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PERCEIVED STRESS FACTORS AND COPING BEHAVIORS OF NURSING STUDENTS IN CLINICAL PRACTICE: A CROSS-SECTIONAL STUDY

Fatores de estresse percebidos e comportamentos de enfrentamento de estudantes de enfermagem na prática clínica: um estudo transversal

Factores de estrés percibidos y conductas de afrontamiento de estudiantes de enfermería en la práctica clínica: un estudio transversal

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RESUMO

OBJETIVO: o objetivo deste estudo foi determinar o nível de estresse vivenciado por estudantes de enfermagem na prática clínica, os estressores que contribuem para esse estresse e os comportamentos de enfrentamento que os estudantes de enfermagem utilizam para lidar com o estresse. **Método:** o estudo adotou um delineamento descritivo. Os dados foram coletados por meio do Google Forms entre 8 de dezembro de 2022 e 2 de junho de 2023. **Resultados:** a idade média dos participantes foi de 20,83 ± 1,62 anos, sendo que 28,1% eram estudantes do segundo ano de enfermagem. A forma mais prevalente de estresse relatada foi o estresse relacionado ao cuidado com os pacientes, seguido pelo estresse relacionado a professores e profissionais de enfermagem. A estratégia de enfrentamento mais frequentemente relatada entre os participantes foi a evitação. **Conclusão:** educadores e enfermeiros devem reconhecer que os erros fazem parte do processo de aprendizagem, compreender o estresse vivenciado pelos estudantes e oferecer suporte para que consigam focar na aprendizagem positiva.

DESCRITORES: Estresse; Comportamentos de enfrentamento; Estudante de enfermagem; Prática clínica.

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ABSTRACT

OBJECTIVE: the objective of this study was to determine the level of stress experienced by nursing students in clinical practice, the stressors that contribute to this stress, and the coping behaviors that nursing students employ to manage stress **Method:** the study employed a descriptive design. The data were collected via Google Forms between December 8, 2022, and June 2, 2023. **Result:** the mean age of the participants was 20.83±1.62 years and 28.1% were second-year nursing students. The most prevalent form of stress reported by the participants was the stress from taking care of patients, which was followed by the stress from teachers and nursing personnel and The most frequently reported coping strategies among the participants were avoidance. **Conclusions:** educators and nurses should recognize that errors are an inherent part of the learning process, understand the stress experienced by students, and provide support to enable them to focus on positive learning.

DESCRIPTORS: Stress, Coping behaviors; Nursing student; Clinical practice.

RESUMEN

OBJETIVO: el objetivo de este estudio fue determinar el nivel de estrés experimentado por los estudiantes de enfermería en la práctica clínica, los factores estresantes que contribuyen a este estrés y las conductas de afrontamiento que emplean para manejarlo. **Método:** el estudio utilizó un diseño descriptivo. Los datos se recopilaron mediante formularios de Google entre el 8 de diciembre de 2022 y el 2 de junio de 2023. **Resultados:** la edad media de los participantes fue de 20,83 ± 1,62 años y el 28,1% eran estudiantes de segundo año de enfermería. La forma más prevalente de estrés reportada fue el estrés por el cuidado de los pacientes, seguido por el estrés generado por docentes y personal de enfermería. La estrategia de afrontamiento más comúnmente mencionada fue la evitación. **Conclusión:** los educadores y enfermeros deben reconocer que los errores son parte inherente del proceso de aprendizaje, comprender el estrés que experimentan los estudiantes y brindar apoyo para que puedan centrarse en el aprendizaje positivo.

DESCRIPTORES: Estrés; Conductas de afrontamiento; Estudiante de enfermería; Práctica clínica.

INTRODUCTION

Nursing education is an integrated form of education comprising two principal components: theoretical education and clinical practice.[1-2] Clinical practice provides nursing students with an environment in which they can gain experience in the cognitive, emotional, and psychomotor skills and techniques required of them, with the support of clinical practices, while developing their theoretical knowledge.[3-4] Clinical practice represents a crucial aspect of the curriculum, offering students the opportunity to apply their theoretical knowledge in a clinical setting, enhance their problem-solving and critical thinking abilities, and cultivate a holistic perspective.[2,3,5] The learning environment for nursing students typically encompasses a variety of clinical settings, each with its own distinctive characteristics, including different environments, cultures, opportunities, and facilities.[1]

The extant literature indicates that clinical practice is a more stressful experience than theoretical education. A perceived lack of knowledge and skills is identified as a common stress factor for many students.[4-6] Furthermore, the initial experience in clinical practice encompasses a multitude of stressors, including apprehension about potential errors, the necessity of responding to unexpected situations, inconsistencies in clinical procedures, exposure to violence, challenges with instructors, and interactions with clinical nurses and patients.[4,6-9] Additionally, students may experience stress due to various factors, including physical, chemical, biological, ergonomic, environmental, and psychosocial hazards; personal problems; assuming new responsibilities; and working with diverse individuals.[10-11] A critical analysis of twenty-five articles by McCarthy et al. (2018) revealed that although the clinical, academic, and financial issues constitute stressors, the primary source of stress for nursing students was the clinical environment.[12]

Clinical practice represents a significant source of stress for nursing students.[4] While low or moderate levels of stress have been demonstrated to enhance students' motivation and facilitate their ability to study and achieve their academic goals, high levels of stress have been shown to exert a detrimental impact on students' well-being.[2,13] The failure to effectively manage the issues encountered in clinical practice can result in adverse outcomes, including depression and hopelessness in students, negative attitudes towards the profession, deterioration of physical health, lack of motivation, poor academic achievement, decline in knowledge and skill level, and a reduction in the quality of the profession and nursing education.[3,7,12,14,15] In conclusion, elevated stress levels impact

not only students' academic performance but also their physical and mental health.[6,12,15]

Stress is an unavoidable phenomenon that can prove challenging to overcome in many cases. Nevertheless, the probability of these unfavorable outcomes can be reduced through the implementation of efficacious coping mechanisms. The efficacy of stress management strategies is contingent upon one's capacity to discern and adapt through the implementation of coping mechanisms.[4] In general, coping is defined as the act of dealing with emotions or behaviors with the intention of reducing the physical or psychological effects of excessive stress.[12] A study conducted by Admi et al. (2018) revealed that the initial or subsequent year of academic studies is the period during which students experience the greatest stress.[16] In a separate study, it was determined that the third year is the most stressful due to the presence of clinical tasks.[17]

However, the literature indicates that stress levels tend to increase in accordance with the level of education or academic year, and subsequently decline as students attain greater levels of education.[6] Furthermore, the specific coping strategies employed by individuals are subject to variation according to their characteristics and the context of the stressors. The most common stress-coping behaviors reported by students include problem solving, maintaining an optimistic outlook, and transference.[15,18] These strategies have been identified as one of the most effective methods for coping with stress. The implementation of stress-coping behaviors has been linked to enhanced psychological and physical health outcomes in students. It is therefore imperative to assess the stress levels and coping strategies of nursing students engaged in clinical practice in Turkey, with the objective of reducing stress and fostering a positive clinical experience.

Despite the elevated stress levels experienced by nursing students compared to other health professionals, there is a dearth of empirical data on stress in clinical practice among these students in Turkey.[3,7,10] Accordingly, the present study was undertaken to gain a comprehensive understanding of the stress levels and stress coping behaviors exhibited by nursing students during clinical practice, with the objective of providing evidence that can inform the development of effective clinical education strategies.

MATERIALS AND METHODS

Aim

The objective of this study was to determine the level of stress experienced by nursing students in clinical practice, the stressors that contribute to this stress, and the coping behaviors that nursing students employ to manage stress. Additionally, the study sought to examine the relationship between these factors.

Study design

The study employed a descriptive design. This study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

Population and sampling

The study population consisted of 1,037 nursing students enrolled in the Nursing Department of a state university in Ankara during the spring semester of the 2022-2023 academic year. A convenience sampling technique was used to determine the sample size. The required sample size was calculated using G ⋆power version 3.1. The required sample size was calculated to be 134 for 80% power, medium effect size criteria, 95% confidence level, and 5% confidence interval. The study included voluntary students who had completed at least one clinical practicum. Students who had not completed the data collection tools or who wanted to withdraw from the study were excluded. The study concluded with the participation of 430 students.

Measurements

Descriptive information form, Perceived Stress Scale and Coping Behavior Inventory.

Descriptive information form

The form was developed by the researchers in accordance with existing literature.[3,4,7,19,20] It consisted of seven questions on age, gender and grade.

Perceived Stress Scale (PSS)

The PSS was developed by Sheu et al. (1997) for the purpose of investigating the stress factors perceived by nursing students during clinical practice.[21] Subsequently, it was adapted into Turkish by Karaca et al. (2015).[7] The scale comprises 29 items, which are scored on a five-point Likert scale, ranging from 0 (not stressful at all) to 4 (very stressful). The PSS is composed of six subscales, including stress from taking care of patients, stress from lack of professional knowledge and skills, stress from assignments and workload, stress from teachers and nursing personnel, stress from the clinical environment, stress from peers and daily life. The range of possible scores is from 0 to 116, with higher scores indicating greater distress. The

Cronbach's alpha coefficient for the original scale was 0.930, and for our study it was 0.972.

Coping Behavior Inventory (CBI)

The CBI was developed by Sheu et al. (2002) to evaluate the coping strategies utilized by nursing students in response to stressors encountered during clinical practice.[22] Subsequently, the scale was adapted into Turkish by Karaca et al. (2015).[7] The scale comprises 19 items, which are scored on a five-point Likert scale, ranging from 0 (strongly disagree) to 4 (strongly agree). Subscales of the CBI include optimistic coping, transference, problem-solving, and avoidance. Total scores range from 0 to 76, with higher scores indicating greater recourse to and efficacy of coping behavior strategies. The Cronbach's alpha coefficient for the original scale was 0.76, and for our study it was 0.825.

Data collection

The data were collected via Google Forms between December 8, 2022, and June 2, 2023. Prior to commencement, the students were informed about the aim of the study in a classroom setting and were asked to complete the data collection tools, which were sent to their e-mails. The students were required to provide informed consent via Google Forms. The data collection process took approximately 10-15 minutes.

Data analysis

The data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 27.0. Categorical data were presented using frequency (n) and percentage (%), while mean (X), standard deviation (SD), and the minimum and maximum values were provided for numerical variables. The data were found to meet the criteria for normal distribution, as indicated by the skewness and kurtosis values. Consequently, parametric methods were utilized. The independent groups t-test, one-way ANOVA, and Pearson's correlation test were employed to compare the scores obtained from the PSS and the CBI with the descriptive characteristics of the participants. Statistical significance was set at $p < 0.05$.

Ethical considerations

Ethical approval was obtained from the Gazi University Ethics Commission (dated 06/21/2022, numbered 2022-842). Institutional permission was obtained from the Gazi University Faculty of Nursing, Department of Nursing. The study was carried out in accordance with the principles set forth in the Declaration of Helsinki. The participants were informed that their involvement was entirely voluntary and that they could withdraw from the study at any time. Prior to the study, informed consent was obtained from all participants. The confidentiality and privacy of the participants were ensured.

RESULTS

Descriptive characteristics

Table 1 presents the descriptive characteristics of the participants. Accordingly, the mean age of the participants was 20.83±1.62 years, 84.0% (n=361) were female, and 28.1% (n=121) were second-year nursing students. The findings indicated that 57.2% (n=246) of the participants had completed at least three semesters of clinical practice, while 69.5% (n=299) reported experiencing challenges during their clinical practice.

Table 1 - Descriptive characteristics (n=430)

Variables	Min-Max	$\bar{X}$±SD
Age	18-30	20.83±1.62
	n	**%**
Gender		
Female	361	84.0
Male	69	16.0

Variables	Min-Max	$\bar{X}$±SD
Grade		
1st year	99	23.0
2nd year	121	28.1
3rd year	105	24.4
4th year	105	24.4
Duration of clinical practice		
1-2 semesters	184	42.8
≥3 semesters	246	57.2
CGPA		
≤2,50	67	15.6
2,51 - 3,00	131	30.5
3,01 - 3,49	160	37.3
≥3,50	71	16.6
Experienced problems during clinical practice		
Yes	131	30.5
No	299	69.5
Perceived competence in clinical practice		
I feel adequate	90	20.9
I feel partially adequate	296	68.8
I don't feel adequate	44	10.2

$\bar{X}$: Mean; SD: Standard deviation; CGPA: Cumulative Grade Point Average

PSS and CBI Scores

Table 2 presents the scores obtained from the PSS, CBI and their subscales. The mean PSS and CBI scores were 56.14 ± 25.60 and 35.98 ± 10.47, respectively. The most prevalent form of stress reported by the participants was the stress from taking care of patients (16.17±7.30), which was followed by the stress from teachers and nursing personnel (11.24±5.56), and the stress from assignments and workload (9.77±4.76), respectively. The most frequently reported coping strategies among the participants were avoidance (12.47±4.53) and problem-solving (10.27±3.66), respectively.

Table 2 - PSS and CBI Scores (n=430)

Scales		X±SD	Min	Max
PSS	Stress from lack of professional knowledge and skills	5.95±2.88	0.00	12,00
	Stress from taking care of patients	16.17±7.30	0.00	32,00
	Stress from assignments and workload	9.77±4.76	0.00	20,00
	Stress from teachers and nursing personnel	11.24±5.56	0.00	24,00
	Stress from the clinical environment	5.40±2.92	0.00	12,00
	Stress from peers and daily life	7.62±4.00	0.00	16,00
	Total	56.14±25.60	0.00	116,00
CBI	Optimistic coping	6.87±2.83	0.00	16,00
	Transference	6.37±2.23	0.00	12,00
	Problem-solving	10.27±3.66	0.00	24,00
	Avoidance	12.47±4.53	0.00	24,00
	Total	35.98±10.47	0.00	72,00

Relationship between the PSS and the CBI Scores

Table 3 illustrates that optimistic coping, transference, and problem-solving coping behaviors exhibited a statistically significant positive correlation with all stress factors ($p < 0.01$). Among the coping behaviors, optimistic coping behavior demonstrated a positive, moderate, and statistically significant relationship with the stress from lack of professional knowledge and skills ($r=.364$, $p<0.01$), stress from taking care of patients ($r=.418$, $p<0.01$), stress from assignments and workload ($r=.420$, $p<0.01$), stress from teachers and nursing personnel ($r=.442$, $p<0.01$), stress from the clinical environment ($r=.373$, $p<0.01$) and the stress from peers and daily life ($r=.389$, $p<0.01$). A positive, moderate, and statistically significant relationship was observed between problem-solving behavior and stress from teachers and nursing personnel ($r = .305$, $p < 0.01$).

Table 3 - Relationship between the PSS and the CBI Scores

Scale	Stress from lack of professional knowledge and skills	Stress from taking care of patients	Stress from assignments and workload	Stress from teachers and nursing personnel	Stress from the clinical environment	Stress from peers and daily life	PSS
Optimistic coping	.364**	.418**	.420**	.442**	.373**	.389**	.438**
Transference	.214**	.269**	.265**	.258**	.241**	.261**	.274**
Problem-solving	.229**	.272**	.284**	.305**	.243**	.296**	.296**
Avoidance	0.014	0.025	0.043	0.049	0.051	0.052	0.041
CBI	.230**	.276**	.288**	.302**	.259**	.287**	.298**

**p<0.01

Comparison of the PSS and the CBI scores according to descriptive characteristics

Table 4 presents a comparison of the PSS scores according to the participants' descriptive variables. Accordingly, female participants demonstrated statistically significant higher scores on the PSS and its subscales than their male counterparts ($p < 0.05$). The mean PSS score of third-year nursing students (61.02 ± 24.82) was found to be statistically significantly higher compared to other students ($p < 0.01$). Additionally, the scores obtained by the students who had completed at least three semesters of clinical practice from the PSS and its subscales were statistically significantly higher than other participants ($p < 0.01$).

Table 5 provides a comparison of the CBI scores according to the participants' descriptive variables. The study revealed that the mean optimistic coping score of the female participants (7.06±2.74) was statistically significantly higher than their male counterparts ($p < 0.01$). Third-year students demonstrated statistically significant higher scores on the optimistic coping (7.38 ± 2.98) and transference (6.90 ± 2.20) subscales of the CBI ($p < 0.01$). Furthermore, the data indicated that individuals who encountered challenges in clinical practice (7.69 ± 2.97) demonstrated statistically significantly higher scores on the optimistic coping subscales of the CBI ($p < 0.01$)

Table 4 - Comparison of the PSS scores according to descriptive characteristics

Variable (n=430)	n	PSS						
		Stress from lack of professional knowledge and skills	Stress from taking care of patients	Stress from assignments and workload	Stress from teachers and nursing personnel	Stress from the clinical environment	Stress from peers and daily life	Total
		X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD
Gender								
Female	361	6.07±2.80	16.70±7.07	10.07±4.65	11.66±5.40	5.58±2.83	7.82±3.88	57.90±24.78
Male	69	5.32±3.17	13.38±7.88	8.19±5.06	9.04±5.94	4.49±3.23	6.54±4.45	46.96±27.96
t		1.986	3.515	3.042	3.626	2.846	2.461	3.290
p		**0.048**	**0.000**	**0.002**	**0.000**	**0.005**	**0.014**	**0.001**
Grade								
1st year	99	5.03±2.55	12.89±6.52	7.57±4.35	9.56±5.51	4.44±2.96	6.82±3.86	46.30±24.09
2nd year	121	6.24±2.98	16.78±7.46	10.72±4.76	11.81±5.59	5.79±2.73	7.93±4.05	59.26±25.77
3rd year	105	6.59±2.85	17.93±7.13	10.63±4.67	12.16±5.42	5.68±2.88	8.03±3.97	61.02±24.82
4th year	105	5.83±2.88	16.80±7.09	9.90±4.61	11.24±5.45	5.59±2.99	7.59±4.05	56.94±25.42
	t	5.769	9.822	10.504	4.520	4.818	1.953	7.066
	p	**0.001**	**0.000**	**0.000**	**0.004**	**0.003**	0.120	**0.000**
Duration of clinical practice								
1-2 semesters	184	5.52±2.85	14.42±7.11	8.80±4.73	10.29±5.58	4.90±2.92	7.08±3.91	51.02±25.30
≥3 semesters	246	6.26±2.86	17.48±7.18	10.49±4.66	11.94±5.45	5.78±2.87	8.02±4.03	59.98±25.20
	t	-2.668	-4.380	-3.692	-3.073	-3.135	-2.435	-3.641
	p	**0.008**	**0.000**	**0.000**	**0.002**	**0.002**	**0.015**	**0.000**
CGPA								
≤2,50	67	5.55±3.22	14.93±8.42	9.16±5.22	10.37±6.38	5.00±3.23	7.36±4.79	52.37±29.84

Variable (n=430)	n	PSS						
		Stress from lack of professional knowledge and skills	Stress from taking care of patients	Stress from assignments and workload	Stress from teachers and nursing personnel	Stress from the clinical environment	Stress from peers and daily life	Total
		X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD
2,51 - 3,00	131	5.90±2.98	15.82±7.42	9.67±4.83	11.25±5.59	5.50±2.94	7.71±4.11	55.86±26.14
3,01 - 3,49	160	5.95±2.77	16.42±6.97	9.77±4.75	11.07±5.42	5.31±2.87	7.42±3.83	55.93±24.54
≥3,50	71	6.44±2.53	17.54±6.52	10.59±4.13	12.48±4.85	5.85±2.68	8.18±3.34	61.07±22.16
	t	1.119	1.645	1.086	1.776	1.077	0.719	1.373
	p	0.341	0.178	0.355	0.151	0.359	0.541	0.250
Experienced problems during clinical practice								
Yes	131	6.82±2.76	18.82±6.79	11.48±4.37	13.18±5.18	6.32±2.80	8.85±3.97	65.47±23.84
No	299	5.56±2.85	15.01±7.22	9.02±4.74	10.38±5.52	5.00±2.89	7.08±3.90	52.05±25.31
	t	4.274	5.122	5.076	4.931	4.406	4.308	5.150
	p	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Table 5 - Comparison of the CBI scores according to descriptive characteristics

Variables (n=430)	n	CBI				
		Optimistic coping	Transference	Problem-solving	Avoidance	Total
		X±SD	X±SD	X±SD	X±SD	X±SD
Gender						
Female	361	7.06±2.74	6.45±2.19	10.32±3.51	12.40±4.37	36,24±9,90
Male	69	5.83±3.06	5.94±2.44	10.00±4.38	12.86±5.32	34,62±13,05
	t	3.374	1.749	0.580	-0.670	0.977
	p	**0.001**	0.081	0.564	0.504	0.331
Grade						
1st year	99	6.15±2.93	5.74±2.39	9.90±4.01	11.97±4.74	33,76±11,50
2nd year	121	7.26±2.59	6.31±2.02	10.59±3.57	12.16±4.38	36,31±9,33
3rd year	105	7.38±2.98	6.90±2.20	10.56±3.73	12.57±4.50	37,42±10,76
4th year	105	6.57±2.68	6.50±2.23	9.97±3.32	13.21±4.51	36,26±10,22
	t	4.532	4.933	1.099	1.548	2,233
	p	**0.004**	**0.002**	0.349	0.201	0,084
Duration of clinical practice						
1-2 semesters	184	6.57±2.75	6.04±2.23	10.27±3.66	12.30±4.55	35,17±10,34
≥3 semesters	246	7.09±2.86	6.62±2.21	10.28±3.67	12.60±4.53	36,59±10,54
	t	-1.910	-2.700	-0.028	-0.663	-1,385
	p	0.057	**0.007**	0.977	0.508	0,167
CGPA						
≤2,50	67	7.15±3.08	6.43±2.44	10.91±3.88	11.85±4.88	36,34±11,02
2,51 - 3,00	131	6.65±2.88	6.39±2.28	10.06±4.06	12.30±4.72	35,40±11,63
3,01 - 3,49	160	6.96±2.73	6.48±2.14	10.31±3.50	12.67±4.32	36,41±9,87
≥3,50	71	6.77±2.74	6.06±2.20	9.94±2.97	12.94±4.36	35,72±9,12
	t	0.559	0.602	1.021	0.837	0,266
	p	0.643	0.614	0.383	0.474	0,850
Experienced problems during clinical practice						
Yes	131	7.69±2.97	6.40±2.27	10.60±3.67	11.92±4.40	36,61±10,37
No	299	6.51±2.68	6.36±2.22	10.13±3.65	12.71±4.58	35,71±10,52

Variables (n=430)	n	CBI				
		Optimistic coping	Transference	Problem-solving	Avoidance	Total
		X±SD	X±SD	X±SD	X±SD	X±SD
	t	4.065	0.152	1.243	-1.663	0,825
	p	**0.000**	0.879	0.215	0.097	0,410

DISCUSSION

Nursing students are vulnerable to stressors that may emerge during their undergraduate clinical practice, and they frequently encounter challenges in managing these stressors. The results of the present study indicate that the perceived stress levels of all participants engaged in clinical practice were moderate. This finding is consistent with those of other studies.[4,23,24,25] Moreover, the present study identified the primary sources of stress as caring for patients and interactions with teachers and nursing personnel, respectively. The results of the study conducted by Wang et al. (2019) are also in alignment with this finding.[13] Sun et al. (2016) found that the majority of nursing students were in a tense relationship due to the attitudes of their lecturers, particularly when they exhibited an "unfriendly attitude," which was associated with an increase in perceived stress levels.[26] In contrast with these findings and our own, other studies have identified assignments and workload as the primary sources of stress for nursing students.[4,25,27]

The findings of the present study and existing literature may be explained by the elevated student-to-educator ratio, the challenges associated with the teaching staff, and the stress caused by nurses due to their suboptimal working conditions and an intense workload. Nurses in Turkey are confronted with a multitude of challenging and unfavorable circumstances, including suboptimal working conditions, a shortage of personnel, inadequate managerial support, and limited resources. The exposure of nursing students to complex environments during clinical practice inevitably results in the experience of a multitude of stress factors. This outcome highlights the importance of examining student-instructor relationships and student workload within the educational system. To facilitate optimal learning and mitigate perceived stress, educators must recognize that meaningful learning occurs in environments that foster mutual respect, shared expectations, and reciprocal interaction. It is also recommended that this issue be addressed in in-service trainings for nurses to ensure positive communication and interaction with students.

Nursing students lack a clear understanding of effective stress management strategies. In the present study, the most frequently utilized coping strategy was avoidance, followed by problem-solving and optimistic coping. Our findings are differently with those of previous research on coping behaviors, which have identified avoidance as the most prevalent coping strategy.[4,14,15] A review of 25 studies has revealed that problem-solving, maintaining an optimistic outlook, and transference were the most frequently utilized coping behaviors among nursing students, respectively.[12] In a study by Labrague et al. (2017), problem-solving was identified as the most prevalent approach to coping with stress among undergraduate students.[28] As reported by Sun et al. (2016), students employed transference behaviors, including sharing their feelings with family members, friends, and classmates.[26] A review of the literature reveals that some nursing students employ positive coping behaviors,[14,29] while others engage in negative coping behaviors.[12,29]

The avoidance and optimistic coping strategies, which are regarded as the least effective approach to stress management, does not address the root cause of stress. Instead, it merely manages the stress-related emotions.[28] Consequently, it can be proposed that students could be instructed in alternative positive coping behaviors, such as stress management techniques and methods of safely releasing their emotions, with the aim of reducing their perceived stress levels.

As with the findings of the present study, the systematic review conducted by Chaabane et al. (2021) reached the conclusion that there is a potential link between stressors and the coping behaviors employed by nursing students.[20] Ab Latif et al. (2019) demonstrated that perceived stressors

during clinical practice exhibited a statistically significant correlation with coping behaviors.[19] Our findings indicate a positive, moderate, and significant relationship between optimistic coping behaviors and all stress factors. Therefore, it may be recommended that academic advisors and clinical instructors encourage their students to learn and utilize effective coping behaviors to alleviate clinical stressors. This approach is believed to enhance students' mental and psychological preparedness for clinical practice, thereby reducing their perceived stress levels.

The findings of our study suggest that the prevalence of stress among female nursing students during clinical practice is higher than that observed among their male counterparts. It has been demonstrated that male nursing students are more likely to employ avoidance strategies to cope with stress than their female counterparts. Shaban et al. (2012) reported that female nursing students experienced higher levels of stress compared to their male colleagues.[15] The majority of the participants in the present study were female. Due to gender role differences, male nursing students are generally expected to be stronger and braver. This may explain why they hesitate to talk to others or ask for help to cope and show avoidance coping behaviors more frequently.

The study concluded that the third year of nursing education was the most stressful period in clinical practice. Moreover, students in this academic year demonstrated a proclivity for employing optimistic and transference coping behaviors to a greater extent than students in other academic years. Similarly, Edwards et al. (2004) reported a higher prevalence of stress due to clinical practice among third-year nursing students.[17] In contrast, Admi et al. (2018) reported that the highest levels of stress were observed among first- and second-year nursing students.[16] While Onieva-Zafra et al. (2020) observed a decline in stress levels among students with increased education, Al Rasheed et al. (2017) reported an increase in stress among nursing students as they advanced in their educational programs.[30] Furthermore, our study and other studies[6,16,30] have demonstrated that students with high academic achievement exhibit lower stress levels. It is therefore recommended that students at all levels be accepted as having different stress levels and that effective coping behaviors be encouraged by determining these differences.

The findings of this study will provide a framework for conducting experimental studies on the reduction of stress levels and the development of healthy coping behaviors, with the objective of facilitating students' learning during clinical practice and ensuring their willing participation in practice.

CONCLUSIONS

This study concentrated on the stress experienced by nursing students during their clinical practice and the coping behaviors they employ in response to that stress. The nature of clinical education engenders high levels of stress among nursing students, impeding their ability to cope with stress effectively. The findings of the study indicate that the stress levels of the nursing students engaged in clinical practice were at a moderate level. The most prevalent source of stress for these students was the expectation of high performance by the teachers and the nursing personnel. They employed optimistic coping behaviors to manage stress.

The study revealed that nursing students frequently experience stress, particularly at the hands of their instructors and fellow nurses. It is incumbent upon instructors and nurses to assume responsibility for the management of student stress and the provision of guidance and support. It is the responsibility of academic and clinical educators to be aware of the sources of stress experienced by students during clinical practice and to understand the mental, physical, psychological, and social consequences of such negative experiences on students. Moreover, educators must acknowledge the impact of clinical stress on student performance, patient safety, and patient outcomes.

It is therefore recommended that educators and nurses recognize that errors are an inherent part of the learning process, understand the stress experienced by students, and provide support to enable them to focus on positive learning. Moreover, in-service training should be provided to health professionals on the significance of positive interactions with nursing students. It is also recommended that educators encourage their students to learn about clinical stressors and effective coping behaviors to reduce stress levels. Additionally, educators should reorganize the curriculum to reduce stressors and stress levels, thereby ensuring that students are psychologically prepared for clinical practice.

In view of these findings, we propose that further qualitative research be conducted to ascertain students' stress levels and experiences. Furthermore, we recommend that qualitative studies be conducted to examine the perspectives of instructors and nurses, with a particular focus on the barriers and facilitators for students in clinical practice.

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