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THE RELATIONSHIP BETWEEN STRESS AND PSYCHOSOCIAL ADJUSTMENT AMONG UNIVERSITY OF NAIROBI STUDENTS

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ABSTRACT

This case study investigated the relationship between stress and psychosocial adjustment among government-sponsored undergraduate students from the University of Nairobi in Kenya. The mediating roles of the students' demographic factors in the relationship between stress and psychosocial adjustment were also examined. The sample consisted of 319 male and 265 female students selected using stratified random sampling technique. A cross-sectional survey was conducted for quantitative data collection using questionnaires. Results showed that most students (64.4%) reported that they experienced between moderate to high levels of stress while just over a third (35.6%) reported low stress levels. The relationship between stress and psychosocial adjustment was statistically significant ($\chi 2$=13.51, n=584, df =2, p=0.001). The relationship between stress level and psychosocial adjustment was significant within 19 to 22 years, males, females, College of Biological and Physical Sciences, levels two and four of study, internal locus of control, and external locus of control. Regression analysis showed that the higher the stress level, the poorer is the psychosocial adjustment. The findings indicate the need for institution of programs that will lower the experience and effects of stress among university students. Further research is recommended to investigate the areas where the results were not significant.

KEYWORDS: Stress, Stress Levels, Psychological Adjustment, University Students

1. BACKGROUND TO THE STUDY

The number of students enrolling in Kenyan public universities has increased tremendously in the last decade. For instance data from the Kenya Bureau of Statistics show that enrolment shot up from about 98299 students in 2008 to about 355026 students in 2015 (Ng'ang'a, 2016; Njoroge, Wangari & Gichure, 2016).

The rapid increase in student enrolment has, however, taken place during the period when the Kenyan government is implementing cost-sharing policies which require that students , their parents or guardians contribute to the cost of their tuition, accommodation and meals (Ngolovoi, 2008; Marcucci, Johnstone and Ngolovoi, 2008). Consequently, difficult learning environments in the public universities have been reported. For instance Mwinzi, (2006) found, in a study of 366 students from Moi and Nairobi Universities, that students were not able to attend to class because they engaged in work or business to meet their financial needs. Moreover the students reported not being attentive in class due to fatigue. Furthermore Gudo, Olel & Oanda, (2011) found that a higher proportion (65.1%) of students from public universities compared to 20.84% of the students from

private universities felt dissatisfied with available teaching and learning resources such as lecture rooms, laboratory equipments, books, journals and computer services.

For many university students, therefore, university education represents a time of change and new experiences that could lead to serious cognitive and psychosocial challenges (Kagan & Baird, 2004; Wangari, T., Kimani, E. & Mutweleli, S.M., 2012)). University students have to operate in a complex mix of physical, psychosocial and socio-cultural environments with different degrees of challenges (Bressler & Bressler, 2007; Khan, Saleem & Shahid, 2012; Ezeh, Ezeh & Okey,2016). This situation may be exacerbated because university undergraduate students are young, relatively immature and dependent in the way they relate with other people (Ying Shu, Ming & Farn, 2009; Frank & Karyn, 2005).Besides challenges emanating from the internal situation in the university, students also face challenges from outside the university.

The challenges that university students face may translate into stress (Arnett, 2010). Stress has been defined from several theoretical perspectives. For example, Selye (1956, 1976) proposed the response theory of stress where stress is defined as a physiological response of the body to any demand placed upon it. Lazarus & Folkman (1984) proposed a cognitive theory in which they defined stress as a cognitive process that involves the perception of stressors in relationship to the coping resources available for the individual to use in the management of stress. Melgosa (2004) incorporated Selye's (1976) and Lazarus & Folkman's (1984) proposals and defined stress as physiological and psychosocial responses by individuals to stressors that tax their coping abilities. For instance Kenyan university students reported that they are exposed to potential stressors arising from political and ethnic conflicts in the country (Munene, 2016).

On the one hand it has been argued that stressful conditions in the university are likely to lead to poor psychosocial adjustment as characterized by poor physical and mental health (Jones, 2003; Kemmeny, 2007; Rafidah, Azizah, Norzaid, Chang, Salwani & Noraini, 2009, Adams, Meyers & Beidas, 2016), negative health habits (Britz & Pappas, 2012; Ginsberg, 2006; Agolla & Ongori, 2009, Deasy, C. Coughlan, B., Pironom, J., Jourrdan, D. & Mcnamara, P. M.,2015)) and poor interpersonal relations (Burns & Machin, 2013; Schmitt, Brascombe, Postmes & Garcia, 2014). Among the negative coping responses are the high dropout rates (Njoroge, Wangari & Gichure, 2016), increment in suicidal tendencies (Wanyoike, 2015) as well as alcohol and drug abuse (Njare, 2013). A study by Njare (2013) reported a prevalent rate of 63.2% of alcohol abuse among a sample of 446 students from the University of Nairobi. Similar reports of alcohol abuse in Kenyan universities have recently been reported by a number of studies (Ndegwa, Munene & Oladipo, 2017). Globally, it has been observed that alcohol and drug abuse is more prevalent among university students than the general population (Tse, 2011; Karama, Kypri & Salamoune, 2007).

On the other hand, there are studies which have failed to confirm the negative relationship between stress and psychosocial adjustment (Vankam & Nelson, 2013; Ridner, Newton, Staten, Crawford & Hall, 2016). The inconsistency in the relationship between stress and psychosocial adjustment seems

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to indicate that this relationship may be mediated by intrinsic and extrinsic stress risk factors (Bressler & Bressler, 2007; Khan, Saleem & Shahid, 2012; Thawabieh & Qaisy, 2012). The intrinsic factors include age (Beiter, Nash, McCrady, Rhoades, Linscomb, Clarahan & Sammut , 2015; Archer, Lim, Teh, Chang & Chen, 2015), gender (Chen, Wong, Ran & Gilson, 2009; Tovalesci, Ladner, Richard, Villet & Dechelotte (2013) and locus of control (Pu, Hou & Ma, 2017; Stewart & De George-Walker 2014)). The extrinsic factors may constitute level of study (Bayran & Bigel, 2008; Wilson, Rayner, Gordon, Shaikh, Crombie & Yasin-Hamekar, 2015) and course of study (Gokul & Jayalakshmi, 2016; Harris, Millichamp & Thomson, 2015) among others.

The intrinsic factors may affect stress experience because of their association with stress mediating factors. For instance, women tend to benefit more than men from the release of stress hormones which moderate stress experience (Daughters, Gorka, Matuslewics & Anderson, 2013) and the buffer effect of social support which is a significant factor in coping with stress (Scott, 2009). The age factor in stress has been attributed to the coping strategies used. Older students tend to use more problem-focused and cognitive restructuring coping strategies than their younger colleagues who use emotion-focused coping (Heinman, 2004; Monteiro, Balogun & Oratile, 2014). Locus of control seems to play a mediating role in stress experience because of its effect in the coping process (Khan, Saleem & Shahid, 2012) and self-esteem (Sagone & De Caroli, 2014). The extrinsic factors such as level of study and type of course may constitute stress risk factors because they are characterized by stressors such as academic workload, course assignments and examinations, crowded lecture halls and student hostels, inadequate learning facilities and preparing for examinations (Awofode & Emi, 2011).

Unfortunately, few studies have included all levels of study and this has undermined the comparative analysis of the effects of course levels on stress (Alzahem, Van der Molen, De Boer, 2013). Without providing any scientific justification, such studies have largely focused not only on single disciplines, but on natural science-based ones with the assumption that these disciplines have more stressors than the humanities and social sciences (Gade, Chan & Gupta, 2014; Heckman, Lim & Montelto, 2014; Jacob, & Einstein, 2016; Harris, Millichamp & Thomson, 2015).

Other studies have been conducted using samples from a variety of backgrounds (Eisenberg, Hunt, & Spear, 2013; Banu, Deb, Vardhan & Rao, 2015) leading to mixed outcomes since every setting comes with its own unique and socio-cultural characteristics (Ibrahim, Kelly, Adams & Glazebrook, 2013). From the Vygotsky's (1978) social constructivism perspective, the socio cultural diversity which characterizes past studies implies that findings of a study in one setting may not be generalised across contexts (Jan & Popescu, 2014) because peoples cognitions are influenced by their socio-cultural backgrounds (Sheppard, 2014; Thomson, Kirby & Smith, 2016; Posner & Rothbart, 2017). The implication is that findings from stress researches done among university students in Europe, Asia or the United States may not represent the stress experience of students in Kenyan universities. Yet university students from these diverse setting could experiencing stress-related problems thereby necessitating the need to understand how Kenyan university students cope with stress.

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2. PURPOSE OF THE STUDY

The purpose of this study was to investigate the relationship between the students' stress level and psychosocial adjustment

3. METHODOLOGY

3.1 Research Design

This case study applied a cross-sectional survey method to collect quantitative data with stress level as independent variable and psychosocial adjustment as dependent variable. Age, gender, locus of control, the courses in which they were registered and the levels of study were treated as confounding variables in the relationship between stress and psychosocial adjustment.

3.2 Population

The population from where the study was done consisted of 12701 male and 9649 female undergraduate students. The students get partial sponsorship from the Government of Kenya and are accommodated within university hostels. They are enrolled in several academic programs offered in six colleges of the university.

3.3 Sample and sampling procedure

The sample consisted of 319 (54.62%) male and 265 (45.38%) female students aged between 19 to 30 years selected using stratified random sampling procedures. The students were distributed according to the levels of study as follows: 80 (13.7%) from level one, 212(36.3%) from level two, 191(32.7%) from level three, 83(14.2%) from level four and 18(3.1%) from level five. The sample was made up of government- sponsored undergraduate students registered in the following academic programs: 187(32.0%) from Humanities and Social Sciences, 94(16.1%) from Education, 100(17.1%) from Biological and Physical Sciences, 74(12.7%) from Medical/Health Sciences, 58(9.9%) from Agriculture and Veterinary Sciences, 71(12.2%) from Architecture and Engineering The majority of the students were residents in the students' halls of residence, sharing university facilities for the time they were in session.

3.4 Instruments

All the research instruments had Part A which sought the participants' biographical data on age, gender, level and course of study. The following research instruments were used to collect data:

(i) A 50-item likert-type 5-point Stress and Coping Strategies Questionnaire was developed and piloted by the researchers. In addition, the Questionnaire had two open-ended items which did not restrict the respondents on the details of their responses .

(ii) Locus of Control was measured by the Locus of Control Questionnaire adapted from Rotter's (1990) Locus of Control Scale. It consists of 23 pairs of items measuring either internal or external locus of control. In addition, it has six pairs of items that do not measure locus of control but act as fillers to help disguise the dimensions of the personality being measured.

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Although this research tool is standardized it was piloted to customize it to the Kenyan population.

(iii) Psychosocial adjustment was measured by a likert-type questionnaire developed by the researchers. The questionnaire was multi-dimensional made up of psychological, social, and cognitive reactions to stress experience. For each dimension there were five words that described the level of psychosocial adjustment on a 5-point level

3.5 Validity and Reliability of the Research Instruments

The researcher ensured content validity of the research instruments by including relevant items for each of the instruments used in the study. The questionnaires and interview schedules were reviewed by two members of the department who teach courses in stress management to establish their face and content validity The Cronbach's coefficient alpha for the research instruments was 0.920 for the Students Stress and Coping Questionnaire and 0.84 for Locus of Control Questionnaire and 0.79 for Psychosocial adjustment questionnaire.

3.6 Data Collection Procedure

Data was collected by two research assistants trained in research methodology course The choice of research assistants from the college where data were collected was to facilitate rapport with the respondents from their respective colleges. Each research assistant distributed questionnaires to the respondents in the colleges where they were studying. The research assistants introduced themselves to the respondents and explained the nature of the study and why it was important for the respondents to participate by filling the questionnaires. The respondents were assured of confidentiality and requested to fill and return the questionnaires to the research assistants within two days. The questionnaires were then returned to the researchers as soon as they were received by the research assistants. The researchers scrutinized all the questionnaires when returned to ensure that proper data collection took place. Questionnaires that were not filled properly were not included in the data analysis.

3.7 Data Analysis

The respondents were to choose from each item in the questionnaire one of the following options: 1=Not stressful at all, 2= slightly stressful, 3=Stressful, 4=Very stressful and 5=Extremely stressful. The score for each respondent ranged from 50 (Not stressful at all) to 250 (Extremely stressful). The stress level was divided into three categories as follows: "low stress level" (50 -125), "moderate stress level" (126 - 190) and "high stress level" (191-250). The level of study was measured in years with, 1, 2, 3, 4, and 5 representing the "First", "Second", "Third", "Fourth" and "Fifth" year respectively. Gender was measured as a dummy with 1 standing for males and 0 standing for females. Locus of control was measured as a continuous variable. College was measured as a categorical variable with 1, 2, 3, 4, 5, and 6 representing "CHSS", "CBPS", "CEES", "CHS", "CAE", and "CAVs" respectively. For each of the 23 pairs of items on locus of control, internal locus of control was scored 1 while external locus of control was scored 2. The score for each

respondent on the locus of control instrument therefore ranged from 23 to 46 on the internal-external locus of control continuum

Psychosocial adjustment was measured as a continuous variable. Items in the Psychosocial Adjustment Questionnaire were scored as shown in table 1 below

Table 1: Scoring scheme for Psychosocial Adjustment Questionnaire

	Negative Items	Positive Items
Never	5	1
Rarely	4	2
Often	3	3
Quite often	2	4
All the time	1	5

Positive items reflected the respondents' positive psychosocial adjustment such as feeling relaxed or happy. Negative items on the other hand showed the respondents' negative psychosocial adjustment such as feeling lonely or depressed. For positive items the scores ranged from 1 when the response was "never" to 5 when the response was "all the time". The scoring format was, however, reversed for negative items so that a response of "never" was scored as 5 while a response of "all the time" was scored as 1. The scoring format was intended to enable students with relatively poor psychosocial adjustment to obtain low scores while those with relatively good psychosocial adjustment to obtain high scores. Since there were twenty items in the psychosocial adjustment scale the score for each respondent ranged from a minimum of 20 reflecting very poor psychosocial adjustment to a maximum of 100 reflecting very good psychosocial adjustment. Psychosocial adjustment was categorized as poor adjustment (20-59) and good adjustment (60-100)

Data was analyzed using SSPS 16 program. Descriptive analyses using frequencies and percentages were conducted to assess the levels and causes of stress. A two-way and three-way chi-square statistics was conducted to test the null hypothesis. Regression analysis to find how the confounding variables contributed to the relationship between stress and academic performance was done using STATA Version 14.0

4. RESULTS

The results show that the students reported their stress levels as follows: 208(35.6%) low stress level, 160(27.4%) moderate stress level, and 216(37.0%) high stress level. 100(31.3%) male students had low stress level, 95(29.8%) moderate stress level while 124(38.9%) reported high stress level. Among female students 108(40.75%) experienced low stress level, 65(24.53%) students had moderate stress level while 92 (34.72%) had high stress level.

Within low stress level, 35 (16.83%) students experienced poor adjustment while 173 (83.17%) had good adjustment. Among students who experienced moderate stress level, 36 (22.64%) had poor adjustment while 123 (77.36%) had good adjustment. 69 (31.94%) students who experienced high stress level had poor adjustment while 147 (68.06%) students adjusted well. Chi-square results indicate that stress has a highly significant relationship with psychosocial adjustment ($\chi 2$ =13.514, df=2, p =0.001). Cramer's V (φc =0.252, p=0.001), shows that stress level has a moderate but statistically significant association with psychosocial adjustment.

Table 2 presents summary statistics for the variables used to analyze the effect of stress level on psychosocial adjustment. There were 584 observations in total.

Table 2: Summary Statistics for the variables used to analyze the effect of stress level on psychosocial adjustment

Variable	NM	SD	MIN	MAX
Psychosocial adjustment	584	69.9209	16.9789	34	167
Stress level	584	2.2454	.7937	1	3
Level of study	584	2.5531	1.0011	1	5
Gender	584	.5597	.4968	0	1
Locus of control	584	13.8169	5.4315	2	69
College	584	2.6908	1.5347	1	6

Psychosocial adjustment, stress level, level of study, gender, locus of control, and college had (M=69.9209, SD=16.9789), (M=2.2454, SD=.7937), (M=2.5531, SD=1.0011), (M=.5597, SD=.4968), (M=13.8169, SD=5.4315), and (M=2.6908, SD=1.5347) respectively. Psychosocial adjustment had the highest mean and standard deviation while gender had the least mean.

4.1 Age as a factor in how level of stress relates to psychosocial adjustment

Within 19-22 years, 15 (15.82%) students who experienced low stress levels had poor adjustment compared to 102 (87.18%) students who experienced good adjustment. 12 (16.67%) students who experienced moderate stress level had poor adjustment compared to 60 (83.33%) students who had good adjustment. Among the students who experienced high stress level, 36 (30.25%), while 83 (69.75%) experienced good adjustment. Chi-square analysis within age categories shows that the relationship between stress and psychosocial adjustment is statistically significant within age group 19-22 years only ($\chi 2$ =11.50, df=2, p =0.003). The Cramer's V (ΦC=0.29, p=0.003) reveals that there is a strong and statistically significant association between stress psychosocial adjustment within this age group.

Within 23-26 years, 16 (20.51%) students who experienced low stress level had poor psychosocial adjustment while 62 (79.49%) students had good psychosocial adjustment. 22 (27.85%) students who had moderate stress level had poor adjustment while 57 (72.15%) had good psychosocial adjustment. Among the students who had high stress level, 31 (33.7%) had poor adjustment while 57 (66.3%) had good adjustment. The relationship between stress and psychosocial adjustment was however not significant within this age category ($\chi 2$ =3.66, df=2, p=0.16; ΦC =0.121, p=0.16).

4.2 Gender as a factor in how level of stress relates to psychosocial adjustment

When gender factor is considered, 20 (20.0%) male students who experienced low stress level had poor psychosocial adjustment while 80 (80.0%) students had good psychosocial adjustment. 23 (24.47%) male students who had moderate stress levels experienced poor psychosocial adjustment while 71 (75.53%) students experienced good psychosocial adjustment. Among the male students who experienced high stress level 45 (36.29%) had poor psychosocial adjustment while 79 (63.71%) students had good psychosocial adjustment. the male students A chi-square analysis was done to test the significance of the relationship between stress and psychosocial adjustment within male and female participants. According to the results of the chi-square analysis, stress and psychosocial adjustment are significantly related among male respondents ($\chi 2$ =8.02, df=2, p =0.018). Results of the Cramer's V (ΦC =0.159, p=0.018) show also show significant association between stress and psychosocial adjustment among male students.

Among female students 15 (13.89%) students who experienced low stress levels had poor psychosocial adjustment while 93 (86.11%) students had good psychosocial adjustment. 13 (20.0%) who experienced moderate stress level had poor psychosocial adjustment while 52 (80.0%) students had good psychosocial adjustment. 24 (26.09%) female students who experienced high stress level had poor psychosocial adjustment while 68 (73.91%) students had good psychosocial adjustments. A chi-square analysis was done to test the relationship between stress and psychosocial adjustment within among female students. The relationship between stress and psychosocial adjustment was significant but weak ($\chi 2$ =4.69, df=2, p=0.096; ΦC=0.133, p=0.096).

4.3 Year of study as a factor in how level of stress relates to psychosocial adjustment

Within level one, 3(15.79%) students who experienced low stress level had poor psychosocial adjustment while 16 (84.21%) students had good psychosocial adjustment. Among the students who experienced moderate stress level, 8 (25.81%) of them had poor psychosocial adjustment while 23 (74.19%) students had good psychosocial adjustment. 5 (16.67%) students who experienced high stress level had poor psychosocial adjustment while 25(83.33%) students experienced good psychosocial adjustment. The relationship between stress and psychosocial adjustment was not significant within level one ($\chi 2$=1.072, df=2, p= 0.585; ΦC=0.116, p=0.585).

As for level two, 14(14.58%) students who experienced low stress had poor psychosocial adjustment while 82 (85.42%) students had good psychosocial adjustment. 6(14.29%) students who experienced

moderate stress had poor psychosocial adjustment compared to 36 (85.71%) students who had good psychosocial adjustment. Among the students who experienced high stress, 24(32.43%) had poor psychosocial adjustment while 50 (67.57%) had good psychosocial adjustment.

The results of the chi-square analysis reveal that the relationship between stress and psychosocial adjustments is statistically significant in year two only ($\chi 2$ =9.427, df=2, p =0.009). Cramer's V results (ΦC=0.211, p=009) indicate moderate but significant association between stress and psychosocial adjustment.

At level three, 13 (20.0%) students who experienced low stress had poor psychosocial adjustment compared to 52 (80.0%) who experienced good psychosocial adjustment. 11(19.3%) students who experienced moderate stress had poor psychosocial adjustment while 46(80.7%) had good psychosocial adjustment. 21(30.88%) students who experienced high stress had poor psychosocial adjustment while 47 (69.12%) had good psychosocial adjustment. The relationship between stress level and psychosocial adjustment is not significant ($\chi 2$ =3.044, df=2, p=0.218; ΦC=0.127, p=0.218). In level four, 11(20.0%) students who experienced low stress had poor psychosocial adjustment while 16 (80.0%) had good psychosocial adjustment. 11 (40.74%) students who experienced moderate stress had poor psychosocial adjustment while 16 %(.26%) students had good psychosocial adjustment.18 (50.0%) who experienced high stress had poor psychosocial adjustment with similar number of students(50%) had good psychosocial adjustment. The relationship between stress level and psychosocial adjustment was significant but weak ($\chi 2$ =4.847, df=2, p=0.089; ΦC=0.242, p=0.089).

Within level five, 1(12.5%) student who experienced low stress level had poor psychosocial adjustment while 7 (87.5%) students had poor psychosocial adjustment. All the 2 (100%) students who experienced moderate stress had good psychosocial adjustment. 1 (12.5%) student who experienced high stress level had poor psychosocial adjustment while 7 (87.5%) had good psychosocial adjustment.

Within College of Health Sciences, 6 (22.27%) students who had low stress had poor psychosocial adjustment compared to 16 (72.73%) students who had good psychosocial adjustment. Among the students who had moderate stress, 2 (15.38%) students had poor psychosocial adjustment while 13 (84.62%) had good psychosocial adjustment. 7 (23.33%) students who experienced high stress level had poor psychosocial adjustment compared to 13 (86.67%) students who had good psychosocial adjustment. The relationship between stress and psychosocial adjustment was not significant ($\chi 2$ =1.16, df= 2, p=0.561; ΦC=0.125, p=0.561).

4.4 Type of course as a factor in how level of stress relates to psychosocial adjustment

Within the College of Humanities and Social Sciences, 12 (16.0%) students who experienced low stress level had poor psychosocial adjustment compared to 63(84.0%) students who had good

psychosocial adjustment. 13 (22.81%) students who experienced moderate stress level had poor psychosocial adjustment while 44 (77.19%) had good stress. Among the students who experienced high stress level, 13 (24.07%) students had poor psychosocial adjustment compared to 41 (75.93%) students had good psychosocial adjustment. The relationship between stress and psychosocial adjustment was not significant ($\chi 2$=1.545 df=2, p=0.462; ΦC =0.091, p=0.462).

In the College of Architecture and Engineering, 6 (30.0%) students who experienced low stress had poor psychosocial adjustment while 14 (70.0%) students had good psychosocial adjustment. 6 (25.0%) students who experienced moderate stress level had poor psychosocial adjustment compared to 18 (75.0%) students who had good adjustment. Among students who experienced high stress level 9 (33.33%) had poor psychosocial adjustment while 18 (66.67%) had good psychosocial adjustment. The relationship between stress and psychosocial adjustment is not significant ($\chi 2$ =0.426, df=2, p=0.808; ΦC =0.077, p=0.088).

As for the College of Biological and Physical Sciences, 6 (26.09%) students who experienced low stress had poor psychosocial adjustment compared to 17 (73.91%) who had good psychosocial adjustment. 8 (38.10%) students who experienced moderate stress level had poor stress while 13 (61.90%) students had good psychosocial adjustment.34 (60.71%) who experienced high stress level had poor psychosocial adjustment compared to 22 (39.29%) students who had good psychosocial adjustment. The results of the chi-square analysis show that biological and physical science course only ($\chi 2$=8.877, df=2, p=0.012). Cramer's V results, (ΦC =0.298, p=0.012), indicate that stress has a moderate but statistically significant association psychosocial adjustment within this course of study. The students in this college tended to have poor adjustment as the stress level increased.

Within the College of Agriculture and Veterinary Sciences, 2 (9.52%) students who experienced low stress had poor psychosocial adjustment compared to 19 (90.48%) students who had good psychosocial adjustment. 4 (19 .05%) students who experienced moderate stress level had poor psychosocial adjustment compared to 17 (80.95%) students who had good psychosocial adjustment. 1 (6.25%) student who had high stress level had poor psychosocial adjustment compared to 15 (93.75%) students who had good psychosocial adjustment. The relationship between stress and psychosocial adjustment is not significant ($\chi 2$ =1.602, df=2, p=0.449; ΦC =0.166, p=0.449).

In the College of Education and External Studies, 3 (6.38%) students who experienced low stress had poor psychosocial adjustment compared to 44 (93.62%) students who had good psychosocial adjustment. 3 (14.29%) students who experienced moderate stress level had poor psychosocial adjustment compared to 18 (85.71%) students who had good psychosocial adjustment. Among the students who experienced high stress level, 5 (19.23%) students had poor psychosocial adjustment while 21 (80.77%) had good psychosocial adjustment. The relationship between stress and psychosocial adjustment is not significant ($\chi 2$ =2.85, df=2, p=0.241; ΦC =0.174, p=0.241).

4.5 Locus of Control as a factor in how level of stress relates to psychosocial adjustment

Within internal locus of control, 12 (13.19%) students who experienced low stress had poor psychosocial adjustment compared to 79 (86.81%) students who had good psychosocial adjustment. Among the students who experienced moderate stress level, 12 (17.65%) students had poor psychosocial adjustment while 56(82.35%) students had good adjustment. 28(28.87%) students who experienced high stress level had poor psychosocial adjustment compared to 69 (71.13%) students who had good psychosocial adjustment. The results of the chi-square analysis show that the relationship between stress and psychosocial adjustments is statistically significant within both the internal locus of control ($\chi2=7.54$, df=2, p =0.023) and external locus of control ($\chi2$ =6.59, df=2, p =0.037). Cramer's V value in both internal locus of control (ΦC=0.274, p=0.023) and external locus of control (ΦC=0.242, p=0.037) indicate that stress and psychosocial adjustment have moderate but significant association within both internal and external locus of control.

Within external locus of control, 23 (19.66%) students who experienced low stress had poor psychosocial adjustment while 94 (80.34%) students had good psychosocial adjustment. 24 (26.37%) students who experienced moderate stress level had poor psychosocial adjustment compared to 67(73.63%) students who had good psychosocial adjustment. Among the students who experienced high stress level, 41 (34.45%) students had poor psychosocial adjustment compared to 78 (65.55%) students who had good psychosocial adjustment.

The results of the chi-square analysis show that the relationship between stress and psychosocial adjustments is statistically significant within both the internal locus of control ($\chi2=7.54$, df=2, p =0.023) and external locus of control ($\chi2$ =6.59, df=2, p =0.037). Cramer's V value in both internal locus of control (ΦC=0.274, p=0.023) and external locus of control (ΦC=0.242, p=0.037) indicate that stress and psychosocial adjustment have moderate but significant association within both internal and external locus of control.

Table 3: Regression results for effect of level of stress on psychosocial adjustment

Psychosocial adjustment	*β*	*SE β*	*t-statistic*	*P-Value*	*95% CI*
Constant	67.5303	1.4698	45.95	0.000	[64.6437, 70.4169]
Stress level					
Moderate	.9021	1.9239	0.47	0.6390	[-2.8765, 4.6808]
High	4.5238	1.7859	2.53*	0.0120	[1.0162, 8.0315]
R^2.0142					
No. of observations	584				

Note: *means statistically significant at the 5% level of significance

Table 3 shows the regression results for the effect of stress level on psychosocial adjustment. The estimated model had a small R2=.0142. It means that only 1.42% of the variation in psychosocial adjustment is attributed to changes in stress level. The small R2 means that there are very many other

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variables that influence psychosocial adjustment that were not included in the simple regression model. Identifying and including those variables could increase the size of the R2 reported.

The results indicate that the moderate and high levels of stress have positive effect on psychosocial adjustment. Particularly, individuals experiencing the moderate stress level had higher psychosocial adjustment compared to those experiencing low stress levels. The effect was however, not statistically significant (t=0.47, p=0.6390) at the 5% level of significance. The effect of the high stress level on psychosocial adjustment was statistically significant (t=2.53, p=0.0120) at the 5% level of significance.

Table 4: Marginal effects between levels of stress and psychosocial adjustment

Psychosocial adjustment	*β*	*SE β*	*t-statistic*	*P-Value*	*95% CI*
Stress level					
Moderate	.9021	1.9239	0.47	0.639	[-2.8765, 4.6808]
High	4.5238	1.7859	2.53*	0.012	[1.0162, 8.0315]

Table 4 presents the marginal effects of stress level on psychosocial adjustment. Particularly, the moderate stress level had .9021 more scores on psychosocial adjustment compared to individuals experiencing the low stress level. The effect was not statistically significant (t=0.47, p=0.639) at the 5% level of significance. The high stress level had 4.5238 more scores on psychosocial adjustment compared to individuals experiencing the low stress level. This effect was statistically significant (t=2.53, p=0.012) at the 5% level of significance.

Table 5: Pearson correlation coefficient between level of stress and psychosocial adjustment

Variable	Psychosocial adjustment
Stress	0.1134

Table 5 presents the Pearson correlation coefficient. It measures the linear relationship between two variables by looking at the sign and strength of the coefficient. The correlation coefficient between level of stress and psychosocial adjustment was 0.1134. It implies positive and weak linear relationship between the two variables.

Table 6: Effect of the confounding variables on the interaction between academic stress and psychosocial adjustment

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Interaction	*β*	*SE β*	*t-statistic*	*P-Value*	*95% CI*
Constant	123.3412	12.0751	10.21	0.000	[99.6242, 147.0582]
Gender	1.7653	6.0008	0.29	0.769	[-10.0212, 13.5517]
Level of study					
Second year	-6.9797	9.3456	-1.82*	0.070	[-35.3355, 1.3762]
Third year	-4.9298	9.5632	-0.52	0.606	[-23.7132, 13.8534]
Fourth year	3.9400	11.1244	0.35	0.723	[-17.9097, 25.7897]
Fifth year	-4.0155	18.5118	-2.38*	0.018	[-80.3748, -7.6561]
Locus of control	3.0061	.5554	5.41*	0.000	[1.9152, 4.0969]
College					
CBPS	9.6042	23.9325	4.16*	0.000	[52.5969, 146.6115]
CEES	3.8524	24.0207	0.99	0.321	[-23.3282, 71.0329]
CHS	6.3781	24.2369	0.68	0.499	[-31.2272, 63.9835]
CAE	7.0848	23.6509	0.30	0.765	[-39.3696, 53.5391]
CAVs	-3.4592	68.2908	-0.56	0.574	[-172.5935, 95.6750]
$R^2$0.2528					
No. of observations	584				

Note: * mean significant at the 5% level of significant respectively

In Table 6, the influence of gender, level of study, locus of control, and college on the relationship between stress and psychosocial adjustment was determined. The CBPS was found to have statistically significant influence on the interaction between stress and psychosocial adjustment (t=4.16, p=0.000) at the 5% level of significance.

Gender had no statistically significant influence on the relationship between stress and psychosocial adjustment (t=0.29, p=0.769). The second and fifth levels of study had statistically significant influence on the relationship between stress and psychosocial adjustment compared to the first level of study (t=-1.82, p=0.070) and (t=-2.38, p=0.018) at the 5% level of significance. The third and fourth levels of study had no statistically significant influence on the relationship between stress and psychosocial adjustment compared to the first level of study (t=-0.52, p=0.606) and (t=0.35, p=0.723) respectively. Locus of control had statistically significant influence on the interaction between stress and psychosocial adjustment (t=5.41, p=0.0000) at the 5% level of significance.

Table 7: Marginal contribution of each confounding variable on the relationship between stress and psychosocial adjustment

Interaction	*β*	*SE β*	*t-statistic*	*P-Value*	*95% CI*
Gender	5.1338	5.4404	0.94	0.346	[-5.5519, 15.8196]
Level of study					
Second year	-4.287	8.6421	-1.65*	0.099	[-31.2615, 2.6874]
Third year	-5.4737	8.7048	-0.63	0.530	[-22.5713, 11.6239]
Fourth year	-7.7080	10.2121	-0.75	0.451	[-27.7663, 12.3502]
Fifth year	-2.9679	17.5029	-1.43	0.154	[-59.3466, 9.4108]
Locus of control	3.0652	.5397	5.68	0.000	[2.0051, 4.1253]
College					
CBPS	9.6042	23.9325	4.16	0.000	[52.5969, 146.6115]
CEES	3.8524	24.0207	0.99	0.321	[-23.3282 71.0329]
CHS	6.3781	24.2369	0.68	0.499	[-31.2272, 63.9835]
CAE	7.0848	23.6509	0.30	0.765	[-39.3696, 53.5391]
CAVs	-3.4592	68.2908	-0.56	0.574	[-172.5935 95.6750]

Note: * and ** mean significant at the 5% and 10% level of significance

Table 7 shows the marginal contributions of each confounding variable on relationship between stress and psychosocial adjustment. Regarding gender, the relationship between stress and psychosocial adjustment was found to be 5 times more for males compared to females. The effect was however, not significant (t=0.94, p=0.346). On the level of study, the relationship between psychosocial adjustment and stress of students in second, third, fourth and fifth years of study were 4, 5, 7, and 2 times lesser than that of students first year. The influence was statistically significant for the second year of study (t=-1.65, p=0.099) at the 10% level of significance. Locus of control contributed 3 times more to the relationship between psychosocial adjustment and stress and it was statistically significant (t=5.68, p=0.0000) at the 5% level of significance.

The relationship between psychosocial adjustment and stress of students in the College of Biological and Physical Sciences (CBPS), College of Education and External Studies (CEES), College of Health Sciences (CHS), and College of Architecture and Engineering (CAE) were found to be 9, 3, 6, and 7times higher compared to that of students in the College of Humanities and Social Sciences (CHSS). The marginal contribution was statistically significant at the 5% level of significance for CBPS (t=4.16, p=0.0000). The relationship between stress level and psychosocial adjustment for students in the College of Agriculture and Veterinary Sciences (CAVs) was found to be 3 times lesser than that of students in CHSS. It was statistically insignificant (t=-0.56, p=0.574) at the 5% level of significance.

5. DISCUSSION

Psychosocial adjustment is an important aspect of a person's positive wellbeing. According to Carver, Smith, Antoni & Weiss (2005), psychosocial adjustment refers to the emotional, mental and social wellbeing. Several studies suggest that stress undermines psychosocial adjustment (Adams, Meyers & Beidas, 2016; Dyson & Renk, 2006). But other studies have found the opposite to be the

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case (Hamden-Mansour, 2007; Chen, Wong, Ran, & Gilson, 2009). This inconsistency could be because students come from different geographical, socio-cultural, socioeconomic and psychosocial backgrounds. Differences in the students' backgrounds are likely to affect their adjustment processes in different ways.

This study found that stress has a highly statistical significant relationship with psychosocial adjustment ($\chi 2=13.514$, n=583, df=2, p=0.001). Three quarters (75%) of the respondents who experienced poor adjustment said that they had moderate to high stress while about 61% of the respondents who had good adjustment experienced moderate to high stress level. The result is contrary to Vankam & Nelson (2013) finding which showed that stress is not related to psychosocial adjustment. The results of this study, however, confirm other findings which state that stress has negative relationship with students' psychosocial adjustment (Alkaharusi, 2006; Lin, Lin, Wang & Chen, 2009). This finding supports Lazarus & Folkman's (1984) cognitive theory that psychosocial adjustment may be depend on the coping strategies of the individual after appraisal of both stressors and available coping resources.

Past studies on the role of age on the relationship between stress and psychosocial adjustment has not been consistent in their findings. The study found that the relationship between stress and psychosocial adjustment was significant within the age group of 19-22 years ($\chi 2=11.85$, n=119, df=2, p=0.003) but not the other age groups. It seems that the younger students were prone to stress which undermined their psychosocial adjustment. This finding supports studies that revealed that younger people are more prone to stress due their poor coping abilities (Beiter, Nash, McCrady, Rhoades, Linscomb, Claraham & Sammut, 2015; Archer, Lim, Teh, Chang & Chen, 2015). The findings are however inconsistent with those studies that found that older students had more stress and poor adjustment (Chen, Wang, Hui et al, 2013). It seems that age influences the relationship between stress and psychosocial adjustment through other factors.

Over three quarters (77.2%) of the male students who had low adjustment said that they had moderate to high stress levels. This compares with 76 (71.3%) female students who had moderate to high stress level indicating that they had low adjustment. The relationship between stress and psychosocial adjustment was significant among male students ($\chi 2=8.02$, n=318, df=2, p=0.018) but not among female students ($\chi 2=4.69$, n=2, df=208, p=0.096). The finding concurs with other studies that propose that male students are better adjusted compared to their female counterparts (Abdullah, Elias, Mahyuddin & Uli, 2009, 2010). The results are, however, not consistent with other studies which found that male students experienced more stress and had poorer psychosocial adjustment (Chen, Wong, Ran & Gilson, 2009; Winter & Yaffe, 2000).The role of gender in the relationship between stress and psychosocial adjustment appear to depend on other factors which need to be investigated further.

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The relationship between stress and psychosocial adjustment was statistically significant in year two only ($\chi 2$=9.427, n=212, df=2, p=0.009). Some studies have found more stress and poor adjustment at the lower levels of study (Bayran & Bigel, 2008). However, other studies indicated more stress and poor adjustment at the higher levels of study (Sheikh, Kahloon, Kazmi, Khan, & Khan, 2004 It seems that level of study is not a good predictor of stress experience and psychosocial adjustment.
The study revealed that stress and psychosocial adjustment have significant but moderate association within both internal locus of control ($\chi 2$=7.537, n=256, df=2, p=0.023) and external locus of control ($\chi 2$=6.585, n=119, df=2, p=0.037). This finding concurs with past studies which suggested that stress and psychosocial adjustment may be influenced by both internal locus of control (Au, 2015) and external locus of control (Ye & Lin, 2015) depending on the coping strategies used. This finding contradicts the findings that people with internal locus of control are better at handling stress and tend to be better adjusted than people wi th external locus of control (Stewart & De George-Walker, 2014; Seixas, James, JeanLouis, Bentley, Zizi & Gardner, 2015). The findings of this study suggest that the relationship between stress and psychosocial adjustment is due to other confounding variables which need to be investigated further.

The results of the study show that the relationship between stress level and psychosocial adjustment is statistically significant in the biological and physical science course only ($\chi 2$=8.88, n=100, df=2, p=0.012). The students in these colleges tended to have poor adjustment as the stress level increased. The results support findings by Talib & Zia-ur-Rehman (2012) that stress and psychosocial adjustment is influenced by the students' course requirements.

6. CONCLUSION

This study has identified several causes of stress among University of Nairobi students. Most of the students report experiencing between moderate to high stress levels. A higher proportion of male participants than female participants reported moderate to high levels of stress. The study revealed that stress was related to psychosocial adjustment. The relationship between stress and psychosocial adjustment was confounded by gender and locus of control. However, this relationship was confounded by only certain categories of age, level and course of study. The university should institute programs that can help identify and reduce causes and effects of stress. The counseling programs of the university should be strengthened. Finally further research should be undertaken to investigate the coping strategies employed by the students.

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