

Original Research

Evaluation of the Prevalence and Factors Affecting the Mental Health of Undergraduate Medical Students in a Nigerian University: A Cross-Sectional Study.

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Abstract

Background: Medical education is known to be demanding and stressful, often leading to mental health challenges such as stress, anxiety, and depression among students. Understanding the prevalence and factors contributing to these issues is crucial for effective intervention and support.

Methodology: A descriptive cross-sectional study was conducted among 400 medical students at the College of Health and Medical Sciences at Babcock University. Data was collected using a standardised questionnaire comprising sections on sociodemographic characteristics, depression (PHQ-9), anxiety (GAD-7), stress (PSQ), and health-seeking behaviour. Statistical analysis was performed using SPSS version 22, with descriptive statistics and chi-square tests applied. The value for p was <0.05 , which is statistically significant.

Results: The prevalence of depression was 53.5% with 186(45.3%) having mild depression, more than half of the respondents had minimal anxiety, 202(50.5%), and a high level of stress, 214(53.5%), respectively. Factors affecting mental health included lack of institutional support 170 (42.5%), poor awareness of available services 125 (31.3%), and poor utilization of mental health services 310, (77.5%). Age was found to be statistically significant ($\chi^2=15.792$, $P=0.015$) in terms of anxiety level. Additionally, significant associations were observed between stress and depression ($\chi^2=37.497$, $P<0.001$), as well as between stress and anxiety ($\chi^2=44.286$, $P<0.001$).

Conclusion: This study shows that the levels of depression, anxiety, and stress are moderately high among the medical students, underscoring the urgent need for intervention and support mechanisms. Enhancing institutional support, integrating mental health education into the curriculum, and conducting regular screenings will go a long way in creating a supportive environment conducive to the mental well-being and academic success of its medical students.

Keywords: Depression; Anxiety; Stress; Medical Students; Babcock University.

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Introduction

Mental health significantly impacts quality of life and overall satisfaction. Among university undergraduates, both in developed and developing nations, poor mental health emerges as a prevalent and multifaceted psychological challenge. [1] Studying medicine is a demanding journey characterized by rigorous academic requirements, significant clinical responsibilities, and the complex landscape of healthcare. [2] Within this challenging path, the increasing prevalence of stress, characterized by a state of mental tension due to challenging circumstances, alongside anxiety, serving as an alert system for internal and external threats, and depression, clinically defined by persistent dysphoria and significant impairment in daily functioning lasting at least two weeks, poses a substantial concern within the clinical year student population. [3] Stress, anxiety, and depression can exhibit various manifestations, with prevalent overt symptoms such as decreased appetite, disrupted sleep patterns, difficulty concentrating, apathy, and neglect of personal hygiene. Examining these conditions is especially crucial among university students, given their role as prospective representatives and leaders of a nation. [1]

Several significant contributors, including the perceived stress embedded within the medical school environment. Additionally, the weight of academic burdens, the presence of highly competitive peers, as well as personal and familial expectations, collectively contribute to the psychological strain experienced by these students. [4] Moreover, pressures from educators, preparing students for the responsibilities of patient care, further add to the burden. The prospect of pursuing desired specialties amidst extensive academic commitments, limited engagement in extracurricular activities, and the profound transition from student life to assuming the mantle of a physician, all compound the challenges faced by medical students, impacting their psychological well-being [4] Moreover, a recent survey conducted among college students delineated that over half (56%) grappled with persistent stress throughout their college tenure, defined as an ongoing sense of pressure and overwhelm. Chronic stress links to various mental and physical health ailments, reflecting the multifaceted stressors faced by students: academic pressures, managing multiple commitments, societal expectations, and broader concerns. [5]

Globally, within the medical student community, there's a significantly elevated prevalence of stress, depression, and anxiety. Studies reveal a broad spectrum of depression rates, from 1.4% to as high as 73.5%, while anxiety rates vary between 7.7% and 65.5% within this demographic. [3] Depression, a concern impacting around 8% of undergraduates in developed and developing countries (1), notably manifests at a rate of 30.6% among university students, marking an 18.4% increase from 2005 to 2015 [6]

Studies in Ghana, particularly at the University of Ghana Medical School, have underscored anxiety as a prevalent issue among medical students. Research findings indicate that approximately 55% of medical students reported experiencing moderate to severe levels of anxiety, primarily attributed to the demanding curriculum and examination pressures. [8]

A systematic review conducted among medical students in Nigeria reveals a significant prevalence of stress at 60.5%, depression at 33.5%, and anxiety at 28.8%. [9] Notably, within Lagos state, depression rates reach 22.5%, with 21.6% reporting suicidal ideation. [10]

The progression of stress, anxiety, and depression can exacerbate self-harm tendencies and eventually lead to suicidal thoughts. [10] Within the evolving landscape of medical education in Southwest Nigeria, understanding the intricate mental health dynamics among clinical year medical students is pivotal. Unresolved mental health challenges prevalent among university students significantly impact their well-being and academic performance. [1] These challenges encompass compromised academic integrity, substance abuse, reduced empathy, unstable relationships, diminished self-confidence, and an increased propensity for suicidal thoughts [1].

Recent attention has shifted toward addressing mental health concerns among college students, recognizing its pivotal role in academic success. Despite this, systemic mental health challenges persist within this demographic. Approximately 73% of students reported facing psychological distress, with 60% encountering one or more mental health challenges. Alarming, there has been a 50% rise in the prevalence of mental health problems among students since 2013. [5]

Because many college students face mental health challenges, they need to access and use mental health services easily. Another national survey highlighted that nearly half of those with mental health conditions (approximately 50%) did not seek any mental health services. While some students accessed on-campus counseling (25%), telecounseling (12%), off-campus therapists (10%), or mental health hotlines and immediate counseling services (6%), surprisingly, about two-thirds of students did not utilize any campus resources for mental health assistance. [11] Study conducted in Romanian medical schools found that 33% of final-year medical students reported symptoms of depression, and 44% experienced moderate to high levels of anxiety. Factors such as heavy workloads, intense academic pressure, and limited work-life balance contributed to the high prevalence of mental health struggles in this population. [12]

The absence of risk assessment regarding these mental health concerns significantly impedes the development of targeted interventions and requisite support systems necessary for addressing stress, anxiety, depression, and related psychological challenges among medical students. [13] Identifying these risks could pave the way for tailored interventions, enhanced support structures, and policy recommendations aimed at bolstering the mental resilience of these students, ultimately benefiting both individuals and the healthcare system. Consequently, this study aims to address this critical gap by providing an updated understanding of stress, anxiety, and depression risk factors among medical students in Nigeria.

Methodology

The study was a descriptive cross-sectional study carried out at Babcock University, a non-profit private tertiary institution in the suburban setting of Ilisan-Remo, Ogun State, Nigeria, and founded by the Seventh-day Adventist church in 1999. Benjamin Carson Snr. School of Medicine is one of its many schools, named after the world-famous neurosurgeon, and was established in January 2012 with various departments.

The study populations were the current medical students of Benjamin Carson (Snr) School of Health and Medical Sciences, which included all medical students from 100-600 Level, while excluding other non-medical students in the university.

The sample size was calculated using Cochran's formula

$$n = \frac{z^2 pq}{d^2}$$

Where n= the minimum sample size

z= the standard normal deviation was set at 1.96, which corresponds to a 95% confidence value

p= the average prevalence of the percentage of the population with an appreciable knowledge of the disease, who put the preventive measures into practice, and people with a positive attitude towards measures

$$q = 1 - p$$

d= degree of accuracy desired, which was set at 0.05

$$P = 0.3$$

$$z = 1.96$$

$$n = \frac{1.96^2 \times 0.3 \times 0.7}{0.05^2}$$

$$n = \frac{3.84 \times 0.3 \times 0.7}{0.0025}$$

$$n = 322.56$$

$$n = 323 \approx 350$$

10% non-response is 35

$$n = 350 + 35$$

$$n = 385 \approx 400$$

A computer-generated simple random method was used to select 400 from the total population of 635 medical students to ensure an equal representation of all Benjamin Carson School of Health and Medical Sciences who have fulfilled the inclusion criteria. A list containing the names of all selected participants was obtained from the college, and the sample population was proportionately distributed. The study Instrument was a validated tool that comprised 5 sections; section A consisted of socio-demographic characteristics with 8 items, section B assessed Depression using a PHQ-9 questionnaire with 9 items, section C assessed Anxiety using GAD-7 with 7 items, section D assessed Stress with 31 items, and section E assessed Health-seeking behavior with 11 items. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Frequency and percentages were used to analyze descriptive variables (stress, depression, and anxiety), while categorical variables were analyzed using chi-square. $P < 0.05$ was statistically significant. Approval of this research was obtained from the Babcock University Health Research Ethics Committee (BUHREC 871/22). Informed consent was obtained from each participant. All possible and willing participants were informed about the study as well as its importance. Adherence to strict ethical standards was implemented, and the identity of participants was kept anonymous.

Results:

Table 1: The mean age was 20.59 ± 1.57 years. About half of the respondents 202 (50.5%) are less than 20 years of age, all respondents were single 400(100%), while the majority of the respondents were females 269 (67.3%), Nigerians 396 (99.0%), Yoruba by tribe 199 (49.8%), Christians 358 (89.5%), and had not taken any substances 289 (72.3%).

Table 1: Socio-Demographic Characteristics of study participants

Characteristics	n=400(%)	
1. Age	≤20 years	202 (50.5)
	21-25 years	192 (48.0)
	26-30 years	6 (1.5)
2. Sex	Male	131 (32.8)
	Female	269 (67.3)
3. Marital Status	Single	400 (100.0)
	Married	0 (0.0)
4. Nationality	Nigerian	396 (99.0)
	Non-Nigerian	04(1.0)
5. Ethnicity	Yoruba	199 (49.8)
	Igbo	160 (40.0)
	Hausa	17 (4.3)
	Other	24 (6.0)

6. Religion	Christianity	358 (89.5)
	Islam	42 (10.5)
	Traditional	0 (0.0)
	African Religion	
7. Have you ever used substances (e.g. alcohol, tobacco, drugs)	Yes	111(27.8)
	No	289(72.3)

Table 2: On several days in a week, about a third of the respondents 133(33.3%) had little interest or pleasure in doing things, felt hopeless 126 (31.5%), had trouble falling or staying asleep or slept too much 242 (60.5%), having little energy 191(47.8%), feeling like a failure 101(25.3%), and trouble concentrating on things like reading or watching TV 150(37.5%). 46.5% of the respondents had no features of depression, while 45.3% had mild depression and 8.3% had moderate depression.

Table 2: PHQ-9 (DSM-IV). Assessment Of Depression

Characteristics: Over the last two weeks, how often have you been bothered by any of the following problems?	Not At All n=400 (%)	Several Days n=400 (%)	More Than Half The Days n=400 (%)	Nearly Everyday n=400 (%)
1. Little interest or pleasure in doing things	205 (51.2)	133 (33.3)	33 (8.3)	29 (7.2)
2. Feeling down, depressed or hopeless?	251 (62.7)	126 (31.5)	23 (5.8)	0 (0.0)
3. Trouble falling or staying asleep, or sleeping too much?	114 (28.5)	242 (60.5)	44 (11.0)	0 (0.0)
4. Tired or having little energy?	163 (40.8)	191 (47.8)	19 (4.8)	27 (6.8)
5. Poor appetite or overeating?	261 (65.3)	89 (22.3)	0 (0.0)	50 (12.5)
6. Feeling bad about yourself- or that you are a failure or have let yourself or your family down?	210 (52.5)	101 (25.3)	89 (22.3)	0 (0.0)
7. Trouble concentrating on things such as reading or watching TV?	209 (52.3)	150 (37.5)	24 (6.0)	17 (4.3)
8. Moving or speaking so slowly that other people could have noticed? Or the opposite- being so fidgety or restless that you have been moving around a lot more than usual?	339 (84.8)	38 (9.5)	13 (3.3)	10 (2.5)

9. Thoughts that you would be better off dead, or of hurting yourself in some way?	390 (97.5)	10 (2.5)	0 (0.0)	0 (0.0)
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Depression Category	n=400 (%)
1. Nil depression	186 (46.5)
2. Mild depression	181 (45.3)
3. Moderate depression	33 (8.3)

Table 3: On several days, less than half of the respondents were feeling nervous or on the edge 160(40.0%), not being able to stop or control worrying 128(32.0%), worrying too much about different things 133(33.3%), having trouble relaxing 169(42.3%), while nearly every day, 89(22.3%) becoming easily annoyed or irritable and one-tenth 40(10.0%) feeling afraid as if something awful might happen. Overall, 50.5% had minimal anxiety, 38.3% had mild anxiety, 11.0% had moderate anxiety and 0.3% had severe anxiety.

Table 3: GAD-7: Assessment of Anxiety

Characteristics: Over the last two weeks, how often have you been bothered by the following problems?	Not At All n=400 (%)	Several Days n=400 (%)	More Than Half The Days n=400 (%)	Nearly Everyday n=400 (%)
1. Feeling nervous, anxious or on edge	214 (53.5)	160 (40.0)	19 (4.8)	7 (1.8)
2. Not being able to stop or control worrying	242 (60.5)	128 (32.0)	30 (7.5)	0 (0.0)
3. Worrying too much about different things	166 (41.5)	133 (33.3)	51 (12.8)	50 (12.5)
4. Trouble relaxing	143 (35.8)	169 (42.3)	88 (22.0)	0 (0.0)
5. Being so restless that it is hard to sit still	267 (66.8)	92 (23.0)	0 (0.0)	41 (10.3)
6. Becoming easily annoyed or irritable	216 (54.0)	51 (12.8)	44 (11.0)	89 (22.3)
7. Feeling afraid as if something awful might happen	296 (74.0)	64 (16.0)	0 (0.0)	40 (10.0)

Anxiety Category	n=400 (%)
1. Minimal anxiety	202 (50.5)
2. Mild anxiety	153 (38.3)
3. Moderate anxiety	44 (11.0)
4. Severe anxiety	01 (0.3)

Table 4: The majority always feels too many demands are being made on them 163(40.8%), have too many things to do 257(69.3%), find themselves in situations of conflict 122(30.5%), feel tired always 209(52.3%), also always feels mentally exhausted 253(63.2%) and under pressure from deadlines 253(63.2%) while sometimes majority feel loaded with responsibility 333(83.2%) and do not have enough time for themselves 285(71.3%). Overall, 53.5% of the respondents had a high stress level while 46.5% had a moderate stress level.

Table 4: Perceived Stress Questionnaire; Assessment of Stress

Characteristics:	Always n=400 (%)	Sometimes n=400 (%)	Often n=400 (%)	Usually n=400 (%)
1. You feel rested	26 (6.5)	281 (70.3)	93 (23.3)	0 (0.0)
2. You feel too many demands are being made on you	163 (40.8)	52 (13.0)	135 (33.8)	50 (12.5)
3. You are irritable or grouchy	51 (12.8)	214 (53.5)	135 (33.8)	0 (0.0)
4. You have too many things to do	257 (64.3)	103 (25.8)	40 (10.0)	0 (0.0)
5. You feel lonely or isolated	74 (18.5)	225 (56.3)	101 (25.3)	0 (0.0)
6. You find yourself in situations of conflict	122 (30.5)	183 (45.8)	51 (12.8)	44 (11.0)
7. You feel you're doing things you really like	48 (12.0)	251 (62.7)	51 (12.8)	50 (12.5)
8. You feel tired	209 (52.3)	52 (13.0)	139 (34.8)	0 (0.0)
9. You fear you may not manage to attain your goals	117 (29.3)	232 (58.0)	51 (12.8)	0 (0.0)
10. You feel calm	77 (19.3)	283 (70.8)	40 (10.0)	0 (0.0)

11. You have too many decisions to make	85 (21.3)	315 (78.8)	0 (0.0)	0 (0.0)
12. You are frustrated	26 (6.5)	198 (49.5)	176 (44.0)	0 (0.0)
13. You are full of energy	115 (28.7)	236 (59.0)	49 (12.3)	0 (0.0)
14. You feel tense	66 (16.5)	141 (35.3)	149 (37.3)	44 (11.0)
15. Your problems seem to be piling up	172 (43.0)	133 (33.3)	95 (23.8)	0 (0.0)
16. You feel you're in a hurry	92 (23.0)	218 (54.5)	90 (22.5)	0 (0.0)
17. You feel safe and protected	118 (29.5)	242 (60.5)	40 (10.0)	0 (0.0)
18. You have many worries	127 (31.8)	181 (45.3)	92 (23.0)	0 (0.0)
19. You are under pressure from other people	74 (18.5)	150 (37.5)	135 (33.8)	41 (10.3)
20. You feel discouraged	98 (24.5)	140 (35.0)	162 (40.5)	0 (0.0)
21. You enjoy yourself	176 (44.0)	134 (33.5)	90 (22.5)	0 (0.0)
22. You are afraid for the future	164 (41.0)	141 (35.3)	95 (23.8)	0 (0.0)
23. You feel you're doing things because you have to not because you want to	122 (30.5)	227 (56.8)	51 (12.8)	0 (0.0)
24. You feel criticized or judged	115 (28.7)	186 (46.5)	99 (24.8)	0 (0.0)
25. You feel lighthearted	0 (0.0)	220 (55.0)	180 (45.0)	0 (0.0)
26. You feel mentally exhausted	253 (63.2)	147 (36.8)	0 (0.0)	0 (0.0)
27. You have trouble relaxing	203 (50.7)	197 (49.3)	0 (0.0)	0 (0.0)
28. You feel loaded down with responsibility	67 (16.8)	333 (83.3)	0 (0.0)	0 (0.0)
29. You have enough time for yourself	74 (18.5)	285 (71.3)	0 (0.0)	41 (10.3)
30. You feel under pressure from deadlines	253 (63.2)	45 (11.3)	102 (25.5)	0 (0.0)

Stress Level Category

n=400 (%)

1. High level of stress	214 (53.5)
2. Moderate level of stress	186 (46.5)
3. Low level of stress	0 (0.0)

Table 5: A little below half noticed significant changes in their mental health while being a student, 190(47.5%), also 170(42.5%) feel that their mental health is not at all prioritized by the institution. However, the majority 275(68.8%) are aware of the mental health services and resources in their institution, but only a small percentage 9(2.3%) are currently receiving mental health support in school which majority 390(97.5%) have not previously used any professional mental health services. Only 13.0% of the respondents were comfortable discussing their emotional health with a counselor or mental health professional. 77.5% were not interested in receiving mental health support or did not need such support. Only 2.5% of the respondents had previously sought professional help or treatment for mental health concerns. 50.0% were somewhat satisfied with such support and 50.0% were neutral.

Table 5: Factors Affecting Mental Health

Characteristics		N=400(%)
1. Have you experienced any significant changes in your mental health while being a student?	Yes, definitely	190 (47.5)
	To some extent	133 (33.3)
	Not really	77 (19.3)
	Not at all	0 (0.0)
2. Do you feel that your mental health is supported and prioritized by your educational institution? (Institutional support)	Yes, definitely	118 (29.5)
	To some extent	29 (7.2)
	Not really	83 (20.8)
	Not at all	170 (42.5)
3. Are you satisfied with the level of support and guidance provided by your teachers or professors? (Satisfaction with support)	Very satisfied	88 (22.0)
	Satisfied	98 (24.5)
	Neutral	111 (27.8)
	Dissatisfied	30 (7.5)
	Very dissatisfied	73 (18.3)
4. Awareness of mental health services and resources in the institution)	Yes	275 (68.8)
	No	125 (31.3)
5. Do you feel comfortable discussing your emotional health with a counsellor or mental health professional at your institution?	Yes	52 (13.0)
	No	348 (87.0)
6. Have you utilized any mental health services or counselling provided by your institution?	Yes, currently receiving support	9 (2.3)
	Yes, in the past but not currently	10 (2.5)
	No, but considering seeking help	71 (17.8)

(Utilization of institution's mental health services)	No, not interested or needed	310 (77.5)
7. Have you previously sought professional help or treatment for mental health concerns (past/present)	Yes	10 (2.5)
	No	390 (97.5)
8. If yes to the above, how satisfied are you with the mental health treatment or help you have received	Very satisfied	0 (0.0)
	Somewhat satisfied	5 (50.0)
	Neutral	5 (50.0)
	Somewhat dissatisfied	0 (0.0)
	Dissatisfied	0 (0.0)

Table 6a presents the association between respondents' stress levels and depression. There was a statistically significant association between the level of stress and depression ($\chi^2=37.497$, $P=0.001$). Respondents with high levels of stress had moderate depression.

Table 6a: Relationship Between the Level of Stress and Depression

Factors		Level Of Depression			χ^2	<i>p-value</i>
		Nil	Mild	Moderate		
Level of stress	High	77 (36.0)	105 (49.1)	32 (15.0)	37.497	<0.001
	Moderate	109 (58.6)	76 (40.9)	1 (0.5)		

Table 6b: Relationship between respondents' stress and anxiety levels. There was a statistically significant association between the level of stress and anxiety ($\chi^2=44.286$, $P=0.001$) Individuals with high levels of stress had severe anxiety as opposed to none of the Individuals with moderate levels of stress.

Factors		Level Of Anxiety				χ^2	<i>p-value</i>
		Minimal	Mild	Moderate	Severe		
Level of stress	High	94 (43.9)	75 (35.0)	44 (20.6)	1 (0.5)	44.286	<0.001
	Moderate	108 (58.1)	78 (41.9)	0 (0.0)	0 (0.0)		

Discussion:

The prevalence of depression was 53.5% while close to half of the respondents (45.3%) had mild depression. This is higher than the studies in the US (30%), [14, 15] South Africa (27%).[16] This may be due to the highly demanding workload and performance expectations from the students, coupled with the hardship faced in the country. Also, the majority (50.5%) had minimal anxiety, which emanated from becoming easily annoyed or irritable nearly every day, worrying too much about different things, and feeling afraid as if something awful might happen. This is similar to the study in Zaria (50%), [17] however, this is slightly lower than the report from studies UK (60%), and Ibadan (55%), but slightly higher than studies in Ile-Ife (45%) [17] and the USA (27.2%) [15]. The reasons for this high prevalence may be due to academic stress, workload, demand, and curriculum and examination pressures as documented in previous studies. [8,17]

Most of the respondents (53.5%) had high stress levels. In which the respondents felt that too many demands are being made on them, have too many things to do, feel tired always, also always feel mentally exhausted (63.2%), and are under pressure from deadlines (63.2%), while sometimes the majority feel loaded with responsibility (83.2%) and do not have enough time for themselves. This is like the study in the UK, which reported that 60% of medical students experience high levels of stress and anxiety. [18] This is also similar to another study that shows that academically related stressors are the most common, and it is no surprise as medical students have a big syllabus with a lot of things to read and remember, they write a lot of examinations, and these exams usually have different grading methods. [19] Despite almost half of the respondents (47.5%) having experienced significant mental changes while being a student in the institution the study showed that the majority of the respondents felt that their mental health, was not supported or prioritized by the institution (42.5%), while a sizeable number of respondents are not aware of the mental health services and resources in the institution which is one the reason(s) for the low utilization of institutional mental health services and inability to sort the help of professional mental health services in the past (97.5%). Among the few (10.0%) who sought professional mental health services in the past, only half of the respondents were satisfied with the services rendered. This is similar to a study that shows that factors such as heavy workloads, intense academic pressure, and limited work-life balance contributed to the high prevalence of mental health struggles in this population. [13] This is also similar to a study done in Ethiopia that reported high workload, academic pressure, and the competitive nature of medical training were identified as important factors influencing the mental health of final-year medical students in Ethiopia. [21] This study showed a significant association between age and the level of anxiety, it shows respondents below 20 years of age are more prone to anxiety than others, majority of them are just resuming medical school and have not experienced this kind of workload before as some may also may be missing home, this is similar to a previous study that shows that 100 L medical students are more affected than other levels. [22] Also, there was a statistically significant difference between stress levels and levels of anxiety and depression. 20.6% of respondents with high levels of stress had moderate anxiety, while 15.0% of individuals with high levels of stress had moderate depression, as opposed to 0.5% of individuals with moderate levels of stress, respectively. The findings underscore the urgent need for proactive measures to address the mental health challenges faced by this vulnerable population.

By prioritizing institutional support, curriculum integration, regular screenings, and collaboration with external stakeholders, the University can create a supportive environment conducive to the holistic development and success of its medical students. These recommendations must be implemented promptly to safeguard the mental health and overall well-being of future healthcare professionals.

Conflict of Interest: None

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