



Original Article



Factors Associated with Academic Burnout and Its Prevalence among Nursing Students in Karachi, Pakistan

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ARTICLE INFO

Keywords:

Burnout, Psychological, Students, Nursing, Prevalence

How to Cite:

Watt, J., Dilshad, N., Mohsin, T., James, A., Sarwar, S., Bashir, A., & Pervaiz, V. (2026). Factors Associated with Academic Burnout and Its Prevalence among Nursing Students in Karachi, Pakistan: Factors Associated with Academic Burnout and Its Prevalence among Nursing. NURSEARCHER (Journal of Nursing & Midwifery Sciences), 6(2), 22-27. <https://doi.org/10.54393/nrs.v6i2.241>

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Received Date: 7th May, 20261st Revision Received: 21st May, 20262nd Revision Received: 4th June, 2026Acceptance Date: 23rd June, 2026Published Date: 30th June, 2026

ABSTRACT

There are many concerns regarding academic burnout among nursing students worldwide, including their academic performance, mental health, and future professional competency. Nursing education is a rigorous program that involves both classroom and clinical practice, which increases students' risk. But there is limited information regarding the prevalence of academic burnout among nursing students in Pakistan. **Objectives:** To find the prevalence of academic burnout and its relationship with sociodemographic factors among nursing students in Karachi, Pakistan. **Methods:** The study design was analytical cross sectional and the duration of the study was from February to April 2026, during which 194 nursing students from two nursing institutes of Karachi were selected as subjects. The convenience sampling method was used for selecting participants. The validated Oldenburg Burnout Inventory-Student Version (OLBI-S) was used to gather data. Independent t-tests and ANOVA were used for statistical analysis. **Results:** Most students reported low (56.7%) and moderate (41.2%) levels of academic burnout, with a small minority (2.1%) reporting high academic burnout. There was a significant correlation between family income and burnout scores ($p=0.017$), with lower-income families having higher burnout scores. There were no significant associations between age, gender, marital status, academic year, family type, place of residence, or substance abuse. **Conclusions:** Stress management workshops and financial assistance schemes should be developed in nursing institutions specifically. Longitudinal studies are recommended for research to investigate causal relationships and the effectiveness of interventions.

INTRODUCTION

Academic burnout is a psychological syndrome characterized by emotional exhaustion, cynicism toward academic work, and reduced academic efficacy resulting from prolonged exposure to academic stressors and demands [1, 2]. Unlike occupational burnout, which occurs in workplace settings and is typically assessed using instruments such as the Maslach Burnout Inventory (MBI) designed for human service professionals [3], academic burnout specifically refers to the experience of burnout within educational environments [4]. It manifests as feelings of depletion in the academic context, depersonalization or disengagement from academic

activities, and a diminished sense of academic accomplishment [2, 4]. Maslach and colleagues conceptualized academic burnout as an adaptation of the occupational burnout framework to the student population, distinguishing it from workplace burnout by its focus on academic rather than professional demands [3, 5]. While occupational burnout develops from chronic workplace stress, academic burnout stems from sustained academic pressure, including examination stress, heavy coursework, clinical training demands, and the emotional labor associated with healthcare education [6, 7]. Academic burnout is particularly problematic among



nursing students due to the complex combination of theoretical study, demanding clinical experiences, and the emotionally challenging nature of healthcare education [7, 8]. Nursing students face a dual burden: they must master rigorous academic curricula while simultaneously developing clinical competencies in high-stress healthcare environments [9, 10]. This unique combination of stressors places nursing students at elevated risk for burnout compared to students in other disciplines [11]. Globally, the prevalence of academic burnout among nursing students varies considerably depending on cultural context, educational systems, measurement instruments, and the cutoff values employed across studies [8, 12]. A systematic review and meta-analysis of 34 studies ($n = 9,554$ students) reported a pooled prevalence of academic burnout of 35% (95% CI: 24%–47%; $n=23$ studies), with the highest prevalence (58%) observed in Asia [13]. The same meta-analysis found that the prevalence of academic burnout among undergraduate nursing students in China was 57.5% [13]. European studies have also documented substantial prevalence rates; a systematic review of health sciences students in Spain reported a mean burnout prevalence of 35.3% [14], with emotional exhaustion identified as the most prevalent dimension [15]. Studies from South Korea and Iran have reported moderate to high levels of academic burnout among nursing students [16, 17]. Common contributing factors identified across these studies include academic workload, clinical training intensity, perfectionism, and financial difficulties [13, 16]. The COVID-19 pandemic further exacerbated these trends, with studies reporting that 37.8% to 50% of nursing students experienced high levels of burnout during the pandemic period, driven by emotional exhaustion, depersonalization, and pandemic-related stressors [18, 19]. The pandemic context highlighted the critical role of resilience as a protective factor against burnout [20].

Despite the growing recognition of academic burnout as a significant concern in nursing education globally, several critical knowledge gaps persist in the Pakistani context. First, no comprehensive prevalence data specifically for academic burnout among nursing students in Karachi—Pakistan's largest city and a major hub for nursing education—currently exist. Karachi hosts multiple public and private nursing institutions training a substantial proportion of the country's future nursing workforce, yet the burden of academic burnout in this population remains unquantified. Second, the sociodemographic and educational factors associated with academic burnout in the Pakistani nursing student population have not been systematically examined using validated instruments. Given these gaps, this study was designed to provide the first systematic assessment of academic burnout

prevalence and its sociodemographic correlates among nursing students in Karachi using a validated instrument. Specifically, this study aimed to: (1) determine the prevalence of academic burnout among nursing students in Karachi, and (2) examine the association between sociodemographic factors (age, gender, marital status, academic year, family type, residence, family income, and substance abuse) and academic burnout scores.

METHODS

An analytical cross-sectional study design was used to assess the associated factors of academic burnout among nursing students. Informed consent was obtained from all the participants. All data were kept confidential and securely stored at Jesus and Mary Institute of Nursing and Allied Sciences. The study was conducted among nursing students at Jesus and Mary IONAS and Male College of Nursing, Sindh Government Hospital, Liaquatabad, from February to April 2026. A convenience sampling technique was used to select participants who met the inclusion criteria. For this exploratory study, convenience sampling was used because of the limited time and resources. The selection was minimized by recruiting all nursing cohorts (years 2–4) in both institutions, and data collection was carried out on various days and times, with all students who were eligible being called through standard procedures. Sample size estimation was done using Open EPI software for a cross-sectional study, estimating a single population proportion. Based on existing literature on academic burnout prevalence among nursing students, the prevalence of academic burnout was estimated at 50% with a 95% confidence interval, 80% power, 5% margin of error, and an estimated population of 500 nursing students at the two participating institutions. This calculation resulted in the minimum number of participants to be 194. To ensure a high participation rate, questionnaires were sent to an extra 10% to bring the total sample to 213. To ensure a high participation rate, questionnaires were mailed to an additional 10% of the sample, thus totaling a sample of 213. The inclusion criteria were the students of nursing who were studying in the second, third, or fourth year at Jesus and Mary IONAS or the Male College of Nursing and were willing to give their informed consent and had knowledge of Urdu or English. Students who were 1st year students (because of limited clinical exposure and adaptation problems), students who were on academic leave during the data collection period, students who self-reported diagnosed psychiatric disorders that required active medication and/or treatment, and students who had been treated or intervened with formally on their psychiatric burnout were excluded. First-year students were not included as they have less clinical exposure and may not have burnout patterns as seen by more advanced

students [9]. Excluding first-year students removes the critical baseline comparator group needed to understand burnout trajectory development across nursing education. This exclusion artificially inflates prevalence estimates and prevents identification of early intervention windows. Including all academic years would enable more comprehensive understanding of burnout progression patterns. Their inclusion might introduce stress factors unrelated to adaptation and so affect the focused assessment of the burnout in students with significant academic and clinical load, thereby muddying the waters on the results. To avoid the problem of those who have limited clinical exposure due to their being first-year students, who may not have burnout patterns of more advanced students [9], they were excluded. Their inclusion might bias the results and mix adaptation-related stress with academic burnout and reduce the ability to measure academic burnout in students who have had significant academic and clinical demands. Self-reports of substance use were evaluated with one question: "Do you use any drugs (tobacco, alcohol, marijuana, and other drugs)? This variable was not intended as a primary outcome measure, but was collected as a potential confounder; the participants who selected any substance were coded "Yes" for substance abuse, and those who selected "None of the above" were coded "No" for substance abuse. The total OLBI-S score was 42.58 ± 4.712 , indicating a low level of burnout, while the exhaustion and disengagement subscales scored 21.64 ± 3.104 and 20.94 ± 2.742 , respectively. The total scores ranged from 16 to 64; most ($n = 186$, 95.9%) were in the low to moderate burnout scores. A total of 213 nursing students were approached for participation, and of those, 198 (93.0%) consented and were enrolled in the study. Four participants were dropped because questionnaires were not completed (20% or more missing data), leaving 194 participants for analysis. The effective response rate was 91.1% (194/213). Available information did not show any significant differences between the responders and non-responders about academic year, age and gender. The specific recruitment and data collection of the participants took place in these three months, in the mid-to-late part of the school semester. The arbitrary tertile-based cut-off values lack established psychometric validation and create artificial categorization without normative data support. This methodological weakness compromises the study's prevalence estimates and cross-study comparability. Standardized OLBI-S cut-off scores from validation studies should be applied rather than sample-derived tertiles. This approach is consistent with previous applications of the OLBI-S in student populations, where tertile-based categorization has been used to distinguish between low, moderate, and high levels of academic

burnout. These cut-off values demonstrated acceptable discrimination between students with varying levels of burnout symptoms.

Data were collected using an Oldenburg burnout scale, a validated 16-item self-report questionnaire designed to assess academic burnout. The Cronbach alpha value was above 0.80. Cronbach's alpha for the OLBI-S total scale was 0.86, with subscale values of 0.81 (exhaustion) and 0.78 (disengagement), confirming good internal consistency and reliability for use in the Pakistani nursing student population. Data was analyzed using SPSS version 25. Descriptive statistics were used to summarize demographic information. Independent T-Test and ANOVA were applied to analyze the data.

RESULTS

With respect to age, most individuals belong to the age bracket of 18-22 years (49.5%), with others being 23-27 years (47.9%), and the smallest percentage of people belong to those above 28 years old (2.6%). The sample demonstrates severe gender imbalance with 87.1% male participants, severely limiting generalizability to the predominantly female nursing profession in Pakistan. Future studies must employ stratified sampling to achieve representative gender distribution across all nursing institutions. This imbalance introduces significant selection bias that undermines the validity of gender-related findings and external validity. As for marital status, the majority of people (89.2%) are unmarried; (9.8%) are married, and the remaining (1.0%) fall under the category of "Others". The academic years of respondents consist of the following: Year 2 (57.2%), Year 3 (16.5%), and Year 4 (26.3%). The majority of people have a nuclear family background (54.6%), and 45.4% come from an extended family background. About residence, most people stay with their families (68.0%); some stay in hostels (18.6%), and others with their friends (13.4%). On the other hand, family income levels differ since some earn below 50,000 (1.5%), 50,000-100,000 (46.9%), 100,000 – 200,000 (41.2%), and above 200,000 (10.3%). The substance abuse was found to be 8.8% among participants (Table 1).

Table 1: Sociodemographic (n=194)

Socio-Demographic Variables	Characteristics	n (%)
Age	18-22	96 (49.5%)
	23-27	93 (47.9%)
	28-Above	5 (2.6%)
Gender	Male	169 (87.1%)
	Female	25 (12.9%)
Marital Status	Married	19 (9.8%)
	Unmarried	173 (89.2%)
	Others	2 (1.0%)
Academic Year	First Year	0 (0%)

	Second Year	111(57.2%)
	Third Year	32 (16.5%)
	Fourth Year	51(26.3%)
Family	Extended	88(45.4%)
	Nuclear	106(54.6%)
Residence	Family	132(68.0%)
	Friends	26(13.4%)
	Hostel	36(18.6%)
Family Income	Below 50K	3(1.5%)
	50K-100K	91(46.9%)
	100K-200K	80(41.2%)
	Above 200K	20(10.3%)
Substance Abuse	Yes	17(8.8%)
	No	177(91.2%)

The Oldenburg Burnout Inventory-Student Version (OLBI-S) categorizes academic burnout into three levels based on total scores: low (below 43), moderate (44-51), and high (above 52). Table 2 presents the distribution of participants across these burnout categories, showing that the majority of nursing students (56.7%) fell into the low burnout category, followed by moderate (41.2%) and high (2.1%) burnout levels (Table 2).

Table 2: Level of Burnout

Level of Burnout	Percentage	Scores Obtained
High Classroom Burnout	2.1%	Above 52
Moderate Classroom Burnout	41.2%	44 – 51
Low Classroom Burnout	56.7%	Below 43

This study showed the outcome of the association between demographic variables and academic burnout. There is no significant association of age group with academic burnout ($p=0.063$). Gender does not present any significance ($p=0.565$), nor is marital status significantly different ($p=0.733$). Furthermore, the academic year also does not present itself to be a significant variable ($p=0.212$). Residence type fails to present any significant relationship with burnout score ($p=0.232$). Family type does not present any significance ($p=0.620$). Substance abuse also does not show any significance ($p=0.903$). The only significant association was found between family income and academic burnout ($p=0.017$) (Table 3).

Table 3: Association of Demographic Variables with Burnout Level Score

Variables	Mean ± SD	N	p-value
Age			
18-22	42.51 ± 4.851	96	0.063
23-27	42.67 ± 4.571	93	
28-Above	42.00 ± 5.568	5	
Gender			
Male	42.50 ± 4.720	169	0.565
Female	43.08 ± 4.725	25	

Marital Status			
Married	41.84 ± 5.069	19	0.733
Unmarried	42.66 ± 4.691	173	
Others	41.50 ± 4.950	2	
Degree Year			
Second Year	42.06 ± 4.627	111	0.212
Third Year	43.06 ± 3.885	32	
Fourth Year	43.37 ± 5.280	51	
Family			
Extended	42.76 ± 4.092	88	0.620
Nuclear	42.42 ± 5.176	106	
Residence			
Family	42.20 ± 4.480	132	0.232
Friends	43.81 ± 5.076	26	
Hostel	43.03 ± 5.202	36	
Family Income			
Below 50K	47.67 ± 3.215	3	0.017*
50K-100K	42.55 ± 4.480	91	
100K-200K	43.04 ± 4.259	80	
Above 200K	40.05 ± 6.501	20	
Substance Abuse			
Yes	42.71 ± 5.531	17	0.903
No	42.56 ± 4.644	177	

Post-hoc analysis revealed that students from the lowest income group (Below 50K; mean = 47.67) had significantly higher burnout scores compared to those from the highest income group (Above 200K; mean = 40.05), with a mean difference of 7.62 ($p=0.023$, 95% CI: 1.23 to 14.01). No other pairwise comparisons reached statistical significance, indicating that the overall significant ANOVA result was primarily driven by the difference between the extreme ends of the income distribution. The effect size ($\eta^2 = 0.048$) suggests a small-to-moderate effect of family income on academic burnout scores (Table 4).

Table 4: Post-Hoc Comparisons Using Tukey's HSD Test for Family Income Groups

Comparison Group	Mean Difference	95% CI	p-value
Below 50K vs. Above 200K	7.62	1.23 to 14.01	0.023*
Below 50K vs. 50K-100K	5.12	-2.01 to 12.25	0.238
Below 50K vs. 100K-200K	4.63	-2.48 to 11.74	0.315
50K-100K vs. Above 200K	2.50	-1.92 to 6.92	0.452
50K-100K vs. 100K-200K	0.49	-2.14 to 3.12	0.958
100K-200K vs. Above 200K	2.99	-1.88 to 7.86	0.382

*Significant at $p < 0.050$

DISCUSSION

This study finds a surprising paradox in the burnout landscape: although the severe burnout group is quite small (2.1%), the large group of individuals in the moderate range (41.2%) indicates a vulnerability that could further develop in the event of further pressure. This is similar to the general trend observed by Xu et al. who found that

clinical burnout tends to be mediated by contextual coping resources [4]. A low rate of high burnout, however, does not match with studies from the COVID era, such as the one conducted by Baudewyns *et al.* which is probably attributable to the changes in the daily routine accompanied by an adaptation and resilience achieved after the pandemic through intense clinical exposure [7]. However, the moderate group (41.2%) cannot be ignored because they may become emotionally exhausted and cynical about the profession and ultimately end up with poor quality of patient care after graduation [2, 13]. The most important result is the high positive correlation between low family income and high burnout scores ($p=0.017$) with a mean difference of 7.62. The socioeconomic context is critical in Pakistan because the costs of education have to be paid out of pocket, leaving the family in a precarious situation and leading to increased cognitive load and decreased recovery time [17]. Stress talk to targeted institutional support (such as scholarships, emergency bursaries, training clinical preceptors to be sensitive to stress, etc.), and the Pakistan Nursing Council needs to create a standardised stipend that would avoid financial burdens. The lack of any association with age, gender, year or residence contrasts with findings from studies conducted in other countries [6, 18], suggesting that cultural and contextual factors may influence the relationship between sociodemographic variables and academic burnout. This is probably due to demographic homogeneity: there are 87.1% males and 97.4% aged 18–27, which leads to a severely reduced variance and increases the risk of a Type II error. The male predominance results in a selection bias, and subtle differences may be overshadowed by an omnipresent stressor, such as sociocultural stigmatization of masculine caregiving in Pakistan [19]. Further, excluding first-year students removed the 'transition shock' period, during which year-related differences tend to be largest [9], and the lack of substance abuse finding ($p=0.903$) may have been influenced by social desirability bias of underreporting rather than a lack of maladaptive coping [11].

Several limitations should be noted, such as the cross-sectional design, which does not allow for conclusions regarding causality; convenience sampling, which limits external validity; the relative lack of balance in the male-female sample size, which limits generalizability; and the lack of multivariable regression, thus neglecting the possibility of confounding variables. Additional studies are needed to determine the temporal precedence with longitudinal panel designs, to have a balanced gender distribution across provinces in the probability samples, and to use mixed methods to contextualize quantitative scores. More importantly, intervention trials testing the cost-effectiveness of financial aid programs, on-campus mental health hubs, and culturally adapted stress-

reduction interventions (such as mindfulness integrated with Islamic practices) are much needed, as well as advanced structural equation modeling for exploring mediating pathways and the development of predictive risk models for early targeted support.

CONCLUSIONS

The study concluded that most nursing students experienced low to moderate levels of academic burnout. A significant association was found between family income and burnout. It is recommended that institutions provide academic support programs, stress management workshops, and counseling services for nursing students. Financial and psychological support systems should also be strengthened to reduce burnout levels.

Authors' Contribution

Conceptualization: JWN D

Methodology: JW, ND

Formal analysis: JW, TM, AJ, SS

Writing and Drafting: JW, TM, AB, VP

Review and Editing: JW, ND, TM, AJ, SS, AB, VP

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflicts of Interest

All the authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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