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A cross-sectional study to assess the relationship between perceived stress levels and mental health outcomes among medical college students at perceived time assessed using perceived stress scale-10 and general health questionnaire-28

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Abstract

Background: Medical students frequently experience high levels of perceived stress because of demanding academic workloads, emotional strain, and the transition into professional roles. Evaluating the relationship between perceived stress and mental health can guide preventive interventions within medical education, particularly in homoeopathic institutions where holistic well-being is emphasized.

Objectives

1. To measure perceived stress levels among medical college students using the Perceived Stress Scale-10 (PSS-10).
2. To assess mental health outcomes using the General Health Questionnaire-28 (GHQ-28).
3. To determine the relationship between perceived stress levels and mental health status among homoeopathic medical students.

Methods: A cross-sectional survey was conducted among 300 under-graduate students of Dr. Hahnemann Homoeopathy Medical College and Research Centre, Rasipuram. Participants aged 18-23 years are asked to complete the questionnaires-the PSS-10 and GHQ-28. Data were analyzed using descriptive statistics and comparison between perceived stress and mental-health outcomes. Ethical approval and informed consent were obtained.

Results: Among 300 students, 77% reported moderate stress and 17% high stress. Regarding mental health, 48% had moderate distress and 40% severe distress. A positive correlation existed between higher PSS-10 scores and poorer GHQ-28 outcomes, indicating that increased stress was associated with greater psychological distress.

Conclusion: Most homoeopathic medical students experienced moderate-to-high stress levels closely linked with mental-health deterioration. Regular screening, counseling, and structured stress-management programs are essential to promote resilience and academic efficiency within medical institutions.

Keywords: Perceived stress scale 10, general health questionnaire 28, cross-sectional study

Introduction

Stress is an inevitable part of modern academic life and an important determinant of mental and physical health. While moderate stress may enhance motivation and performance, prolonged or excessive stress can lead to psychological distress and health deterioration. Among medical students, stress arises from vast syllabus, frequent examinations, long study hours, and the emotional pressure of patient interactions. Persistent stress impairs concentration, learning, and clinical judgment.

Understanding the relationship between perceived stress and mental health is crucial for identifying vulnerable groups and implementing preventive strategies. Earlier studies have shown that academic stress is a key risk factor for anxiety, depression, and exhaustion among healthcare students. The homoeopathic system, which emphasizes the mind-body balance, provides an apt framework for exploring these psychosocial dimensions.

This study aimed to assess perceived stress and mental-health outcomes among medical students at Dr. Hahnemann Homoeopathy Medical College and Research Centre, Rasipuram, using standardized tools (PSS-10 and GHQ-28), and to analyze their inter-relationship.

Materials and Methods

Study Design and Setting

A descriptive cross-sectional study was carried out at Dr. Hahnemann Homoeopathy Medical College and Research Centre, Rasipuram, Tamil Nadu, over three months. Data were collected within the college premises under faculty supervision.

Study Population

The study population consisted of undergraduate homoeopathic medical students aged 18 to 23 years from all academic years.

Sample Size and Sampling Technique

A total of 300 students were enrolled through a non-randomized purposive sampling method based on inclusion and exclusion criteria.

Inclusion Criteria

- Students aged 18 to 23 years.
- Both male and female students.
- Willing participants who provided informed consent.

Exclusion Criteria

- Students aged below 18 or above 23 years.
- Individuals with pre-diagnosed psychiatric or chronic anxiety/panic disorders.

Study Instruments

1. Perceived Stress Scale (PSS-10)

A 10-item self-report questionnaire measuring perceived stress during the preceding month on a 0-4 Likert scale. Higher scores indicate greater perceived stress.

2. General Health Questionnaire (GHQ-28)

A 28-item instrument assessing somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression. Each item is rated 0-3; a higher total denotes poorer mental health.

Procedure for Data Collection: Students were briefed on the purpose of the study and provided with written informed consent. Questionnaires were distributed and collected on the same day after clarifying doubts. All responses were kept confidentially.

Statistical Analysis

- **PSS-10 score range**
0-40 (0-13 = low, 14-26 = moderate, 27-40 = high).
- **GHQ-28 score range**
0-84 (0-23 = normal, 24-36 = mild, 37-60 = moderate, 61-84 = severe).
- Relationships between PSS-10 and GHQ-28 scores were examined using correlation analysis.

Ethical Considerations

Institutional Ethics Committee approval was obtained prior to the study. Participation was voluntary, and confidentiality of responses was ensured.

Results

Distribution of Students According to Age

Table 1: Age-wise distribution of participants

| Age (Years) | Number of Students | Percentage |
|-------------|--------------------|------------|
| 18 | 16 | 5% |
| 19 | 45 | 15% |
| 20 | 53 | 18% |
| 21 | 39 | 13% |
| 22 | 43 | 14% |
| 23 | 47 | 16% |
| 24 | 32 | 11% |
| 25 | 25 | 8% |

Interpretation: Most participants (18%) were aged 20 years, followed by 23-year-olds (16%). The age range of 18-25 years shows good representativeness across the undergraduate program.

Distribution According to Gender

Table 2: Gender-wise distribution

| Gender | Number of Students | Percentage |
|--------|--------------------|------------|
| Male | 60 | 20% |
| Female | 240 | 80% |

Interpretation: Female students formed the majority (80%), reflecting the actual enrollment ratio in the institution.

Perceived Stress Levels (PSS-10)

Table 3: Levels of Perceived Stress

| Outcome | No. of Students | Percentage |
|-----------------|-----------------|------------|
| Mild Stress | 18 | 6% |
| Moderate Stress | 230 | 77% |
| High Stress | 52 | 17% |

Interpretation: The majority (77%) experienced moderate stress, while 17% had high stress and only 6% reported mild stress.

Mental-Health Outcomes (GHQ-28)

Table 4: Levels of Psychological Distress

| Outcome | No. of Students | Percentage |
|-------------------|-----------------|------------|
| Mild Distress | 37 | 12% |
| Moderate Distress | 144 | 48% |
| High Distress | 119 | 40% |

Interpretation: Nearly half (48%) had moderate distress; 40% experienced severe levels, indicating significant psychological morbidity.

Comparison Between Perceived Stress and Mental Health Outcomes

Table 5: Overall Assessment Outcome

| Assessment Outcome | No. of Students | Percentage |
|--------------------|-----------------|------------|
| Matched | 163 | 54% |
| Mismatched | 137 | 46% |

Interpretation: Over half (54%) showed consistent patterns

between stress and distress levels, confirming a strong relationship.

Detailed Comparison (Assessment Matched)

Table 6: Matched Stress-Distress Combinations

| Combination | No. of Students | Percentage |
|-------------------------------------|-----------------|------------|
| Mild Stress + Mild Distress | 7 | 4% |
| Moderate Stress + Moderate Distress | 122 | 75% |
| High Stress + High Distress | 34 | 21% |

Interpretation: Most matches occurred within the moderate category (75%), showing a direct proportional trend between stress and distress intensity.

Detailed Comparison (Assessment Mismatched)

Table 7: Mismatched Stress-Distress Patterns

| Combination | No. of Students | Percentage |
|---------------------------------|-----------------|------------|
| Low Stress + Moderate Distress | 6 | 4% |
| Moderate Stress + Low Distress | 28 | 20% |
| High Stress + Moderate Distress | 18 | 13% |
| Moderate Stress + High Distress | 82 | 59% |
| Low Stress + High Distress | 3 | 2% |
| High Stress + Low Distress | 0 | 0% |

Interpretation: Mismatched responses highlight that 59% of students with moderate stress still showed high distress, implying differing coping abilities.

Stress and Gender Comparison

Table 8: Gender-wise Distribution of Stress

| Stress Level | Male (%) | Female (%) |
|--------------|----------|------------|
| Mild | 8 | 5 |
| Moderate | 70 | 79 |
| Severe | 22 | 16 |

Interpretation: Both genders predominantly experienced moderate stress; males showed a slightly higher proportion of severe stress.

Distress and Gender Comparison

Table 9: Gender-wise Distribution of Distress

| Distress Level | Male (%) | Female (%) |
|----------------|----------|------------|
| Mild | 20 | 10 |
| Moderate | 42 | 50 |
| Severe | 38 | 40 |

Interpretation: Moderate distress was most prevalent in both genders, but severe distress was nearly equal ($\approx 40\%$) among male and female students.

Discussion

The present study explored the relationship between perceived stress and mental-health outcomes among 300 homoeopathic medical students. Findings revealed that the majority of participants experienced moderate-to-high stress accompanied by corresponding psychological distress. These results demonstrating elevated stress levels among medical undergraduates due to heavy workloads, frequent examinations, and performance pressure. The strong

positive association between PSS-10 and GHQ-28 scores in this study strengthen that higher perceived stress correlates with greater emotional and somatic dysfunction.

Gender analysis showed similar trends for both sexes, although female students slightly predominated in moderate distress categories, consistent with previous Indian and international findings that attribute higher vulnerability in females to emotional disturbances and social expectations.

The presence of mismatched stress-distress patterns in 46% of students indicates variability in coping strategies, social support, and resilience. Some students may internalize stress without clear psychological symptoms, whereas others develop distress even at moderate stress levels.

These findings highlight the urgent need for systematic interventions in homoeopathic colleges, such as structured stress-management programs, mentoring, and regular psychological screening. Integration of homoeopathic philosophy that promotes mind-body harmony could further strengthen student wellness initiatives.

Conclusion

The study concludes that a significant proportion of medical students experience moderate to high perceived stress, which strongly correlates with deteriorated mental health outcomes. Stress and psychological distress coexist in more than half of the sample, indicating the requirement for institutional mental-health support and stress-reduction strategies.

Recommendations

- 1. Establishment of Student Counseling Services:** Provide confidential psychological counseling within the institution.
- 2. Implementation of Stress-Management Workshops:** Incorporate yoga, meditation, mindfulness, and relaxation practices in the curriculum.
- 3. Mentorship and Faculty Support:** Create mentorship program encouraging discussion of academic and emotional concerns.
- 4. Promotion of Extracurricular Activities:** Encourage sports & cultural events to enhance emotional and social balance.
- 5. Further Research:** Longitudinal and interventional studies assessing the effect of homoeopathic remedies and lifestyle counseling on academic stress are warranted.

Conflict of Interest

Not available.

Financial Support

Not available.

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