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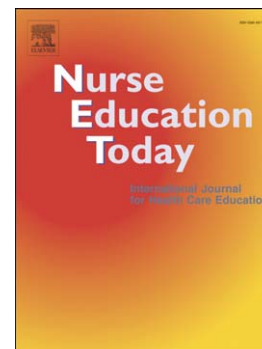
Stressors for spanish nursing students in clinical practice

Jose-María Suárez-García, Alba Maestro-González, David Zuazua-Rico,
Marta Sánchez-Zaballos, Maria-Pilar Mosteiro-Diaz

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STRESSORS FOR SPANISH NURSING STUDENTS IN CLINICAL PRACTICE**Jose-María Suárez-García:**

RN. Hospital Universitario Central de Asturias. Oviedo, Spain. Email: josemsuarez.94@gmail.com

Alba Maestro-González:

RN, MSc, PhD. Faculty of Medicine and Health Sciences. University of Oviedo. Oviedo. Spain. Email: maestroalba@uniovi.es

David Zuazua-Rico:

RN, MSc. Hospital Universitario Central de Asturias and Faculty of Medicine and Health Sciences. University of Oviedo. Oviedo. Spain. Email: zuazuadavid@uniovi.es

Marta Sánchez-Zaballos:

RN, MSc. Faculty of Medicine and Health Sciences. University of Oviedo. Oviedo. Spain. Email: sanchezmarta@uniovi.es

Maria-Pilar Mosteiro-Díaz:

RN, PhD. Vice-Dean Faculty of Medicine and Health Sciences. University of Oviedo. Oviedo. Spain. Email: mmosteirod@uniovi.es

Corresponding author at:

Alba Maestro-González

Universidad de Oviedo

Campus del Cristo s/n

33006 Oviedo

Asturias Spain.

Tel: +34 662186658

E-mail: maestroalba@uniovi.es

ABSTRACT

Background: Clinical practice is critical for nursing students to acquire the knowledge and skills needed to properly develop professionally. The presence of stress in clinical practice may negatively affect their training.

Objectives: To understand the extent to which clinical practice can be stressful for nursing students at a Spanish university and to determine the main stressors associated with the practice.

Design: Cross-sectional, descriptive, and observational study conducted in 2016 at the two nursing colleges of the University of Oviedo, located in Oviedo and Gijón in the Principality of Asturias, Spain.

Methods: A total of 450 nursing students at a Spanish university served as participants in this study from January to April 2016. A data collection sheet was developed to track different sociodemographic variables, and was distributed together with the KEZKAK questionnaire, a validated scale adapted to Spanish nursing students. It is composed of 41 items using a 4-point Likert scale, rating how much the described situation worries them from 0 ('Not at all') to 3 ('A lot').

Results: Students were most concerned about issues relating to causing harm to patients and lack of competence. Women found clinical practice to be more stressful than men did, both in general terms ($p < 0.001$) and with respect to all individual factors included in the questionnaire. In addition, there were associations between the 'lack of competence' factor and having a job simultaneously ($p = 0.011$), the 'contact with suffering' factor and the school year ($p = 0.018$), and the 'being harmed by the relationship with patients' factor and the age group ($p = 0.013$).

Conclusions: Nursing students, particularly women, see clinical practice as ‘rather stressful’, with the main stressors being those related to causing harm to patients.

Key words: Stress, Psychological; Students, Nursing; Nursing Faculty Practice; Education, Nursing.

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Conflicts of interest: none

INTRODUCTION

Stress, by definition, has a negative impact on the lives of individuals, endangering their well-being (Lazarus and Folkman, 1986). It has become increasingly commonplace (Torrades, 2007), with work related stress often leading to burnout syndrome (Salvagioni et al., 2017). Multiple studies agree that professional nurses frequently suffer from these conditions (Laranjeira, 2012; Portero de la Cruz and Vaquero Abellán, 2015).

Nursing students in clinical practice work full time, meaning that they are subjected to not just all the stressors associated with academic life, but to the same kind of stress that professionals suffer from as well (Suresh et al., 2013).

The students suffer from stress in clinical practice to varying degrees (Grobecker, 2016; Joolae et al., 2015). The extent to which they experience stress depends on various factors, including relationships with their work team, patients, and family (López and López, 2011). Moreover, students with higher emotional intelligence handle stress better (Pulido-Martos et al., 2016).

BACKGROUND

The stress that affects professional nurses is closely related to role overload (Chang and Hancock, 2003). This condition occurs when individuals become overwhelmed and find their work less satisfying while taking on different roles in their life. Such roles could include being a parent, a spouse, or an employee, among others. Many factors contribute to the stress suffered by nurses, factors that are especially common among recent graduates. The most significant of these include the workplace, the level and nature of support from the rest of the team, experience, expectations, and the ability to learn and adapt to different situations and work environments (Parker et al., 2014). In a

study published in 2013, special emphasis was placed on the importance of support from other, more experienced professionals (Pennbrant et al., 2013).

Stress in students increases the nervousness and anxiety that they already experience upon their first exposure to the hospital setting (Jimenez et al., 2010). Zryewskyj and Davis were among the first authors to describe stressors affecting nursing students; they found that academic and clinical experiences accounted for 78.4% of stressful situations, followed by personal experiences, accounting for 13.6% (Zryewskyj and Davis, 1987). These results were confirmed in subsequent studies (López and López, 2011; Moya et al., 2013; Pades and Homar, 2006; Zupiria Gorostidi et al., 2007). While certain amounts of stress can be beneficial, there is general agreement that marked degrees of stress impair student performance in clinical practice (Eng and Pai, 2015).

Student stress levels vary over the course of the school year (Edwards et al., 2010). In addition, not all students are equally likely to experience it, with their personal obligations and circumstances having a significant influence (Watson et al., 2009). Furthermore, a given level of stress can result in different consequences depending on the circumstances and the individual. Speaking generally, the primary physical reaction that nursing students experience when under stress is an increased drowsiness and need for sleep (Mendoza et al., 2010; Rivas Acuña et al., 2014). Meanwhile, psychological reactions include an inability to relax, depression and problems with concentration (Marín Laredo et al., 2013).

Each person copes with stress using different strategies, thereby making the process dynamic and personal (Silva Sánchez, 2015). According to various studies, the coping strategies most often used by nursing studies include positive thinking and social support (Wolf et al., 2015), together with exercise, organization, and task planning

(Clark et al., 2014; Mendoza et al., 2010). A model for adapting to and resisting stress in nursing, proposed by the nurse Callista Roy (Roy, 2009), improved both the scores and health of the students to whom it was applied (Jameson, 2014). This potential for improvement shows the importance of intervention.

There are many scales to measure stress in general (Ezzati et al., 2014; Roger et al., 1993; Sandín and Chorot, 2003), as well as specialized ones for medical personnel (Escribà-Agüir et al., 1999; Escribà-Agüir et al., 2001) and students (Gibbons et al., 2009; Zupiria et al., 2003). For our study, we chose the KEZKAK scale (Zupiria et al., 2003), which measures stress caused by different situations in nursing students engaged in clinical practice. This scale is a perfect fit for the objective of this paper.

A review of the literature reveals just 4 papers that exclusively discuss stressors in clinical practice in Spain. Moreover, all of them correspond to the old university education plan in Spain (López and López, 2011; Moya et al., 2013; Pades and Homar, 2006; Zupiria Gorostidi et al., 2007), not to the new education plan fully implemented in 2010.

Stress and stressful situations are a subject of great interest in education and health, as 41% of workers (in both public and private sectors) are under high levels of work stress (Paton, 2011). As such, it is important to know which situations have the greatest effect, as this would inform the development of intervention programmes (Demerouti et al., 2000; Fearon and Maggie, 2011; Jameson, 2014; Martínez Pérez, 2010), that would help to prevent or minimize stress.

The purpose of this study is to determine the main stressors affecting nursing students during their academic development in clinical practice.

METHODS

Design

A cross-sectional descriptive and observational study was conducted in the two nursing colleges of the University of Oviedo, located in the Principality of Asturias, Spain. These programmes offer undergraduate degrees in nursing, as regulated by the Ministry of Education in Spain.

Currently, undergraduate nursing programmes in Spain last 4 years and require the completion of 240 credits under the European Credits Transfer System (ECTS). Each school year is divided into 2 semesters. Students take 6 subjects of clinical practice starting the second semester of the first year; they consist of the following curricular units and credits:

Practicum I, 6 ECTS, basic care, first year; Practicum II, 18 ECTS, medical-surgical care, second year; Practicum III and Practicum IV (12 ECTS), life cycle content relating to women, children, adults and the elderly, third year; Practicum V (12 ECTS), emergency and critical care, fourth year; and Practicum VI (21 ECTS), rotating and specialization elective, fourth year (BOE, 15 July 2010).

Participants

A total of 641 students were included in the study. Students were enrolled in either one of the nursing colleges at the University of Oviedo during the 2016 term. Sampling was not conducted, as the study attempted to cover 100% of the population.

Only those students who voluntarily agreed to participate and who filled in at least 80% of the questionnaire and data collection sheet were entered into the study.

Measurement Instruments

The KEZKAK questionnaire was used (Zupiria et al., 2003), together with a data collection sheet including different sociodemographic variables of interest.

The KEZKAK questionnaire is a validated scale that is adapted to Spanish nursing students. It measures stressors during clinical practice. It is composed of 41 items, each correlated with a stressor, and is answered through a 4-point Likert scale, rating how much the described situation worries them from 0 ('Not at all') to 3 ('A lot'). The various items are divided into 9 factors (lack of competence, contact with suffering, relationship with tutors and companions, uncertainty and impotence, lack of control in relationships with patients, emotional involvement, being harmed by the relationship with patients, patients seeking a close relationship, and overload), with each item potentially being grouped in more than one factor.

The score for each item is tied to the level of stress involved in the described situation. Likewise, the total score of the questionnaire (123 points) reveals the extent to which students find clinical practice stressful in general. Furthermore, total scoring for each factor shows the extent to which students find the corresponding aspects stressful.

The individual sociodemographic variables included on the data collection sheets include reference centre, gender, school year in which the student is enrolled, age, relationship status, presence or absence of children, presence or absence of dependants, employment situation, and whether or not the student engages in health-related work.

Data collection was performed from December 2015 to February 2016, and was self-administered and on-site. This ensured anonymity and confidentiality.

Data analysis

Data analysis was completed with the Windows SPSS 20 statistical package.

To facilitate data analysis, participants were grouped into 5 age brackets: 18–25, 26–33, 34–41, 42–49 and 50–57 years old.

Quantitative variables were described through arithmetic mean, standard deviation and range; qualitative variables were expressed through total frequency and percentage.

For the comparison of variables, the Kolmogorov-Smirnov test was performed to check whether the data were normally distributed. Student's t-test was used for independent samples, the ANOVA test was used for polytomous variables and the chi-squared test was used for qualitative variables. If data were not normally distributed, nonparametric tests were used.

Values of $p \leq 0.05$ were accepted as statistically significant.

Ethic considerations

This study was carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). Moreover, before conducting the study, ethical approval was obtained from the University (two centers involved). Students received information about the aim of the study, remarking confidentiality and anonymity conditions. Informed consent was given.

RESULTS

Initially, 450 out of the 641 students (response rate of 70.2%) likely to take part in the study agreed to participate and answered the survey properly.

Descriptive Statistics of the Population

The age of the participants ranged from 18 to 57 years, with a mean of 22.12 years (SD \pm 5.531). In total, 131 first-year students, 93 second-year students, 126 third-year students and 100 fourth-year students were enrolled. In addition, 58.8% of the respondents were single, while 95% did not have children. Finally, 25% of the sample was employed, with 8.7% performing health-related work. Of the latter group, more than 60% were working as nursing assistants.

Descriptive Statistics of Responses to the KEZKAK Questionnaire

The nursing students in the study saw clinical practice as 'rather stressful', with a mean overall score of 74.88. Students in the second year reported the most stress, especially those who were women; there was no significant difference in this respect between the colleges. There was an observed association between stress and gender, with women having a higher mean score ($p < 0.001$) (Table 1).

Students found the risk of causing harm to patients or themselves to be the most stressful situation. Table 2 shows the number of responses for each value on the scale for each of these stressors, which are, in descending order, 'to do my job badly and prejudice the patient', 'to mix up medicines' and 'to jab myself with an infected needle'. In contrast, the least stressful items were 'when a patient of the opposite sex makes sexual insinuations' and 'to have to be with a terminally ill patient'. Table 3 shows that, with respect to factors, students are most concerned about 'lack of competence' and 'uncertainty and impotence'.

Gender was shown to relate in a statistically significant manner with each overarching factor in the KEZKAK questionnaire, in that women demonstrated higher stress levels.

Relations were also observed between the 'lack of competence' factor and students having a job simultaneously ($p = 0.011$), 'contact with suffering' and 'school year' ($p = 0.018$), and 'being harmed by the relationship with patients' and the age group ($p = 0.013$) (Table 4).

No significant differences were observed between 'emotional involvement' and year in school; the score for the first year (mean = 6.40) was lower than for the second year (mean = 7.11) and the third year (mean = 6.47), and just 0.04 higher than for the fourth year (mean = 6.36).

Stress relating to 'contact with suffering' peaked for students in their second year (mean = 18.81). First-year students achieved a score (mean = 17.06) similar to that of third-year students (mean = 17.28) while fourth-year student gave the lowest score (mean = 16.33).

No significant differences were observed between the 'overload' factor and the 'employment situation' variable; non-working respondents (mean = 8.50) gave a higher score than working respondents (mean = 7.90).

DISCUSSION

The main purpose of this study was to determine which situations are the most stressful for nursing students. This is a subject of great interest, in that it may help in establishing policy measures and preventative programmes to mitigate negative impacts on students (Demerouti et al., 2000; Fearon and Maggie, 2011; Gibbons et al., 2009; Jameson, 2014; Martínez Pérez, 2010).

Participating students experienced a medium-high level of stress related to clinical practice. Importantly, women reported more stress than men, both overall and in each of the 9 factors that were analysed. We think that it would be of great interest to study the reason for this phenomenon in future investigations.

The stressors that were found to be most prominent were related to the fear of causing harm to their patients or to themselves. This is in line with results from investigations carried out in the past (López and López, 2011; Moya et al., 2013). As the risk of experiencing this type of situation cannot be removed altogether, we suggest that the resulting stress could be reduced by having classes focus more on the basic principles of medication management and offering students more information on occupational risk prevention.

Upon grouping the stressors into factors, we found the 'lack of competence' and 'uncertainty and impotence' factors to be the most prominent, as in previous studies (López and López, 2011; Pades and Homar, 2006). This suggests that these factors could be interrelated, since a student may feel helpless or uncertain in a specific situation for not having been adequately trained for it or not feeling competent to handle it. Furthermore, lack of competence may be the main stressor due to the fact that, many times, theoretical coursework does not match what students find when arriving at a hospital (Corlett, 2000). This could be due to a lack of time, a lack of material, or a failure to implement techniques under the 'ideal conditions' taught in theory classes.

In our study, we found that one of the factors of least concern for students was 'relationship with tutors and companions'. This result significantly differed from previous studies (Pades and Homar, 2006; Timmins and Kaliszer, 2002), in which the

relationship with tutors is one of the main sources of stress for nursing students during their practice.

It is understandable that fourth-year students experience less stress during their clinical practice, given that they have more experience and training. However, second-year students experienced more stress than the rest; this is surprising, given that they have more training and hospital experience than first-year students. In this case, it is possible that first-year students are not yet aware of the responsibilities of patient care and of the amount of knowledge that they would need to assimilate. The fact that advanced courses require a higher level of competence may also be a factor. Similar results were observed when associating school year with the 'contact with suffering' and 'emotional involvement' factors.

Finally, it seems interesting that, when associating the 'overload' factor with the 'employment situation' variable, non-working students are more stressed than their working counterparts; this runs contrary to what might have been expected.

CONCLUSIONS

The main stressors affecting Spanish nursing students were related to damage the patient or themselves. Moreover, they considered their clinical practice as 'rather stressful', with a greater impact on factors involving a lack of self-confidence.

Stressful situations can generate a direct impact with several consequences to students' well-being. Increasing knowledge of main stressors involved in clinical practice is required in order to establish specific programs to improve quality of patient care and students' health.

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Table 1: KEZKAK Scores for Various Sociodemographic Variables

Variable	KEZKAK Score		p-value	
	Mean	Standard Deviation		
Reference Centre	Oviedo	74.38	18.59	0.891 ^a
	Gijón	75.02		
Gender	Male	64.09	17.92	<0.001 ^a
	Female	76.52	17.53	
School Year	First	74.67	17.26	0.089 ^b
	Second	78.82	22.83	
	Third	74.24	23.52	
	Fourth	73.31	19.62	
Age	18-25 yrs. old	75.51	18.02	0.117 ^b
	26-33 yrs. old	68.67	20.85	
	34-41 yrs. old	76.78	22.47	
	42-49 yrs. old	64.38	20.61	
	50-57 yrs. old	87	1.41	
Employed	Yes	71.98	18.80	0.082 ^a
	No	75.70	17.61	
Health-Related Work	Yes	75.65	20.32	0.735 ^a
	No	75.54	18.12	
Health-Related Work Category	X-Ray Technician	89.60	22.97	0.450 ^b
	Nursing Assistant	73.43	17.68	
	Laboratory Technician	71.40	28.55	
	Dental Hygienist	74.50	28.99	
Relationship Status	Single	75.33	17.18	0.145 ^a
	Married/Partnered	74.50	19.49	
Children	Yes	74.35	20.94	0.872 ^a
	No	74.98	18.08	
Dependants	Yes	74.25	9.94	0.945 ^a
	No	74.89	18.33	

a Independent samples *t* test.

b ANOVA

Table 2: Responses for the Most Worrying Stressors^a

Item	Response	Frequency	Percentage
To do my job badly and prejudice the patient	Not at all	7	1.6%
	A little	18	4%
	Quite	70	15.6%
	A lot	353	78.8%
To mix up medicines	Not at all	11	2.4%
	A little	29	6.4%
	Quite	89	19.8%
	A lot	321	71.3%
To jab myself with an infected needle	Not at all	15	3.3%
	A little	59	13.2%
	Quite	106	23.7%
	A lot	268	59.8%

^a More stressful items mean those in which a higher % of students answered 'A lot'.

Table 3: Scores by Factors

	Minimum	Maximum	Mean	Mean/Maximum (%)
Lack of competence	3	33	24.89	75.42%
Contact with suffering	2	30	17.32	57.73%
Relationship with tutors and companions	0	18	10.17	56.50%
Uncertainty and impotence	7	33	23.02	69.76%
Lack of control in relationships with patients	3	24	14.82	61.75%
Emotional involvement	1	12	6.56	54.67%
Being harmed by the relationship with patients	0	15	9.11	60.73%
Patient seeking a close relationship	0	6	3.08	51.33%
Overload	0	15	8.42	56.13%

Table 4. Comparison of KEZKAK Scale Factors

KEZKAK Scale Factor	Variable		Mean	P value
Lack of competence	Gender	Male	22.62	0.001 ^a
		Female	25.24	
	Work	Yes	23.85	0.011 ^a
		No	25.44	
Contact with suffering	Gender	Male	13.09	0.001 ^a
		Female	17.96	
	School Year	First	17.06	0.018 ^b
		Second	18.81	
Third	17.28			
Fourth	16.33			
Relationship with tutors and companions	Gender	Male	9.43	<0.001 ^a
		Female	10.28	
Uncertainty and impotence	Gender	Male	21.07	<0.001 ^a
		Female	23.33	
Lack of control in relationships with patients	Gender	Male	12.95	<0.001 ^a
		Female	15.11	
Emotional involvement	Gender	Male	5.21	<0.001 ^a
		Female	6.76	
Being harmed by the relationship with patients	Age Group	18–25 yrs. old	9.27	0.013 ^b
		26–33 yrs. old	7.80	
		34–41 yrs. old	8.78	
		42–49 yrs. old	7.13	
	Gender	Male	7.59	<0.001 ^a
		Female	9.34	
Patient seeking a close relationship	Age Group	18–25 yrs. old	3.16	0.05 ^b
		26–33 yrs. old	2.40	
		34–41 yrs. old	2.67	
		42–49 yrs. old	1.63	
	Gender	Male	2.05	<0.001 ^a
		Female	3.23	
School Year	First	3.05	0.52 ^b	
	Second	3.44		
	Third	3.09		
	Fourth	2.77		
Overload	Gender	Male	7.16	<0.001 ^a
		Female	8.62	

a Mann-Whitney *U*-test

b ANOVA

HIGHLIGHTS

- Spanish nursing students consider clinical practice to be ‘rather stressful’.
- Women have higher levels of stress than men.
- Intervention programmes should be developed to reduce stress in this context.