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Study of stress and anxiety on quality of life

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ABSTRACT

Introduction: Stress and anxiety are among the most prevalent psychological conditions globally and are known to adversely affect quality of life (QoL). Despite the high burden of mental illness in Nepal, localized evidence on the relationship between perceived stress, anxiety severity, and multidimensional QoL in tertiary psychiatric settings remains scarce.

Methods: This cross-sectional analytical study was conducted at Biratnagar, Nepal, among 262 consecutive patients attending the Psychiatry OPD and ward. Perceived stress, anxiety, and QoL were measured using the Perceived Stress Scale-10 (PSS-10), Hamilton Anxiety Rating Scale (HAM-A), and WHOQOL-BREF, respectively. Pearson correlation, one-way ANOVA, and multiple linear regression were used for analysis.

Results: The mean PSS-10 score was 24.22 ± 7.20, with 139 (53.1%) having moderate and 104 (39.7%) high perceived stress. The mean HAM-A score was 24.48 ± 9.17, with 136 (51.9%) classified as having severe anxiety. The psychological domain recorded the lowest mean QoL score (41.16 ± 18.23) and the environmental domain the highest (51.95 ± 15.30). PSS-10 showed statistically significant negative correlations with the psychological ($r = -0.124$, $p = 0.044$) and social relationships ($r = -0.152$, $p = 0.013$) domains. HAM-A did not significantly correlate with any QoL domain. The regression model was non-significant ($R^2 = 0.021$, $p = 0.357$).

Conclusion: Psychiatric patients in this tertiary setting carry a high burden of stress and anxiety, with perceived stress selectively impairing psychological and social QoL. Future studies should incorporate social support, diagnosis type, and treatment variables to better predict QoL in this population.

Keywords: Anxiety Disorders, Cross-Sectional Studies, Mental Health, Psychiatric Outpatients, Psychological Stress, Quality of Life

INTRODUCTION

Mental disorders represent one of the most pressing public health challenges globally, with anxiety disorders affecting an estimated 359 million people worldwide as of 2021 and ranking as the most prevalent category of mental illness.[1] Despite the availability of effective treatments, only 27.6% of those affected receive any form of care, with barriers including stigma, limited healthcare infrastructure, and poor awareness.[2] The global burden of mental disorders is particularly pronounced in low- and middle-income countries, and Nepal is no exception; a national mental health survey estimated that 10% of Nepalese adults have experienced a mental disorder in their lifetime, with anxiety and depression being the most prevalent conditions.[3] Quality of life (QoL), defined by the World Health Organization as an individual's perception of their position in life in the context of their culture, values, goals, and concerns, is increasingly recognised as a critical patient-centred outcome in psychiatric care.[4] Stress and anxiety are known to affect all four WHOQOL-BREF domains: physical health, psychological well-being, social relationships, and environmental satisfaction, thereby impairing an individual's holistic functioning and daily life.[5]

Chronic perceived stress has been linked to sleep disturbances, impaired concentration, social withdrawal, and reduced immune function, all of which contribute to a deterioration in quality of life.6 In a Kathmandu-based study of psychiatric outpatients, anxiety emerged as the single most significant predictor of QoL across physical, psychological, and social domains, underscoring the clinical importance of addressing psychological distress in this population.[5]

Despite this evidence, localized data on the relationship between perceived stress, anxiety severity, and multidimensional QoL in tertiary psychiatric settings in Nepal remain scarce. This study, therefore, aimed to measure levels of perceived stress and anxiety using validated instruments, the PSS-10 and HAM-A, and to assess their association with quality of life across all four WHOQOL-BREF domains among patients attending the Psychiatry Department of Nobel Medical College and Teaching Hospital (NMCTH), Biratnagar.

METHODS

This was a cross-sectional analytical study conducted at the Department of Psychiatry, NMCTH, Biratnagar, Koshi Province, Nepal.

NMCTH is a 750-bed tertiary-care academic medical centre and the principal psychiatric referral facility for the eastern region of Nepal. The study was conducted among patients attending the Psychiatry Outpatient Department (OPD) and those admitted to the Psychiatry Ward. Data were collected over a consecutive period from December 2025 to March 25, 2026.

All patients aged 18 years and above who presented to the Psychiatry OPD or were admitted to the Psychiatry Ward during the data-collection period were eligible, provided they were willing to give written informed consent and could understand and respond to the study instruments in Nepali or English.

Patients in acute psychiatric crisis (e.g., acute psychosis or active suicidal emergency), those with moderate-to-severe intellectual disability or neurocognitive disorder impairing comprehension, and those who had already participated during a prior visit were excluded.

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A consecutive sampling approach was used, in which all eligible patients presenting during the study period were approached until the target sample size was reached, thereby minimizing selection bias and ensuring representativeness of the routine clinical population.

Data were collected using a structured, interviewer-administered questionnaire comprising four instruments. Sociodemographic proforma Recorded age, gender, SES (classified as low, middle, or high using the modified Kuppuswamy scale adapted for Nepal),[7] education level, and occupation. Perceived Stress Scale-10 (PSS-10) is a validated 10-item self-report measure of perceived stress over the preceding month, rated on a 5-point Likert scale (0–4), yielding a total score of 0–40, categorized as low (0–13), moderate (14–26), or high stress (27–40).[8] Hamilton Anxiety Rating Scale (HAM-A) is a 14-item clinician-rated scale evaluating psychic and somatic anxiety (total 0–56), categorized as mild (0–17), moderate (18–24), or severe (≥25), administered by trained research staff following a standardized protocol.[9] World Health Organization Quality of Life-Brief(WHOQOL-BREF) is a 26-item instrument yielding four domain scores (physical, psychological, social, environmental) and an overall QoL score, all transformed to a 0–100 scale where higher scores indicate better QoL.[10]

To minimise selection bias, consecutive sampling was applied uniformly across both OPD and ward settings. An interviewer-administered format was adopted to support participants with limited literacy and reduce item non-response. Social desirability bias was addressed by assuring all participants of anonymity and the voluntary nature of participation prior to questionnaire administration.

Sample size was calculated using the formula for a prevalence-based cross-sectional study: . Using an anxiety prevalence of 19.2% from a prior study in Kavre district, Nepal,[11] at 95% confidence (Z = 1.96) and 5% margin of error, the minimum sample was 239; after adding 10% for non-response, the target was set at 262 participants. Following data cleaning, the final sample was 262.

PSS-10 scores were treated as both continuous (mean ± SD) and categorical (low/moderate/high). HAM-A scores were similarly treated as continuous and categorised (mild/moderate/severe). All four WHOQOL-BREF domain scores and the overall QoL score were treated as continuous variables on a 0–100 scale.

Data were entered and analysed using IBM SPSS 16. Continuous variables were summarized as mean ± standard deviation (SD) and range, while categorical variables were presented as frequencies and percentages. Prior to parametric analysis, normality of continuous variables was assessed using the Kolmogorov–Smirnov test. Bivariate associations between PSS-10, HAM-A, and each WHOQOL-BREF domain score were examined using Pearson correlation coefficients (r). Multiple linear regression using the Enter method was performed to identify independent predictors of overall QoL, with PSS-10 total, HAM-A total, age, gender, and SES entered simultaneously; model fit was assessed by R^2 and the F-test, and assumptions were verified using residual plots, the Durbin–Watson statistic, and Variance Inflation Factors (VIF). Group comparisons were conducted using the independent-samples t-test for two-group comparisons and one-way ANOVA with Bonferroni post hoc correction for multi-group comparisons across stress categories, anxiety categories, and SES groups. A two-tailed p-value of < 0.05 was considered statistically significant throughout. Questionnaires with more than 20% missing items on any single scale were excluded from analysis, and isolated missing WHOQOL-BREF items were managed through domain-level mean imputation in accordance with the instrument's scoring guidelines.

RESULTS

Of all patients presenting to the Psychiatry OPD and ward during the data-collection period, those who met the eligibility criteria were approached consecutively. A total of 262 patients were included in the study. Most of the participants were male, i.e., 158(60.3%). (Table 1)

The mean PSS-10 total score among the 262 study participants was 24.22 ± 7.20, with scores ranging from 1.2 to 40.0, indicating moderate-to-high levels of perceived stress across the sample. When categorized, 139 (53.1%) participants fell into the moderate stress category, 104 (39.7%) into the high stress category, and only 19 (7.3%) into the low stress category. Anxiety levels as measured by the HAM-A yielded a mean score of 24.48 ± 9.17 (range: 0.0–50.6), with 136 (51.9%) participants classified as having severe anxiety, 71 (27.1%) moderate anxiety, and 55 (21.0%) mild anxiety, underscoring a substantial anxiety burden within this psychiatric population. Regarding quality of life, the environmental domain recorded the highest mean score (51.95 ± 15.30), followed by the physical domain (48.80 ± 16.61) and the social relationships domain (44.76 ± 16.66), while the psychological domain scored the lowest (41.16 ± 18.23), indicating that psychological well-being was the most adversely affected dimension of quality of life. The mean overall QoL score was 47.92 ± 16.02, indicating a moderate but reduced perceived quality of life, with wide standard deviations across all domains, suggesting considerable individual variability among psychiatric patients attending NMCTH.

Table 1: Sociodemographic characteristics of study participants (n = 262)

Variable	Category	n (%)
Gender	Male	158 (60.3%)
	Female	104 (39.7%)
Age (years)	Mean ± SD	35.1 ± 10.7
	Range	20–60
SES	Low	103 (39.3%)
	Middle	105 (40.1%)
	High	54 (20.6%)
Education	Primary	22 (8.4%)
	Secondary	51 (19.5%)
	Higher Secondary	98 (37.4%)
	Graduate	64 (24.4%)
	Post-Graduate	27 (10.3%)
Occupation	Employed	91 (34.7%)
	Self-Employed	120 (45.8%)
	Unemployed	41 (15.6%)
	Student	10 (3.8%)

Pearson correlation coefficients were computed to examine bivariate associations between perceived stress (PSS-10), anxiety severity (HAM-A), and the four WHOQOL-BREF domain scores and overall QoL. As presented in Table 2, PSS-10 scores demonstrated statistically significant negative correlations with the psychological domain ($r = -0.124$, $p = 0.044$) and the social relationships domain ($r = -0.152$, $p = 0.013$), indicating that higher perceived stress was associated with poorer psychological and social quality of life. Correlations between PSS-10 and the physical, environmental, and overall QoL domains were negative but not statistically significant (all $p > 0.05$). HAM-A scores showed no statistically significant correlation with any QoL domain (all $p > 0.05$). (Table 2)

Table 2: Bivariate correlations of PSS-10 and HAM-A with QoL (n=262)

QoL Domain	PSS-10 r	p-value	HAM-A (r)	p-value
Physical	−0.075	0.227	−0.008	0.904
Psychological	−0.124	0.044	−0.057	0.359
Social	−0.152	0.013	+0.021	0.741
Environmental	−0.000	0.996	+0.008	0.895
Overall QoL	−0.078	0.208	+0.066	0.285

Multiple linear regression analysis was performed to identify independent predictors of overall quality of life, entering PSS-10 total, HAM-A total, age, gender, and SES simultaneously into the model. The overall model was not statistically significant ($F(5, 256) = 1.107$, $p = 0.357$, $R^2 = 0.021$), explaining only 2.1% of the variance in overall QoL, suggesting that the included predictors collectively had negligible

explanatory power. None of the individual predictors — perceived stress (β = −0.174, p = 0.217), anxiety severity (β = +0.115, p = 0.297), age (p = 0.398), gender (p = 0.189), or SES (p = 0.723) — reached statistical significance at $p < 0.05$, indicating that stress, anxiety, and sociodemographic variables alone were insufficient to predict overall quality of life in this psychiatric sample.

Table 3: Multiple linear regression; predictors of overall QoL

Predictor	β (unstd.)	SE	Std. β	t	p	95% CI
PSS-10 total	−0.174	0.140	−0.078	−1.237	0.217	−0.450 to 0.103
HAM-A total	+0.115	0.110	+0.066	+1.044	0.297	−0.102 to 0.331
Age	+0.080	0.094	+0.053	+0.847	0.398	−0.106 to 0.265
Gender	+2.680	2.036	+0.083	+1.316	0.189	−1.330 to 6.690
SES	+0.476	1.340	+0.022	+0.355	0.723	−2.163 to 3.115

Although mean QoL trended downward from low to high stress (51.16 to 48.35 to 46.74), differences were not statistically significant (p = 0.488). No significant differences in QoL were observed across anxiety severity groups (p = 0.946).(Table 4)

Table 4: Subgroup comparisons of Overall QoL by stress and anxiety category

Group	n	Mean QoL	SD	F	p
Low stress	19	51.16	16.30	0.719	0.488*
Moderate stress	139	48.35	14.96		
High stress	104	46.74	17.32		
Mild anxiety	55	47.89	15.31	0.055	0.946*
Moderate anxiety	71	47.41	14.86		
Severe anxiety	136	48.19	16.96		

***One way ANOVA**

No statistically significant differences in overall QoL were detected by gender (p = 0.133) or SES (p = 0.754).

Table 5: Comparisons by sociodemographic variables with QoL

Variable	Subgroup	Mean QoL	Test	p
Gender	Male (n=158)	46.71	t = −1.507	0.133
	Female (n=104)	49.75		
SES	Low (n=103)	46.99	F = 0.282	0.754
	Middle (n=105)	48.54		
	High (n=54)	48.46		

DISCUSSION

Our study found that the majority of psychiatric patients attending NMCTH experienced moderate (53.1%) to high (39.7%) perceived stress, with only 7.3% reporting low stress, and over half (51.9%) classified as having severe anxiety on HAM-A (mean = 24.48 ± 9.17), indicating a pervasive and clinically significant psychological distress burden in this tertiary psychiatric population.This finding is consistent with the broader epidemiological picture of South Asia, where the prevalence of common mental disorders is substantially higher than the global average, driven by psychosocial, cultural, and economic stressors specific to the region.[12] A nationwide Nepalese community study similarly found elevated rates of anxiety and depression with significant comorbidity, particularly among socioeconomically vulnerable populations.[13] A study conducted in a border community in Nepal reported that over 94% of respondents had measurable perceived stress and 34.46% met criteria for anxiety, underscoring how contextual stressors in Nepal translate into high clinical burden.[14] In contrast, some population-based studies in South Asia have also reported moderate rather than severe stress levels in non-clinical groups, suggesting that the extreme burden seen in our study may be partly an artifact of tertiary referral bias rather than a general community phenomenon.[15] The high burden of stress and anxiety observed in our sample is consistent with the clinical epidemiology of psychiatric tertiary care settings in South Asia and Nepal; however, the substantially higher rates compared to general population studies confirm that our findings cannot be generalised beyond specialist psychiatric settings, and that contextual, socioeconomic, and referral-pathway factors must be accounted for when interpreting these prevalence figures.

Among all WHOQOL-BREF domains, the psychological domain recorded the lowest mean score (41.16 ± 18.23), while the environmental domain scored the highest (51.95 ± 15.30), indicating that psychiatric illness disproportionately impairs psychological well-being compared to physical and environmental dimensions of quality of life. In a study of patients across diverse diseases, confirmed that psychiatric patients, particularly those with depression, reported the poorest psychological QoL scores while physical and environmental domains remained relatively preserved.[16] Aydemir et al. (2006) similarly found in a Turkish psychiatric sample using WHOQOL-BREF that patients with schizophrenia and affective disorders scored significantly lower in the psychological domain than diabetic patients and healthy controls, confirming this domain-specific pattern.[16] A Kathmandu-based study of psychiatric outpatients with trauma history also reported psychological and social domains as the most severely affected QoL dimensions.[5] Some studies, particularly those involving chronic physical illnesses comorbid with psychiatric symptoms, have found the physical domain to be equally or more impaired than the psychological domain.[17] Additionally, studies conducted in chronic pain or cancer populations with comorbid anxiety have reported physical domain scores lower than psychological scores, suggesting that the domain most affected by stress and anxiety may vary depending on the primary diagnosis.[18] The consistent finding across our study and multiple international psychiatric studies that the psychological domain is the most severely impaired dimension of QoL reinforces that psychiatric illness has its most proximal and profound impact on internal mental functioning; however, the relative preservation of other domains may vary by diagnosis, comorbidity, and treatment context, and future studies at NMCTH should stratify QoL domain analysis by specific diagnostic category.

PSS-10 scores demonstrated statistically significant negative correlations with the psychological domain (r = −0.124, p = 0.044) and the social relationships domain (r = −0.152, p = 0.013), while correlations with the physical, environmental, and overall QoL domains were negative but did not reach statistical significance (all $p > 0.05$). Olatunji et al.'s meta-analytic review of 32 patient samples found that QoL impairments in patients with anxiety were most pronounced in the mental health and social functioning domains — precisely the two domains significantly affected by stress in our study, supporting the domain specificity of the stress-QoL relationship.[19] A study from China showed that in a nationwide sample of Chinese psychiatrists, perceived stress was consistently and negatively related to psychological and social dimensions of QoL, while its relationship with physical health was weaker.[20] A twin study from Sri Lanka found that anxiety symptoms were significantly associated with all four WHOQOL-BREF domains including physical health, suggesting that in some population contexts the effect of psychological distress on QoL is broader and not limited to psychological and social domains alone.[21] Some longitudinal studies have also found that after treatment of anxiety disorders, physical QoL showed the most significant improvement, implying a baseline physical impairment not captured by cross-sectional correlation analysis.[22] The selective and statistically significant negative impact of perceived stress on the psychological and social QoL domains in our study is consistent with cognitive-appraisal theory and supported by meta-analytic evidence; however, broader physical domain effects seen in other studies suggest that the domain scope of stress-related QoL impairment may widen under different measurement conditions, follow-up designs, or diagnostic compositions, underscoring the need

for longitudinal and diagnosis-specific designs in future research.

Despite a mean HAM-A score of 24.48 ± 9.17; placing the average participant in the severe anxiety range, HAM-A showed no statistically significant correlation with any WHOQOL-BREF domain or overall QoL (all $p > 0.05$).A study from USA found that after adjusting for sociodemographic and clinical covariates, the association between anxiety disorder severity and QoL became non-significant in several diagnostic subgroups, suggesting that confounders substantially mediate the anxiety-QoL relationship in heterogeneous clinical samples.[23] Study by Sagayadevan et al. among psychiatric outpatients, found that it was the type of mental disorder, not anxiety severity alone, that significantly explained QoL variation, further supporting our non-significant finding in a diagnostically mixed sample.[24] Olatunji et al.'s meta-analysis similarly reported consistent and significant anxiety-QoL associations across 32 anxiety disorder-specific samples.[19] The non-significant correlation between HAM-A and QoL in our study is most plausibly explained by the diagnostic heterogeneity of the sample, ceiling effects in HAM-A scores due to the high proportion of severe anxiety cases, and the confounding effect of ongoing treatment; all of which were absent in studies reporting significant associations; future research should control for diagnosis type and treatment status before concluding on the anxiety-QoL relationship in mixed psychiatric populations.

The multiple linear regression model; entering PSS-10 total, HAM-A total, age, gender, and SES simultaneously; was not statistically significant explaining only 2.1% of the variance in overall QoL, with none of the individual predictors reaching significance at $p < 0.05$. A study found that demographic variables and symptom severity alone explained little of the variance in QoL among psychiatric outpatients, and that diagnosis type was a far stronger explanatory variable; supporting the view that our model's weakness is attributable to omission of illness-specific predictors.[24] A structural equation model of QoL predictors in psychiatric patients found that when only demographic and symptom variables were entered without social support and coping style, model fit was poor, mirroring the weak R^2 in our study.[25] A regression study on schizophrenia patients found that psychological distress, social support, and demographics explained 30.8% of QoL variance, much higher than in our study, highlighting that including social support and diagnosis-specific variables improves the model's predictive power substantially.[26] Similarly, a study of patients with severe mental illness found that clinical factors such as number of hospitalizations and illness duration were independently and significantly predictive of QoL scores, variables entirely absent from our model.[27] The weak and non-significant regression model in our study is consistent with the broader literature showing that perceived stress and anxiety alone, without inclusion of social support, diagnosis type, illness duration, and coping variables, are insufficient predictors of QoL in psychiatric populations; future research at NMCTH should build hierarchical regression models that incorporate these established clinical and psychosocial predictors to yield clinically actionable findings.

Despite directional trends, high stress participants reported a lower mean QoL (46.74) compared to low stress participants (51.16); no subgroup comparisons across stress categories, anxiety severity, gender (Male: 46.71 vs. Female: 49.75; $p = 0.133$), or SES groups ($p = 0.754$) reached statistical significance. A cross-sectional study of schizophrenia outpatients found no significant gender differences across all four WHOQOL-BREF domains after controlling for sociodemographic factors, consistent with our gender-QoL finding.[28] A Greek tertiary psychiatric care study also found that SES alone did not significantly differentiate QoL; rather, social support emerged as the dominant determinant, overriding socioeconomic effects, paralleling our non-significant SES finding.[27] A study of psychiatric patients with neurological comorbidities found females had lower QoL than males in physical and psychological areas ($p < 0.05$), indicating gender differences may appear in specific subgroups not distinguished in our mixed sample.[29] The lack of significant group differences in QoL by gender, SES, and stress/anxiety likely results from small subgroup sizes, especially the low stress group (n=19), and diagnostic heterogeneity, which may hide effects. While trends suggest clinical relevance, larger, diagnosis-stratified studies are needed to confirm whether these differences are statistically significant.

The cross-sectional design of this study precludes causal inference between perceived stress, anxiety, and quality of life, and the findings should therefore be interpreted as associative rather than directional. The diagnostic heterogeneity of the sample, comprising patients with diverse psychiatric diagnoses, was not controlled for in the analysis, and the treatment status of participants at the time of data collection was not recorded, both of which may have diluted effect sizes and confounded the observed associations.The use of the self-reported PSS-10 introduces the possibility of response bias and social desirability effects, which may have introduced systematic measurement error, particularly in a clinical psychiatric population. Finally, as the study was conducted at a single tertiary referral centre in eastern Nepal, the findings may not be generalisable to primary care, community, or psychiatric settings in other regions of Nepal.

CONCLUSION

This study shows that psychiatric patients in eastern Nepal experience high stress and anxiety, mainly affecting their psychological quality of life, with stress negatively linked to social and psychological well-being. Stress, anxiety, and sociodemographic factors alone can't predict overall quality of life, highlighting the need for routine psychological screening and domain-specific assessments in Nepal's tertiary psychiatric centers. Future studies should employ longitudinal designs and account for factors such as social support, diagnosis, illness duration, and treatment to better understand predictors of QoL in this complex group.

DECLARATION

Acknowledgement

None

Authors Contributions

PBR conceived the research idea and was solely responsible for the study's concept and correspondence with the journal. PBR, BKC, and BB contributed to the design of the research, literature search, data collection, data analysis, and data interpretation. All three authors, PBR, BKC, and BB, were involved in drafting the manuscript and reviewing it for important intellectual content. All authors provided final approval of the version ready for submission and agreed to be accountable for all aspects of the work.

Ethical Approval

This research was approved by the IRC of Nobel Medical College and Teaching Hospital /Kathmandu University with the reference number 68/2025 on 23rd December, 2025.

Consent/Assent

Informed consent was taken from all the participants for the study.

Data Availability Statement

The date of the study will be provided to the editorial team upon request.

Conflicts of Interest

None

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None

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