

COMPARATIVE ANALYSIS OF ANNUAL AND SEMESTER BASED ACADEMIC OUTCOMES AND PERCEIVED STRESS AMONG NURSING STUDENTS AT SHAHIDA ISLAM NURSING COLLEGE LODHRAN

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ABSTRACT

Background: Academic assessment systems influence nursing students' learning, performance, and well-being. At the University of Health Sciences (SINC), Pakistan, both annual and semester examination systems are implemented. The semester system emphasizes continuous assessment and frequent feedback, whereas the annual system relies on end-of-year summative evaluations. Limited evidence exists on their comparative impact on academic outcomes, stress, and coping strategies among nursing students.

Objective: To compare academic performance and perceived stress among nursing students enrolled in annual and semester systems at SINC-affiliated institutions.

Methods: A comparative analytical study was conducted at Shahida Islam Nursing College, Lodhran, with 60 BSc Nursing students (30 annual-system, 30 semester-system). Stratified random sampling was used. Data were collected via a structured questionnaire comprising demographics, the Perceived Stress Scale (PSS-10), and Brief COPE inventory. Academic performance was measured through GPA and examination results. Data were analyzed using SPSS 26.0, with t-tests and chi-square tests applied ($p < 0.05$).

Results: Semester-system students showed higher academic performance than annual-system students (Mean GPA 73.99 ± 2.71 vs 69.87 ± 2.52). An independent samples t-test indicated that this difference was statistically significant ($t = -6.10$, $df = 58$, $p < 0.001$). Perceived stress was also significantly higher among semester students ($p = 0.039$). Most participants reported moderate stress, and the majority were female nursing students aged 21–25 years.

Conclusion: The type of academic system affects students' psychological well-being rather than overall performance. Continuous assessment in the semester system may enhance GPA but increases stress. Hybrid models, stress management interventions, and faculty support are recommended to balance academic rigor and student well-being.

Keywords: Nursing students, academic performance, GPA, stress, coping strategies, annual system, semester system, SINC, Pakistan.

INTRODUCTION

In modern higher education, academic institutions worldwide have shifted from traditional annual examination systems to more dynamic semester-based models designed to enhance learning quality, evaluation consistency, and student performance. The semester system emphasizes continuous assessment, active learning, and ongoing feedback that collectively promote deeper understanding and skill development (Perveen and Saeed 2014). Conversely, the annual system relies on end-of-year summative examinations, which often focus on rote memorization rather than conceptual learning (Yousaf and Hashim 2012).

In nursing education, where competency, critical reasoning, and clinical decision-making are vital, the structure of academic assessment holds immense significance (Saini, Kalra et al. 2025). The University of Health Sciences (SINC), Lahore, supervises numerous nursing institutions across Punjab that operate under either the annual or semester system. This dual approach has raised concerns about consistency in academic outcomes, student learning experience, and professional preparedness.

Despite the implementation of both systems under SINC, there is insufficient empirical evidence identifying which structure annual or semester produces better academic outcomes and learning satisfaction among nursing students. Some scholars argue that semester systems encourage consistent study habits and timely evaluation (Sophia, Jiji et al. 2025)(Akhund 2021), whereas others contend that frequent assessments can increase workload and psychological stress (Haque, Mansoor et al. 2022). This inconsistency poses a significant challenge for policymakers and educators in standardizing the optimal framework for nursing education under SINC.

There remains a clear gap in empirical data analyzing the comparative effectiveness of annual and semester systems specifically among nursing students enrolled under SINC-affiliated institutions. While general medical education studies (Akhund 2021)(Munawar, Ahmed et al. 2025) provide partial evidence, there is no conclusive research that evaluates how assessment models impact academic performance, burnout

levels, or satisfaction in SINC nursing programs. This lack of standardized data has created uncertainty for administrators aiming to improve the quality and consistency of nursing education in Punjab (Zeb 2020)(Abbasi and Zenooz 2025).

LITERATURE REVIEW

Globally, academic reforms in higher education have increasingly favored the semester system over the traditional annual system to enhance learner centered education and academic quality. The semester system emphasizes continuous assessment, modular content delivery, and shorter evaluation cycles, while the annual system traditionally depends on terminal examinations with limited formative feedback (Perveen and Saeed 2014). This shift aligns with broader international trends advocating for educational models that promote active learning, frequent feedback, and improved knowledge retention (Yousaf and Hashim 2012).

In nursing education where competency, clinical reasoning, and reflective practice are essential assessment methods profoundly influence students' learning behaviors and motivation (Saini, Kalra et al. 2025). Theoretical underpinnings from constructivism and self regulated learning suggest that frequent evaluative opportunities foster deeper understanding and greater self awareness in learners, which are central to professional practice (Terosky and Conway 2020).

A growing body of research has compared semester and annual examination systems across health-related disciplines. (Akhund 2021) reported that medical students under semester systems demonstrated superior conceptual understanding and continuity in academic progress compared to their counterparts in annual systems. Complementary evidence from nursing suggests that while semester-based programs may increase workload and stress, they also enhance student engagement and outcomes (Sophia, Jiji et al. 2025). This heightened engagement may be linked with students' sustained contact with academic material, increasing opportunities for feedback and iterative learning.

Conversely, some studies have found minimal differences between the two systems. (Haque,

Mansoor et al. 2022) observed similar quality of life and academic outcomes among medical students in modular (semester) and annual systems, indicating that systemic factors beyond examination structures such as instructional design and institutional resources may moderate academic success.

In nursing contexts, (Saini, Kalra et al. 2025) highlighted that faculty and students perceive the semester system as more conducive to maintaining consistent academic standards and providing timely feedback, although they also acknowledged administrative strain and faculty workload challenges. (Zeb 2020) reinforced these findings, with students applauding transparent assessments in semester systems while educators raised concerns about grading pressure and time constraints.

Beyond the examination structure itself, numerous factors affect academic achievement in nursing programs. Workload, motivation, clinical exposure, and support systems have been identified as significant predictors of academic success (Bibi, Ahmed et al. 2022). Evidence suggests that nursing students' performance is not determined solely by summative scores but also by their capacity for self-regulated study, resilience under stress, and institutional support mechanisms.

Psychological factors such as stress, depression, and burnout further complicate academic outcomes. Recent research among student populations demonstrates high prevalence rates of psychological distress, which can adversely affect academic performance in health sciences students (Siddiqua, Hussain et al.). In nursing specifically, night-shift work, job stress, and burnout have been well documented among practicing nurses, reflecting how professional pressures may mirror academic stressors and influence learning (Majeed, Fatima et al. 2025).

Technological and lifestyle factors also intersect with academic achievement. For example, excessive smart phone dependency has been associated with lower academic performance among BSN students in Pakistan, demonstrating the interplay between modern behavior patterns and educational outcomes (Javaid, Bhatti et al. 2025).

Importantly, the theory practice gap recognized concern in nursing education challenges students to translate classroom knowledge into clinical competence. Research in South Punjab nursing colleges identifies this gap as a significant barrier to performance, underscoring how educational methods and evaluation systems must align with real world clinical expectations to be meaningful (Shafiq, Ali et al.).

METHODOLOGY

This comparative analytical study was conducted to assess and compare the academic performance of nursing students studying under the annual and semester systems in SINC-affiliated institutions. The study was carried out over a period of six months following the acceptance of the synopsis at Shahida Islam Nursing College, Lodhran, affiliated with the University of Health Sciences, Lahore, where both annual and semester systems are implemented in the BS Nursing program. The target population consisted of BS Nursing students enrolled at the college, and a total of 60 participants were included, comprising 30 students from the annual system and 30 from the semester system. The sample size was calculated using Yamane's Formula with a precision level of 0.05, which indicated that 60 participants were adequate for meaningful comparison. Stratified sampling was used to divide students into annual and semester groups, followed by convenience sampling within each stratum. Nursing students enrolled under SINC who had completed at least one academic year were included, while students with incomplete academic records or those on leave during data collection were excluded.

Data were collected using a structured, pretested questionnaire adapted from (Saini, Kalra et al. 2025), which included demographic information, the Perceived Stress Scale (PSS-10) to assess stress levels, and the Brief COPE Scale to assess coping strategies. Data collection was conducted in classroom settings after obtaining administrative permission and informed consent, ensuring confidentiality and voluntary participation. The independent variable was the type of academic system (annual or semester), while the dependent variable was academic performance measured

through GPA or marks. Data were analyzed using SPSS version 26.0, where descriptive statistics such as frequency and percentage were used to summarize demographic and academic data, and independent sample t-tests were applied to compare mean GPA and stress levels between the two groups. A p-value of less than 0.05 was considered statistically significant. Ethical considerations included obtaining written informed consent, maintaining confidentiality, ensuring voluntary participation, and allowing

participants the right to withdraw at any stage without penalty.

RESULTS

Demographic Characteristics of Participants

A total of 60 BSc Nursing students participated. Most were aged 21–25 years (52.5%), with 55% female and 45% male. Students were equally enrolled in annual (50%) and semester (50%) systems. Regarding living arrangements, 40% lived with family, 35% in hostels, and 25% with relatives; 55% belonged to joint families.

Table 1: Demographic Characteristics of Participants (n = 60)

Variable	Category	Frequency (n)	Percentage (%)
Age	17–20	18	29.5
	21–25	32	52.5
	26+	11	18.0
Gender	Male	27	45.0
	Female	33	55.0
Exam System	Annual	30	50.0
	Semester	30	50.0
Living Arrangement	Hostel	21	35.0
	With Family	24	40.0
	With Relatives	15	25.0
Family Type	Joint	33	55.0
	Nuclear	27	45.0
Parents Qualification	Secondary	19	31.7
	Higher Secondary	14	23.3
	Graduate	12	20.0
	Postgraduate	15	25.0
Parents Occupation	Government	40	66.7
	Private	3	5.0
	Self-employed	15	25.0
	Unemployed	2	3.3
Comorbidity	Present	36	60.0
	Absent	24	40.0

Parents' education: secondary (31.7%), higher secondary (23.3%), graduate (20%), postgraduate (25%). Parents' occupation: 66.7% government employees. 60% of students reported comorbidity in the family. Overall, participants were mostly young females from joint families with government-employed parents.

Perceived Stress Levels among Annual and Semester System Students

The Perceived Stress Scale (PSS-10) was used to measure stress levels among nursing students. Based on the total PSS score, participants were

categorized into low, moderate, and high stress levels.

The findings indicate differences in perceived stress between annual and semester system students. A higher proportion of semester system students experienced moderate to high stress levels, possibly due to continuous assessments, frequent examinations, and academic workload. In contrast, annual system students showed comparatively lower stress levels, although some students still reported moderate stress related to final examinations and academic expectations (Figure 01).

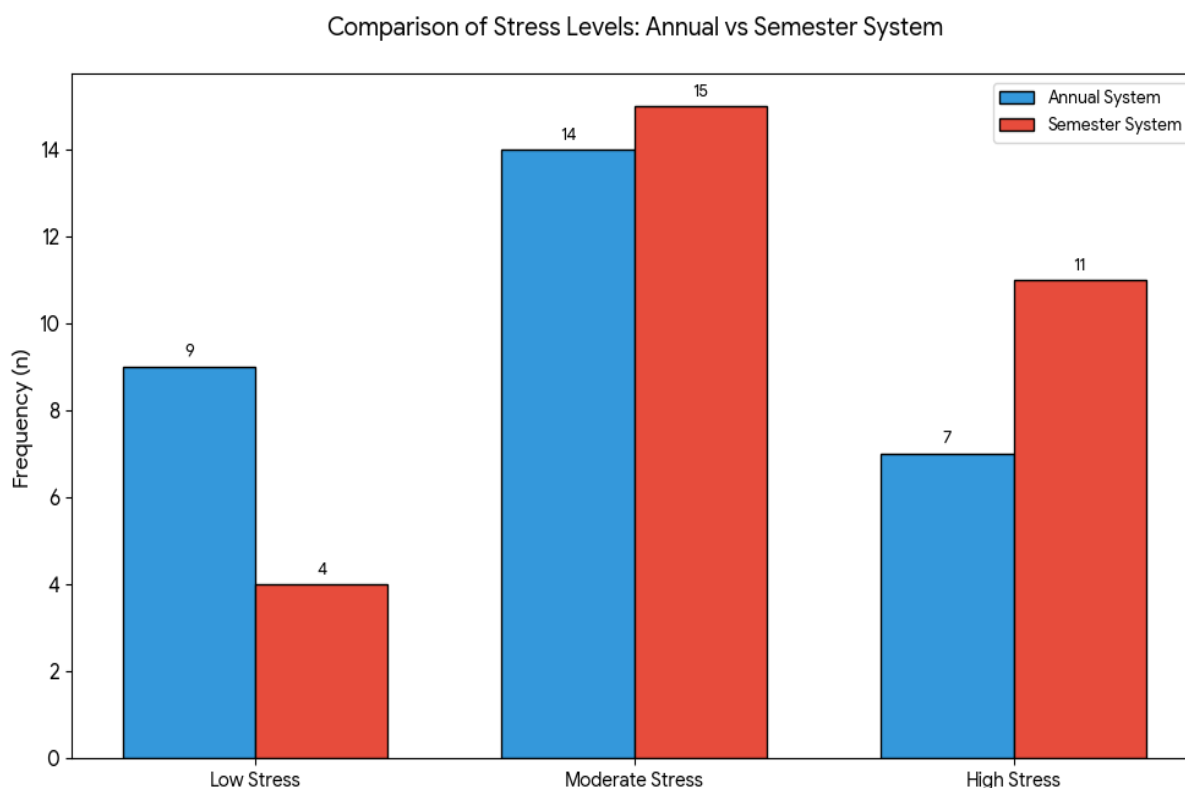


Figure 01: Stress Comparison of Annual and Semester Students

Overall, moderate stress was the most common category in both groups, but the semester system students reported slightly higher stress compared to annual system students.

Interpretation

36.7% of semester system students experienced high stress, compared with 23.3% of annual

system students. Meanwhile, low stress was more common among annual system students (30%) than semester system students (13.3%). These findings suggest that the semester examination system may be associated with higher perceived stress among nursing students.

Academic Performance (GPA) of Annual and Semester Students

The comparison of academic performance between annual and semester system students shows that semester students generally achieved slightly higher GPAs than their annual counterparts. Most semester students scored above 70%, with several exceeding 75%, reflecting the potential benefits of continuous assessment and frequent evaluations, which provide regular feedback and opportunities for improvement.

In contrast, annual system students demonstrated more stable GPAs, mostly ranging between 65% and 73%, indicating consistent performance but slightly lower scores on average. There are a few exceptions where annual students outperformed their semester peers, highlighting individual differences in exam preparation and coping strategies. Overall, while semester system students tend to perform better academically, this comes alongside higher perceived stress levels, suggesting a trade off between frequent assessment benefits and increased academic pressure.

Table 02: Comparison of Academic Performance Between Annual and Semester System Students (n = 30 per group)

A.Group Statistics

Examination System	N	Mean GPA (%)	Std. Deviation
Annual System	30	69.87	2.52
Semester System	30	73.99	2.71

B.Independent Samples t-Test

Variable	t value	df	Sig. (2-tailed)	Mean Difference
Academic Performance (GPA)	-6.10	58	0.001	-4.12

Interpretation:

An independent sample t-test was conducted to compare the academic performance of students studying under the annual and semester examination systems. The results showed that semester system students ($M = 73.99$, $SD = 2.71$) had a higher mean GPA compared to annual system students ($M = 69.87$, $SD = 2.52$). The difference in GPA between the two groups was statistically significant ($t = -6.10$, $p < 0.001$). This indicates that the type of examination system has a significant influence on students' academic performance.

Summary:

The findings indicate that students enrolled in the semester system perform better academically on average compared to those in the annual system. The continuous assessment approach in

the semester system may contribute to improved academic outcomes by providing frequent evaluation and feedback. However, previous findings in this study also suggest that semester system students experience higher perceived stress levels. Therefore, while the semester system may enhance academic performance, it may also increase academic pressure among students.

DISCUSSION:

The present study examined the relationship between examination systems (annual and semester) and the academic performance and perceived stress levels of nursing students at Shahida Islam Nursing College, affiliated with the University of Health Sciences (SINC). The findings provide valuable insights into how different academic assessment structures

influence students' academic outcomes and psychological well-being(Shad, Jamal et al.).

The results of the study revealed that semester-system students achieved significantly higher academic performance compared with annual-system students, as reflected in their higher mean GPA scores. This finding may be attributed to the continuous assessment structure of the semester system, which encourages regular study habits, timely feedback, and progressive evaluation of learning. Continuous assessment allows students to identify academic weaknesses earlier and improve their performance through repeated evaluation cycles. These findings are consistent with studies conducted by (Sophia, Jiji et al. 2025) and (Akhund 2021), who reported that semester-based assessment systems enhance conceptual understanding and academic engagement among health science students.

However, some previous studies have reported contrasting results. (Haque, Mansoor et al. 2022)found no significant difference in academic performance between students studying under annual and modular systems, suggesting that factors such as teaching quality, institutional resources, and student motivation may play a greater role in determining academic outcomes than the examination structure itself. Similarly, (Munawar, Ahmed et al. 2025) concluded that while modular or semester systems encourage continuous learning, they do not always translate into significantly higher academic scores. These contrasting findings indicate that the effectiveness of any examination system may depend largely on how it is implemented within the institutional environment(Ahmad, Arshad et al.).

A statistically significant difference was also observed in perceived stress levels between the two groups. Semester-system students reported significantly higher stress compared with students studying under the annual system ($p = 0.039$). This may be explained by the frequent assessments, assignments, quizzes, and examinations associated with the semester system, which increase academic workload and time pressure. Similar findings were reported by (Sophia, Jiji et al. 2025), who observed that nursing students enrolled in semester-based

programs experience higher levels of academic stress due to continuous evaluation and demanding academic schedules(John, Shafiq et al.).

Conversely, some studies suggest that semester systems may reduce stress by distributing academic workload throughout the year rather than concentrating it in a single final examination. For example, (Perveen and Saeed 2014) argued that semester-based assessment systems allow students to manage their workload more effectively and reduce the pressure associated with high-stakes final examinations. These contrasting perspectives highlight the complexity of academic stress and suggest that students' experiences may vary depending on institutional support systems and workload management strategies.

CONCLUSION

The study concluded that the semester system improves learning consistency but increases student stress, while the annual system reduces stress but limits continuous learning. Both systems have advantages and limitations. A balanced academic approach with proper student support is essential to improve academic performance and well-being.

LIMITATIONS

- i. The sample size was limited ($n = 60$) and drawn from a single institution, restricting generalizability.
- ii. Data were self-reported, which may include bias.
- iii. The cross-sectional design limits understanding of trends over time.
- iv. Variations in institutional resources and teaching methods were not controlled.

RECOMMENDATIONS

- i. **Hybrid Model:** Combine features of both annual and semester systems to balance stress and learning outcomes.
- ii. **Stress Management:** Integrate student counseling and stress-reduction workshops.
- iii. **Faculty Development:** Train educators in effective assessment and feedback strategies.
- iv. **Curriculum Alignment:** Standardize

examination policies across SINC-affiliated nursing colleges.

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