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QUALITY OF LIFE AND STRESS AMONG MEDICAL STUDENTS IN COLLEGE OF MEDICINE UNIVERSITY OF BAGHDAD

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ABSTRACT

Background: Medical education is widely recognized as a demanding and stressful process that can adversely affect students' well-being, leading to poor quality of life (QoL), unhealthy behaviors, and psychological distress, which may ultimately impair their future patient care. This study aimed to assess the quality of life and stress levels among medical students at Baghdad Medical College, explore the correlation between them, identify symptoms and coping mechanisms associated with stress, and determine obstacles that could guide interventions to improve student well-being. **Method:** A descriptive cross-sectional study was conducted among 500 medical students using a structured questionnaire incorporating the World Health Organization Quality of Life (WHOQOL-BREF) scale and the Perceived Stress Scale (PSS-10). **Results:** The majority of participants were aged 20–23 years (54.2%) and male (53.8%). The mean PSS-10 score was 18.5 ± 4.6, indicating that 85% of students experienced moderate stress. The highest QoL domain score was for physical health (61.7 ± 13.7), followed by environmental (53.0 ± 15.4), psychological (49.0 ± 16.3), and social relationships (46.2 ± 10.9). Fear of failure (30.4%) and sleep disturbance (28.2%) were the predominant stressors and symptoms, respectively, while prayer was the most common coping mechanism (24.4%). A significant inverse correlation was observed between stress levels and QoL across all domains. **Conclusion:** The findings highlight the need for targeted support systems and stress management programs to enhance the well-being and academic performance of medical students.

KEYWORDS: Quality, life, stress, Medical, Students.

INTRODUCTION

Quality of life (QoL) is a key determinant of an individual's overall well-being and functionality. The World Health Organization (WHO) defines QoL as a person's perception of their position in life within the context of their cultural and value systems, goals, expectations, and concerns.[1] It is a multidimensional concept encompassing physical health, psychological well-being, social relationships, and environmental context.[2] In the context of medical education, maintaining a good quality of life is particularly challenging due to the rigorous academic and emotional demands of medical training. Medical students often enter the profession with altruistic motivations, family encouragement, or a desire to contribute to human welfare; however, they soon encounter the reality of a highly demanding educational process.[3] Numerous studies have demonstrated that medical students experience higher levels of psychological distress, depression, anxiety, burnout, and even suicidal ideation compared with their peers in other disciplines.[4] The combination of intensive coursework, long study hours, patient exposure, and emotional challenges related to illness and death creates a chronic stress environment that threatens both mental and physical health.[5] Burnout, as defined by the WHO, results from chronic

workplace stress that is not successfully managed, manifesting through emotional exhaustion, depersonalization, and reduced personal accomplishment.[6] Among medical students, burnout and stress not only diminish quality of life but can also impair academic performance, motivation, and empathy toward patients.[7] Research indicates that stress levels among medical students are significantly higher than in the general student population, reflecting the demanding and competitive nature of medical training.[8] Conversely, maintaining a good quality of life has been shown to positively influence academic achievement. Students with better physical and psychological well-being are more capable of managing academic pressure, adapting to challenges, and achieving higher performance levels.[9] This underscores the importance of promoting resilience and stress-management strategies within medical education. Identifying the key sources of stress, common symptoms, and coping mechanisms among medical students is essential for developing effective interventions. Understanding these factors can guide administrators and educators in implementing supportive programs that improve QoL, reduce stress, and foster healthier learning environments.[10] In the long term, enhancing medical students' well-being is not only beneficial for their personal development but also for improving the quality of patient care they provide in their future professional practice. This study sought to evaluate the quality of life and stress levels among medical students at Baghdad Medical College, investigate the relationship between these factors, identify stress-related symptoms and coping strategies, and ascertain barriers that could inform interventions to enhance student well-being.

METHOD

This study employed an analytic cross-sectional design to evaluate the quality of life (QoL) and stress levels among undergraduate medical students at the College of Medicine, University of Baghdad. The study was conducted from February to July 2025, involving students from all academic years, including both preclinical and clinical phases. A total of 500 students were recruited using a convenience sampling method, based on their availability and willingness to participate. The sample size was calculated using the single population proportion formula with a 95% confidence level, an estimated prevalence (p) of 0.5, and a 5% margin of error, yielding a minimum of 384 students. After adjusting for possible non-response, the final target was increased to 440, but 500 participants were eventually included to enhance study precision. Data collection was conducted using a self-administered structured questionnaire consisting of three sections: sociodemographic characteristics, the World Health Organization Quality of Life-BREF (WHOQOL-BREF) scale for assessing QoL, and the Perceived Stress Scale (PSS-10) for measuring stress levels. Both paper and electronic formats were used to maximize accessibility. The WHOQOL-BREF included four domains—physical, psychological, social, and environmental—scored and transformed according to WHO guidelines[11], while the PSS-10 assessed stress perceptions over the preceding month, categorized as low, moderate, or high.[12] A pilot study involving 10% of participants (excluded from the main sample) was carried out to ensure clarity and reliability of the questionnaire. Ethical approval was obtained from the Scientific Committee of the Arab Board for Health Specialization, Department of Family Medicine, and informed consent was secured from all participants. Data analysis was performed using SPSS version 25. Descriptive statistics summarized the data, while inferential analyses—including Welch's t-test, one-way ANOVA, χ^2 test with Yates' correction, and Fisher's exact test—were employed. A p-value < 0.05 was considered statistically significant.

RESULTS

Table 1 presents the sociodemographic and economic characteristics of the 500 study participants. The sample was predominantly 20–23 years (54.2%), with fewer aged 18–20 years (42.6%) and a small minority 24–25 years (3.2%). A slight male predominance was observed (53.8% male vs. 46.2% female). Most students reported both parents working (57.0%), and the urban origin was common (71.6%), indicating a largely city-based cohort. Households were typically medium-sized (5–8 members; 64.4%), with fewer reporting <5 members (33.4%) and very few >8 (2.2%). For socioeconomic class, non-disclosure was frequent (34.0%); among disclosed categories, Class 3 (26.0%) was most common, followed by Class 2 (15.6%) and Class 4 (14.4%), with Class 1 (5.4%) and Class 5 (4.6%) least frequent. During term time, students mostly lived at home (83.0%), while hostel residence (12.6%) and other arrangements (4.4%) were less common. Academically, the largest share was in years 1–2 (57.4%), with years 5–6 (25.2%) and years 3–4 (17.4%).

Table 1: description of the sociodemographic and economic profile of study participants.

Characteristic	Category	n (%)
Age (years)	18–20	213 (42.6%)
	20–23	271 (54.2%)
	24–25	16 (3.2%)
Sex	Male	269 (53.8%)
	Female	231 (46.2%)
Working status of the parents	One of them work	168 (33.6%)
	Both are working	285 (57.0%)
	Both are non-working	47 (9.4%)

Place of origin	Urban	358 (71.6%)
	Rural	142 (28.4%)
Number of family members	<5	167 (33.4%)
	5–8	322 (64.4%)
	>8	11 (2.2%)
Socioeconomic class	Prefer not to answer	170 (34.0%)
	1	27 (5.4%)
	2	78 (15.6%)
	3	130 (26.0%)
	4	72 (14.4%)
	5	23 (4.6%)
Residence during study	Home	415 (83.0%)
	Hostel	63 (12.6%)
	Others	22 (4.4%)
Year of study	1–2nd year	287 (57.4%)
	3–4th year	87 (17.4%)
	5–6th year	126 (25.2%)

The mean scores and standard deviations of the four domains of the WHOQOL-BREF instrument among the 500 study participants. Domain means ranked from highest to lowest were: Physical health (61.7 ± 13.7), Environment (53.0 ± 15.4), Psychological (49.0 ± 16.3), and Social relationships (46.2 ± 10.9). Thus, respondents reported comparatively better physical well-being and environmental satisfaction, while psychological well-being was moderate and social relationships represented the lowest-scoring domain, suggesting relatively limited satisfaction with interpersonal support and social connectedness. As in table 2.

Table 2: Distribution of the study sample by description of the mean WHOQOL-BREF Domain scores.

Characteristic	**N = 500[1]**
Physical health domain	61.7 ± 13.7
Psychological domain	49.0 ± 16.3
Social relationships domain	46.2 ± 10.9
Environmental domain	53.0 ± 15.4
[1]Mean ± SD	

The distribution of perceived stress levels among the 500 study participants based on the Perceived Stress Scale (PSS-10). The cohort's mean PSS-10 score indicated moderate stress (18.5 ± 4.6). Categorically, moderate stress predominated (85.0%), with low stress (13.0%) less frequent and high stress relatively rare (2.0%). Overall, findings depict a cohort in which most students experience moderate perceived stress, while few report high stress. As in table 3.

Table 3: Distribution of the study sample by description of the total PSS-10 score and its levels.

Characteristic	**N = 500[1]**
PSS-10 total score	18.5 ± 4.6
Moderate perceived stress	425 (85.0%)
Low perceived stress	65 (13.0%)
High perceived stress	10 (2.0%)
[1]Mean ± SD; n (%)	

Figure 1: the main stressor among medical students was fear of failure or poor exam performance (30.4%), followed by frequent examinations (21.8%) and curriculum overload (17.6%). Lesser stressors included parental expectations (8.8%), poor food quality (7.0%), financial problems (6.4%), peer competition (5.0%), and living away from home (3.0%), showing that academic factors are the primary contributors to stress. **Figure 2:** The most common symptom was sleep disturbance (28.2%), followed by worrying (19.6%), headaches (15.8%), and low energy (13.4%). Other symptoms included gastrointestinal upset (10.8%), nail biting (5.0%), low confidence (4.6%), and forgetfulness (2.6%), reflecting the psychological and physical burden of academic stress. **Figure 3:** leading coping method was prayer (24.4%), followed by talking with family or friends (12.4%), solitude (11.2%), smoking (10.8%), and eating (10.6%). Less frequent methods included listening to music, watching TV, medications, breathing exercises, reading, traveling, and playing games, suggesting that students rely more on emotional and religious coping than on structured stress-relief techniques.

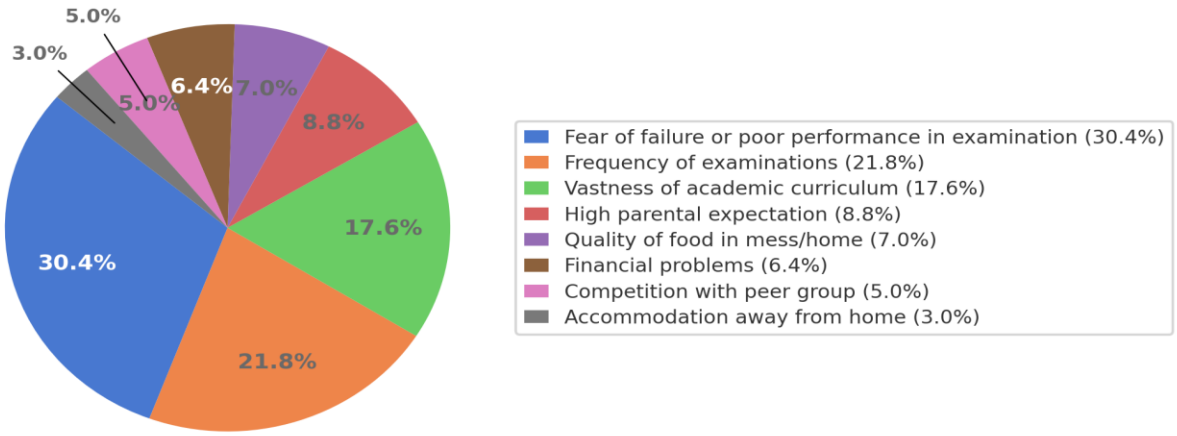

Figure 1: Sources of stress among medical students.

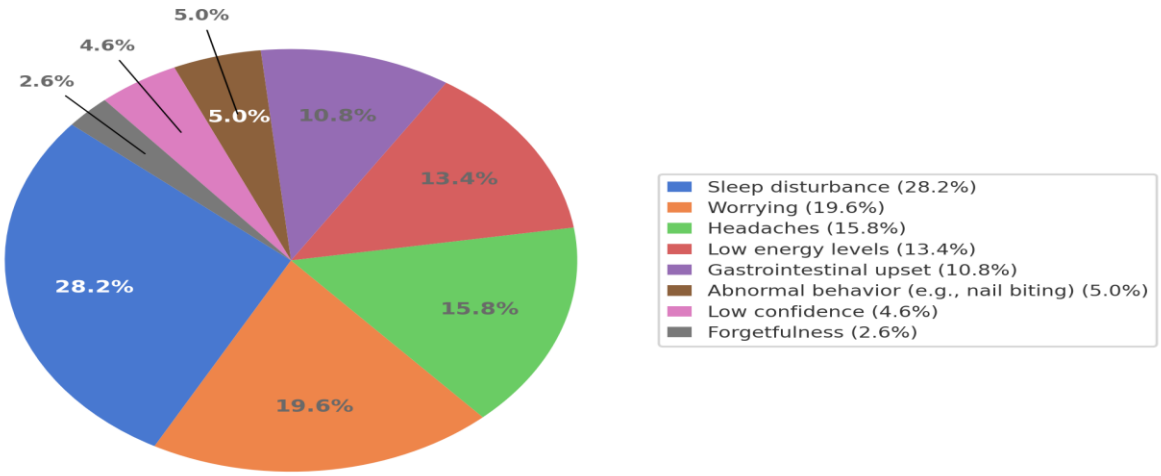

Figure 2: Symptoms experienced during stress.

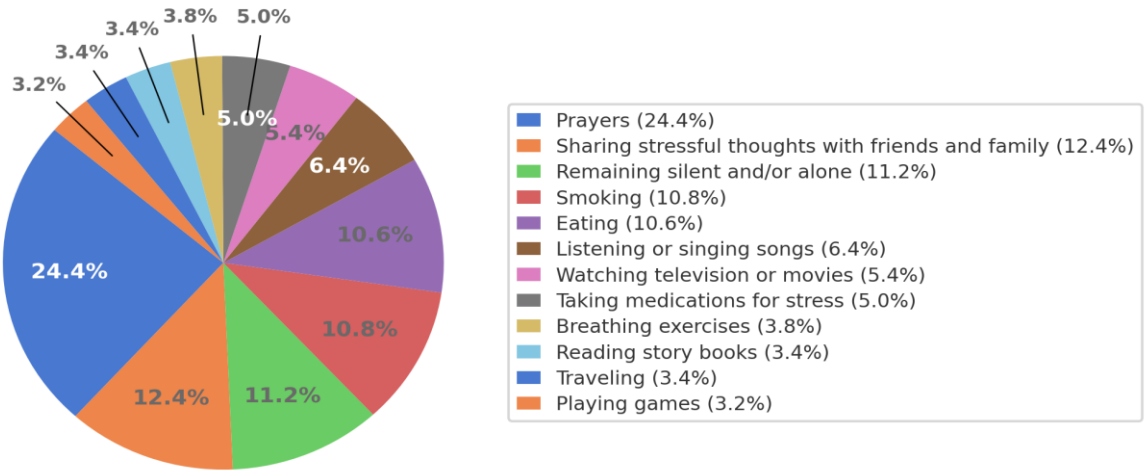

Figure 3: Coping strategies among medical students.

- Significant Associations
- Parental working status and place of origin showed statistically significant associations with perceived stress levels ($p < 0.001$ for both).
- Students with both parents non-working and those from rural areas were more likely to experience moderate to high stress and were absent in the low-stress group, indicating financial and environmental influences on stress.

- Non-significant Variables.
- Age ($p = 0.6$), sex ($p = 0.3$), number of family members ($p = 0.8$), residence type ($p = 0.2$), and year of study ($p = 0.11$) showed no significant relationship with stress levels.
- Minor trends were observed—females reported slightly lower stress, and early-year students tended to have higher stress—but these differences were not statistically significant.

- Socioeconomic Class.
- Analysis of socioeconomic status was inconclusive due to a high non-response rate, as 80% of high-stress students declined to disclose their socioeconomic background.

Table 4: association between sociodemographic characteristics of the students and stress levels as measured by the PSS-10.

Characteristic	Low stress, N = 65[1]	Moderate stress, N = 425[1]	High stress, N = 10[1]	P-value[2]
Age (years)				
18-20	30 (46.2%)	179 (42.1%)	4 (40.0%)	0.6
20-23	35 (53.8%)	230 (54.1%)	6 (60.0%)	
24-25	0 (0.0%)	16 (3.8%)	0 (0.0%)	
Sex				
Male	29 (44.6%)	234 (55.1%)	6 (60.0%)	0.3
Female	36 (55.4%)	191 (44.9%)	4 (40.0%)	
Working status of the parents				
One of them work	27 (41.5%)	141 (33.2%)	0 (0.0%)	**<0.001**
Both are Working	38 (58.5%)	239 (56.2%)	8 (80.0%)	
Both are nonworking	0 (0.0%)	45 (10.6%)	2 (20.0%)	
Place of origin				
Urban	65 (100.0%)	287 (67.5%)	6 (60.0%)	**<0.001**
Rural	0 (0.0%)	138 (32.5%)	4 (40.0%)	
Number of family members				
<5	21 (32.3%)	143 (33.6%)	3 (30.0%)	0.8
5-8	44 (67.7%)	271 (63.8%)	7 (70.0%)	
>8	0 (0.0%)	11 (2.6%)	0 (0.0%)	
Socioeconomic class				
Prefer not to answer	20 (30.8%)	142 (33.4%)	8 (80.0%)	
1	0 (0.0%)	27 (6.4%)	0 (0.0%)	
2	2 (3.1%)	76 (17.9%)	0 (0.0%)	NA
3	21 (32.3%)	107 (25.2%)	2 (20.0%)	
4	16 (24.6%)	56 (13.2%)	0 (0.0%)	
5	6 (9.2%)	17 (4.0%)	0 (0.0%)	
Residence during study				
Home	57 (87.7%)	350 (82.4%)	8 (80.0%)	0.2
Hostel	6 (9.2%)	57 (13.4%)	0 (0.0%)	
Others	2 (3.1%)	18 (4.2%)	2 (20.0%)	
Year of study				
1-2nd year	34 (52.3%)	246 (57.9%)	7 (70.0%)	0.11
5-6th year	15 (23.1%)	111 (26.1%)	0 (0.0%)	
3-4th year	16 (24.6%)	68 (16.0%)	3 (30.0%)	

1n (%)
2Fisher's exact test

- **Overall Association:** Statistically significant differences were found between **stress levels (PSS-10)** and all **four WHOQOL-BREF domains**, confirming a **strong inverse relationship** between stress and quality of life among medical students.
- **Psychological Domain:** Showed the **most pronounced difference ($p < 0.001$)** — mean scores declined sharply from **76.3 ± 9.2 (low stress)** to **50.1 ± 15.3 (moderate stress)** and **36.9 ± 15.5 (high**

stress), highlighting that stress most severely impacts psychological well-being.

- **Physical Health Domain:** Also significantly affected (**p = 0.013**), with mean scores decreasing from **69.4 ± 23.3** in low stress to **62.1 ± 13.7** in moderate and **57.9 ± 11.2** in high stress groups, indicating deteriorating physical health with higher stress.
- **Environmental Domain:** Demonstrated a significant negative association (**p = 0.008**), with scores dropping from **67.5 ± 14.1** (low stress) to **52.9 ± 15.3** (moderate) and **51.5 ± 15.1** (high stress), reflecting reduced satisfaction with living conditions and resources under stress.
- **Social Relationships Domain:** Showed a **borderline significant association (p = 0.050)** — scores were **lowest in the high stress group (40.0 ± 9.9)** compared to **moderate (46.7 ± 11.1)** and **low (44.3 ± 9.6)** stress, suggesting that stress may weaken social interactions and support networks.

Table 5: association between WHOQOL-BREF domain score and stress levels.

Characteristic	Low stress, N = 65[1]	Moderate stress, N = 425[1]	High stress, N = 10[1]	P-value[2]
Physical health domain	69.4 ± 23.3	62.1 ± 13.7	57.9 ± 11.2	**0.013**
Psychological domain	76.3 ± 9.2	50.1 ± 15.3	36.9 ± 15.5	**<0.001**
Social relationships domain	44.3 ± 9.6	46.7 ± 11.1	40.0 ± 9.9	0.050
Environmental domain	67.5 ± 14.1	52.9 ± 15.3	51.5 ± 15.1	**0.008**

[1]Mean ± SD
[2]One-way ANOVA

DISCUSSION

Understanding the burden of stress and its correlation with quality of life (QoL) among medical students is essential in shaping effective academic and mental health interventions. The present study revealed that most participants experienced moderate stress levels, consistent with international findings, while QoL varied across domains, with physical health being the most preserved and psychological and social domains the most affected. The **sociodemographic characteristics** of the participants demonstrated trends comparable to regional and global data. The majority of students were between 20 and 23 years old, which aligns with Hardeman et al.[13] and Dyrbye et al.[14], though the latter reported a slightly older U.S. cohort, reflecting differing academic structures. The near-equal gender distribution aligns with Iraqi demographic norms[15] but contrasts with Western and MENA studies, where females predominate in medical programs.[16,17] The predominance of students from middle-sized families reflects typical Iraqi household structures[18,19], while the high proportion residing at home (83%) underscores strong family ties characteristic of Middle Eastern societies, differing from reports in Pakistan, where dormitory residence is more common.[20] The **WHOQOL-BREF domain scores** revealed the highest mean in the physical health domain (61.7 ± 13.7), suggesting that despite academic pressure, students maintain physical well-being. Similar findings were noted by Al Ani[21] among Iraqi medical students, whereas Obad et al.[22] in Yemen reported lower physical scores, reflecting differing living conditions. Conversely, the psychological domain exhibited the lowest mean (49.0 ± 16.3), indicating substantial mental strain. Hamad[23] in Jordan and Aljehani[24] in Saudi Arabia reported higher psychological scores, suggesting that institutional and mental health support systems might buffer psychological distress more effectively in those contexts. The relatively lower **social domain score** (46.2 ± 10.9) parallels findings from Obad et al.[22], indicating limited social engagement, while higher scores in Jordan and Pakistan[25,26] highlight the positive role of strong community networks. The **mean PSS-10 score** of 18.5 ± 4.6 indicated moderate stress in 85% of students, comparable to Iraqi[27], Indian[28], and Saudi[24] studies, but lower than Chinese reports during the COVID-19 pandemic.[29] The dominant stressors—fear of failure, exam overload, and curriculum intensity—are recurrent themes in global literature.[27,30] Sleep disturbance was the most common symptom, as also observed by Al Ani[21] and Kartikey[31], confirming that academic anxiety significantly disrupts rest and concentration. Prayers and family support emerged as preferred coping strategies, consistent with cultural reliance on religion and collectivist support systems in Iraq, contrasting with mindfulness-based approaches in Western settings.[32,33] Significant associations were found between stress levels and socioeconomic variables, particularly parental unemployment and rural background, mirroring findings by Al-Karagoly[34] and Bani[35], who linked economic instability to psychological distress. Wahed[36] similarly reported higher stress among rural students in Egypt due to adaptation difficulties. However, no gender difference in stress levels was observed, aligning with Dahlin[37] and Kulsoom[38], but differing from Fawzy[39], who found higher female distress in Egypt, suggesting sociocultural moderation of stress perception. Most importantly, an inverse association between stress and QoL across all WHOQOL-BREF domains was observed, particularly in the psychological domain, where high stress correlated with markedly lower scores. Similar patterns were reported by Kolias[40], and Ali[41], who all emphasized that elevated stress adversely affects psychological and social functioning. Malibary[42] also confirmed the strong negative relationship between academic stress and QoL among Saudi students. The near-significant link between stress and social relationships in this study reinforces the buffering role of family and peer support, echoing findings from Younis[43] in Iraq and Njah[44] in Tunisia.

Overall, the results highlight the pervasive impact of stress on all aspects of QoL among medical students. Institutional reforms that prioritize mental health education, accessible counseling, balanced curricula, and promotion of social and religious coping mechanisms are critical to fostering resilience and ensuring the well-being of future physicians.

CONCLUSION

The study revealed that most medical students experienced moderate levels of perceived stress, with significant variability in QoL scores across WHOQOL-BREF domains. Physical health emerged as the most preserved QoL domain, whereas psychological and social domains were markedly lower, indicating emotional strain and potential social disconnection. There was a strong inverse relationship between stress and QoL, particularly within the psychological domain, affirming that heightened stress significantly deteriorates mental well-being. Socioeconomic factors, such as parental unemployment and rural origin, were significantly associated with higher stress levels, while variables like sex, age, and academic year showed no clear influence in this population.

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