

Stress Levels and Associated Factors Among Pharm D Students in A Private College in Telangana State, India

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Abstract

Background: Stress among healthcare students, particularly doctor of pharmacy (pharm D) students, is a growing concern due to heavy academic workloads, clinical training and future career pressures.

Objective: To identify stress levels and associated factors among Pharm D students in a private pharmacy college in Telangana state, India.

Methods: A cross-sectional study was conducted among 144 Pharm D students using validated tools: Perceived Stress Scale (PSS-10), Patient Health Questionnaire (PHQ-4), and a structured stress determinants questionnaire. Descriptive statistics, Spearman's correlation, and Chi-square tests were applied.

Results: The Mdn (IQR) age of participants were 20 (4) years. Significant associations with stress levels were observed using PSS-10 [M(SD) = 19.6±5.2, p<.05] for religion and year of study indicating moderate stress. Higher stress was prevalent among senior students and severe stress among religion. The distribution of depression (PHQ-2) and anxiety (GAD-2) categories observed a significant association between age and anxiety, whereas religion was associated with depression (p=.01). Year of study showed both depression (p=.001) and anxiety (p=.005). The stress determinants indicate that gender, religion and year of study only had significant demographic influences. Strong intercorrelations were observed among the stress domains, particularly between family/friendship and institution (r=.723, p<.01), and academic workload and family/friendship (r=.714, p<.01). Anxiety and depression were positively correlated with stress levels (r=.438 & .526, p<.01). Family-related responsibilities emerged as the most prominent stressor.

Conclusion: The study revealed significant stress levels among Pharm D students, with multiple associated factors influencing their well-being and strong associations to academic progression. The findings emphasize the need for personalized interventions to improve student well-being and academic performance.

Key Words: Pharm D Students, Perceived Stress, Anxiety, Depression, Determinants, Pharmacy College.

INTRODUCTION

Stress is a significant concern among university students and is particularly relevant in healthcare education, where intensive academic workloads, high expectations, competitive environments and clinical responsibilities may contribute to psychological distress, anxiety, depression and emotional exhaustion. Doctor of Pharmacy (Pharm D) students may be especially vulnerable because of the volume of academic material, pressure to maintain good grades, time constraints, clinical training and concerns regarding future professional and licensure requirements. (1, 2) Among pharmacy students, stress has been associated with poorer quality of life and may adversely affect learning and academic performance. (1)

University students commonly experience stress related to academic workload, time management, competition, financial and family pressures, and adjustment to the university environment. (3) Persistent or poorly managed stress may contribute to burnout and longer-term mental health difficulties, potentially affecting students' academic performance and preparedness for professional practice. (3, 4) Evidence from India also indicates a substantial

burden of stress among pharmacy students, although the reported prevalence varies considerably across populations and settings. (5, 6) These findings highlight the importance of early identification of stress and its associated factors during professional education.

The problem is particularly important in pharmacy education because student well-being may have implications beyond academic performance. Persistent psychological distress during training may affect students' readiness for future professional responsibilities, while stress and burnout among practicing pharmacists have also been associated with concerns relevant to professional functioning. (7) Although previous studies have documented stress among pharmacy and other healthcare students, evidence remains limited regarding the magnitude of stress and the factors associated with it among Pharm D students in specific institutional and regional settings in India. This represents an important knowledge gap because contextual factors may influence students' stress experiences and their need for institutional support.

Therefore, this study aimed to determine the level of stress and identify factors associated with stress among Pharm D students in a private pharmacy college in Telangana, India. The findings are intended to provide context-specific evidence to support early identification and appropriate institutional strategies for improving student well-being and academic performance.

METHODS

Study Design, Setting, Sample Calculation and Data Collection

A cross-sectional study was conducted among Pharm D students at a private pharmacy college in Telangana state, India, from December 2023 to June 2024. Students enrolled in the Pharm D programme and willing to provide written informed consent were eligible. Students enrolled in other pharmacy programmes, including Bachelor of Pharmacy and Master of Pharmacy, were excluded. Participants were recruited using convenience sampling.

A structured, pre-validated, self-administered questionnaire was distributed in classroom settings after explaining the study objectives and obtaining written informed consent. The questionnaire took approximately 20 minutes to complete. Sample size was calculated using the Raosoft online sample size calculator with a 95% confidence level, 5% margin of error and 50% response rate. From a total population of 160 Pharm D students, the estimated sample size was N=117.

Questionnaire Development and Validation

The questionnaire comprised of four sections covering sociodemographic characteristics, perceived stress, psychological distress and determinants of stress. Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS-10), and psychological distress using the Patient Health Questionnaire-4 (PHQ-4), both established and validated instruments with free access. (8-10) The stress determinants section was adapted from previously published studies and modified according to the objectives and context of the study. (11-15)

Content, construct and face validation were conducted for the adapted questionnaire. Five academicians from the departments of pharmacy practice and pharmacology reviewed the questionnaire for relevance and appropriateness. It was subsequently reviewed by the college student counsellor, a specialist in student psychology and appropriate recommendations were incorporated. Face validation among 16 potential respondents identified ambiguous items, which were revised accordingly. A pilot test was then conducted among potential respondents (N=16) using the ad hoc questionnaire. The questionnaire assessed perceived stress and its determinants during the previous month. Participation was voluntary and respondents could withdraw at any stage. Internal consistency was assessed using Cronbach's alpha, with values of .70–.90 across domains, indicating acceptable to excellent reliability.

Measures and Scoring

Table 1 depicts the cut-off score for each stress category, PSS-10 assesses perceived stress during the previous month using 10 items scored on a 5-point Likert scale from 0 (never) to 4 (very often). Items 4, 5, 7 and 8 were reverse scored. Total scores range from 0–40 and were categorized as low (0–13), moderate (14–26) or high stress (27–40). (8)

The PHQ-4 consists of two anxiety (GAD-2) and two depression (PHQ-2) items, each scored from 0–3. Total scores range from 0–12 and were classified as none (0–2), mild (3–5), moderate (6–8) or severe (9–12). Anxiety and depression subscale scores range from 0–6, with scores ≥ 3 considered positive. (10,16,17) PHQ-4 total scores ≥ 6 or subscale scores ≥ 3 was considered "yellow flags," while total scores ≥ 9 or subscale scores ≥ 5 were considered "red

flags.” (10)

Stress determinants were assessed across seven domains: physical activity, interpersonal/relationships, family/friendships, institution/infrastructure, academic workload, environment/transport, and financial resources. Each domain included five points

Likert scale, each item scored from 0 (strongly disagree) to 4 (strongly agree), producing a domain scores of 0–20. Scores were categorized as no stress (0–4), mild (5–9), moderate (10–14) or severe (15–20). The total determinants score ranged from 0–140, while the combined score for determinants, PSS-10, and PHQ-4 ranged up to 192. Overall stress was graded according to the proportion of the maximum score as no stress (<25%), mild (25% to <50%), moderate (50% to <75%) or severe stress (≥75%). (10)

Statistical Analysis

Data were entered and managed in Microsoft Excel and analysed using Statistical Package for Social Sciences (SPSS), version 26. Continuous variables were presented as mean (standard deviation) or median (interquartile range), according to data distribution, while categorical variables were summarized as frequencies and percentages. Internal consistency was assessed using Cronbach’s alpha. Spearman’s rho correlation analysis was used to examine relationships between measured variables. A two-sided p-value <.05 was considered statistically significant. Percentages were presented as whole numbers in accordance with the stated reporting approach for reasons of accuracy, usefulness and clarity. (18,19)

Ethical Considerations

The research proposal, questionnaire and informed consent form were submitted to the Institutional Review Board of Geethanjali College of Pharmacy, Hyderabad, and ethical approval was obtained before initiation of the study.

RESULTS

Response Rate: From the 150 survey forms distributed, an overall response rate of 96% (144/150) was obtained. The normality was computed using Shapiro-Wilk test and the p-value was < .05. The data provide evidence that they are not normally distributed. Hence, H_0 was rejected.

Sociodemographic Characteristics of study participants: Among the 144 participants the median age were 20 (IQR=4) years, 51% were aged between 18–20 years, 82% were females, 80% were Hindus, 22% were in their 1st year of study, 90% were single and 56% of participants were from cities (Table 2).

Association of Perceived Stress Scale (PSS-10): The findings indicate varying levels of PSS-10 across different sociodemographic characteristics among the study participants. Although there was a trend toward increased stress in older participants, female gender, marital status and location showed no significant association ($p > .05$). Stress levels differed significantly across religions and year of study with a significant association ($p = .001$ and $p = .008$) respectively, while other demographic variables showed no statistically significance. Higher levels of stress were more prevalent among senior students and severe stress were notably higher among Christian students (Table 3).

Association of Psychological Distress (PHQ-4):

The PHQ-4 is a valid ultra-brief tool for detecting both depressive and anxiety disorders. Table 4 presents the distribution of depression (PHQ-2) and anxiety (GAD-2) categories across demographic and academic variables. A significant association was observed between age and anxiety ($p = .03$), religion was associated with depression ($p = .01$) and year of study showed strong associations with both depression ($p = .001$) and anxiety ($p = .005$). In contrast, other sociodemographic variables were not.

Association of Stress determinants:

Table 5 revealed notable demographic influences on associated stress determinants among the study population. Overall, the findings indicate that gender ($p = .008$), religion ($p = .03$) and year of study ($p = .03$) are significant determinants of stress levels whereas other sociodemographic variables were not.

Correlations of each measured Stress Variables

Spearman’s rho correlation analysis demonstrated significant positive associations between perceived stress (PSS-10) and psychological distress indicators (PHQ-2, CAD-2, PHQ-4), with correlation coefficients ranging from $r = .438$ to $.526$ (all $p < .01$). Perceived stress also showed weak to moderate correlations with physical, interpersonal, academic, institutional, environmental and financial stress domains ($r = .194$ – $.277$, all $p < .05$). Strong intercorrelations were observed among the stress domains, particularly between family/friendship stress and

institutional stress ($r = .723, p < .01$), and between academic workload and family/friendship stress ($r = .714, p < .01$). The composite measure of associated stress factors (ASF-35) correlated strongly with all individual stress domains ($r = .596-.879, p < .01$) and moderately with perceived stress ($r = .279, p < .01$). Overall, these results indicate that perceived stress is significantly linked with psychological distress and multiple stress domains, while the stress domains themselves are highly interrelated, reinforcing the multidimensional structure of stress experiences (Table 6)

The overall perceived stress outcomes

The participants reported a mean PSS-10 score of 19.63 ± 5.23 , indicating moderate perceived stress, which was statistically significant ($\chi^2 = 73.01, p < .001$). The PHQ-4 (mean = 4.83 ± 2.78) and its subscales, PHQ-2 (2.31 ± 1.57) and CAD-2 (2.52 ± 1.56), also showed significant associations ($p < .001$), suggesting elevated psychological distress. Across stress factor domains, mean scores ranged from 8.53 (IPRS) to 11.83 (FRRS), with all factors significant at $p < .001$ except FRRS ($p = .026$). The total mean stress factor score was 72.23 ± 26.21 and the overall stress score was 96.69 ± 29.45 , reflecting moderate to high stress levels with family-related responsibilities contributing most prominently (Table 7).

The Overall Distribution of Stress levels among Participants

Table 8 presents the overall distribution of stress levels among the participants. Half of the respondents ($n = 72, 50\%$) reported no or low stress, while 65 participants (45%) experienced moderate stress. A smaller proportion ($n = 7, 5\%$) reported severe stress. The median overall stress score was 95.5 (IQR = 33), with a mean of 96.69 (SD = 29.45), ranging from 23 to 168. Statistical analysis using Pearson's Chi-square test indicated a significant difference across stress categories ($\chi^2 = 53.04, p < 0.001$), suggesting that perceived stress levels were not evenly distributed within the sample.

DISCUSSION

The present study examined stress levels and associated factors among Pharm D students in a private pharmacy college in Telangana, India. Most participants were young adults aged 18–20 years, female, Hindu, single and urban residents, reflecting the demographic profile commonly observed among health-science students. The predominance of students aged 18–24 years corresponds with emerging adulthood, a developmental period involving academic demands, identity development, career uncertainty and lifestyle transitions that may increase vulnerability to stress. Similar findings among college students indicate that academic pressure and lifestyle changes contribute to stress-related outcomes. (20)

Female students comprised 82% of the sample. Gender may influence perceived stress, psychological symptoms, coping, and health-seeking behaviour, with women often reporting greater stress and anxiety because of combined academic, familial, and social expectations. However, gender was not significantly associated with psychological distress in the present study, suggesting that such relationships may be context-specific. Religion and spirituality may support psychological well-being by providing meaning, social support, coping resources and resilience, although their effects may vary according to individual and cultural contexts. (21) Although single students may experience academic and financial pressures, students in relationships may experience interpersonal stress. In this study, 56% of participants were urban residents, followed by students from towns and rural areas. Urban residence may provide better access to healthcare and information but may also expose students to competitive and environmental stressors, while rural students may experience difficulties adapting to urban academic settings and have less exposure to mental-health resources.

PSS-10 analysis showed significant associations between perceived stress, year of study and religion. Students in higher academic years, particularly the fifth and sixth years, more frequently reported moderate-to-severe stress. This is consistent with evidence that pharmacy students experience stress related to academic workload, time demands and competing responsibilities. (22) Pharm D students manage extensive academic content alongside clinical and experiential responsibilities, potentially increasing stress during advanced stages of training. Higher stress among senior students may therefore reflect cumulative academic requirements and increasing clinical responsibilities.

The association between religion and stress should be interpreted cautiously. Positive religious coping, including prayer, community involvement and spiritual well-being may reduce psychological stress; however, religious influences on psychological outcomes depend on individual and cultural contexts. (21) The higher severe stress

observed among Christian students should not be interpreted as evidence that Christianity increases stress. Differences may instead reflect social environments, beliefs, community expectations or other unmeasured factors. Further research is required to clarify these relationships.

Age, particularly 21–22 years, religion, particularly Muslim and Christian backgrounds and academic year, particularly the second and third years, were significantly associated with depression and anxiety symptoms measured using the PHQ-2 and GAD-2. These findings indicate that psychological distress may vary across demographic groups and stages of Pharm D education. Previous evidence demonstrates a substantial burden of depression, anxiety and stress among pharmacy students, supporting the need to monitor psychological well-being throughout professional education. (23) The absence of a significant association between gender and psychological distress differs from some studies in which female students demonstrated greater psychological symptoms and may reflect differences in cultural, institutional, academic or sample characteristics.

Gender, religion and academic year also influenced overall stress levels. Female students reported higher stress, consistent with evidence of greater academic and test anxiety among women. Senior students experienced greater stress, potentially because of cumulative academic demands and clinical responsibilities. (22) These findings emphasize the importance of considering demographic and academic characteristics when developing student-support and stress-management programmes.

Spearman's correlation analysis demonstrated that higher perceived stress was associated with greater depressive and anxiety symptom burden, including PHQ-2, GAD-2, and PHQ-4 scores. The weak-to-moderate positive correlations indicate that perceived stress and psychological distress are related but represent overlapping rather than identical constructs. The PSS-10 measures perceived stress, whereas the PHQ-4 provides a brief assessment of psychological distress through anxiety and depression components. (23) The modest correlations further suggest that stress among Pharm D students is multidimensional and cannot be explained by a single factor.

Strong correlations among individual stress domains and between each domain and the composite Associated Stress Factors (ASF-35) indicate that stressors tend to cluster. Academic or institutional difficulties may coexist with family, interpersonal, environmental or financial difficulties. These findings support multidimensional stress-management approaches rather than interventions targeting only one source of stress.

Moderate-to-high stress was observed across the measured domains with family-related responsibilities (FRRS) having the highest score. This highlights the potential contribution of family relationships and responsibilities to students' psychological burden. The Family Stress Model suggests that economic and family strain can contribute to psychological distress and interpersonal difficulties. (24) Elevated FRRS scores may reflect practical responsibilities as well as emotional and relational tensions. Conversely, supportive and cohesive family environments may buffer stress and promote well-being.

Stress was not limited to the family domain. Elevated scores across academic, interpersonal, workload, environmental and intrapersonal domains indicate a multifaceted stress environment. The Job Demands–Resources model suggests that stress may occur when demands exceed available resources. Similarly, interactions between everyday stressors and adaptive capacities may influence psychological functioning. Thus, the combined effects of family, academic, interpersonal, financial and environmental demands may create a cumulative burden affecting students' functioning.

Overall, 50% of participants reported no or low stress, 45% reported moderate stress, and 5% reported severe stress. Although severe stress affected a relatively small proportion, nearly half experienced moderate stress. Moderate stress may sometimes support motivation and adaptive functioning; however, persistent or severe stress may adversely affect psychological and physical health. Chronic psychological stress has also been associated with depression, anxiety and cardiovascular morbidity. (25) Therefore, although the relatively low proportion of severe stress is encouraging, the substantial proportion experiencing moderate stress warrants early identification, preventive support and appropriate stress-management interventions.

Limitations

The single-centre, cross-sectional design limits the generalizability of the findings and prevents causal inference. Convenience sampling may have introduced selection bias and further limited generalizability. The use of self-reported questionnaires may have resulted in reporting or response bias. Potential confounding factors, including family support, financial status and coping strategies, were not assessed. The study design does not allow assessment of changes in stress levels over time. Further multicentre and longitudinal studies are needed to validate and extend these findings.

CONCLUSION

The study revealed significant stress levels among Pharm D students, with multiple associated factors influencing their well-being and strong associations to academic progression. Stress was positively correlated with anxiety and depression, underscoring the need for early identification and intervention. Institutions should integrate mental health support, time management training and counseling services into academic programs. Strengthening coping strategies and fostering a supportive learning environment will improve student well-being, academic outcomes and professional readiness.

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Abbreviations

ACPE	Accreditation council of pharmacy Education
ASF	Associated stress factor
AWFRS	Academic workload and facilities -related stress
ETRS	Environmental and transport -related stress
FFRS	Family and friendship- related stress
FRRS	Financial resources related to stress
GAD	Generalized anxiety disorder
GAS	General Adaptation Syndrome
HRQOL	Health – related quality of life
IIRS	Institution and infrastructure – related stress
IQR	Inter quartile range
IRRS	Interpersonal / relationship – related stress
MHI	Mental Health Questionnaire
PARS	Physical Activity related stress
Pharm D	Doctor of pharmacy
PHQ	Patient Health Questionnaire
PSS	Perceived stress care
SHI	Study Habit Inventory
SPSS	Statistical package for social service
TTH	Tension -type Headache
WHOQOL	WHO quality of life scale

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Table 1: Test Cut-off Score for each Stress Category

Variables	Range	No or Normal	Low or Mild	Moderate	Severe
PSS-10	0 → 40	-	0 → 13	14 → 26	27 → 40
PHQ-4	0 → 12	0 → 2	3 → 5	6 → 8	9 → 12
Stress Factors	0 → 20	0 → 4	5 → 9	10 → 14	15 → 20
Total Stress Factors	0 → 140	0 → 34	35 → 69	70 → 104	105 → 140
Total Stress Score	0 → 192	-	48 → 95	96 → 144	145 → 192

Table 2: Sociodemographic Characteristics (N = 144)

Variables	N (%)
Age in years	
18-20	73 (51)
21-22	33 (23)
23-24	38 (26)
Gender	
Male	26 (18)
Female	118 (82)
Religion	
Hindu	114 (80)
Muslim	15 (10)
Chrisitan	15 (10)
Year of study	
1st year	31 (22)
2nd year	28 (19)
3rd year	24 (17)
4th year	12 (8)
5th year	25 (17)
6th year	24 (17)
Marital status	
Single	131 (90)
Married	5 (4)
In relationship	8 (6)
Native Location	
City	81 (56)
Town	43 (30)
Rural	20 (14)

Note: Variables such as family history of stress, alcohol use, and smoking were excluded from the analysis due to minimal representation in the sample.

Table 3: Stress Categories (PSS-10) and Sociodemographic Characteristics among Participants (N = 144)

Variables (N=144)	N (%)	Normal	Mild	Moderate	Severe	P value
Age in years						
19-20	73 (51)	23 (32)	28 (38)	17 (23)	5 (7)	

21-22	33 (23)	7 (21)	11 (33)	9 (27)	6 (18)	.06
23-24	38 (26)	5 (13)	11 (29)	18 (47)	4 (11)	
Gender						
Male	26 (18)	7 (27)	11 (42)	7 (27)	1 (4)	.56
Female	118(82)	28 (24)	39 (33)	37 (31)	14(12)	
Religion						
Hindu	114(80)	32 (28)	40 (35)	33 (29)	9 (8)	.001*
Muslim	15 (10)	1 (7)	5 (33)	9 (60)	0 (0)	
Chrisitan	15 (10)	2 (13)	5(33)	2 (13)	6 (40)	
Level of study						
Pharm D	136(94)	34 (25)	48 (35)	39 (29)	15 (11)	.22
Pharm D (PB)	8 (6)	1 (13)	2 (25)	5 (62)	0 (0)	
Year of study						
1 year	31 (22)	8 (26)	8 (26)	11 (35)	4 (13)	.008*
2 year	28 (19)	11 (39)	13 (46)	3 (11)	1 (4)	
3year	24 (17)	8 (33)	13 (54)	3 (13)	0 (0)	
4 year	12 (8)	3 (25)	4 (33)	4 (33)	1 (8)	
5 year	25 (17)	3 (12)	6 (24)	11 (44)	5 (20)	
6 year	24 (17)	2 (8)	6 (25)	12 (50)	4 (17)	
Marital status						
Single	131(90)	32 (24)	46 (35)	39 (30)	14 (11)	.70
Married	5 (4)	1 (20)	3 (60)	1 (20)	0 (0)	
In relationship	8 (6)	2 (25)	1 (13)	4 (50)	1 (12)	
Native Location						
City	81 (56)	17 (21)	29 (36)	25 (31)	10(12)	.82
Town	43 (30)	12 (28)	14 (33)	14 (33)	3 (7)	
Rural	20 (14)	6 (30)	7 (35)	5 (25)	2 (10)	

* Chi square test, P <.05 is statistically significant

Table 4: Stress Categories (PHQ-2) of Study Participants

Variables	N (%)	Depression (PHQ-2)		p value	Anxiety (GAD-2)		p value
		Negative	Positive		Negative	Positive	
Age in years							
19-20	73 (51)	47 (64)	26 (36)	.19	45 (62)	28 (38)	.03*
21-22	33 (23)	16 (48)	17 (52)		12 (36)	21 (64)	
23-24	38 (26)	19 (50)	19 (50)		16 (42)	22 (58)	
Gender							
Male	26 (18)	17 (65)	9 (35)	.34	15 (58)	11 (42)	.43
Female	118(82)	65 (55)	53 (45)		58 (49)	60 (51)	
Religion							
Hindu	114(80)	72 (63)	42 (37)	.01*	62 (54)	52 (46)	.21
Muslim	15 (10)	5 (33)	10 (67)		6 (40)	9 (60)	
Chrisitan	15 (10)	5 (33)	10 (67)		5 (33)	10 (67)	
Level of study							
Pharm D	136(94)	79 (58)	57 (42)	.25	71 (52)	65 (48)	.14
Pharm D (PB)	8 (6)	3 (38)	5 (62)		2 (25)	6 (75)	
Year of study							
1 year	31 (22)	17 (55)	14 (45)		11 (35)	20 (65)	

2 year	28 (19)	22 (79)	6 (21)		21 (75)	7 (25)	
3year	24 (17)	19 (79)	5 (21)		17 (71)	7 (29)	
4 year	12 (8)	7 (58)	5 (42)	.001*	5 (42)	7 (58)	.005*
5 year	25 (17)	8 (32)	17 (68)		9 (36)	16 (34)	
6 year	24 (17)	9 (38)	15 (62)		10 (42)	14 (58)	
Marital status							
Single	131(90)	73 (56)	58 (44)		66 (50)	65 (50)	
Married	5 (4)	4 (80)	1 (20)	.53	3 (60)	2 (40)	.91
In relationship	8 (6)	5 (62)	3 (38)		4 (50)	4 (50)	
Native Location							
City	81 (56)	45 (56)	36 (44)		36 (44)	45 (56)	
Town	43 (30)	24 (56)	19 (44)	.74	24 (56)	19 (44)	.19
Rural	20 (14)	13 (65)	7 (35)		13 (65)	7 (35)	

*Pearsons Chi square test; p < .05 is significant

Table 5: Response towards the Factors associated with stress among the study population (N = 144)

Variables	N (%)	Stress Score M (SD)	Stress Level				p value
			Normal	Low	Moderate	High	
Age in years							
19-20	73 (51)	2.45 (.87)	9 (12)	31 (42)	24 (33)	9 (12)	.07
21-22	33 (23)	2.67 (.78)	2 (6)	11 (33)	16 (48)	4 (12)	
23-24	38 (26)	2.74 (.72)	1 (3)	13 (34)	19 (50)	5 (13)	
Gender							
Male	26 (18)	2.19 (.80)	5 (19)	12 (46)	8 (31)	1 (4)	.008*
Female	118 (82)	2.66 (.80)	7 (6)	43 (36)	51 (43)	17 (14)	
Religion							
Hindu	114 (80)	2.49 (.77)	10 (9)	47 (41)	48 (42)	9 (8)	.03*
Muslim	15 (10)	2.93 (.70)	0 (0)	4 (27)	8 (53)	3 (20)	
Chrisitan	15 (10)	2.87 (1.12)	2 (13)	4 (27)	3 (20)	6 (40)	
Level of study							
Pharm D	136 (94)	2.92 (.91)	12 (9)	52 (38)	56 (41)	16 (12)	.29
*Pharm D (PB)	8 (6)	-	0 (0)	3 (38)	3 (38)	2 (24)	
Year of study							
1 year	31 (22)	2.67 (1.03)	1 (3)	15 (48)	10 (32)	5 (16)	.03*
2 year	28 (19)	2.50 (.58)	5 (18)	9 (32)	11 (39)	3 (11)	
3year	24 (17)	2.50 (2.12)	5 (21)	11 (46)	6 (25)	2 (8)	
4 year	12 (8)	2.58 (.58)	0 (0)	3 (25)	7 (58)	2 (17)	
5 year	25 (17)	2.40 (.55)	0 (0)	10 (40)	15 (60)	0 (0)	
6 year	24 (17)	3.33 (082)	1 (4)	7 (29)	10 (42)	6 (25)	
Marital status							
Single	131 (90)	2.84 (.90)	11 (8)	51 (39)	54 (41)	15(11)	.69
Married	5 (4)	-	0 (0)	1 (20)	2 (40)	2 (40)	
In relationship	8 (6)	-	1 (13)	3 (37)	3 (37)	1 (13)	
Native Location							
City	81 (56)	3.00 (.88)	7 (9)	29 (36)	32 (40)	13 (15)	.21
Town	43 (30)	2.57 (.98)	3 (7)	17 (40)	18 (42)	5 (11)	

Rural 20 (14) - 2 (10) 9 (45) 9 (45) 0 (0)

*Pearsons Chi square test; p < .05 is significant

Table 6: Correlation Matrix of each measured variables in Self-rated Perceived Stress and Related Stress Factors (N=144)

No.	Variables	M(IQR)	1	2	3	4	5	6	7	8	9	10	11	12
1.	PSS-10	19 (7)	1											
2.	PHQ-2	2 (2)	.492**	1										
3.	CAD-2	2 (3)	.438**	.584**	1									
4.	PHQ-4_	5 (4)	.526**	.884**	.891*	1								
5.	PAR	10 (5.75)	.273**	.279**	.184*	.263*	1							
6.	IRR	8.5 (7)	.277**	.267**	.170*	.254*	.405**	1						
7.	FFR	10 (6.75)	.207*	.246**	.171*	.237*	.506**	.682**	1					
8.	IIR	10 (5)	.194*	.176*	.104	.160	.454**	.639**	.723*	1				
9.	AWFR	10 (5.75)	.259**	.128	.105	.129	.432**	.518**	.714*	.685*	1			
10.	ETR	10 (7)	.212*	.182*	.097	.159	.292**	.489**	.657*	.653*	.760*	1		
11.	FRR	12 (8)	.220**	.123	.092	.118	.377**	.411**	.645*	.631*	.681*	.713**	1	
12.	ASF-35	71.5 (31.8)	.279**	.232**	.139	.210*	.596**	.716**	.879*	.846*	.849*	.819**	.806*	1

*Correlation is significant at the .05 level (2-tailed); **Correlation is significant at the .01 level (2-tailed).

PAR- Physical Activity-Related stress; IRR- Interpersonal / Relationships-Related stress; FFR- Family & Friendships-Related stress; IIR- Institution & Infrastructure-Related stress; AWFR- Academic Workload & Facilities -Related stress; ETR- Environmental and Transport-Related stress; FRR- Financial Resources-Related stress. ASF – Associated Stress Factor.

Table 7: The Overall Total Perceived Stress Outcomes of the study Participants (N = 144)

Variable	Items	Mean (SD)	Median (IQR)	Range	χ ²	*P value
PSS-10	10	19.63±5.23	19 (7)	5→32	73.01	< .001
PHQ-4	4	4.83±2.78	5 (4)	0→12	47.03	< .001
PHQ-2	2	2.31±1.57	2 (2)	0→6	33.24	< .001
CAD-2	2	2.52±1.56	2 (3)	0→6	32.26	< .001
Stress Factors						
PARS	5	10.62±3.83	10 (5.75)	0→20	89.33	< .001
IPRS	5	8.53±4.67	8.5 (7)	0→20	51.83	< .001
FFRS	5	10.28±4.65	10 (6.75)	0→20	81.17	< .001
IIRS	5	10.52±4.38	10 (5)	0→20	63.96	< .001
AWLRS	5	10.17±4.49	10 (5.75)	0→20	62.94	< .001

ETRS	5	10.27±4.92	10 (7)	0→20	74.24	< .001
FRRS	5	11.83±5.03	12 (8)	0→20	32.67	.026
Total Stress Factor-35	35	72.23±26.21	71.5 (31.75)	5→140	36.92	-
Overall Stress Scores	49	96.69 ±29.45	95.5 (33)	23 → 168	62.35	

*Chi Square Test; p < .05 is significant

Table 8: The Overall Total Perceived Stress levels of the Participants

Stress Level	N (%)	Mdn (IQR)	Mean (SD)	Range	χ^2	*P value
No or Low Stress	72 (50)					
Moderate stress	65 (45)	95.5 (33)	96.69 (29.45)	23 → 168	53.04	< .001
Severe Stress	7 (5)					

*Pearsons Chi square test; P < .05 is significant