



Navigating Nursing Education: The linkage between Stress, Professional Perception, and Academic Achievement among students in Sana'a city, Yemen

Mohammed Ahmed Suhail¹, Sadeq Abdo Mohammed Alwesabi^{2,3}, Elsadig Eltaher Hamad Abdulrahman⁴, Abdelelah Abdelgadir Ahmed Hamed⁴, Radman Ahmed Ahmed Alnahary¹, Nabil Ahmed Saif Ghanim¹, Abdulaziz Ahmed Baalwi⁵, Sharfeldin Mohammed Shuib⁴, Sameer HamdyHafez⁶

¹Medicine Division, Medicine and Health Science College, Al-Hodeidah University

²Nursing Division, Medicine and Health Science College, Al-Hodeidah University, Yemen and ³Department of Applied Medical Sciences, College of Medical Sciences, Al-Razi University, Sana'a, Yemen

⁴Department of Medical Surgical Nursing, Nursing College, Najran University. Saudi Arabia

⁵Nursing Division, Medicine and Health Science College, Al-Hodeidah University, Yemen

⁶Community Health Nursing, Beni-Suef University, Egypt

Abstract

Background: Navigating the challenges of nursing education involves understanding the multifaceted factors that influence students' experiences and outcomes. The study aimed to explore the relationship between stress, professional perception, and academic achievement among nursing students in Sana'a city, Yemen. **Methods:** A cross-sectional design was employed to achieve the aim. Convenience sample was used to include 108 students. Data were collected using a structured questionnaire that covered personal characteristics, the Perceived Stress Scale (PSS), a professional perception questionnaire, and academic achievement records. **Results:** the study revealed that that 21.3% of students experienced mild stress, 32.4% moderate stress, and 46.3% severe stress. Regarding professional perception, 58.4% of students had a negative view of nursing, 24.1% had an average view, and 17.5% had a positive view. GPA distribution showed 44.5% of students had a GPA in the 1-2 range, 41.6% had a GPA of 3, and 13.9% had a GPA in the 4-5 range. Significant correlations were found between stress levels and GPA ($R = -0.78$, $P = 0.0003$), perception of nursing and GPA ($R = 0.67$, $P = 0.006$), academic

level and GPA ($R = 0.48$, $P = 0.02$), and type of university and GPA ($R = 0.63$, $P = 0.0001$).

Conclusion& recommendations: The findings highlight high stress levels and negative perceptions of the nursing profession among students, significantly impacting academic performance. Interventions to manage stress and improve professional perception are essential for enhancing academic outcomes and student retention in nursing programs.

Key words: Stress Levels, Professional Perception, Academic Achievement, Nursing Students, Sana'a City, Yemen

Introduction

Navigating the challenges of nursing education involves understanding the multifaceted factors that influence students' experiences and outcomes. Nursing education plays a vital role in healthcare provision, it is crucial to explore how stress, professional perception, and academic achievement interconnect among nursing students. This introduction sets the stage for a comprehensive examination of these critical aspects in nursing education (Kathreena et al., 2015)

The demanding nature of nursing education often exposes students to high levels of stress, stemming from academic pressures, clinical responsibilities, and personal challenges. Stress can manifest in various forms, including emotional exhaustion, burnout, and reduced academic performance. Understanding the sources and

impacts of stress is essential for creating supportive learning environments that foster student well-being and success (Cukljek et al., 2017; Swarna, 2015).

Nursing students' perceptions of the nursing profession significantly influence their self-concept, self-esteem, recruitment, retention, and performance. When nurses have a positive professional image, they tend to form stronger and more meaningful relationships with patients, peers, and the community. Despite considerable advancements in the nursing field, nurses continue to encounter various challenges related to their professional image (Khalil et al., 2017).

Moreover, students' perception of the nursing profession significantly influences their motivation, career aspirations, and commitment to their studies. Positive perceptions can enhance engagement, professionalism, and a sense of purpose among students, leading to improved

academic outcomes and future professional success. Conversely, negative perceptions may contribute to disengagement, attrition, and challenges in achieving academic goals (Abdel El-Halem et al., 2011; Ashalata, 2013)

In the context of Yemen's healthcare landscape, where nursing plays a vital role in addressing public health needs, nurturing a positive professional identity among nursing students is paramount. It involves instilling values, ethics, and a sense of responsibility towards patient care and community well-being. How students perceive their role as future nurses can profoundly impact their learning journey and subsequent contributions to healthcare delivery (Alshammari et al., 2018).

Academic achievement is a central aspect of nursing education, reflecting students' knowledge, skills, and readiness for professional practice. It encompasses performance in coursework, clinical placements, exams, and overall learning outcomes. Academic success not only indicates students' mastery of nursing concepts but also prepares them for the challenges and responsibilities they will face as healthcare professionals (Towfik et al., 2023; Abdulrahman, 2024).

This study aimed to explore the relationship between stress, professional perception, and academic achievement among nursing students in Sana'a city, Yemen. By delving into these interconnected factors, we seek to gain insights into how students navigate the complexities of nursing education and identify opportunities for enhancing their learning experiences and outcomes.

Research objectives:

1. To assess the levels of stress experienced by nursing students in Sana'a city, Yemen.
2. To evaluate the professional perception of nursing students towards the nursing profession.
3. To analyze the academic achievement of nursing students in relation to their stress levels and professional perception.

Methods

Design

Cross sectional design was used to achieve the aim of the study. The research will adopt a mixed-methods approach, combining quantitative surveys and qualitative interviews to gather comprehensive data. Quantitative measures will assess students'

stress levels, perceptions of the nursing profession, and academic performance using standardized scales and academic records. Qualitative interviews will provide in-depth perspectives on students' experiences, challenges, and aspirations in nursing education.

Setting

This study was conducted over three months (November 2023 to January 2024), in selected Government and private Universities situated in Sana'a city

Sampling

A convenience sampling technique was employed, including all 108 students who agreed to participate in the study during the data collection period.

Data collection methods

The Structured Questionnaire designed to collect data composed of 4 parts prior reviewing the following studies (**Towfik et al., 2023; Abdulrahman, 2024; . Neumbe et al., 2023; Poreddi et al., 2012**)

1. **Personal characteristics of the studied sample**, such as age, gender, and residence, type of university

2. **Perceived Stress Scale (PSS):** The PSS, a widely used psychological instrument for measuring the perception of stress, was administered to assess the levels of stress experienced by nursing students. This scale consists of 10 items designed to evaluate how unpredictable, uncontrollable, and overloaded respondents find their lives. The responses are rated on a 5-point Likert scale ranging from 0 (never) to 4 (very often). The total score ranged from 0-40 and was classified for mild if the score ranged from 0-15, moderate from 16-30 and severe if more than 30.

3. **Professional Perception Questionnaire:** To evaluate the professional perception of nursing students towards the nursing profession, a self-developed questionnaire was used. This questionnaire includes 15 items that measure various dimensions of professional perception such as the perceived image of nursing, the value of the nursing profession, and students' future intentions within the field. The items are rated on a 5-point Likert scale ranging from 1

(strongly disagree) to 5 (strongly agree). The total score ranged from 15-75 and was classified for negative perception if the score ranged from 15-35, average from 36-56 and positive if more than 56.

4. Academic Achievement Records:

The academic achievement of nursing students was analyzed by collecting their Grade Point Averages (GPAs) for the most recent academic term. GPAs provide a quantitative measure of students' academic performance and are used to explore the relationship between stress levels, professional perception, and academic achievement. Using academic GPA as a data collection method provides a quantitative measure on academic achievement and can offer valuable insights into student performance across different academic domains. It was retrieved from the academic records and it was ranged from 1 to 5 where 1 is the lowest score

Pilot Study

A pilot study was conducted with a convenience sample of 20 nursing students. Descriptive statistics were

employed to evaluate the pilot study data, focusing on metrics such as response rates, survey completion times, and participant feedback on the survey's content and format. To measure the internal consistency of the survey items, Cronbach's alpha coefficient was calculated. Participants in the pilot study were excluded from the main study to prevent duplication and maintain the integrity of the data analysis.

Validation of the Questionnaires

The validity of the questionnaires was approved by 5 nursing professors. The reliability of the tools was assessed using Cronbach's alpha, with values of 0.84, 0.85, and 0.78, respectively.

Procedure

This study was conducted over three months (November 2023 to January 2024), in selected Government and private Universities situated in Sana'a city. The students were approached during their regular class hours and were informed about the purpose of the study. After obtaining informed consent, they were asked to complete the Perceived Stress Scale and the

Professional Perception Questionnaire. The students' academic achievement data were collected from the university's academic records with the students' consent.

Ethical consideration

The data collection was conducted in a manner that ensured confidentiality and anonymity of the participants. Each student was assigned a unique identifier to link their questionnaire responses with their academic records without revealing their identities. . The Institutional Review Board of Sana'a University approved this study.

Data Analysis

The collected data were analyzed using statistical software. Descriptive statistics were used to summarize the levels of stress, professional perception, and academic achievement among the nursing students. Correlational analyses were conducted to explore the relationships between stress levels, professional perception, and academic achievement. The statistical software SPSS version 20 was utilized to conduct relevant statistical analyses, employing chi-square and Spearman correlation tests. Statistical significance was determined at a p-value of < 0.05 , indicating

notable differences and associations within the data.

Results

Table 1 reveals that the age distributions of students, where 60.2% are in the category of 21-24 years old. Regarding the gender, 66.7% were males, whereas 33.3% were females. In relation to to academic level 63% distributed on the levels from 1 to 4 while 37% from 5 to 8th level. Additionally, 67.5% studied in governmental university.

Table 2 displays the frequency distribution of the studied nursing students based on the perceived stress scale. The data indicate that 21.3% of the students experience mild stress levels, 32.4% experience moderate stress levels, and 46.3% experience severe stress levels.

Table 3 presents the frequency distribution of students' perceptions of the nursing profession. The results show that about the half of the students, 58.4%, have a negative perception of the nursing profession. Meanwhile, 24.1% of the students hold an average perception, and only 17.5% have a positive perception. These findings highlight a concerning trend of negative views toward the nursing profession among the studied students, suggesting a need for initiatives to

improve the image and attractiveness of the profession.

Table 4 shows the frequency distribution of the studied students regarding their last GPA. The data indicates that the majority of students, 44.5%, have a GPA in the 1-2 range. This is followed closely by 41.6% of students who have a GPA of 3. Only 13.9% of the students achieved a GPA in the 4-5 range. These results suggest that a significant portion of the student population has lower GPAs, indicating potential areas for academic support and intervention to help improve student performance.

Table 5 presents the correlation between stress levels, perception of the nursing profession, academic level, type of university, and the last GPA of the studied students. The data reveal several significant correlations: a strong negative correlation

between stress levels and GPA ($R = -0.78$, $P = 0.0003$), indicating that higher stress levels are associated with lower GPAs, suggesting the importance of stress management for academic success. Additionally, there is a positive correlation between the perception of the nursing profession and GPA ($R = 0.67$, $P = 0.006$), with students holding a more positive professional perception achieving higher GPAs. Furthermore, a moderate positive correlation exists between academic level and GPA ($R = 0.48$, $P = 0.02$), implying that students at higher academic levels tend to perform better academically. Lastly, the type of university attended shows a significant positive correlation with GPA ($R = 0.63$, $P = 0.0001$), indicating that the institutional environment significantly impacts academic performance.

Table (1): Demographic characteristics of Nursing Students (N=108)

No.	Available	N	%
1	Age		
	less than 20 years	39	36.1
	from 21 to 24 years	65	60.2
	more than 24 years	4	3.7
	Mean 2.56 ± 0.57		
2	Sex		
	Male	72	66.7
	Female	36	33.3
3	Academic levels		
	1-4	68	63.0
	5-8	40	37.0
4	Place of living		
	Urban	75	69.4
	Rural	33	30.6
5	Type of the university		
	Governmental	73	67.5
	Private	35	32.5

Table 2: frequency distribution of the studied students regarding level of perceived stress scale

Items	N	%
Mild	23	21.3
Moderate	35	32.4
Severe	50	46.3

Table 3: frequency distribution of the studied students regarding their level of perception about the nursing profession

Items	N	%
Positive	19	17.5
Average	26	24.1
Negative	63	58.4

Table 4: frequency distribution of the studied students regarding their last GPA

Items	N	%
1-2	48	44.5
3	45	41.6
4-5	15	13.9

Table 5: correlation between stress levels, perception, age, academic level and type of university of the studied students with the last GPA

Items	GPA	
	R (Pearson-Spearman)	P
Stress score	-0.78	0.0003
Perception score	0.67	0.006
Academic level	0.48	0.02
Type of university	0.63	0.0001

Discussion

The current study aimed to explore the linkage relationship between stress, professional perception, and academic achievement among nursing students in

Sana'a city, Yemen. The results of the study revealed that nearly half of the students experienced severe stress levels, while about one third experienced moderate stress levels. These findings underscored the prevalence

of high stress among nursing students, which aligns with existing literature that emphasizes the demanding nature of nursing education and its impact on students' mental health. The high percentage of students experiencing severe stress is a cause for concern. This can be attributed to various factors inherent in nursing education, such as the rigorous academic workload, clinical training demands, and the emotional strain of patient care. According to Poreddi et al (2012) nursing students often face a multitude of stressors that can negatively impact their academic performance and overall well-being. Furthermore, Onieva-Zafra et al. (2020); Gebrezgabher and Abera (2018) found that stress and anxiety are prevalent among nursing students, which can adversely affect their academic outcomes and professional development.

The results of the study, highlighted that nearly half of the students experienced severe stress levels, while about one third experienced moderate stress levels, and about one fifth experienced mild stress levels. These findings underscored the prevalence of high stress among nursing students, which aligns with existing literature that emphasizes the demanding nature of nursing education and its impact on students' mental health. The high

percentage of students experiencing severe stress is a cause for concern and can be attributed to various factors inherent in nursing education, such as the rigorous academic workload, clinical training demands, and the emotional strain of patient care.

The findings suggested a need for targeted interventions to manage and mitigate stress among nursing students. Stress management programs, mental health support services, and fostering a supportive educational environment could be crucial in addressing this issue. Enhancing the perception of the nursing profession and providing adequate support can significantly improve students' academic achievements and retention rates. Comparing these results with studies from different regions, it is evident that stress among nursing students is a global issue. For instance, a study by Zulu and Ngoma (2015) in Zambia reported similar findings, indicating that nursing students across various countries experience significant stress levels, which affect their academic and clinical performance. Akta & Karabulut (2016) also highlighted the correlation between stress and academic performance among nursing students, suggesting that high stress levels are a common barrier to academic success in nursing education.

The current study showed that there were significant correlations between stress levels, perception of the nursing profession, academic level, type of university, and the last GPA of the studied students. The data reveal a strong negative correlation between stress levels and GPA ($R = -0.78$, $P = 0.0003$), indicating that higher stress levels are associated with lower GPAs. This finding underscores the critical need for effective stress management strategies among nursing students to enhance their academic success. The demanding nature of nursing education, including rigorous coursework and clinical training, contributes significantly to students' stress levels, which, in turn, negatively impacts their academic performance. This observation aligns with existing literature, such as Saied et al. (2016), which discusses the high stress levels among nursing students and their adverse effects on academic outcomes. Additionally Gebrezgabher and Abera (2018) supported our study.

Additionally, the study found a positive correlation between the perception of the nursing profession and GPA ($R = 0.67$, $P = 0.006$). Students who hold a more positive perception of their profession tend to achieve higher GPAs. This suggests that fostering a positive professional image can

significantly enhance academic performance. Miligi and Selim, (2014); Glew et al., (2019) supported this view, indicating that nursing students' attitudes towards their profession influence their motivation and academic achievements. Furthermore, a moderate positive correlation exists between academic level and GPA ($R = 0.48$, $P = 0.02$), implying that students at higher academic levels tend to perform better academically, likely due to increased experience and adaptation to academic demands. The type of university attended also shows a significant positive correlation with GPA ($R = 0.63$, $P = 0.0001$), indicating that the institutional environment plays a crucial role in student performance. This finding is corroborated by Ye et al. (2018), who emphasize the impact of educational settings on students' academic success. The combination of these factors highlights the multifaceted nature of academic achievement in nursing education and underscores the importance of a supportive learning environment and positive professional perceptions (Mai et al 2018; Fahmy et al., 2020).

Limitations of the Study

The study was limited to 108 students from selected universities in Sana'a city,

which may not be representative of all nursing students in Yemen or other regions. The cross-sectional design captures data at a single point in time, limiting the ability to assess changes over time or establish causality. The reliance on self-reported measures for stress and professional perception may introduce bias and affect the accuracy of the findings. Cultural factors unique to Yemen might influence stress levels and perceptions, limiting the generalizability of the findings to other contexts or countries.

Conclusion

This study revealed significant insights into the intricate relationship between stress, professional perception, and academic achievement among nursing students in Sana'a city, Yemen. The high prevalence of severe stress (46.3%) and the predominantly negative perception of the nursing profession (58.4%) underscore the critical challenges faced by these students. These factors were found to significantly impact academic performance, as evidenced by the strong negative correlation between stress levels and GPA, and the positive correlation between professional perception and GPA. The findings emphasize the necessity for targeted interventions to manage stress and

enhance the perception of the nursing profession, which could lead to improved academic outcomes and retention rates in nursing programs.

Recommendations

1. Implement stress reduction strategies such as mindfulness, counseling services, and stress management workshops to help students cope with the demanding nature of nursing education.
2. Develop initiatives to improve the perception of the nursing profession through mentorship programs, career counseling, and showcasing positive role models in the field.
3. Create a supportive learning environment by providing academic support services, peer tutoring, and fostering a sense of community among nursing students.
4. Adjust the nursing curriculum to include more flexible scheduling and integrate stress management and professional development courses.

References

1. Abdel El-Halem, G. E., El Hawashy, U., Gamal El-Dein, A. A., et al. (2011). Undergraduate male nursing students' perception about the image of nursing profession. *Journal of American Science*, 7(3), 614-623.
2. Abdulrahman, E. (2024). Nursing students' perceptions regarding clinical learning environment and supervision and its relation to their academic achievement at Najran University. *Tanta Scientific Nursing Journal*, 32(1), 131-147. <https://doi.org/10.21608/tsnj.2024.346118>
3. Aktaş, Y. Y., & Karabulut, N. (2016). A survey on Turkish nursing students' perception of clinical learning environment and its association with academic motivation and clinical decision making. *Nurse Education Today*, 36(1), 124-128. <https://doi.org/10.1016/j.nedt.2015.08.01>
4. Alshammari, F., Saguban, R., Pasayan, E., Altheban, A., & Al-Shammari, L. (2018). Factors affecting the academic performance of student nurses: A cross-sectional study. *Journal Name*, 8(1).
5. Ashalata, & Devi. (2013). A study to assess the knowledge and attitude of nursing students towards nursing profession among students of Manipal College of Medical Sciences, Pokhara, Koski District Nepal. *International Journal of Nursing Care*, 1(1), 10-15.
6. Cukljek, S., Juresa, V., Bile, C., et al. (2017). Changes in nursing students' attitude towards nursing during undergraduate study. *Acta Clinica Croatica*, 56(1), 36-43.
7. Fahmy, S., Mayez, A., & Ali, R. R. (2020). Attitude of nursing students towards nursing profession at South Valley University. *IJRDO - Journal of Health Sciences and Nursing*, 5(6), 19-34. [Google Scholar]
8. Gebrezgabher, Z. T., & Abera, G. B. (2018). Assessment of nurses' knowledge and attitude towards nursing profession at public hospitals in Mekelle Town, Tigray, Ethiopia. *Global Journal of Medical Research*, 17(July). [Google Scholar]
9. Glew, P. J., Ramjan, L. M., Salas, M., Raper, K., Creed, H., & Salamonsen, Y. (2019).

- Relationships between academic literacy support, student retention and academic performance. *Nurse Education in Practice*, 39(December 2018), 61-66. <https://doi.org/10.1016/j.nepr.2019.07.011>
10. Kathreena, M. U., D'Silva, J. J., Lobo, J. M., & Sequera, S. K. L. (2015). A study to assess the attitude towards nursing profession among the nursing students in the selected college at Mangalore. *International Journal of Health Sciences and Research*, 5(1), 156-164. [Google Scholar]
11. Kathreena, M. U., D'Silva, J. J., Lobo, J. M., et al. (2015). A study to assess the attitude towards nursing profession among the nursing students in selected colleges at Mangalore. *International Journal of Health Sciences and Research*, 5(10), 217-220.
12. Khalil, A., Majeed, M. A. I., Bio, A. W., & Gilani, S. A. (2017). Assessment of nursing student perception towards nursing profession in Sir Ganga Ram Hospital and Ittefaq Hospital Trust Lahore, Pakistan.
13. Mahmoud, S. R., Abd-Elhafez, K. H., Marzouk, S. A., et al. (2019). Nursing students' attitude towards nursing profession and its relation to study adjustment. *International Journal of Nursing Didactics*, 9(07), 9-15.
14. Mai, B. H., Yen Ho, T. M., Thao Nguyen, T. T., Thanh Phan, L. T., Hoang, T. H., & Anh Phuong, N. T. (2018). Attitudes and perceptions towards nursing profession among nursing students at Hue University of Medicine and Pharmacy. *Journal of Problems of Learning*, 5(2), 55-62. [Google Scholar]
15. Miligi, E., & Selim, A. (2014). Saudi nursing students' attitudes towards the nursing profession. *European Journal of Business and Management*, 6(29), 197-208.
16. Neumbe, I. M., Ssenyonga, L., Soita, D. J., Iramiot, J. S., & Nekaka, R. (2023). Attitudes and perceptions of undergraduate nursing students towards the nursing profession. *PLoS One*, 18(7), e0280700. <https://doi.org/10.1371/journal.pone.0280700>
17. Onieva-Zafra, M. D., Fernández-Muñoz, J. J., Fernández-Martínez,

- E., et al. (2020). Anxiety, perceived stress and coping strategies in nursing students: A cross-sectional, correlational, descriptive study. *BMC Medical Education*, 20, 370. <https://doi.org/10.1186/s12909-020-02294-z>
18. Poreddi, V., Ramachandra, K., & Konduru, R. (2012). Assessing the attitude and perceptions towards the nursing profession among nursing students. *Nursing Journal of India*, 103(1), 6-8.
19. Saied, H., Al Beshi, H., Al Nafaie, J., & Al Anazi, E. (2016). Saudi community perception of nursing as a profession. *IOSR Journal of Nursing and Health Science*, 5(2), 95-99.
20. Swarna, S. (2015). Nursing students' perception towards profession and future intentions. *IOSR Journal of Nursing and Health Science*, 4(5), 30-34.
21. Towfik, A., Hafez, S., Abualruz, H., Mohamed, H., Mohamed, N., & Mahgoub, S. (2023). Bridging the gap between theory and practice: Applying problem-based learning strategy to improve nursing students' achievement. *Tanta Scientific Nursing Journal*, 30(3), 127-137. <https://doi.org/10.21608/tsnj.2023.307830>
22. Ye, Y., Hu, R., Ni, Z., Jiang, N., & Jiang, X. (2018). Effects of perceived stress and professional values on clinical performance in practice nursing students: A structural equation modeling approach. *Nurse Education Today*, 71, 157-162. <https://doi.org/10.1016/j.nedt.2018.09.036>
23. Zheng, Y. X., Jiao, J. R., & Hao, W. N. (2022). Prevalence of stress among nursing students: A protocol for systematic review and meta-analysis. *Medicine (Baltimore)*, 101(31), e29293. <https://doi.org/10.1097/MD.00000000000029293>
24. Zulu, C., & Ngoma, C. (2015). A survey on perception of the image of nursing profession in Zambia by nursing students at the Department of Nursing Sciences, University of Zambia. *Unified Journals of Nursing and Midwifery*, 1(1), 1-14.