

ORIGINAL

Comparative study between male and female nursing students regarding Clinical and Academic Stress

Estudio comparativo entre estudiantes de enfermería hombres y mujeres sobre el estrés clínico y académico

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Cite as: Abdelftah Mohamed N, Ali SO, Elkhider Ehrahim EE, ahmed Eltayeb MM, Al-Sabeely AA, Mohamed Kamel A. Comparative study between male and female nursing students regarding Clinical and Academic Stress. Salud, Ciencia y Tecnología. 2025; 5:1462. <https://doi.org/10.56294/saludcyt20251462>

Submitted: 13-07-2024

Revised: 02-10-2024

Accepted: 08-03-2025

Published: 09-03-2025

Editor: Prof. Dr. William Castillo-González 

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ABSTRACT

Introduction: nursing students face academic and clinical stress from difficult coursework, assessments, and academic demands, as well as clinical pressures from obtaining care experience. The pressures can cause fear of errors, anxiety, and patient well-being worries, affecting students' mental health and nursing preparation.

Method: a facility-based cross-sectional study design was employed. 113 convenience samples of nursing students were allocated in this study. The study was conducted at the Faculty of Nursing at Prince Sattam University. Perceived clinical setting and academic stress questionnaires were used.

Results: 113 nurse students were included in the present study; the mean age of the student sample was 21 years old. A correlation was reported between academic stress and the age of male ($F=3,526$, $P=0,037$) and female students ($F=13,538$, $P<0,001$). 73,6 % of male students reported that the reason for increased stress in the clinical setting was fear of making a mistake. There was a strong relationship between types of clinical settings, clinical setting hours per week, and academic, and clinical setting stress.

Conclusions: this present study portrayed that Clinical hours per week and clinical type were significant predictors of increasing academic and clinical stress in male and female nursing students. So, the study recommends developing strategies and course educational curriculum structure before students are sent to clinical areas for nurses' students to improve their capabilities and cope with more clinical and academic stress reduction.

Keywords: Male; Female Nursing Student; Academic and Clinical Stress.

RESUMEN

Introducción: los estudiantes de enfermería enfrentan estrés académico y clínico debido a trabajos de curso,

valuaciones y demandas académicas difíciles, así como presiones clínicas al obtener experiencia en atención. Las presiones pueden causar miedo a los errores, ansiedad y preocupaciones por el bienestar del paciente, afectando la salud mental y la preparación de enfermería de los estudiantes.

Método: se empleó un diseño de estudio transversal basado en instalaciones. En este estudio se asignaron 113 muestras de conveniencia de estudiantes de enfermería. El estudio se realizó en la Facultad de Enfermería de la Universidad Prince Sattam. Se utilizaron cuestionarios de entorno clínico percibido y estrés académico.

Resultados: se incluyeron en el presente estudio 113 estudiantes de enfermería; la edad media de la muestra de estudiantes fue de 21 años. Se informó una correlación entre el estrés académico y la edad de los estudiantes varones ($F=3,526$, $P=0,037$) y mujeres ($F=13,538$, $P<0,001$). El 73,6 % de los estudiantes varones informaron que la razón del aumento del estrés en el entorno clínico era el miedo a cometer un error. Hubo una fuerte relación entre los tipos de entornos clínicos, las horas semanales en entornos clínicos y el estrés académico y clínico.

Conclusiones: este presente estudio demostró que las horas clínicas por semana y el tipo clínico fueron predictores significativos del aumento del estrés académico y clínico en estudiantes de enfermería masculinos y femeninos. Por lo tanto, el estudio recomienda desarrollar estrategias y una estructura curricular educativa del curso antes de enviar a los estudiantes a áreas clínicas para que los estudiantes de enfermería mejoren sus capacidades y enfrenten una mayor reducción del estrés clínico y académico.

Palabras clave: Estrés Académico y Clínico; Estudiante de Enfermería Masculino y Femenino.

INTRODUCTION

Stress is a physiological and psychological reaction that people experience as a result of life's dynamics. ⁽¹⁾It rises in an opportunistic response to environmental changes and threats from the outside or inside. Stress levels among university students are often very high, particularly for those majoring in health-related fields. ⁽²⁾Developments in the nursing profession are accompanied by expanding duties and obligations; yet, defining the area of practice and preserving the sustainability of the nursing workforce present difficulties, also as a result, a lot of nursing students may experience high levels of stress during their clinical training. ⁽³⁾

Nursing students are exposed to some of the same stressors as registered nurses during clinical training, relationships with other healthcare professionals, the notorious hospital ranking, challenging circumstances involving patient care and their relatives, and how they handle the death of patients they tend to are examples of the same. Moreover, additional stresses that are typical of students, such as those associated with their academic program and their role as nursing students; coexist with nursing students. ⁽⁴⁾

Stress among nursing students is a common phenomenon. ⁽⁵⁾As a result of increasing workload and exposure to a range of cultural contexts during their training in hospitals, nursing students experience higher levels of stress. Academic and professional educators and nursing students must evaluate the effects of clinical training stress to develop suitable coping mechanisms for successfully designing a clinical training environment for nursing education, On the other hand, male and female students' job happiness, self-esteem, and feelings of professional value can all take a hit after having bad clinical experiences. One of the most crucial components of a nursing degree is clinical rotations. ⁽⁶⁾Nurses are one of the health service sector workers who are vulnerable to work-related illness because they have a high risk of stress. ⁽⁷⁾

The stress disparities between female and male nurses are caused by many factors. The workload varies, to start. Incentives for male and female nurses differ, which is the second point. The stress levels of female nurses differ from those of male nurses even though they have more housework to accomplish at home. ⁽⁸⁾Men are more likely to experience stress due to quantitative demands, while women are more likely to experience stress due to qualitative workloads, specifically those including intellectual and emotional components. ⁽⁹⁾

Nursing students benefit greatly from clinical practice because it provides them with training procedures and techniques that, can be integrated, applied, and used in real-world clinical settings to gain general nursing knowledge. ⁽¹⁰⁾

Today's nursing students face a variety of stressors that impair their capacity to use their cognitive and emotional regulation skills, such as a hostile learning environment, exams, inadequate parental support, inadequate instructor support, and a lack of resources to help Students' performance may suffer if they experience these stressors often because they may grow apathetic or uninterested in their academic careers. ⁽¹¹⁾ Perceived stress level varies across the world. From 31,0 to 63,5 % among medical colleague students, ⁽¹²⁾ studies reported among Saudi medical students that (59,2 %) of medical students were confirmed to be stressed. ⁽¹³⁾ Another study among 386 medical students found that 61 % of the students had a severe and high level of stress ⁽¹⁴⁾

The current study aimed to examine differences between male and female nursing students regarding Clinical and Academic Stress.

METHOD

Design and Sample

A cross-sectional comparative study design was utilized. A convenience sample was utilized, and the study was conducted in the ex-faculty from September 2023 to November 2023. A total of 113 students fulfilled the study criteria and agreed to participate from a total of 372 Inclusion Criteria: male and female nursing students registered in the nursing department at study time with Saudi nationality. Internship students were excluded.

Instruments

1. Sociodemographic characteristics questionnaire: it was developed by the researchers to examine sociodemographic characteristics such as age, academic level, marital status, satisfaction with specialty, Hours, and type of clinical setting/week.

2. Perceived clinical setting Stress questionnaire: it was developed by ⁽⁸⁾ to examine the stressors experienced by student nurses during clinical work. It consists of 10 items with a Likert scale from Never = 0 to Very Often = 4. The cut score was the score within the range of 0-13 indicating low levels of stress, the score within the range of 14-26 indicating a moderate level, and the score within the range of 27-40 indicating high levels. The Reasons that increase stress in the clinical setting were derived from.⁽¹⁵⁾

3. Academic Stress Questionnaire: adapted from,⁽¹⁶⁾ to determine stressors that threaten or challenge nursing students in their academic experience. This questionnaire consisted of 40 items divided into 5 subscales: the first one, Personal inadequacy (from 1 to 8); the second, Fear of Failure, (from 9 to 16); the third Interpersonal difficulties with Teachers, (from 17 to 24); the fourth Teacher - Pupil Relationship/ Teaching Method, (from 25 to 32); and the fifth Inadequate Study Facilities, (from 33 to 40).

The scoring system “No Stress (NS),” = 0 score. “Slight Stress (SS),” = 1score. “Moderate Stress (NS),” = 2 score. “High Stress (HS) “ = 3score. Lastly, “Extreme Stress (ES) “,” is = 4 score

Validity and reliability test

Before utilizing the instrument in the study, three experts from the nursing field at Cairo University reviewed the tools' content validity, clarity, appropriateness, and relevance. The Cronbach's alpha value (internal consistency) of the Perceived Stress Scale was 0,896, and the Academic Stress Scale was 0,901.

Procedure

Upon the researchers receiving the approval letter, a list of instructions was prepared for the student and sent with a Google Drive link through telegram group, academic email, and WhatsApp invites to students' groups, which explained, the importance, the aim, and benefits of the study to seek their cooperation. Questionnaire completion within 16-21 min. Data collection took place for three months from September 2023 to November 2023.

Ethical consideration

The participants were assured of the confidentiality of their data and that participation was completely voluntary; each student had the right to accept refuse or participate in it. The participants were informed that by submitting the questionnaires.

Data analysis

All statistical analyses were performed using SPSS for Windows version 20.0 (SPSS, Chicago, IL). Data were normally distributed and were expressed in mean \pm standard deviation (SD). Categorical data were expressed in numbers and percentages. One-way analysis of variance (ANOVA) test was used for comparison among more than two variables with continuous data. The chi-square test (or Fisher's exact test when applicable) was used for comparison of variables with categorical data. The reliability (internal consistency) test for the questionnaires used in the study was calculated. Statistical significance was set at $p < 0,05$.

RESULTS

Sample Characteristics

Socio-demographic characteristics are listed for the students. A total of 113 nursing students responded to the study. Table (1), illustrate that 77,4 % of male students, 68,3 % female. The mean age of males and females were 21,30 and 21,02, respectively. Females with Academic performance (A) were 45,3 % of studied nursing students and 51,7 % of male students studied nursing students. 92,5 % and 80 % of male and female student of the study sample respectively their clinical sitting was in Clinical Lab. No statistically significant differences were found between males and females in their demographic characteristics.

	Male Students (n=53)		Female Students (n=60)		Chi-Square	
	N	%	N	%	X ²	P
Age (Years)						
< 20	5	9,4	10	16,7		
20 - 22	41	77,4	41	68,3		
> 22	7	13,2	9	15,0	1,489	0,475
Mean ±SD	21,30 ±1,17		21,02 ±1,31		1,215	0,227
Working besides education						
Yes	13	24,5	10	16,7		
No	40	75,5	50	83,3	1,073	0,300
Students live						
With family	39	73,6	49	81,7		
without family	14	26,4	11	18,3	1,067	0,302
Academic Level						
1 st	9	17,0	18	30,0		
2 nd	17	32,1	17	28,3		
3 rd	12	22,6	15	25,0		
4 th	15	28,3	10	16,7	3,915	0,271
Academic performance						
A+	24	45,3	31	51,7		
A	14	26,4	4	6,7		
B+	6	11,3	10	16,7		
B	5	9,4	10	16,7		
C+	4	7,5	5	8,3	8,824	0,066
Clinical Settings per week						
6 Hours	27	50,9	29	48,3		
8 Hours	16	30,2	23	38,3		
10 or More	10	18,9	8	13,3	1,121	0,571
Types of clinical setting						
Hospital	36	67,9	41	68,3	0,002	0,963
Clinical Lab	49	92,5	48	80,0	3,590	0,058

(table 2) illustrates that 20,8 %, 64,2 %, and 15,1 % of male students had low, moderate, and high levels of stress, respectively. However, 13,3 %, 51,7 %, and 35 % of female students experienced low, moderate, and high levels of stress. Moreover, a statistically significant difference was found between male and female nursing students in the level of clinical setting stress ($p = 0,049$), (table 6) shows that a correlation was observed between academic stress and the student's male age ($F=3,526$, $P=0,037$) and female students ($F=13,538$, $P<0,001$). The academic stress was statistically significant with the student's academic level ($F=4,418$, $P=0,008$). A notable correlation was seen between academic stress and the number of Clinical settings attended per week for male ($F=3,577$, $P=0,035$) and female ($F=3,3464$, $P = 0,042$) students. statistical association was noted between academic stress and types of clinical settings among male ($T=2,154$, $P=0,035$) and female ($T=4,717$, $P<0,001$) students.

Table 2. Comparison between male and female students regarding the Perceived clinical setting Stress Scale total levels of students(n=113)

	Male Students (n=53)		Female Students (n=60)		Chi-Square	
	N	%	N	%	X ²	P
Total Perceived Stress Level						
Low-level Stress	11	20,8	8	13,3		
Moderate-level Stress	34	64,2	31	51,7		
High -level Stress	8	15,1	21	35,0	6,029	0,049*

Table 3. Comparison between male and female students about reasons increase stress in the clinical (n=113)

Reasons	Males Students (n=53)		Female Students (n=60)		Chi-Square	
	N	%	N	%	X ²	P
Fear of causing harm to the patient	30	56,6	39	65,0	0,834	0,361
Working with different gender patients	14	26,4	9	15,0	2,262	0,133
Fear of making a mistake	39	73,6	43	71,7	0,052	0,820
Difficulty communicating with the patient	14	26,4	11	18,3	1,067	0,302
Feeling of inadequacy	20	37,7	19	31,7	0,459	0,498
Exposure to gender bias and rejection	3	5,7	5	8,3	0,306	0,580

(table 3) shows that 73,6 % and 71,7 % of male and female students, respectively, fear making a mistake, as the reason that increases their stress level with no statistically significant difference. Moreover, 56,6 % and 65 % of male and female students, respectively, fear harming the patient

Table 4. Comparison between males and females regarding Academic Stress Scale domains and total score(n=113)

	Male Students (n=53)	Female Students (n=60)	Student's T-Test	
	Mean ±SD	Mean ±SD	T	P
Personal inadequacy	14,74 ±4,88	16,20 ±5,88	1,428	0,156
Fear of Failure	10,85 ±5,72	11,40 ±6,39	0,480	0,632
Interpersonal difficulties with Teachers	34,79 ±14,21	38,52 ±18,24	1,199	0,233
Teaching Method	13,45 ±6,27	13,55 ±7,14	0,076	0,939
Inadequate Study Facilities	13,02 ±5,84	14,02 ±6,95	0,822	0,412
Academic Stress Total Score	86,85 ±31,73	93,68 ±41,72	0,970	0,334

Table 4 illustrating that the mean ± standard deviation of academic stress is 86,85 ±31,73 & 93,68 ±41,72 in male students and females respectively. There wasn't a significant difference in academic stress levels between males and females.

Table 5. Association between the demographic students' characteristics and Academic Stress Scale.

	Male Students (n=53)		Female Students (n=60)	
	Mean ±SD	Significance test	Mean ±SD	Significance test
Age (Years)				
< 20	76,20 ±28,55		41,60 ±17,90	
20 - 22	89,97 ±30,55	F=3,526, P=0,037*	102,58 ±37,63	F=13,538, P<0,001**
> 22	58,71 ±24,36		111,00 ±35,49	
Working besides education				
Yes	94,01 ±29,93	T=0,934, P=0,355	74,00 ±36,43	T=1,383, P=0,172
No	84,52 ±32,31		90,78 ±34,74	
Student residence during study				
With family	89,76 ±30,65	T=1,121, P=0,268	84,02 ±37,20	T=1,875, P=0,066
Away from family	78,71 ±34,42		105,63 ±16,75	
Academic Level				
1st	109,66 ±36,35		84,61 ±40,04	
2nd	89,94 ±23,63	F=4,418, P=0,008*	103,76 ±35,67	F=1,489, P=0,227
3rd	78,91 ±30,47		92,06 ±40,34	
4th	67,86 ±26,62		74,30 ±30,14	
Academic performance				

A+	87,20 ±30,32		93,03 ±41,03	
A	76,42 ±28,75		70,50 ±22,48	
B+	86,83 ±33,79	F=0,946, P=0,446	77,80 ±38,40	F=0,769, P=0,550
B	103,20 ±42,02		87,80 ±31,06	
C+	70,25 ±25,97		103,40 ±13,64	
Clinical Settings hours per week				
6 Hours	73,37 ±28,12		73,79 ±36,95	
8 Hours	87,12 ±34,28	F=3,577, P=0,035*	93,13 ±32,39	F=3,3464, P=0,042*
10 or More	102,40 ±28,88		106,62 ±45,50	
Types of clinical setting				
Hospital				
Yes	94,69 ±34,40	T=2,154,	98,82 ±29,37	T=4,717, P<0,001**
No	74,70 ±24,06	P=0,035*	60,36 ±29,40	
Clinical Lab				
Yes	86,16 ±28,60	T=1,312, P=0,195	83,91 ±31,91	T=1,241, P=0,219
No	66,50 ±32,00		97,58 ±42,23	

Table 5 illustrates that a significant correlation was seen between academic stress and the student age of male (F=3,526, P=0,037) and female students (F=13,538, P<0,001). Students' academic stress was statistically significantly correlated with the student academic level (F=4,418, P=0,008). A notable correlation was noted between academic stress and the number of Clinical attended per week for male (F=3,577, P=0,035) and female (F=3,3464, P = 0,042) students. A statistically significant association there was present between academic stress and the types of clinical settings among male (T=2,154, P=0,035) and female (T=4,717, P<0,001) students.

DISCUSSION

The study aimed to assess predictors of academic and clinical stress among male and female nursing students. According to the research questions, the results of the current study reported a statistical difference between male and female nursing students regarding levels of clinical setting stress. Also, on their first day in a clinical setting, more than half of female students reported being interested, but the same percentage of male students reported feeling sad and entranced. The study portrayed that, clinical hours per week and clinical setting type were significant predictors for increasing academic and clinical stress in male and female nursing students.

According to a recent literature analysis conducted by,⁽¹⁷⁾ it was found that nursing students experience stress from two main sources: academic stress, which includes factors like workload, and study difficulties, and clinical stress, which encompasses challenges related to communicating with patients and ward staff, care for terminally ill patients, and the disparity between theoretical knowledge and its practical application. According to a study conducted by,⁽¹⁸⁾ individuals tend to perceive clinical stresses as more severe when compared to academic stressors.

One hundred and thirteen nursing students were included in the study's sample. There were seventy-seven percent of male students and sixty-eight percent of female students between the ages of 22 and 23 in the current survey. This result is incongruent with⁽¹⁹⁾ who found that most of the samples (53 %) were 18 years of age. The average age of males was 21,30, and the average age of females was 21,02. Only half of enrolled female nursing students had a grade point average (GPA) of A or higher, also half of enrolled male nursing students. Most of the male and female students in the study group had their clinical experience in the clinical lab.

From the researcher's point of view, the disparities in average age and academic achievement between male and female students may reflect natural inequalities between individuals. Both academic achievement and age at enrollment may be affected by factors such as intrinsic motivation, level of prior education, study habits, experience, and family socioeconomic status.

The study findings showed that more than half of female students expressed their first interest in a clinical setting on the first day. Similarly, more than half of male students reported experiencing feelings of sadness and entrancement during the same period. However, no statistically significant disparities were noticed between male and female students in terms of their emotions on the initial day in a clinical environment. Similarly, a study conducted, ⁽⁸⁾ examined the initial expectations of students as they started their first clinical placement. Individual limitations, such as feelings of self-doubt and lack of knowledge, are factors that contribute to a genuine desire for knowledge acquisition, commitment, and willingness to acquire new skills.

From the researcher's point of view that may be many factors might affect how students feel in a clinical situation, including their unique personalities, experiences, and expectations. The need for emotional support and counseling for all nursing students is highlighted by the sensations of grief and enchantment described by

male students. Strategies for creating a safe learning environment can be implemented by nursing educators to help their students cope with the emotional difficulties they may encounter in clinical settings.

About the stress experienced during clinical training. The findings indicate that a large percentage of female nursing students had moderate to high levels of stress, whereas more than half of male nursing students reported low to moderate levels of stress. Additionally, a statistically significant difference was observed between male and female nursing students in terms of the degree of stress experienced during clinical placements. This conclusion is consistent with the results of the study, which indicated that perceived stress levels are significantly different between women and men, with women reporting significantly higher levels of total perceived stress. Furthermore, more females indicated moderate levels of stress in comparison to their male counterparts.⁽²⁰⁾

From the researchers' point of view, with gender differences, it has been observed that female nursing students tend to exhibit elevated levels of stress in comparison to their male counterparts. The lower levels of stress experienced by male students have been linked to their desire to underestimate and conceal their unpleasant emotions. This behavior stems from their perception that openly expressing feelings is an indication of fragility. On the other hand, the higher level of stress experienced by female students is linked to their community's networks, customs, cultural emphasis, and fluctuations in physiological female hormones.

The results of academic stress in the present study portrayed that, the total levels of academic stress domain mean and standard deviation in male students is $86,85 \pm 31,73$. On the other hand, $93,68 \pm 41,72$ of the female students. Without statistical difference between the male and female in academic stress level. These results are incongruent with a study by,⁽²¹⁾ who stated that male students got a higher mean score of $86,87 \pm 11,12$ than female students $85,36 \pm 11,09$ with statistically significant differences between the males and females in academic stress levels.

As far as stress levels among students are concerned, around three-quarters of students, both male and female, reported concerns about making mistakes during patient care. These findings are consistent with those from, those who reported that less than three-quarters of nursing students reported a high level of stress related to patient care.⁽²²⁾ Whereas small percentages of both genders reported Exposure to gender bias and rejection from the patient. Additionally, no statistically significant difference was observed across genders.

From a researcher's perspective, it is commonly observed that nursing students frequently encounter feelings of worry and anxiety about making mistakes during the provision of patient care. These emotions might arise due to insufficient clinical experience or regular instructor evaluation and assessment appraisal, with the potential for receiving unfavorable evaluations, critiques, or falling short of anticipated outcomes.

The current study results revealed that a highly significant relationship was found between Perceived clinical sitting Stress and Clinical Settings hours per week in male and female students ($<0,001$) in the same line with⁽⁸⁾ who found a statistically significant correlation between a higher number of weekly working hours and the perceived stress levels among nurses. The finding illustrates that the clinical hours per week may enhance stress due to an increase in stress commonly lined with an extension of working hours, students a greater allocation of duties and obligations. The heightened workload has the potential to induce elevated levels of stress, as individuals may experience a sense of being overloaded and encounter difficulties in efficiently managing their time. Extended working hours can lead to limitations on time and the imposition of deadlines. When individuals are faced with a restricted amount of time to do their activities, they may encounter an increased level of stress because of the urgency to meet deadlines and perform with optimal efficiency.

Furthermore, was significant statistical relationship was found between Perceived clinical setting Stress and hospital clinical setting in male and female nursing students ($<0,005$), and in clinical lab in male students only at ($p<0,001$). Similarly, a systematic review and meta-analysis of nursing student stress levels found that the clinical setting type of nursing education is a major source of stress.⁽²³⁾

From the researchers' view, the justification for this result lies in the patient's care obligations. In the hospital clinical setting, nursing students are carried out under the guidance and supervision of preceptors. The responsibilities encompassed under this role may entail a range of tasks, including but not limited to the administration of medications, conducting assessments, and providing assistance during procedures which, demand to deliver care that is both safe and effective.

The current study findings presented a notable correlation between academic stress and the age of male ($F=3,526$, $P=0,037$) and female students ($F=13,538$, $P<0,001$) which was similar to ⁽²⁴⁾ who found there was a relationship between clinical environment stressors and age. From the researcher's standpoint, it is essential to consider all students within the youth age group, as individuals progress from the middle school level to university education, this developmental phase is characterized by an increase in academic requirements, and the need to take on harder coursework.

In addition, academic stress and academic level of male students were statistically significant ($F=4,418$, $P=0,008$). A notable correlation was observed between academic stress and the Clinical attended per week for male ($F=3,577$, $P=0,035$) and female ($F=3,3464$, $P=0,042$) nursing students. moreover, the present study findings added a statistically significant relation between academic stress level and types of clinical settings among male

($T=2,154$, $P=0,035$) and female ($T=4,717$, $P<0,001$) students these is results corresponded with findings that found a significant correlation between the clinical learning milieu and the perception of academic stress.⁽²⁴⁾

CONCLUSIONS

The current study concludes that there are no statistically significant differences between male and female nursing students regarding causes that increase stress in the clinical setting, such as harming the patient, working with different gender patients, or making a mistake. However, there were statistically significant differences between male and female nursing students regarding levels of clinical setting stress. At the same time, there was no statistically significant difference between male and female nursing students regarding academic stress. Additionally, the current study portrayed that clinical hours per week and clinical type were significant predictors of increasing educational and clinical stress in male and female nursing students.

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FINANCING

This study is supported via funding from Prince Sattam bin Abdulaziz University project number (PSAU/2023/R/1445).

CONFLICT OF INTEREST

Authors declare that no conflicts of interest.

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