ORIGINAL RESEARCH

Stress and exhaustion among nursing students during their final year: A cross-sectional study

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ABSTRACT

Background and objective: Nursing students face challenges in nursing education. Prior research has identified depression and fatigue as prevalent issues among nursing students, attributing these concerns to inadequate support from faculty and disorganised coursework, which contribute significantly to student exhaustion. Consequently, this study aimed to explore the relationship between stress and educational fatigue among final-semester nursing students to provide evidence that can help prevent stress and its negative health impacts, ultimately enhancing the well-being of nursing students.
Methods: This cross-sectional study investigated 56 final-semester nursing students using self-administered questionnaires: the Karolinska Exhaustion Disorder Scale (KEDS) and the Higher Education Stress Inventory (HSEI). Data were analysed using descriptive statistics and bivariate analysis using Spearman correlation coefficient.
Results: The study found that final-semester nursing students experienced high stress (Mean 21.84, SD = 7.065) due to workload (Mean 8.00, SD = 1.68), insufficient feedback (Mean 5.16, SD = 1.35), and faculty shortcomings (Mean 16.04, SD = 2.90). Significant positive correlations were noted between concentration and insufficient feedback (r = .29, p = .30) and low commitment (r = .27, p = .39). Physical stamina correlated significantly with workload (r = .41, p = .001) and low commitment (r = .36, p = .007). Memory and sleep showed no association with education-related stress.
Conclusions: The study found that final-semester nursing students reported workload and insufficient feedback as the factors related to education-related stress. There was no link between education-related stress and variables such as memory and sleep. These findings highlight the need to address a supportive learning environment and facilitate overall student health.

Key Words: Cross-sectional study, Correlation, Exhaustion, Nursing students, Self-administered questionnaire

1. INTRODUCTION

Nursing programs encompass both theoretical and practical components, making them crucial for the development of the healthcare workforce and having a significant impact on the quality of patient care. Nurse education necessitates that students tackle and resolve a variety of challenges.[1] As a result, nursing students may experience considerable stress while striving to acquire the necessary professional knowledge and skills. One prominent contributor to stress in nursing education is the anxiety surrounding education[2] and demographic, physical, and psychological factors.[3–8] Insecurity about their abilities often leads nursing students to experience anxiety and insomnia, which are particularly evident during clinical placements. Failing grades in clinical practice may lead to unexpected depressive episodes. Many students reported an increasing awareness of their deteriorat-

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ing mental health, particularly during their third year of study, leading some to discontinue their clinical placements or take extended sick leave prematurely.[5] Furthermore, nursing students frequently expressed anxiety about future employment, mainly stemming from fears and negative experiences during their final clinical practicum. As these experiences increased, so did their anxiety and uncertainty about their careers.[9]

Literature review

Previous studies[10,11] also found a high prevalence of depression among nursing students. Fatigue is another prevalent student concern,[12] with insufficient support from academic staff and poorly organised coursework key factors contributing to student exhaustion.[13] Studies show that dropping out of nursing education is not entirely unusual. In Sweden, approximately 74% of students complete the nursing program, implying that around 26% discontinue their studies before graduation.[14] The reasons for withdrawal are multifaceted and may include high levels of stress, a mismatch between students' expectations and the realities of the education or future profession, low self-esteem, symptoms of depression and burnout, as well as various mental and physical health issues.[3–8,14] Previous systematic review[15] has identified several categories of stressors among nursing students: academic stressors, such as testing and evaluation, fear of failure in training, and challenges related to workload; clinical stressors, including work demands, fear of making mistakes, emotional responses to patient suffering or death, and interpersonal dynamics within the clinical environment; and personal and social stressors, such as financial difficulties and difficulties balancing household responsibilities with academic demands. However, the study found no significant changes in stress levels across different years of the students' education.[15] Exposure to prolonged stress can lead to physical- and mental ill-health and have major consequences for the person.[16] However, it has been found that nursing students who improved their academic understanding in earlier semesters experienced positive emotions during their final clinical practice, unlike their earlier negative experiences.[17] Additionally, enhanced clinical training and simulation exposure significantly boost students' readiness for professional roles upon graduation.[18] This is why we need to assess stress and exhaustion, and other associated factors in nursing students to better help nursing educators understand these conditions and develop targeted interventions. Previous studies have highlighted the existence of this problem and point to the need to investigate nursing students' experience of stress and exhaustion. Therefore, this study aimed to investigate the relationship between stress and exhaustion related to education among final-semester nursing students to provide evidence that may help in preventing stress and adverse health outcomes, thus promoting the well-being of nursing students.

2. METHOD

This quantitative study is part of a larger mixed-methods research project about stress-related education among higher education students. This study uses a cross-sectional design to investigate the feeling of stress and stress-induced exhaustion (SE) among final-semester nursing students.

2.1 Context

Nursing education in Sweden, regulated by the Swedish Higher Education Act (SFS, 1992:1434 and SFS, 1993:100), has general and national goals. Nursing education is a three-year course of higher education comprised of 180 credits and serves as a professional qualification at the first-cycle level. Twenty-five higher education institutions (HEIs) are authorised to award this degree, all offering nursing programmes that include essential clinical training in healthcare facilities, known as 'clinical placement'. This training allows students to apply their theoretical knowledge in practical settings. The structure of theoretical studies, clinical skills training, and practical placements can vary between nursing schools across Sweden. However, all programmes ultimately lead to a bachelor's degree upon the completion of 180 higher education credits, including at least 90 credits with progressive specialisation in the main field of study. This includes an independent project (thesis), worth a minimum of 15 credits.[19]

2.2 Sample

Study participants are nursing students who were studying at a university in the south of Sweden. The total population sampling method was applied to cover the entire nursing student body in the final semester of the clinical training programme in the autumn semester of 2023 and spring semester of 2024. The total number of nursing students in their final year is about 65 students per semester.

2.3 Procedure

To contact participants, the authors first contacted the nursing programme to gain permission to conduct the study. After approvals for the study were obtained, verbal and written information about the study was provided to the students following a lecture. After providing the information about the study, a prepaid envelope was included, containing written details about the study and questionaries. Questionnaires were distributed to voluntary participants, who were encouraged to complete them in a quiet and comfortable setting before posting them back to the first author. For students who were unable to attend the lecture for various reasons,

written information about the study and the questionnaires, along with a prepaid envelope, were also made available.

2.4 Data collection

Data were collected through two pre-designed questionnaires. The first questionnaire was the Karolinska Exhaustion Disorder Scale (KEDS), which is a self-rating scale for assessing stress-induced exhaustion.[20] This scale was used in many studies in Sweden, translated to other languages, and used in different contexts.[21–23] The KEDS includes nine variables such as: 1) ability to concentrate; 2) memory; 3) physical stamina; 4) mental stamina; 5) recovery; 6) sleep; 7) hypersensitivity to sensory impressions; 8) experience of demands; and 9) irritation and anger.[20] The alternative items response can score from 0 (reporting no problem) to 6 (reporting the most frequent problems). Therefore, the total possible score can range from 0 to 54. A score of 19 is considered a cut-off point for stress-induced exhaustion. The internal consistency of the instrument, as indicated by Cronbach's alpha, was 0.745. Students were asked to report their feelings during the last two weeks as the original scale recommends, and alternatives responses of 0–1 and 5–6 were merged for the purpose of data analysis.

The second questionnaire was the Higher Education Stress Inventory with seven variables: 1) worries about future endurance/competence (3 items); 2) non-supportive climate (5 items); 3) faculty shortcomings (7 items); 4) workload (3 items); 5) insufficient feedback (2 items); 6) low commitment (2 items); and 7) financial concerns (2 items). This scale has been validated in previous studies and translated into different languages,[24–26] and this study used the Swedish version of the scale with seven variables.[27] This is a Likert-like scale with four alternative answers ranging from 1 (totally disagree) to 4 (totally agree), where a lower score indicates less stress. Cronbach's alpha for this scale ranged from 0.654 to 0.742. The item was recoded as reversed if it referred to the absence of stress.

2.5 Data analysis

Descriptive statistics were carried out to provide information about data distributions and central tendency. Frequency, means, and standard deviation (SD) were calculated for the aforementioned purpose. To test the relationship between higher education stress and exhaustion induced by stress, a bi-variate analysis was performed using Spearman's correlation coefficient. Although the objective of this study was about measuring stress and exhaustion related to higher education, a series of ordinary regression were performed using possible confounding variable such as sex, having a part-time job, and having children. Data analysis was performed using SPSS version 29.0.2.0 (SPSS Inc., Chicago, USA)

2.6 Ethical approval

This research received ethical approval from the Swedish Ethical Review Authority (Dnr 2020-02516). This study followed the ethical guidelines in all stages of the research; from data collection to data analysis and publishing the study results. All informants have received verbal and written information about the aim of the study, their right to withdraw from the study, and the confidentiality of the gathered information. All data were sorted in a safe place, to which only the main researchers had access. All the questionnaires are anonymous, since no names are stated on the questionnaires, and gathered data are transformed into codes for later statistical analysis. No personal information is attached to any data, so there is no risk of publishing the informant's personal information, even by accident.[28]

3. Result

In total, 56 students participated in this study: 46 (82.1%) were female and 10 (17.6%) were male (see Table 1). The mean age of the participants was 29.12 (SD = 7.51) with a range of 22 years (Min = 22, Max = 48).

Table 1. Sociodemographic characteristic of study participants

Characteristic	N (%)
Sex/female	46 (82.1)
Having children	18 (32.1)
Working during study/part-time job	36 (64.3)

The mean score for the sum of all nine variables of exhaustion induced by stress was 21.84 (SD = 7.065), which was moderately higher that the cut-off point (19). The highest level of exhaustion reported was directed at the ability to concentrate, where 39.3% (n = 22) reported a score higher than 4. The other main reported problems were experience of demand, with 30.5% (n = 17), mental stamina with 28.6% (n = 16), and sleep problems, with 26% (n = 15). The detailed information provided in Table 2.

The highest level of stress among final-semester nursing students was reported in relation to faculty shortcomings with a mean of 16.04 (SD = 2.90), followed by worries about future endurance/competence (m = 8.95, SD = 1.97) and workload (m = 8.00, SD = 1.68) (See Table 3).

The result of the correlation statistics indicated that there is positive significant correlation between the ability to concentrate and receiving insufficient feedback (r = .29, p = .30) and low commitment (r = .27, p = 39). Physical stamina was also significantly associated with workload (r = .41, p = .001) and

low commitment (r = .36, p = .007). Significant correlations between mental stamina and non-supportive climate (r =.28, p = .03), workload (r = .34, p = .009), insufficient feedback (r = .26, p = .04), and financial concern (r = .28, p = .03) were identified and all correlations were positive.

The result of the Spearman's correlation indicated that there is a positive correlation between recovery and workload (r = .26, p =.04) and financial concern (r = .34, p = .01). Hypersensitivity to sensory impressions was also significantly associated with workload (r = .49, p = .001), and insufficient feedback (r = .35, p =.009). Experience of demands positively correlated with workload (r = .35, p = .007), insufficient feedback (r = .31, p = .01) and financial concern (r = .30, p = .02). Feelings of irritation and anger were also significantly correlated with workload (r = .38, p = .004), insufficient feedback (r = .31, p = .02) and financial concerns (r = .36, p = .007).

No significant association was identified in the relationship to sleep, memory, and other variables in the HESI scale. Please see Table 4 for detailed information.

Table 2. Nursing students' response (number and percentage) to the Karolinska Exhaustion Disorder Scale

Item, n (%)	1	2	3	4	5
Ability to concentrate	8 (14.3)	15 (26.8)	11 (19.6)	15 (26.8)	7 (12.5)
Memory	12 (21.4)	22 (39.3)	12 (21.4)	8 (14.3)	2 (3.6)
Physical stamina	18 (32.1)	20 (35.7)	10 (17.9)	8 (14.3)	0 (0.0)
Mental stamina	7 (12.5)	20 (35.7)	13 (23.2)	15 (26.8)	1 (1.8)
Recovery	8 (14.5)	17 (30.9)	18 (32.7)	6 (10.9)	6 (10.9)
Sleep	12 (21.4)	15 (26.8)	14 (25.0)	11 (19.6)	4 (7.1)
Hypersensitivity to sensory impressions	22 (39.3)	20 (35.7)	3 (5.4)	8 (14.3)	3 (5.4)
Experience of demands	13 (23.2)	17 (30.4)	9 (16.1)	14 (25.0)	3 (5.4)
Irritation and anger	17 (30.4)	20 (35.7)	10 (17.9)	8 (14.3)	1 (1.8)

Notes. 1= reporting no or few problems, to 5 =reporting most frequent problem.

Table 3. Range, Mean, SD scores on HESI stress inventory among nursing students

Items	Range	Mean (SD)
Worries about future endurance/competence	4-12	8.95 (1.97)
Non-supportive climate	5-15	7.70 (2.15)
Faculty shortcomings	11-24	16.04 (2.90)
Workload	4-12	8.00 (1.68)
Insufficient feedback	2-8	5.16 (1.35)
Low commitment	2-6	2.96 (0.99)
Financial concerns	2-7	4.00 (1.11)

Ordinal regression between age, sex, having a part-time job, and having children with all HESI and KEDS variables revealed no significant result. Therefore, the result was not reported.

4. Discussion

This study found that nursing students in their final semester reported high levels of stress related to their workloads and to insufficient feedback and faculty shortcomings. Memory and sleep are the only two variables that had no association with stress-induced exhaustion related to education.

Table 4. Bi-variate correlation between HESI (7 items) and KEDS scales (9 items)

Scales/items		Worries About Future Endurance/ Competence	Non-Suportive Climate	Faculty Short-Comings	Work Load	Insuffiecient Feedback	Low Commitment	Finacial Concenrs
Ability to concentrate	r	.22	.22	.14	.25	.29	.27	.12
	Sig	.10	.10	.31	.05	.03*	.03*	.38
Memory	r	.24	.00	-.03	.24	.15	.01	.16
	Sig	.07	.98	.83	.06	.26	.93	.21
Physical stamina	r	.19	.23	.24	.41	.19	.35	.08
	Sig	.15	.08	.07	.00*	.15	.00*	.53
Mental stamina	r	.09	.28	.03	.34	.26	.07	.28
	Sig	.50	.03*	.78	.00*	.04*	.57	.03*
Recovery	r	.04	.15	.13	.26	.19	.03	.34
	Sig	.74	.26	.32	.04*	.15	.81	.01*
Sleep	r	.06	.15	.16	.22	.12	.04	.22
	Sig	.65	.27	.24	.10	.37	.77	.08
Hypersensitivity to sensory impressions	r	.26	.21	.14	.49	.34	.19	.26
	Sig	.04*	.12	.28	.00*	.00*	.14	.05
Experience of demands	Sig	.26	.17	.23	.35	.31	.16	.30
	sig	.05	.21	.09	.00*	.01*	.21	.02*
Irritation and anger	r	.17	.20	.24	.38	.31	.23	.35
	Sig	.18	.14	.08	.00*	.02*	.08	.00*

*Correlations are significant at the .05 level

This study showed that stress-induced exhaustion related to education was reported as moderately high, and changes to their ability to concentrate, academic demands, their mental stamina, and sleep problems were also reported. This result is in line with previous studies,[7, 15, 29, 30] which described stress factors that were related to the academic workload, clinical training pressures, and balancing personal responsibilities. A previous systematic review[31] found that burnout is common in nursing students, with demographic, educational, physical, and psychological factors affecting burnout. Coping mechanisms like problem-solving, emotional expression, and seeking social support can mitigate these challenges. Nurse educators must prioritise identifying and managing stressors within nursing programmes to enhance the educational experience and promote mental well-being among students. Addressing these factors is crucial for fostering a supportive learning environment and facilitating overall student success in nursing.[29, 30, 32]

The highest stress level among final-semester nursing students was reported in relation to faculty shortcomings, followed by worries about future endurance/competence and workload. A previous study[33] found that stress was negatively associated with self-efficacy and mindfulness. Furthermore, chronic exposure to stressors can result in burnout and a diminished capacity for resilience.[34] Research indicates that stress levels among students can vary throughout the academic year, with those in their second year experiencing more pronounced symptoms than their peers in other years of study. Factors such as academic failure and the amount of time dedicated to leisure activities also contribute to stress levels.[35] In their final year, nursing students frequently identified uncertainty about future employment as a significant source of anxiety. This anxiety often stemmed from fears and negative experiences associated with their final clinical practicum. As these negative experiences became more intense, students found themselves grappling with increased anxiety and a greater sense of uncertainty regarding their future careers.[9] Consequently, this situation places heightened demands on higher education and healthcare competence to foster a supportive learning environment to effectively prevent ill health and ensure that personalised care is delivered equitably to the entire population.[36]

This study found a positive connection between the ability to concentrate, lack of feedback, and low commitment. Furthermore, there is a clear link between mental energy and three factors: a non-supportive work environment, lack of feedback, and financial worries. All these links showed a positive relationship. Previous research has found that the major sources of stress identified included academic demands, patient care responsibilities, and interactions with nursing staff and faculty.[29] It is imperative to address these issues in higher education through effective communication, robust mentorship, constructive feedback,[29, 37] and social support, including structural support, e.g. social integration and support networks.[37] Such approaches moderate stress and prevent adverse health outcomes, thus promoting well-being for nursing students. Furthermore, they facilitate the provision of tailored learning experiences that are responsive to the needs of students.[32]

This study revealed that memory and sleep were the only two variables that showed no significant association with stress-induced exhaustion within the context of nursing education. In contrast, previous research focused on factors impacting sleep quality among nursing students and found that a considerable percentage reported poor sleep quality stemming from academic demands and clinical practice, irregular sleep patterns due to late bedtimes and inconsistent schedules, as well as the use of electronic devices before bedtime.[38] Additionally, another study indicated that stress and sleep deprivation adversely affect memory and academic performance among nursing students, with nearly one-third of participants exhibiting poor sleep habits.[39] These findings underline the importance of addressing sleep-related issues within the nursing student population. By improving sleep habits and implementing effective stress management strategies, it may be possible to enhance academic outcomes and overall well-being.

Study limitations

It is important to acknowledge certain methodological concerns when interpreting this study's results. The small sample size in cross-sectional studies can increase the risk of Type II errors. This study utilised two primary scales—one to describe stress related to education and another to describe exhaustion induced by stress—to identify associations between these two variables. Consequently, no absolute statements were made regarding the study's findings, as none of these variables were treated as dependent or independent variables during the statistical analysis.

Although this topic is essential and the study provides valuable insights into specific stressors among nursing students, the identified aspects represent only a limited part of the broader issue. These findings should therefore be understood as individual contributing factors within the broader and more complex context of stress experienced throughout nursing education.

5. Conclusion

In this study, final-semester nursing students identified workload and insufficient feedback as the elementary foundations

of education-related stress. However, the HESI scale found no link between education-related stress and variables such as memory and sleep. This suggests that other factors may impact students' stress levels in this context. These findings highlight the need to address nursing education's structural and pedagogical aspects to support students during their education.

Implications for Practice

Of the myriad studies on stress and how to mitigate it for nursing students, the results emphasise the importance of nursing education and policymakers' optimisation of workload distribution of the academic demands and clinical practice and consistent, constructive feedback to enhance lifelong learning experiences and reduce stress. Future research should explore additional factors contributing to stress, examine strategies to prevent stress and adverse health outcomes, and promote well-being among nursing students.

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AUTHORS CONTRIBUTIONS

Associate Professor EH and Associate Professor JL were responsible for the study design and revisions. Associate Professor GL and Lecturer CS were responsible for data collection. Associate Professor JL was responsible for the study analysis. Associate Professor EH and Associate Professor GL drafted the manuscript. All authors read and approved the final manuscript.

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The authors declare that there is no conflict of interest.

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REFERENCES

[1] Alharoubi SAS, Alasmary AMA, Alkhaledi WJM, et al. Comprehensive Review of Nursing Education and Clinical Practice. Journal of Ecohumanism. 2024; 3(8): 4239–47. https://doi.org/10.62754/joe.v3i8.5078

[2] Labrague LJ, McEnroe–Petitte DM, De Los Santos JAA, et al. Examining stress perceptions and coping strategies among Saudi nursing students: A systematic review. Nurse Education Today. 2018; 65: 192-200. PMid:29602137 https://doi.org/10.1016/j.nedt.2018.03.012

[3] Arian M, Jamshidbeigi A, Kamali A, et al. The prevalence of burnout syndrome in nursing students: A systematic review and meta-analysis. Teaching and Learning in Nursing. 2023; 18(4): 512-20. https://doi.org/10.1016/j.teln.2023.04.015

[4] Bakker EJ, Kox JH, Miedema HS, et al. Physical and mental determinants of dropout and retention among nursing students: protocol of the SPRiNG cohort study. BMC Nursing. 2018; 17: 1-9. PMid:29977155 https://doi.org/10.1186/s12912-018-0296-9

[5] Bakker EJ, Verhaegh KJ, Kox JH, et al. Late dropout from nursing education: An interview study of nursing students' experiences and reasons. Nurse Education in Practice. 2019; 39: 17-25. PMid:31352089 https://doi.org/10.1016/j.nepr.2019.07.005

[6] Van Hoek G, Portzky M, Franck E. The influence of socio-demographic factors, resilience and stress reducing activities on academic outcomes of undergraduate nursing students: A cross-sectional research study. Nurse Education Today. 2019; 72: 90-6. PMid:30463034 https://doi.org/10.1016/j.nedt.2018.10.013

[7] Anaman-Torgbor JA, Tarkang E, Adedia D, et al. Academic-related stress among ghanaian nursing students. Florence Nightingale Journal of Nursing. 2021; 29(3): 263. PMid:35110166 https://doi.org/10.5152/FNJN.2021.21030

[8] Dancot J, Pétré B, Dardenne N, et al. Exploring the relationship between first-year nursing student self-esteem and dropout: A cohort study. Journal of Advanced Nursing. 2021; 77(6): 2748-60. PMid:33656178 https://doi.org/10.1111/jan.14806

[9] Park JW, Sun HN. Nursing students' Clinical Experiences. J Ko-

rean Acad Psychiatr Ment Health Nurs. 2003; 12(1): 27-35. https://doi.org/10.12934/jkpmhn.2003.12.1.27

[10] Tung YJ, Lo KK, Ho RC, et al. Prevalence of depression among nursing students: A systematic review and meta-analysis. Nurse Education Today. 2018; 63: 119-29. PMid:29432998 https://doi.org/10.1016/j.nedt.2018.01.009

[11] Yüksel A, Bahadir-Yilmaz E. Relationship between depression, anxiety, cognitive distortions, and psychological well-being among nursing students. Perspectives in Psychiatric Care. 2019; 55(4): 690-6. PMid:31140627 https://doi.org/10.1111/ppc.12404

[12] CSN) CSSCCs. Studerandes hälsa (Students health). 2020.

[13] Mazzotta R, Durante A, Bressan V, et al. Perceptions of nursing staff and students regarding attrition: a qualitative study. International Journal of Nursing Education Scholarship. 2024; 21(1). PMid:38354280 https://doi.org/10.1515/ijnes-2023-0081

[14] The Swedish National Audit Office. Higher education institutions' efforts to counter dropping out of shortage occupation programmes. 2025: 3.

[15] Pulido-Martos M, Augusto-Landa JM, Lopez-Zafra E. Sources of stress in nursing students: a systematic review of quantitative studies. International Nursing Review. 2012; 59(1): 15-25. https://doi.org/10.1111/j.1466-7657.2011.00939.x

[16] Lisnyj KT, Gillani N, Pearl DL, et al. Factors associated with stress impacting academic success among post-secondary students: A systematic review. Journal of American College Health. 2023; 71(3): 851-61. PMid:34242132 https://doi.org/10.1080/07448481.2021.1909037

[17] Lundell Rudberg S, Sormunen T, Scheja M, et al. Nursing students experienced academic emotions during education-a longitudinal descriptive study from a nursing bachelor's program in Sweden. BMC Nursing. 2024; 23(1): 52. PMid:38238730 https://doi.org/10.1186/s12912-024-01729-y

[18] Woods C, West C, Mills J, et al. Undergraduate student nurses' self-reported preparedness for practice. Collegian. 2015; 22(4): 359-68. PMid:26775522 https://doi.org/10.1016/j.colegn.2014.05.003

[19] Sundberg K. Perspectives on nursing education within the Swedish higher education system. Thematic evaluation of nursing education. 2023.

[20] Besèr A, Sorjonen K, Wahlberg K, et al. Construction and evaluation of a self rating scale for stress-induced Exhaustion Disorder, the Karolinska Exhaustion Disorder Scale. Scandinavian Journal of Psychology. 2014; 55(1): 72-82. PMid:24236500 https://doi.org/10.1111/sjop.12088

[21] Adamsson A, Bernhardsson S. Symptoms that may be stress-related and lead to exhaustion disorder: a retrospective medical chart review in Swedish primary care. BMC Family Practice. 2018; 19(1): 172. PMid:30376811 https://doi.org/10.1186/s12875-018-0858-7

[22] Kristiansen J, Friborg MK, Brandt L, et al. The Danish version of the Karolinska Exhaustion Disorder Scale (KEDS). EPICOH 2016 Epidemiology in Occupational Health Conference-Occupational Health, Think Globally, Act Locally; 2016.

[23] Persson R, Österberg K, Viborg N, et al. Two Swedish screening instruments for exhaustion disorder: cross-sectional associations with burnout, work stress, private life stress, and personality traits. Scandinavian Journal of Public Health. 2017; 45(4): 381-8. PMid:28367741 https://doi.org/10.1177/1403494817696182

[24] Shim EJ, Jeon HJ, Kim H, et al. Measuring stress in medical education: validation of the Korean version of the higher education stress inventory with medical students. BMC Medical Education. 2016; 16: 1-8. PMid:27881178 https://doi.org/10.1186/s12909-016-0824-9

[25] Pacheco JPG, Hoffmann MS, Braun LE, et al. Translation, cultural adaptation, and validation of the Brazilian Portuguese version of the Higher Education Stress Inventory (HESI-Br). Trends in Psychiatry and Psychotherapy. 2023; 45: e20210445.

[26] Masha'al D, Hayajneh AA, Tawalbeh LI. Psychometric evaluation of the Arabic version of the higher education inventory scale for nursing students. BMC Psychiatry. 2021; 21: 1-13. PMid:33549080 https://doi.org/10.1186/s12888-021-03082-9

[27] Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. Medical Education. 2005; 39(6): 594-604. PMid:15910436 https://doi.org/10.1111/j.1365-2929.2005.02176.x

[28] World Medical Association. Declaration of Helsiniki- Ethical Principles for Medical Research Involving Human Subjects 2024. Available from: https://www.wma.net/policies-post/wma-declaration-of-helsinki/

[29] Labrague LJ. Umbrella review: Stress levels, sources of stress, and coping mechanisms among student nurses. Nursing Reports. 2024; 14(1): 362-75. PMid:38391073 https://doi.org/10.3390/nursrep14010028

[30] Onieva-Zafra MD, Fernández-Muñoz JJ, Fernández-Martínez E, et al. Anxiety, perceived stress and coping strategies in nursing students: a cross-sectional, correlational, descriptive study. BMC Medical Education. 2020; 20: 1-9. PMid:33081751 https://doi.org/10.1186/s12909-020-02294-z

[31] Kong LN, Yao Y, Chen SZ, et al. Prevalence and associated factors of burnout among nursing students: A systematic review and meta-analysis. Nurse Education Today. 2023; 121: 105706. PMid:36577286 https://doi.org/10.1016/j.nedt.2022.105706

[32] Riva E, Freeman R, Schrock L, et al. Student wellbeing in the teaching and learning environment: A study exploring student and staff perspectives. Higher Education Studies. 2020; 10(4): 103. https://doi.org/10.5539/hes.v10n4p103

[33] Rayan A. Mindfulness, self-efficacy, and stress among final-year nursing students. Journal of Psychosocial Nursing and Mental Health Services. 2019; 57(4): 49-55. PMid:30508462 https://doi.org/10.3928/02793695-20181031-01

[34] Alatawi AO, Morsy NM, Sharif LS. Relation between Resilience and Stress as Perceived by Nursing Students: A Scoping Review. Evidence-Based Nursing Research. 2021.

[35] Cheung T, Wong SY, Wong KY, et al. Depression, anxiety and symptoms of stress among baccalaureate nursing students in Hong Kong: a cross-sectional study. International Journal of Environmental Research and Public Health. 2016; 13(8): 779. PMid:27527192 https://doi.org/10.3390/ijerph13080779

[36] SFS. Hälso-och sjukvårdslag (Health and Medical Services Act). 2017; 30.

[37] Choi MY, Park S, Noh GO. Social support for nursing students: A concept analysis study. Nurse Education Today. 2024; 132: 106038. PMid:37976883 https://doi.org/10.1016/j.nedt.2023.106038

[38] Silva M, Chaves C, Duarte J, et al. Sleep Quality Determinants among Nursing Students. Procedia - Social and Behavioral Sciences. 2016; 217: 999-1007. https://doi.org/10.1016/j.sbspro.2016.02.090

[39] Gallego-Gómez JI, González-Moro MTR, González-Moro JMR, et al. Relationship between sleep habits and academic performance in university Nursing students. BMC Nursing. 2021; 20(1): 100. PMid:34140029 https://doi.org/10.1186/s12912-021-00635-x