 40), Columbia, SC: University of South Carolina, National Resource Centre for the First-Year Experience and Students in Transition*. Retrieved March 2017, from http://www.freepatentsononlin.com

Khan, M. J., Atlaf, S., & Kausar, H. (2013). Effect of Perceived academic stress on students' performance. *FWU Journal of Social Sciences, 7*(2), 146-151.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*, 607-610.

Kumar, S., & Bhukar, J. P. (2013). Stress level and coping strategies of college students. *Journal of Physical Education and Sports Management, 4*(1), 5-11.

Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York: Springer.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Malach-Pines, A., & Keinan, G. (2007). Stress and burnout in Israel police officers during Palestinian uprising (intifada). *International Journal of Stress Management, 14*, 160-174.

Rawson, H. E., Bloomer, K., & Kendall, A. (1999). Stress, anxiety, depression, and physical illness in college students. *The Journal of Genetic Psychology, 155*(3), 321-330.

Selye, H. (1974). *Stress without distress*. Philadelphia, PA: Lippincott.

Smith, A., Johal, S., Wadsworth, E., Smith, G.D., & Peters, T. (2000). *The scale of occupational stress: The Bristol stress and health at work study*. HSE Books, Sudbury.

Stein, F., & Cutler, S. (2002). *Psychosocial occupational therapy: A holistic approach* (2nd ed.). San Diego: Singular Publishing.

Students Records Management and Information Section [SRMIS], University of Cape Coast (2017). *Basic statistics.* Cape Coast: Author.

Thawabieh, A. M., & Qaisy, L. M. (2012). Assessing stress among university students. *American International Journal of Contemporary Research, 2*(2), 110-116.

Veena, N., & Shailaja, S. (2016). Stress and academic performance. *International Journal of Indian Psychology, 3*(4), 71-82.