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A SOUTHWEST NIGERIAN INSTITUTION**

DEPRESSION AND PERSONALITY TRAITS AMONG UNDERGRADUATES IN A SOUTHWEST NIGERIAN INSTITUTION

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ABSTRACT

Introduction

Individual differences associated with diverse emotional reactions may be significantly traced to genetic makeup which can influence the experience of mental health disorders such as depression. Previous studies on depression and personality traits have focused largely on individuals who have been diagnosed and are being managed for depression, however, little attention is being paid to undergraduates who are yet to be diagnosed especially in a developing country like Nigeria. Therefore, this study aimed to identify the relationship between depression and personality traits among university students in Oyo State, Nigeria.

Methods

The study design employed a cross-sectional survey which consisted of four hundred and thirty-six full-time undergraduates using Fisher's sample size formula. The Big Five Inventory-10 ($\alpha=0.63$) and Patient Health Questionnaire-9 ($\alpha=0.85$) were self-report questionnaires used as instruments for the study. The study questionnaires were administered to the consented respondents during lecture-free periods. Data analysis was done using SPSS version 21 and the statistical significance level set at $P \leq 0.05$.

Results

The personality trait with the highest mean in the study population was Agreeableness (8.05

± 1.76) which was higher among female respondents; followed by Conscientiousness (7.40 ± 2.01) which was significantly higher in respondents without depressive symptoms compared to respondents who screened positive for depression ($P = <0.005$). However, Neuroticism was significantly lower in respondents without depressive symptoms compared to their counterparts who screened positive for depression.

Conclusion

Neuroticism, although not the prevailing personality trait among respondents in this study area, has a positive association with depression which was statistically significant. However, further study is required to corroborate this finding.

Keywords: Depression; personality traits; depressive disorder; undergraduates; LAUTECH Ogbomoso.

INTRODUCTION

Depression, a common psychopathology, is the fourth leading cause of disease burden and disability globally.¹ It is one of the major causes of death among those within the 15-35 years age bracket and accounts for 850 million deaths annually due to suicide.² The rate of depression with a weighted mean prevalence of 30.6% among undergraduates is higher than

the general population.³ Apart from personality traits, depression has been reported as a risk factor for alcohol-related problems and higher level of alcohol consumption.^{4,5}

Personality is a broad concept such that a single definition will be difficult to be widely accepted. Personality describes an individual's innate and enduring characteristics which shape their attitudes, thoughts, and behaviors in response to situations.⁶ Personality is derived from the Latin word 'Persona' which refers to the unique mask worn by actors. Personality may refer to the visible aspect of one's character, as it impresses on others.⁷

Therefore, personality can be seen as the unique combination of patterns that influence people's thoughts, behavior, emotions, and motivation. According to Walter Mischel, personality can be described as a distinctive pattern of behavior (including thoughts and emotion) that characterize each individual's adaptation to the situation in his or her life.⁸

Numerous models have been developed over time to accurately describe a person's personality such as Big Five Inventory, Eysenck Personality Inventory etc. Some researchers developed the big five personality inventory based on the Big Five or the five-factor model which has been found to be very useful and stable across cultures. The five factors are 1. Neuroticism or emotional stability: this includes traits such as anxiety, anger, depression, impulsiveness, self-consciousness, and vulnerability. 2. Openness or intellect: this includes the following facets-fantasy, aesthetics, feelings, actions, ideas, and values. It is defined by Costa and McCrae as aesthetically reactive, values intellectual matters, a wide range of interests, rebellious and non-conforming. 3. Extraversion: this includes the following traits- assertiveness, activity, warmth, gregariousness, positive emotions, and excitement seeking. 4. Agreeableness: this includes traits such as straightforwardness, altruism, trust, compliance, modesty, and tender-mindedness. 5. Conscientiousness: this includes traits such as confidence, order, dutifulness, achievement

striving, self-discipline and deliberation personality.⁹

The relationship between personality and depression has important implications for research and practice. Personality traits associated with emotional experience, expression, and regulation may be intermediate phenotypes that could be traced to genetic and neurobiological research than depressive diagnoses.¹⁰ It may be useful in identifying more homogeneous subgroups of depressive disorders that differ in developmental trajectories and etiological influences. The pathways between personality and depressive disorders can help elucidate more proximal processes involved in the development of mood disorders.¹¹ It may also be useful in tailoring treatment and predicting treatment response.^{12,13}

Temperament/personality may provide a means to identify at-risk individuals who could benefit from prevention and early intervention efforts.¹⁴ Finally, there is substantial comorbidity between depressive disorders and other forms of psychopathology. Some personality traits, such as neuroticism, are associated with multiple psychiatric conditions. Thus, this study aimed to assess the relationship between depression and personality traits among undergraduates in a southwest Nigerian institution.

METHODS

Study Design and Population

The study design was a descriptive cross-sectional survey that involved full-time undergraduates of the Ladoke Akintola University of Technology, a state institution with 7 faculties located in Ogbomoso, Oyo State Nigeria, with geographical coordinates 8° 8' 0" North, 4° 16' 0" East and shares relative boundaries between the North Central and South Western parts of Nigeria. The estimated total full-time student population of this institution is 20000.¹⁵

Sample Size

The minimum sample size derived for the study was 436 using the formula by Fishers for a population greater than 10,000 and a proportion of the targeted population that fulfilled the desired characteristic as adapted from a similar study.^{16,17}

Sampling Technique

Using a multi-stage sampling method, 3 faculties were selected randomly using the balloting method from the 7 faculties in the university. Five departments were chosen randomly by balloting method from the 3 faculties depending on the number of departments in the faculty. For every department, a level/year of study was selected randomly. The sample size was however allotted proportionally to the selected departments.

The study questionnaires were administered to the consented respondents during the lecture-free periods. The class was addressed on the importance of the study, the procedure and its benefits.

Study Instruments

Big Five Inventory (BFI)

The Big Five Inventory-10 (BFI-10) which comprised of 10 items developed by John, Donahue & Kentle (1991), was adopted from the 44 item BFI Scale by John and Scrivastava (1999).¹⁸ The scale is measured on a 5 point Likert-type scale and has been revalidated for use in Nigeria by several studies.^{19,20}

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 is a self-report screening questionnaire that consists of 9-items. The items reflect the DSM-IV criteria for major depressive disorder. Each question is scored 0-3 (0=not at all, 1=several days, 2=more than half the days and 3=nearly every day). The least score is 0 while the highest is 27. Studies have validated it for use among undergraduates in Nigeria.²¹

Data Analysis

Data analysis was done with the Statistical Package for Social Sciences (SPSS version 21). The details of respondents were reported using descriptive statistics such as frequency,

means, and standard deviation. Association between categorical variables (bivariate) was compared using Chi-Square statistics and Pearson correlation between two continuous variables. The confidence level for all the tests was set at 95%. A p-value of less than 0.05 was taken as statistically significant.

Ethical Approval

Ethical clearance was obtained from the Ethical Research Committee of LAUTECH Teaching Hospital, Ogbomosho and administrative approval was obtained from the authority of Ladoko Akintola University of Technology, Ogbomosho.

RESULTS

A total of 412 respondents completed the questionnaire out of 436 respondents involved in this study accounting for 94.4% response rate. Two hundred and twenty-seven (55.1%) were females and one hundred and eighty-five (44.9%) were males with a mean age of 21.6 ± 2.27 years. Majority ($n = 404$, 98.1%) were single and 96.4% were Yorubas. (Table 1)

The personality trait with the highest mean in the study population was Agreeableness (Mean \pm SD = 8.05 ± 1.76 , 95% CI = 7.88 – 8.22) followed by Conscientiousness (Mean \pm SD 7.40 ± 2.01 , 95% CI; 7.20 – 7.59), while Extraversion had the least mean score (5.02 ± 1.98 , 95% CI; 4.83 – 5.22). Openness traits had a mean score of (Mean \pm SD = 6.92 ± 1.58 , 95% CI = 6.77 – 7.08) and Neuroticism trait had a mean score of (Mean \pm SD = 5.48 ± 1.96 , 96% CI = 5.29 – 5.67). (figure 1)

Extraversion trait was significantly higher among male respondents (Male; mean = 5.64, SD = 2.04, Female; mean = 4.75, SD = 1.89), $t = 4.28$, p -value = 0.001. The personality trait of agreeableness was significantly higher among female respondents (Male; mean = 7.69, SD = 1.84, Female; mean = 8.12, SD = 1.84, $t = -2.17$, p -value = 0.031). Neuroticism trait was significantly lower in male respondents (mean = 5.01, SD = 1.83) compared to female respondents (mean = 5.69, SD = 1.98), $t = -3.33$, p -value = 0.001.

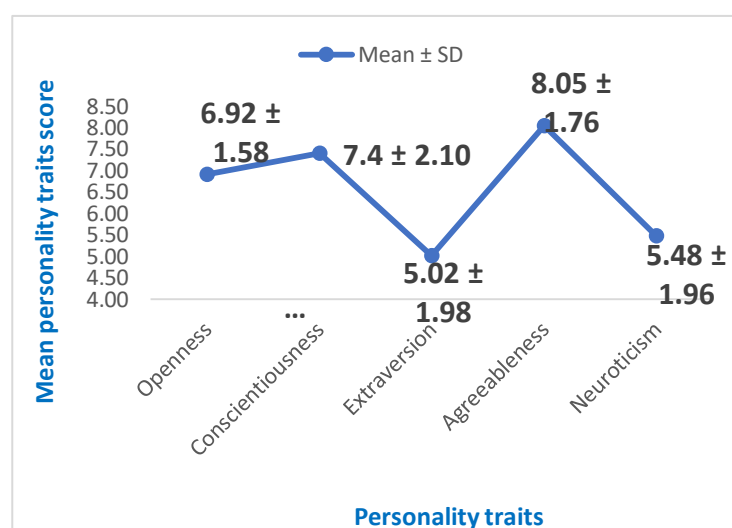
Table 1: Socio-demographic profile of respondents

Variables	Frequency (n)	Percentage (%)
Gender		
Male	185	44.9
Female	227	55.1
Age group (years)		
18 – 25 years	396	96.1
26 – 33 years	16	3.9
Marital status		
Single	404	98.1
Married	7	1.7
Cohabiting	1	0.2
Religion		
Christianity	310	75.2
Islam	101	24.5
Others	1	0.2
Frequency of religious activities		
Frequent	401	97.3
Infrequent	8	1.9
No activity	3	0.7
Ethnicity^a		
Yoruba	397	96.4
Igbo	5	1.2
Hausa	1	0.2
Others	8	1.9

Note: ^aCategory where the number of respondents \neq 412 indicates a missing observation

Other personality traits such as Conscientiousness and Openness were not statistically different with respect to gender of the respondents. Neuroticism was significantly higher in respondents with parental history of substance use (mean = 6.29, SD = 2.21) compared to respondents with no parental history of substance use (mean = 5.40, SD = 1.87), $t = 2.997$, $p\text{-value} = 0.003$ (table 2).

Approximately half (49.5%) of the respondents were depressed (Figure 2).

**Figure 1: Line graph representing mean score for personality traits****Table 2: Personality traits and socio-demographic variables**

Gender of respondents (n = 412)					
Personality traits	Male (mean ± SD)	Female (mean ± SD)	t- statistic	df	p-value
Extraversion	5.64 ± 2.04	4.75 ± 1.89	4.28	410	*0.001
Conscientiousness	7.45 ± 1.81	7.37 ± 2.09	0.359	410	0.72
Agreeableness	7.69 ± 1.84	8.12 ± 1.84	-2.17	410	*0.031
Neuroticism	5.01 ± 1.83	5.69 ± 1.98	-3.33	410	*0.001
Openness	7.0 ± 1.54	6.82 ± 1.69	1.02	410	0.308
Parental history of substance use (n = 371)					
Personality traits	Positive Hx (Mean ± SD)	Negative Hx (Mean ± SD)	t- statistic	df	p-value
Extraversion	5.24 ± 1.96	4.99 ± 1.99	0.834	369	0.684
Conscientiousness	6.96 ± 2.27	7.48 ± 1.95	-1.709	369	0.088
Agreeableness	7.71 ± 1.74	8.07 ± 1.83	-1.256	369	0.21
Neuroticism	6.29 ± 2.21	5.40 ± 1.87	2.997	369	*0.003
Openness	6.67 ± 1.76	6.89 ± 1.66	-0.839	369	0.402

Among respondents with depressive symptoms, one hundred and twenty (29.1%) had minor depression and eighty-four (20.4%) had major depression (Figure 3).

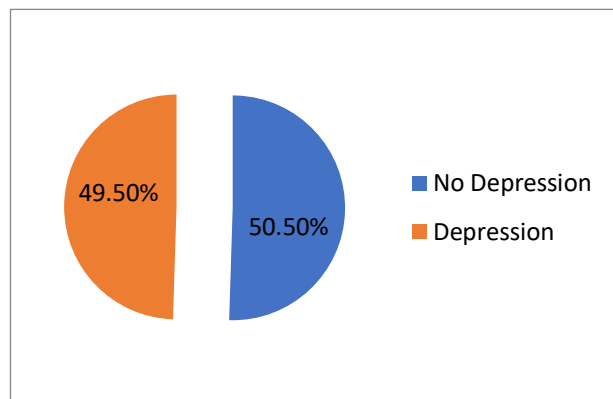


Figure 2: Depression among respondents

As shown in table 3, Conscientiousness trait was significantly higher in respondents with no depression (Mean = 7.76, SD = 1.78), compared to respondents with depression (Mean = 7.02, SD = 2.16), $t = 3.78$, $df = 410$, $p\text{-value} < 0.001$.

However, the trait for neuroticism was significantly lower in respondents with no depression (Mean = 5.15, SD = 1.90) relative to the depression category (Mean = 5.82, SD = 1.95), $t = -3.495$, $p\text{-value} = 0.001$. Also, Openness differed significantly among respondents with no depression (Mean = 7.04, SD = 1.56) and respondents with depression (Mean = 6.71, SD = 1.71), $t = 2.031$, $p\text{-value} = 0.043$.

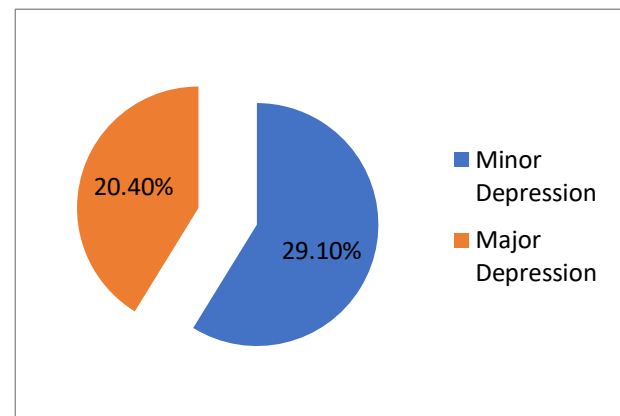


Figure 3: Severity of depression among respondents

Table 3: Comparison of mean personality traits with depression.

Depressive status					
Personality traits	No Depression	Depression	t- statistic	df	p-value
Extraversion	5.09 ± 1.95	4.96 ± 2.02	0.693	410	0.489
Conscientiousness	7.76 ± 1.78	7.02 ± 2.16	3.78	410	*<0.001
Agreeableness	8.15 ± 1.86	7.81 ± 1.83	1.84	410	0.066
Neuroticism	5.15 ± 1.90	5.82 ± 1.95	-3.495	410	*0.001
Openness	7.04 ± 1.56	6.71 ± 1.71	2.031	410	*0.043

Note: * $p\text{-value} < 0.05$ indicates significance

DISCUSSION

The study involved four hundred and twelve subjects. Most of the respondents (96.1%) were between the ages of 18 and 24 years and the mean age was 21.6 years. This conformed to a study among Nigerian undergraduates that reported 8 in every 10 were between 15 and 24 years.²² The mean age reported in this study is similar to the mean age of 21 and 22 years reported in previous studies among undergraduates in South-West and North-Central Nigeria respectively.^{23,24} It is noted that the pursuit of higher education in Nigeria tends to start rather early in recent years accounting for younger age at admission.

The commonest trait from this study was agreeableness followed by conscientiousness. This was in contrast to a report by Ghazi *et al* who found conscientiousness first followed by agreeableness among students and Begum *et al* who reported openness first followed by conscientiousness.^{25,26} This finding differs from that of previous studies in Southeastern Nigeria where neuroticism was reported as the prevailing personality.²⁷

Gender differences across personality traits were statistically significant in some traits in this study. Male respondents were higher in extraversion, conscientiousness and openness traits compared to female respondents. Extraversion traits include traits such as assertiveness, activity and excitement seeking. These are traits that are commonly higher in men, this might be the reason for a higher mean score in male respondents in this study. However, female respondents were higher in agreeableness and neuroticism traits. This is the pattern of gender differences in a study involving 23,000 individuals across 26 different nations.²⁸ Similar findings were reported in a local study involving undergraduates in which female undergraduates had higher scores in neuroticism and agreeableness traits though most of the differences noticed did not reach statistical significance.

Also, female respondents were noticed to be higher on neuroticism and agreeableness scores, which was statistically significant. Neuroticism reflects self-consciousness, distress proneness, depression and impulsiveness. Agreeableness on the other hand reflects tender-mindedness, trust, altruism and compliance. These characteristics or features are commonly found in women and thus might account for or explain the higher mean score of neuroticism and agreeableness among female respondents in this study.

Neuroticism trait was found to be significantly higher among respondents with parental history of substance use in this study. Negative emotionality, which is a reflection of neuroticism, has been associated with parental alcoholism.²⁹

This study found that 49.5% of the respondents had depressive symptoms. Findings from previous studies showed a wide range of prevalence of depression among undergraduates. A systematic review of studies on depression prevalence among undergraduates reported a range between 10-85% with a weighted average of 30.6%.³⁰ Some studies reported lower values such as a study conducted among medical students in Nepal that reported 29.9% and another study carried out among Malaysian undergraduates which reported 27.5%.^{31,32} However, studies carried out among undergraduates in Egypt and India reported higher values of 65% and 51.3% respectively.^{33,34} In Nigeria, a study among medical undergraduates reported a prevalence 23.3%.³⁵

The wide variation noticed in the prevalence might be due to the instruments used in the assessment of depression; while some studies used screening instruments others used diagnostic instruments. For example, the prevalence of depression is found to be lower among medical undergraduates compared to non-medical undergraduates.³⁶

Conscientiousness trait was significantly higher in respondents with no depression compared to respondents with depression. However, the trait for neuroticism was

significantly lower in respondents with no depression relative to the depression category.

Also, Openness differed significantly among respondents with no depression and respondents with depression.

CONCLUSION

While Neuroticism was not the prevailing personality trait among respondents in this study, we, however, observed that it has a positive association with depression and this correlation was statistically significant. Further studies are required to corroborate these findings.

Conflict of Interest

The authors have no conflict of interest.

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