Research Article

ACADEMIC STRESS, PERSONALITY, SOCIAL SUPPORT, AND MEDIATING ROLE OF COPING STRATEGIES ON MENTAL HEALTH OF MEDICAL STUDENTS AT THE UNIVERSITY COLLEGE HOSPITAL (UCH), IBADAN, NIGERIA.

Catherine O. CHOVWEN, *Shyngle K. BALOGUN, Ewaoluwa D. BALOGUN, Samuel Success HARUNA, Oluwafemi P.FAMAKINDE

Department of Psychology, University of Ibadan, Ibadan, Nigeria.

ABSTRACT

Motivated by a dearth of research on stress, particularly among medical students in Nigeria, the authors attempt to analyse the relationship among Academic stress, Personality, social support, coping mechanisms and mental health of medical students in a medical institution in Ibadan, Nigeria. Hierarchical regression is applied to examine this relationship. In addition, questionnaires were distributed to 264 students at University College Hospital Ibadan, Nigeria.b Findings show no relationship between academic stress and mental health of the medical students, whereas, personality traits and coping mechanism play a significant role in their mental health, be it each of the different traits or collectively. It was also discovered that coping mechanism was a significant predictor of good mental health among the medical students. Conclusion and recommendation were made towards having curriculum reviewed to include social support and coping mechanisms to help the students cope better with their mental health and academic stress.

Keywords: Coping mechanism, Academic stress, personality, social support, mental health, medical students.

INTRODUCTION

Individuals are different in a relatively constant pattern of thoughts, feeling, and behaviors, which are called personality traits. Mental health is a condition of well-being in which people may reach their full potential and deal effectively with stress, work efficiently, and contribute to their communities (Kang*et al,* 2023) with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in. Mental health is a basic human right. And it is crucial to personal, community and socio-economic development" (WHO, 2022). Functioning effectively in all spheres of life is dependent on good mental health, which reflects in our physical health, thinking sleep, self-esteem and energy level (ABC, nd) Many things within our surroundings can affect our mental health and make us perform less effectively or not to be able to cope with challenges of life. One example is the pursuit of our academic career in various field or forms. Among other academic disciplines, it is believed that medicine or medical oriented fields could be mentally and physically challenging. Some because of their inability to cope drop on the way, or have mental breakdown or depression and so on. In Nigeria, the situation may be scary given the state of our medical professionals that are leaving in droves for "greener pastures" outside the country. The vacuum created is being filled by medical trainees, who are themselves learning. So, the burden of studying and being in the wards round the clock may be too stressful for these young ones, which may affect their mental health. Collins *et al.,* (2011 and Becker and Kleinman (2013) recognised this situation as structural and systemic obstacle that include inadequate health care, a dearth of mental professionals, and a lack of access to all levels of care.

One noticeable variable that can affect mental health among medical students is what is called academic stress. Academic stress refers to the physiological, emotional, and behavioural responses that students experience when they face challenges related to academic performance and expectations. Academic stress is a pressure situation confronted by someone in which there are academic demands and being characterized by various reactions, including physical, emotional, cognitive, and behavioral reactions (Goliszek, 2005).

Academic stress is prevalent among students worldwide, particularly among those in higher education, such as undergraduate and graduate students. The pressure to perform academically, meet deadlines, manage coursework, and balance academic and personal responsibilities can cause significant stress among students. One of the main causes of academic stress is academic workload. Students often face heavy workloads, multiple deadlines, and challenging coursework, which can lead to feelings of overwhelm and anxiety. Additionally, academic stress can be exacerbated by other factors, such as financial difficulties, personal problems, and social isolation (Reddy *et al.,* 2018) Another factor that contributes to academic stress is the competitive academic environment. Students may feel pressure to outperform their peers, maintain high grades, and achieve academic success. This can lead to feelings of inadequacy, self-doubt, and low self-esteem.

Furthermore, academic stress can have adverse effects on students' physical and mental health. Excessive academic stress can lead to fatigue, sleep disturbances, irritability, and physical health problems such as headaches, stomach aches, and muscle tension. In the long term, chronic academic stress can also lead to mental health problems such as anxiety, depression, and burnout. Smoking tobacco is one method students use to reduce psychological strain and combat stress. As a result, choosing destructive coping mechanisms for stress may increase the likelihood that medical students would engage in addictive behaviour.

*Corresponding Author: Shyngle K. BALOGUN,
Department of Psychology, University of Ibadan, Ibadan, Nigeria.

Despite the prevalence and negative effects of academic stress, there are several coping mechanisms that students can use to manage their stress levels. One of the most effective coping strategies is social support. Social support refers to the assistance, guidance, and emotional comfort that individuals receive from their social network.

Studies have shown that social support can mitigate the negative effects of academic stress on mental health outcomes. For example, emotional support, which involves providing empathy, encouragement, and validation, has been linked to lower levels of anxiety and depression among students. Instrumental support, such as providing practical assistance, can also help students manage their stress levels. For instance, a friend may help with coursework or provide transportation to school, which can reduce the stress of managing academic responsibilities.

Moreover, informational support, which involves providing advice, guidance, and information, can help students better understand academic requirements and expectations, and thus, reduce their stress levels. Companionship support, which involves spending time with friends and engaging in social activities, can also help students manage their stress levels. For instance, participating in extracurricular activities or social events can provide a sense of community and belonging, which can reduce feelings of isolation and loneliness.

However, it is important to note that social support has its limitations. Students may not always have access to social support, particularly if they are studying in a new environment or are experiencing social isolation. Reactions to stress is equality influenced by the personality (traits) of the individual.

Personality

A person's reactions to various events are shaped by their personality traits, which are consistent patterns of thoughts, feelings, and behaviours (Digman, 1990). Mental health is a complex issue that is deeply intertwined with a person's personality. Personality can have a profound effect on the development, maintenance, and exacerbation of mental health issues. In the broadest sense, personality is defined as the unique set of traits and characteristics that make up an individual, including thoughts, beliefs, and behaviors. It's important to note that personality is not static; it is shaped by a person's environment and experiences. Therefore, it is possible for personality traits to change and evolve over time. That being said, certain personality traits are more likely to be associated with mental health issues. For example, people who score higher on neuroticism tend to be more prone to anxiety and depression. Neuroticism is the tendency to experience negative emotions and feelings, such as fear, sadness, irritability, and guilt. Those who are more neurotic are more likely to over think situations, worry excessively, and ruminate on negative thoughts. In addition, those who are more extraverted tend to be more prone to social anxiety and depression, as they are more likely to feel overwhelmed in social situations. Conversely, some personality traits may be protective against mental health issues. Individuals who are higher in agreeableness, for example, may be less likely to experience depression or anxiety. Agreeableness is the tendency to be helpful, generous, and sympathetic to others. Individuals who are more agreeable are more likely to have supportive relationships and more positive social interactions, which can be protective against mental health issues. Overall, personality is a complex and multifaceted concept that can have a significant impact on mental health. It is important to remember that personality is not set in stone and that it can evolve over time. It is also important to note that mental illness is a complex issue and that there is no single personality trait that is predictive of mental health. Kashdan, and Roberts (2013).

Personality can also moderate perceived academic stress (Jacob, *et al.,* 2022). They observed that emerging adults may face a lot of stress while trying to maintain their academics in college. The methods they choose to cope with academic stress may vary and can depend upon their personality traits

Social Support

Social support refers to the network of relationships that provide emotional, informational, and practical assistance to individuals in times of need. This support can come from friends, family, coworkers, or community organizations. Social support has been linked to better mental and physical health outcomes, including decreased stress and depression (Cohen and Wills, 1985)

Social support has been found to be relevant in various areas ranging from mental health to physical health, education, and even work. In mental health, social support has been shown to be a protective factor against the development of mental illnesses such as depression and anxiety. In education, social support has been found to be a key factor in academic success. Students who have access to social support are more likely to graduate and perform well academically. Social support can also help to reduce the likelihood of burnout and turnover. The hurdles facing medical students are challenging. They must maintain their mental and emotional well-being in order to excel in the medical profession, in addition to mastering the medical information required to pass their exams and get their medical degrees. To make sure that medical students have the tools and assistance they need to succeed in their studies, social support is crucial. Medical students should think carefully about their mental health while considering social assistance. According to Lau *et al.,* (2020), social support is the "perceived availability, accessibility and appropriateness of resources from significant others, family, and friends" that can aid a person in managing a stressful circumstance or condition. According to Lau *et al.,* (2020), social support can take on a variety of shapes, including emotional support, material support, and informational support. Social support for medical students can take the shape of motivation and help from family and friends as well as guidance and resources from mentors and peers in the medical field. Numerous studies have demonstrated the positive impacts of social support on mental health. Research has shown that social support can help medical students who are experiencing anxiety, depression, and other unpleasant psychological symptoms (Spruijt-Metz *et al.,* 2018; Li, *et al.,* 2020). Self-efficacy and life satisfaction can both be increased by social support (Lau, *et al.,* 2020;). Medical students and the medical profession can build and access social support in a variety of ways. One way to build a sense of community among medical students is through mentoring programs. These programs can provide medical students with support and direction from seasoned practitioners in the field (Li, *et al.,* 2020). Peers in their classrooms or the medical profession can also be a source of support for medical students. Medical students can benefit greatly from having a peer group to share experiences with and offer guidance (Spruijt-Metz, *et al.,* 2018). Medical students may be able to connect and share experiences with a larger community through online support groups such forums and social media (Li *et al.,* 2020). To sum up, social support is a crucial aspect of medical students' mental health to take into account. According to studies, social support can help medical students with their anxiety, depression, and other unpleasant psychological symptoms.

Social support can be beneficial in various areas during stressful circumstances. For example, a study by Cohen and Wills (1985) found that social support can serve as a buffer against the negative effects of stress on health outcomes. House *et al.,* (1988) also found that social support can help to reduce the risk of mortality in stressful

circumstances. In terms of medical students, Schwarzer and Knoll (2007) found that social support can assist in coping with academic stress, which is common among medical students. Thoits (2011) also found that social support can help to mitigate the negative effects of stress on mental health outcomes.

Overall, social support has been found to be beneficial in various areas, including stress and coping, physical and mental health, and relationships. Walen and Lachman (2000) also found that social support can improve overall well-being, including improved self-esteem and life satisfaction. Coping mechanisms refer to the conscious and voluntary strategies that individuals use to manage stress and difficult emotions. These mechanisms can be either problem-focused or emotion-focused, active or avoidant. Effective coping mechanisms include seeking support, relaxation, problem-solving, humor, and physical activity. In contrast, maladaptive coping mechanisms such as escape, unhealthy self-soothing, numbing, compulsions and risk-taking, and self-harm can lead to poor mental health outcomes and higher levels of psychopathology symptoms. Coping mechanisms are different from defense mechanisms, which are unconscious and automatic. Coping mechanisms can be crucial in building an effective doctor-patient relationship and selecting the best approach to prevent potential sequelae

After the review of theories and relevant literature, below in Figure 1 is the conceptual frame work derived for the study.
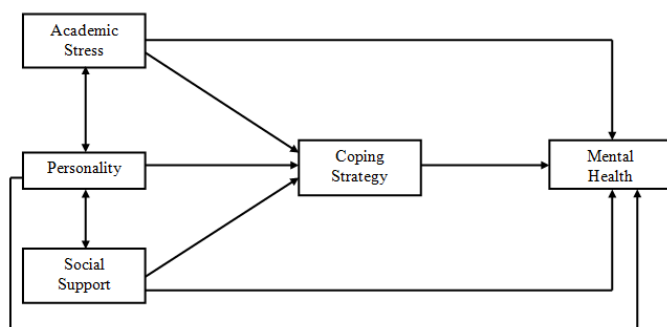

Figure1. Conceptual framework of the study

The proposed relationship of variables/factors considered in this study is presented in Fug.1. It is stated that the perceived academic stress would bring about how the individual copes (Using whatever coping mechanism), which in turn would determine the mental health status of the medical students being considered in this study (Jacob *et al.,* 2022). Same goes for each of the other two variables of personality and social support. However, we are also interested in direct relation between these three variables without the mediating variable of coping strategy. In other words, mental health of the students could be influenced/affected by the individual or combined factors of Academic stress, Personality and social support, directly or moderated by coping mechanisms adopted by the students.

RESEARCH METHODOLOGY

Research Design

The study adopted cross-sectional survey design using *expost facto* method in order to examine the impact/influence of psychological factors (personality, academic stress, social support, and coping mechanisms) on mental health of the respondents.

Study Area

Ibadan, then the largest city in West Africa and the location of the first university in Nigeria, was the ideal location for the University College hospital (UCH). The physical development of the Hospital

commenced in 1953 in its present site and was formally commissioned after completion on 20 November 1957.The University of Ibadan owns and runs the tertiary hospital known as the University College Hospital in Ibadan. It was founded in 1956 and is one of the three initial teaching hospitals in Nigeria. The hospital serves as a teaching facility for residents and medical students. In the university setting, there is a high degree of interpersonal harmony and a supportive setting for learning for both faculty and students. An Act of Parliament passed in August 1952 created the University College Hospital (UCH) Ibadan in response to the need for the nation and the West African Sub-Region to train medical workers and other healthcare professionals. The physical development of the Hospital commenced in 1953 and was formally commissioned in 1957.

The Hospital and the University of Ibadan function in an excellent symbiosis in the areas of health manpower training, research and clinical service. Programs for postgraduate residency training in all areas of internal medicine, surgery, obstetrics gynaecology,paediatrics,otorhinolaryngology,ophthalmology,anaesthesia, orthopaedic surgery, and traumatology, as well as in laboratory medicine, psychiatry, community medicine, family medicine, radiology, radiation oncology, neurological surgery, and dentistry, as well as diploma/professional programs in the school of health records. The hospital has trained over 6,000 doctors, nurses, midwives, perioperative nurses, laboratory scientists, environmental health officers, primary health care tutors, community health officers, and Physiotherapists, and has a million clientele. The study is conducted in the University college hospital because it is all encompassing as it constitutes students from various ethnic groups, religious beliefs, economic status, age group and specialised field of study.

STUDY POPULATION

A research population is generally a collection of individuals or objects that is the main focus of scientific inquiry. It is also known as a well-defined collection of individuals or objects known to have similar characteristics. The population of the University College Hospital is heterogeneous with people from ethnic groups, socio economic status and cultural beliefs. With this knowledge, the study examined random students of the University and their perception about the effect of mental health on their medical career. The participants will be drawn from students going through their training to become Medical and Dental practitioners after earning their degrees of MBBS or BDS.

SAMPLING TECHNIQUE

A convenient sampling technique was used in selecting the participants of the study. This is because of the fact that many, if not all, of the students are into one thing or the other within the hospital premises which are related to their study or on ward round. The researchers contacted two "key" medical students (one male and one female) who were recruited to help distribute the question. It was not possible to gather all of them together or randomly select them and later on experience decline as a result of their other engagements. However, before accepting any participants, the following criteria must be met:

- participants must be a student in the medical field in the university college hospital (UCH) in the university of Ibadan
- indicate willingness to participate in the study
- give informed consent
- be fluent in English

The participants with the mean age of 25.80 (SD = 6.72) consist of 156 males and 108 females totaling 264 participants altogether. The details are presented in table 1 below.

Table 1: Demographic characteristics of the participants

	Variables	N 264	% 100	Mean	SD
1	**Gender**				
	Male	156	59.1		
	Female	108	40.9		
2	**Age**			25.80	6.72
3	**Educational Level**				
	300	40	15.2		
	400	142	53.8		
	500	64	24.2		
	600	18	6.8		
4	**Religion**				
	Christianity	195	73.9		
	Islam	69	26.1		
5	**Ethnic Affiliation**				
	Yoruba	194	73.5		
	Igbo	39	14.8		
	Hausa/Fulani	04	1.5		
	Others	27	10.2		

INSTRUMENT

Data was collected using questionnaire divided into section

Section A

This consists of the socio demographic variables of the students such as age, religion, ethnic group, gender, and level of study

Section B.

The Big-5 personality inventory (Gosling, 2003)
The 10-Item Personality Inventory (TIPI)is a self-reported general scale designed to assess the Big Five personality traits including extraversion (E), agreeableness(A), conscientiousness (C), emotional stability (ES), and openness (O). The short form was designed and validated in the US in 2003. Each of the 10 items consists of two descriptors, and each Big Five personality trait is measured by two items. The items in the TIPI are rated on a 7-point Likert-type scale ranging from 1 (disagree strongly) to 7 (agree strongly), and the total personality score (10-70) is obtained by summing the subscale scores. The TIPI takes approximately 1 minute to complete (Gosling *et al.,* 2003). It has quickly become popular, Scoring the TIPI

1. Recode the reverse-scored items (i.e., recode a 7 with a 1, a 6 with a 2, a 5 with a 3, etc.). The reverse scored items are 2, 4, 6, 8, & 10.
2. Take the average of the two items (the standard item and the recoded reverse-scored item) that make up each scale.

Example using the Extraversion scale: A participant has scores of 5 on item 1 (Extraverted, enthusiastic) and 2 on item 6 (Reserved, quiet). First, recode the reverse-scored item (i.e., item 6), replacing the 2 with a 6. Second, take the average of the score for item 1 and the (recoded) score for item 6. So, the TIPI Extraversion scale score would be: (5 + 6)/2 = 5.5

Section C.

The Brief Resilient Coping Scale (BRCS)
The Brief Resilient Coping Scale (BRCS) developed by Sinclair, V. G., and Wallston, K. A. (2004) The Brief Resilient Coping Scale captures tendencies to cope with stress adaptively. The scale focuses on the tendency to effectively use coping strategies in flexible, committed ways to actively solve problems despite stressful circumstances. It has 4 items. Example statement/item: *"I look for creative ways to alter difficult situations"*

it has response a 5-point scale response, ranging from 1=does not describe me at all to 5=describes me very well. Total sum scores range from 4 to 20. Scores of 4-13 indicate low resilient coping, 14-16 indicate medium resilient coping and 17-20 indicate high resilient coping.

Section D

Multidimensional Scale of Perceived Social Support (MSPSS)
The Multidimensional Scale of Perceived Social Support (Zimet *et al.,* 1988,1990) is a 12-item measure of perceived adequacy of social support from three sources: family, friends, & significant other; using a 5-point Likert scale (0 = strongly disagree, 5 = strongly agree).

Scoring Information: To calculate mean scores: Significant Other Subscale: Sum across items 1, 2, 5, & 10, then divide by 4. Family Subscale: Sum across items 3, 4, 8, & 11, then divide by 4. Friends Subscale: Sum across items 6, 7, 9, & 12, then divide by 4. Total Scale: Sum across all 12 items, then divide by 12. Scores of 1-2.9: Low perceived social support; Scores of 3-5: Moderate perceived social support; Scores of 5.1-7: High perceived social support

Section E.

The University Stress Scale (USS)
The University Stress Scale (USS) provides a measure of both the categories of stress experienced by university students as well as the overall intensity of the stress experienced. The scale is designed to measure how often the items have caused stress over the past month by Stallman (2008). It is a 21-item scale, Likert scoring format ranging from 0 (not at all) to 3 (constantly) to measure the degree to which certain items cause the individual stress, with higher scores indicating higher levels of stress It is a self-report measure whose scoring pattern typically follows: Scores of 1-8: Low perceived stress, Scores of 9-12: Moderate perceived stress, Scores of 13-21: High perceived stress

Section F.

Mental Health Inventory
This is 18 item scale with Likert form of scoring. The comprehensive version of the scale was developed as part of the National Health Insurance Study in America. We have various versions of the scale at present which are shorter versions of the original. Many of these are 18-item versions. The one used in this study was that developed by Veita and Ware (1983). It contains items assessing anxiety, depression, behavioural control, and positive affect. At the most general level they described a global mental health factor. In addition, they presented a two-factor (Psychological Distress and Psychological Well-being) and a five-factor formulation of mental health responses (Anxiety, Depression, Loss of Behavioral/Emotional Control, Emotional Ties, and General Positive Affect). With regard to fewer than items in MHI-18, use of this instrument could be help to save time and cost. The psychometric properties were established among Iranian students by Meybodia et al (2011) Data analysis showed MHI-18 is associated with GHQ Scores (r= -0.75). Factor analysis loaded two factors. Reliability for MHI18 with Chronbach's alpha and spilt half method was 0.93. The results support internal consistency and factorial structure of MHI-18 and demonstrate that this scale is a valid and reliable instrument

Procedure

After the approval of the hall supervisor of the hall of the medical students, the researchers enlisted two assistants among the medical students and provided an overview of what the study was all about to them (The assistants). The assistants helped in the distribution of the questionnaire booklets to any willing students who agreed to complete the booklet. The convenient/incidental sampling method was used because the students were "very busy" with studies or engaged in the clinical wards. They were indeed under pressure as the time of data collection coincided with the time resident doctors were on industrial action (Strike), so the students were busy standing in the gap in addition to their studies. The participants were either met at the ward, classroom or their halls of residence. Through a contact at the University College Hospital Ibadan, we were able to get records on total number of medical students to determine the population of the study. Then Slovin (2010) sample size calculations was used to determine the number of questionnaire/ samples to be included in the main study. Some were away on community posting outside Ibadan. it took 5 days to distribute and retrieve the questionnaire. Two hundred and eighty-six (286) copies of questionnaire were distributed but only two hundred and sixty-four (264) were retrieved back and used for calculation and analysis of data.

RESULTS

The data was first subjected to intercorrelation analysis among the variables that were considered in the study and the result is present in Table 2. below

Intercorrelation among variables

Table 2: Zero-order correlation table showing result of the relationship between variables of the study

SN	Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1	Mental Health	143.51	5.24	-								
2	Extraversion	18.65	7.08	.45**	-							
3	Agreeableness	26.76	3.53	-.22**	-.18**							
4	Conscientiousness	37.92	6.76	.20**	-.16**	.50**						
5	Openness	30.72	5.63	.05	-.29**	.43**	.69**					
6	Neuroticism	23.32	4.45	-.18**	-.18**	.53**	.60**	.63**				
7	Social support	24.59	4.50	.15*	.10	.06	.03	.07	.15*	-		
8	Academic stress	23.32	10.22	.08	.08	.11	.13	.09	.05	.03	-	
9	Coping	31.68	10.90	.13*	-.16*	.13*	.23**	.22**	.14*	-.20**	.11	-

** Significant at 0.01; * Significant at 0.05

Table 2 present results on the relationship among academic stress, personality, social support, coping strategies and mental health. It is shown that mental health has significant and positive relationship with extraversion (r = .45; p < .01), conscientiousness (r = .20; p < .01), social support (r = .15; p < .05) and coping strategies (r = .13; p < .05). This connotes that the higher the extraversion, conscientiousness, social support and coping strategies, the higher the mental health of medical students.

Also, it is shown that mental health has significant and negative relationship with agreeableness (r = -.22; p < .01) and neuroticism (r = -.18; p < .01). This implies that the higher the agreeableness and neuroticism, the lower the mental health of medical students in UCH.
However, it is shown that mental health has no significant relationship with openness to experience and academic stress (p > .05).

Hypotheses Testing
Hypothesis one

Personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) will have significant joint and independent influence on mental health of medical students. This was tested using multiple regression analysis and the result is presented in table 3

Table 3: Multiple regression analysis summary table showing results on the joint and independent influence of personality traits on mental health

Predictors	β	t	p	R	R²	F	P
Extraversion	.45	7.77	< .01				
Openness to experience	-.10	-1.51	> .05				
Neuroticism	-.16	-1.94	< .05	.49	.24	15.91	< .01
Conscientiousness	.18	2.13	< .05				
Agreeableness	-.06	-.82	> .05				

Table 2 presents results on the joint and independent influence of personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) on mental health of medical students in UCH, Ibadan. It is shown that personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) were significant joint predictors of mental health [R = .49; R² = .24; F (5, 258) = 15.91; p < .01]. Collectively, personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) accounted for about 24% variance in mental health. However, only extraversion (β = .44; t = 7.77; p < .01), conscientiousness (β = .18; t = 2.13; p < .05) and neuroticism (β = -.16; t = -1.94; p < .05) were independent predictors of mental health. This hypothesis is therefore confirmed.

Hypothesis two

Academic stress will significantly predict mental health of medical students in UCH, Ibadan. This was tested using linear regression analysis and the result is presented on Table 4

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Table 4: Linear Regression table showing the influence of academic stress on mental health

DV	IV	β	T	p	F	R	R^2	p
Mental health	Academic stress	.05	.75	>.05	.56	.05	.01	>.05

Table 4 showed the linear influence of academic stress on mental health of medical students in UCH. It is shown that academic stress has no significant influence on mental health [$F_{(1,262)}$ = .56; R = .05, R^2 = .01; p > .05]. This negates the stated hypothesis, hence, was rejected in this study.

Hypothesis Three

Social support will significantly predict mental health of medical students in UCH, Ibadan. This was tested using linear regression analysis and the result is presented on Table 4;

Table 5: Linear Regression table showing the influence of social support on mental health

DV	IV	β	T	p	F	R	R^2	p
Mental Health	Social support	.13	2.08	<.05	4.33	.13	.02	<.05

Table 5 present results on the influence of social support on mental health of medical students in UCH, Ibadan. It is shown that mental health is a significant predictor of mental health among the students [$F_{(1,262)}$ = 4.33; R = .13, R^2 = .02; p <. 05]. Also, social support accounted for a variation of about 2% in mental health. This confirmed the stated hypothesis.

Hypothesis four

Coping strategies will significantly moderate the influence of academic stress, personality and social support on mental health status of medical students in UCH, Ibadan. This was tested using hierarchical regression and the result is presented on table 6

Table 6: Table showing summary of hierarchical multiple regression analysis of the moderating role of coping styles

Model	Predictors	β	t	p	R	R^2	R^2 Change	F	p
Model 1	Extraversion	.45	7.77	< .01					
	Openness to experience	-.10	-1.51	> .05					
	Neuroticism	-.16	-1.94	< .05	.49	.24	.24	15.91	<.01
	Conscientiousness	.18	2.13	< .05					
	Agreeableness	-.06	-.82	> .05					
Model 2	Extraversion	.45	7.67	<.01					
	Openness to experience	-.10	-1.51	>.05					
	Neuroticism	-.16	-1.91	> .05					
	Conscientiousness	.18	2.12	<.05	.49	.24	.00	13.22	<.01
	Agreeableness	-.07	-.84	>.05					
	Academic stress	.01	.22	>.05					
Model 3	Extraversion	.44	7.58	<.01					
	Openness to experience	-.10	-1.50	>.05					
	Neuroticism	-.15	-1.83	> .05					
	Conscientiousness	.18	2.17	<.05	.49	.24	.00	11.39	<.01
	Agreeableness	-.07	-.83	>.05					
	Academic stress	.01	.06	>.05					
	Social support	-.04	-.75	>.05					
Moderated by coping strategies									
Model 4	Extraversion	.37	5.76	<.01					
	Openness to experience	.08	1.12	>.05					
	Neuroticism	.12	1.23	> .05					
	Conscientiousness	.23	3.09	<.05	.57	.33	.33	19.45	<.01
	Agreeableness	-.05	-.79	>.05					
	Academic stress	.01	.06	>.05					
	Social support	.29	4.54	<.01					

**p<.01; *p<.05

Table 6 presents the results of the moderating role of coping strategies in the influence of personality traits, academic stress and social support on mental health among medical students in UCH, Ibadan. Firstly, the influence of personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) on mental health was ascertained. Academic stress was added in model 2, social support was added in model 3, while the moderating role of coping strategies was added in model 4.

The results from Table 6 reveals that personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) significantly accounted for about 24% variance in mental health [R = .49; R^2 = .24; F (5, 258) = 15.91; p < .01]. However, only extraversion, neuroticism and conscientiousness were independent predictors of mental health.

In model two when academic stress was added to personality traits, all the variables accounted for 24% variance in mental health [R = .49; R^2 = .24; F (6, 257) = 13.22; p < .01]. However, only extraversion and conscientiousness had independent influence on mental health. The addition of academic stress had no significant change in mental health (p > .01). In model three when social support was added to personality traits and academic stress, all the variables accounted for 24% variance in mental health [R = .49; R^2 = .24; F (7, 256) = 11.39; p < .01]. However, only extraversion and conscientiousness had independent influence on mental health. The addition of social support had no significant change in mental health (p > .01).

In model four, the influence of personality traits, academic stress and social support on mental health were moderated by coping strategies. It is shown that all the variables accounted for 33% variance in mental health [R = .57; R^2 = .33; F (7, 256) = 19.45; p < .01]. Further, it is shown that coping strategies accounted for about 33% change in the influence of personality traits, academic stress and social support on mental health (ΔR^2 = .33; p < .01). This confirms the stated hypothesis.

DISCUSSION

It was first established that there was a relation between all the variables of interest justifying why they were all included in the study. It is shown that mental health has significant and positive relationship with extraversion, conscientiousness, social support and coping strategies. This connotes that the higher the extraversion, conscientiousness, social support and coping strategies, the higher the mental health of medical students. This is in consonance with findings of Varo, et al., (2023). This is because conscientious people are more organized, self-controlled, and focused on goals while people high on extraversion are assertive, outgoing and expressive. And when these are combined with good social support, there is every tendency to have positive mental health and therefore cope with the demands of the academic situations confronting them, that is, the medical students. On the other hand, mental health had significant and negative relationship with agreeableness and neuroticism. This implies that the higher the agreeableness and neuroticism, the lower the mental health of medical students in UCH. This finding is not surprising because people high on agreeableness are less trusting of others, while people high on neuroticism experience negative emotions and easily upset. If these two variables are combined in one person, especially, among these medical students, then it would not be surprising for them to experience low mental health status.

A study conducted by Nechita et al., (2015) on university students in Craiova to understand the association of personality with academic performance found that positive and negative correlation exists between factors of personality and academic performance of students. The study concluded that conscientiousness had a positive influence whereas extraversion had a negative influence on the academic achievement of students. Students who scored higher on the neuroticism scale were doing academically better than students who appeared to be less neurotic. No correlation was found between agreeableness and academic performance. Women were found to be more agreeable and emotionally unstable when compared to men. Stress had a positive correlation with neuroticism and openness to experience

Sukumar and Kanagarathinam (2017) investigated the relationship between personality traits and academic stress and coping techniques adopted by adolescents and revealed that personality factors had a significant relationship with academic stress. The enhancement of personality traits may help in increasing the capability to manage stress and may lead to better academic performance. Sivailango et al., (2020) examined the relationship between personality, coping methods, and quality of life among South Indian undergraduate medical students. Males scored more on the extraversion scale and females on the neuroticism scale. Females adopted better coping strategies than males. Extraversion was directly correlated with problem-focused and emotion-focused engagement coping strategy whereas neuroticism had an inverse correlation with emotion-focused disengagement coping strategy

Contrary to the expectation of the study, it was discovered that no relation existed between openness to experience and academic stress. People who are high on openness to experience are more curious and look for novel experiences. Given the nature of the course of study it expected that the students would be stressed and have little or no time for themselves and would not relate well, but this was not the case. This is line with the study of Ghosal and Banerjee (2019) who reported that openness to experience correlated negatively with academic stress. In addition, Stamp (2016) found that openness to experience was associated with lower levels of academic stress in a sample of university students in an Indonesian university. They therefore concluded that openness to academic stress may be a protective factor against academic stress

Costa and McCrae (1985) noted that personality traits of an individual contribute to his mental health status and this has been confirmed in the present study where personality traits jointly contributed a high percentage (24%) to the mental health variation. Hypothesis one which states that Personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) will have significant joint and independent influence on mental health of medical students in UCH was confirmed. The result showed that personality traits were significant joint predictors of mental health. Inconclusion, Personality may have mixed (negative and positive) relationship with mental health but not with academic stress as earlier observed

Hypothesis two which stated that Academic stress will significantly predict mental health of medical students in UCH, Ibadan. This was expected because of the intensive training that medical students go through in this particular institution. With a highly pronounced medical staff turnover being experienced recently, the medical students' claim that the workload is killing, yet they are not expected to lag behind in their academic studies. It was based on the experience that the study proposed the relationship between academic stress and mental health. Surprisingly, this hypothesis was not confirmed. It was suspected that probably, the students had adopted coping strategies to militate against mental overload and their own overall wellbeing. Budmir et al., (2021) found that people experienced poor mental health while facing stressful life vents (e.g. Covid-19 Lockdown), and this is more among people who are younger than 35 years, so it was

expected that medical students in Ibadan would experience the same thing for the reason given earlier but the reverse is the case and as said earlier, maybe there is the influence of social support and coping mechanisms in the situation at hand ameliorated this outcome.

Hypothesis Three stated that social support will significantly predict mental health of medical students in UCH, Ibadan. It is shown that social support is a significant predictor of mental health among the students. Social support accounted for a variation of about 2% in mental health. This confirmed the stated hypothesis. It may appear that the level of influence is small, its influence on mental health is quite significant. This is in confirmation of the study by Islam and Iqbal (2008) who reported a predictive influence of social support on mental health of students in a study carried out by them. Also, De Silva *et al.,* (2005)confirmed the influence of social Capital (support) on mental illness while Nizeyumukiza *et al.,* (2020) concluded that the influence of social capital (support on mental illness cannot the ascertained properly.

Also, the significance of social support in mental health was echoed again by Drageset (2023) where she reiterated the significance of social support received from family and significant others while going through a stressful life event. The availability of social support itself is a coping strategy to deal with adversities, anxiety and other stress inducing situations. (Yang *et al.,* 2022)

Hypothesis Four stated that coping strategies will significantly moderate the influence of academic stress, personality and social support on mental health status of medical students in UCH, Ibadan. The influence of personality traits (extraversion, neuroticism, openness to experience, agreeableness and conscientiousness) on mental health was ascertained.

Except for openness to experience and agreeableness other personality traits had positive and coping mechanism, but not with social support and academic stress as presented in models 2 and 3 The none support of social support could possibly be because sometimes social support is seen as a coping mechanism whenever available.

Academic stress was not so much influential on the mental health status of the medical students, but when this was combined with the personality factors, it appeared to interact with these traits to reduce joint influence on mental health. In other words, academic stress may be contributing negatively to mental health of the students. Academic stress was added in model 2, social support was added in model 3, while the moderating role of coping strategies was added in model 4. The results reveal that personality traits significantly accounted for about 24% variance in mental health, as observed by Lesko, *et. al.,* (2020), Pollak, *et al.,* (2020), Xia, *et al.,* (2017), Stamp (2016), and Ghoshal and Banerjee (2021), but with coping mechanisms introduced, it went up to 33%. This confirms the stated hypothesis. Therefore, the influence of personality traits and coping mechanisms cannot be underestimated in ameliorating perceived negative mental health of the medical students.

CONCLUSION

From the foregoing, this study has revealed that though the medical students go through academic stress, their mental health is not in any way affected negatively. Coping strategies did moderate the impact of personality factors and social support and academic stress on mental health. It may be advisable that academic authority of the school should look for a way of imputing or providing the social support into the curriculum of the students to reduce stress on them and facilitate a better mental health status.

LIMITATIONS

This research is recognised to have limitations. The limitations are accompanied by suggestions for future research.

- In considering the long-term effects of the variables, the research is acknowledged to have taken place for a short period of time as well having to use a limited range of participants made available. The need then arises for extended time on the variables in the future using more diverse participants.
- Medical students who volunteered to participate in a study may or not be facing the issues as significantly as others. This is because students who are struggling may not be motivated to seek help or participate in research.
- Medical students may be reluctant to report problems due to the stigma. This is especially true in cultures where mental illness is not well understood or accepted.
- The instruments used to measure the variables may not be all encompassing and or reliable because the psychometric properties for them in this study were not established. This fear is expressed in consonance with study of Portoghese, *et al.,*(2020) among Italian medical students. This is especially true for the instruments that are self-report measures, as the students may be reluctant to answer questions honestly. Future research may consider using unstructured questioning approach.
- The sample of medical students who participated in the study were not representative of the entire population of medical students. The time the questionnaires were administered fell on peculiar times for different departments and levels as some had just finished exams and were going home, some were just starting exams and weren't willing to participate and some were going home for religious celebrations.
- The time of day the data was collected. Data collection should be done in the morning or night when the students are more active and responsive compared to afternoons when they're busy or trying to rest.

We advocate for each personality factor/trait and specific coping mechanism, and social support type be compared on mental and academic stress if this is the only way a meaningful intervention can be introduced to the curriculum or otherwise as suggested by Varo *et al.,* (2023) because the score of any single trait may strengthen or weaken the relationship between another one (Yin, K.; Lee, P.; Sheldon, O.J.; Li, C. & Zhao, J., 2021; Fisher, P.A. & Robie, C. A, 2019).

Recommendations

From the on-going, it is therefore recommended that for the generalisability to be enhanced, limitations should be improved on.
A longitudinal study is proposed so that a profile could be established for each student over a period of time. This would facilitate a better comprehension of the significant influence of the variables investigated.

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