ORIGINAL RESEARCH

Magnitude of general anxiety disorder among nursing students and its associated factors

Sergio Martínez-Vázquez[1] 🆔 | Juan Miguel Martínez-Galiano[1,2] | Rocío Adriana Peinado-Molina[1] | Antonio Hernández-Martínez[3]

[1]Department of Nursing, University of Jaen, Jaen, Spain

[2]Consorcio de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain

[3]Department of Nursing, Faculty of Nursing of Ciudad Real, The University of Castilla-La Mancha, Ciudad Real, Spain

Correspondence
Sergio Martínez-Vázquez, Department of Nursing, University of Jaen, Jaen, Spain.
Email: svazquez@ujaen.es

Abstract

Background: University training in nursing together with other student variables can increase the risk of anxiety in students. It is important to assess the student's level of anxiety, which can have repercussions on their training and mental health. There are several validated tools such as the generalized anxiety disorder scale (GAD-7).

Objective: To know which factors are associated with the appearance of anxiety and which protect against it in university nursing students.

Method: A cross-sectional descriptive study was carried out in which 170 university nursing students from University of Jaén participated. A bivariate and multivariate analysis was performed, calculating odds ratio and adjusted odds ratio (aOR) with 95% confidence intervals (CIs) to determine which factors were associated with a higher score on the GAD-7 questionnaire, and therefore with the presence of anxiety.

Results: In total, 66.5% (113) of the students have suffered an anxiety crisis on some occasion and 48.8% (83) of the students did not carry out activities of any kind to control anxiety and stress. Practicing religious and spiritual beliefs increased the probability of having anxiety compared to those who did not have religious beliefs (aOR = 3.92; 95% CI = 1.09, 14.08), as well as having previously suffered an anxiety crisis (aOR = 5.13; 95% CI = 2.39, 11.04). Protective factors against anxiety appear to be second-year students (aOR = 0.33; 95% CI = 0.16, 0.72) and being deeply satisfied with the teaching staff (aOR = 0.03; 95% CI = 0.01, 0.79).

Discussion/Implications for practice: Knowing the factors that are associated with the appearance of anxiety is necessary to facilitate early detection and care in nursing university students.

KEYWORDS
associated factors, general anxiety disorder, magnitude, nursing students

---

1 | INTRODUCTION

Nursing students, during their training, must acquire practical and theoretical skills needed for carrying out the nursing profession.[1–3] This knowledge, skills, and abilities are developed through theoretical and practical lessons, including real simulations and placements in health centers, where the student faces real cases.[4,5]

In this training process, clinical placements notably affect the development of anxiety and its symptoms in students[6] and this is enhanced by different factors such as contact in these placements with patients suffering from infectious diseases.[7] Other factors that can influence are the lack of experience in the field where the placements are carried out, with students perceiving a lack of competence,[8] excess clinical hours during critical periods such as the pandemic,[9] and family,[10,11] financial, emotional, or personal problems.[10] On the other hand, having unsatisfactory academic results and being female have also been associated with anxiety levels in university students.[8,11] These groups can develop anxiety in clinical placements, even if they have adequate training and preparation at the university and good levels of support.[12]

This increased level of anxiety could negatively influence academic performance[12–14] and learning ability,[8] being able to generate issues from "burnout" to affecting general mental health, surpassing the symptomatology of anxiety.[15,16] To assess this anxiety, validated instruments have been developed in the Spanish university context among nursing students, which have proven to be simple to use and efficient in detecting anxiety symptoms.

Early detection and prevention through the identification of factors that increase the vulnerability of the nursing student population makes it possible to reduce the impact of anxiety among students. For this, the objective of determining the prevalence of anxiety among nursing students, and the personal and academic factors that may be associated was proposed.

2 | MATERIALS AND METHODS

2.1 | Design

A cross-sectional descriptive study was carried out during March–May 2022 at the University of Jaén.

2.1.1 | Subject selection

The study population was Nursing degree students enrolled in the first or second year during the 2021–2022 academic year ($N = 360$). For the estimation of the sample size, a prevalence of anxiety among university students of 31% was used, the intermediate point between the 20.7% and 42.8% observed in the literature,[15,17,18] an absolute error of 6%, a percentage of losses of 10% and a student population of 360. With these criteria, a minimum of 149 students would be needed.

2.1.2 | Information source, clinical resources, and study variables

A self-administered questionnaire was distributed to the students during face-to-face classes, making it easier to fill it out at that moment with access by Smartphone, tablet, or laptop. Sociodemographic variables, information on the studies, and characteristics of profile of the students were collected. To determine the level of anxiety, the generalized anxiety disorder scale (GAD-7) was used, which has been validated in a population of nursing students in Spain.[19] The GAD-7 questionnaire consists of 7 items, with four response options each, where each item scores from 0 to 3, with 21 being the maximum score and detecting the presence of anxiety from 5 points.[20] Knowing that the questionnaire is able to detect general anxiety disorder could be used as a detection of clinical symptomatology from anxiety. The questionnaire, by itself has proven to be a reliable tool to collect data from the sample.[21] No other clinical resources were used when conducting the study.

2.1.3 | Statistical analysis

All statistical analyses have been performed with SPSS version 24.0. First, descriptive statistics were carried out using absolute and relative frequencies in the qualitative variables. The mean and standard deviation (*SD*) were used for quantitative variables. Next, a bivariate analysis was carried out between the different independent variables and anxiety, using binary logistic regression and estimating odds ratios (OR) with their respective 95% confidence intervals. Subsequently, a multivariate analysis was performed using binary logistic regression to control for confounding bias. To finalize the model, the adjusted OR (aOR) with the corresponding 95% confidence interval (CI) was obtained using the backward stepwise method.

3 | RESULTS

A total of 170 nursing students from the University of Jaén participated. Of which, 48.2% (82) were enrolled in the first year and 51.8% (88) of students in the second. The majority of the sample came from university access, with 106 (62.4%) students who achieved university access through this route. In total, 66.5% (113) of the students had suffered an anxiety crisis on some occasion. Furthermore, 90 (52.9%) had had a covid-19 infection, and 48.8% (83) of the students did not carry out activities of any kind to control anxiety and stress. The rest of the information that characterizes the sample can be consulted in Table 1.

Next, anxiety levels were determined, observing an average score on the GAD-7 of 7.61 points (*SD* = 5.37 points) out of a maximum of 21. Categorizing the results, anxiety was not identified in 35.3% (60) students, 59 of them had mild anxiety symptoms (34.7%), 28 of them had moderate anxiety symptoms (16.5%), and

TABLE 1 Characteristics of the sample included in a validation study.

Variable	Total N (%)	Academic year 1st course (%)	2nd course (%)
Sex			
Men	25 (14.7)	10 (12.2)	15 (17.0)
Women	144 (84.7)	72 (87.8)	72 (81.8)
Nondefined	1 (0.6)	0 (0.0)	1 (1.1)
Married status			
Single	147 (86.5)	73 (89.0)	74 (84.1)
Married	8 (4.7)	5 (6.1)	3 (3.4)
Divorced	2 (1.2)	1 (1.2)	1 (1.1)
Other	13 (7.6)	3 (3.7)	10 (11.4)
Spiritual beliefs (religiosity)			
No	59 (3.4)	27 (32.9)	32 (36.4)
Yes, nonpractising	78 (45.9)	35 (42.7)	43 (48.9)
Yes, practising	33 (19.4)	20 (24.4)	13 (14.8)
Has children			
No	162 (95.3)	79 (96.3)	83 (94.3)
Yes	8 (4.7)	3 (3.7)	5 (5.7)
Working status (currently)			
No	155 (91.2)	74 (90.2)	81 (92.0)
Yes	15 (8.8)	8 (9.8)	7 (8.0)
Nursing as first choice			
No	40 (23.5)	20 (24.4)	20 (22.7)
Yes	130 (76.5)	62 (75.6)	68 (77.3)
Scholarship			
No	62 (36.5)	32 (39.0)	30 (34.1)
Yes	108 (63.5)	50 (61.0)	58 (65.9)
Previous clinical experience (not clinical placement)			
No	142 (83.5)	65 (79.3)	77 (87.5)
Yes	28 (16.5)	17 (20.7)	11 (12.5)
Previous clinical placement experience			
No	137 (80.6)	58 (70.7)	79 (89.8)
Yes	33 (19.4)	24 (29.3)	9 (10.2)
Reason to enroll in nursing			
Professional future	29 (17.1)	10 (12.2)	19 (21.6)
Vocational	115 (67.6)	58 (70.7)	57 (64.8)
Salary/payment	1 (0.6)	0 (0.0)	1 (1.1)
International options	1 (0.6)	1 (1.2)	0 (0.0)
First choice not available	16 (9.4)	10 (12.2)	6 (6.8)
Other	8 (4.7)	3 (3.7)	5 (5.7)

(Continues)

TABLE 1 (Continued)

| Variable	Total N (%)	Academic year 1st course (%)	2nd course (%)
Academic level before nursing degree			
Primary school	2 (1.2)	0 (0.0)	2 (2.3)
Secondary school	7 (4.1)	4 (4.9)	3 (3.4)
High school	154 (90.6)	75 (91.5)	79 (89.8)
Degree	5 (2.9)	3 (3.7)	2 (2.3)
Master's degree	2 (1.2)	0 (0.0)	2 (2.3)
Nursing degree access			
University access test (after high school)	106 (62.4)	49 (59.8)	57 (64.8)
Access exam	13 (7.6)	6 (7.3)	7 (8.0)
Job training	48 (28.8)	27 (32.9)	22 (25.0)
Other	2 (1.2)	0 (0.0)	2 (2.3)
Suffered anxiety crisis			
No	57 (33.5)	21 (25.6)	36 (40.9)
Yes	113 (66.5)	61 (74.4)	52 (59.1)
Chronic illness			
No	145 (85.3)	69 (84.1)	76 (86.4)
Yes	25 (14.7)	13 (15.9)	12 (13.6)
All subjects passed until now			
No	87 (51.2)	29 (35.4)	58 (65.9)
Yes	83 (48.8)	53 (64.6)	30 (34.1)
Activity to relax (paint, meditation, yoga, etc.)			
No	83 (48.8)	35 (42.7)	48 (54.5)
Yes	87 (51.2)	47 (57.3)	40 (45.5)
Had Covid-19 infection			
No	80 (47.1)	36 (43.9)	44 (50.0)
Yes	90 (52.9)	46 (56.1)	44 (50.0)
Exercise regularly			
No	92 (54.1)	43 (52.4)	49 (55.7)
Yes	78 (45.9)	39 (47.6)	39 (44.3)
Living in city during degree			
No	81 (47.6)	43 (52.4)	46 (52.3)
Yes	89 (52.4)	39 (47.6)	42 (47.7)
Motivation to finish degree			
No	21 (12.4)	13 (15.9)	8 (9.1)
Yes	149 (87.6)	69 (84.1)	80 (90.9)
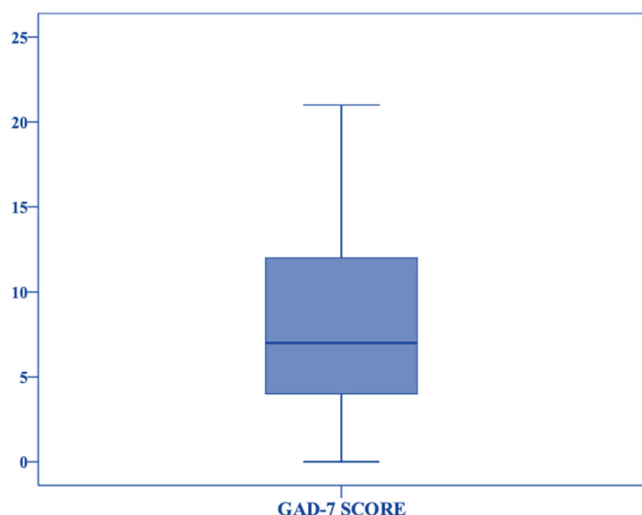
FIGURE 1 Mean GAD-7 score. Boxplot diagram.

13.5% (23) had severe anxiety symptoms at the time of completing the questionnaire. Over half, 64.7% (110), of the sample had symptoms of anxiety. Figure 1 collects these results and the distribution of the scores in the questionnaire.

Subsequently, bivariate and multivariate analyses were performed to determine which factors were associated with a higher score on the GAD-7 questionnaire. As factors that were associated with a higher score in the questionnaire, it was found that practising religious and spiritual beliefs increased the probability of having anxiety compared to those who did not have religious beliefs (aOR = 3.92; 95% CI = 1.09, 14.08), as well as having previously suffered an anxiety crisis (aOR = 5.13; 95% CI = 2.39, 11.04). Other factors that were associated with a lower presence of anxiety was the course to which they belonged, in such a way that being a second-year student decreased the probability with respect to being a first-year student (aOR = 0.33; 95% CI = 0.16, 0.72) and being extremely satisfied with the faculty (aOR = 0.03; 95% CI = 0.01, 0.79) versus not being so. The rest of the bivariate and multivariate analysis results can be seen in Table 2.

4 | DISCUSSION

Approximately two-thirds of the students surveyed had symptoms of anxiety. The factors associated with a higher score on the GAD-7 questionnaire, and therefore with anxiety, were having religious and spiritual beliefs, practising them routinely, and having previously suffered an anxiety crisis. Conversely, factors associated with a lower presence of anxiety were being a second-year student and being very satisfied with the teaching staff.

The prevalence was significantly higher in our sample compared to studies in similar populations.[15,17,18,22,23] Although Savitsky et al.,[15] did obtain prevalence figures closer to ours (42.8% for moderate anxiety). The authors establish that their minimum score

for anxiety symptomatology is 10 or higher, contrasting with our chosen cut-off point, 5 or higher, as established by the tool and its validation in the Spanish university educational context.[20] In addition, Savitsky et al.[15] used the GAD-7 in the same way as our research, but the interpretation is different, which may affect the total prevalence count.[15] The average score obtained in the questionnaire was 7.61. This figure is slightly higher than that obtained by Hasanpour et al.,[17] with an average score of 6.05. This may be due to the context in which the data collection takes place, which may be affected by the current COVID pandemic and the repercussions on the health system, an environment where these students will develop part of their training.

Students, who had religious beliefs and, in addition, practised them regularly, had higher anxiety scores than those who did not profess any religion. This contrasts with what was found by Bryan et al.,[24] where religion was a buffer mechanism for anxiety, especially after events with a negative impact such as serious illness or trauma. Similarly, and also in Nursing university students, Savitsky et al.,[15] found results opposite to ours, religious beliefs being an indicator of protection against anxiety, not finding differences between the different groups of religious practice, secular or traditional, with both acting as an umbrella against anxiety. Other authors, such as Mckee et al.,[25] obtained results along the same lines, with religion being the method chosen to deal with daily discomforts, especially among women. Stoppa and Leftkowitz,[26] found that religion and how it affects university life is changing in the educational paradigm. Spain is mostly a secular country, which may have influenced our results regarding religious beliefs.

Having previously suffered an anxiety crisis emerged as a risk factor. Although there are no studies that analyse this variable as a factor associated with anxiety among university nursing students. Even without suffering from previous crises but with prior anxiety, the prognosis in university students is not positive, with various authors finding associations with worsening aggravated by self-medication.[27,28] various strategies can help combat this symptomatology, and can be recommended in the classroom, such as mindfulness or aromatherapy, which have been shown to be effective in nursing university students.[29,30]

Seniority in the degree, in this case, second year, acted as a protective factor against anxiety. This contrasts with what was found by Onieva-Zafra et al.,[31] where students of higher courses were those that had the highest levels of anxiety and stress. Similarly, Jiménez et al.[32] found that an increase in anxiety is established in higher grades, or at least in the risk of developing it. This may be influenced by the proximity of the completion of studies and inclusion in the world of work, where different authors find a correlation between taking this step and increasing anxiety symptoms.[33] On the other hand, previous research points to results in line with ours, where progress throughout the courses decreases anxiety levels among students.[34–36] This may be because in the first year they are unaware of what studying the nursing degree will entail; however, in the second year, they have already had contact with

TABLE 2 Association between the different variables and the presence of anxiety.

Variable	Anxiety disorder (GAD-7≥5)		OR 95% CI	aOR 95% CI
	No N (%)	Yes N (%)		
Age, mean (SD)	22.22 (6.65)	21.95 (7.26)	1.00 (0.95, 1.04)	
Mean degree grades (out of 10) mean (SD)	7.77 (1.66)	8.22 (1.21)	1.27 (0.99, 1.62)	
Course				
1st course	17 (20.7)	65 (79.3)	1 (ref.)	1 (ref.)
2nd course	43 (48.9)	45 (51.1)	0.27 (0.14–0.54)	0.33 (0.16, 0.72)
Gender				
Men	12 (48.0)	13 (52.0)	1 (ref.)	
Women	48 (33.3)	96 (66.7)	1.85 (0.78, 4.35)	
Nondefined	0 (0.0)	1 (100.0)	NC	
Married status				
Single	52 (35.4)	95 (64.6)	1 (ref.)	
Married	3 (37.5)	5 (62.5)	0.91 (0.21, 4.00)	
Divorced	0 (0.0)	2 (100.0)	NC	
Other	5 (38.5)	8 (61.5)	0.88 (0.27, 2.81)	
Spiritual beliefs (religiosity)				
No	24 (40.7)	35 (59.3)	1 (ref.)	1 (ref.)
Yes, nonpractising	32 (41.0)	46 (59.0)	0.99 (0.50, 1.96)	0.94 (0.42, 2.10)
Yes, practising	4 (12.1)	29 (87.9)	4.97 (1.55, 15.98)	3.92 (1.09, 14.08)
Has children				
No	56 (36.6)	106 (65.4)	1 (ref.)	
Yes	4 (50.0)	4 (50.0)	0.53 (0.13, 2.19)	
Working status (currently)				
No	55 (35.5)	100 (64.5)	1 (ref.)	
Yes	5 (33.3)	10 (66.7)	1.10 (0.36, 3.38)	
Nursing as first choice				
No	15 (37.5)	25 (62.5)	1 (ref.)	
Yes	45 (34.6)	85 (65.4)	1.13 (0.54, 2,36)	
Scholarship				
No	22 (35.5)	40 (64.5)	1 (ref.)	
Yes	38 (35.2)	70 (64.8)	1.01 (0.53, 1.95)	
Previous clinical experience (not clinical placement)				
No	49 (34.5)	93 (65.5)	1 (ref.)	
Yes	11 (39.3)	17 (60.7)	0.81 (0.35, 1.87)	
Previous clinical placement experience				
No	50 (36.5)	87 (63.5)	1 (ref.)	
Yes	10 (30.3)	23 (69.7)	1.32 (0.58, 3.00)	

TABLE 2 (Continued)

Variable	Anxiety disorder (GAD-7≥5)		OR 95% CI	aOR 95% CI
	No N (%)	**Yes** N (%)		
Reason to enroll in nursing				
Professional future	12 (41.4)	17 (58.6)	1 (ref.)	
Vocational	39 (33.9)	76 (66.1)	1.37 (0.60, 3.17)	
Salary/payment	1 (100.0)	0 (0.0)	NC	
International options	1 (100.0)	0 (0.0)	NC	
First choice nonavailable	4 (25.0)	12 (75.0)	2.12 (0.55, 8.20)	
Other	3 (37.5)	6 (62.5)	1.18 (0.24, 5.90)	
Academic level before nursing degree				
Primary school	2 (100.0)	0 (0.0)	1 (ref.)	
Secondary school	2 (28.6)	5 (71.4)	NC	
High school	52 (33.8)	102 (62.2)	NC	
Degree	2 (40.0)	3 (60.0)	NC	
Master's degree	2 (100.0)	0 (0.0)	NC	
Nursing degree access				
University access test (after high school)	39 (36.8)	67 (63.2)	1 (ref.)	
Access exam	6 (46.2)	7 (53.8)	0.68 (0.21, 2.17)	
Job training	14 (28.6)	35 (71.4)	1.46 (0.70, 3.03)	
Other	1 (50.0)	1 (50.0)	0.58 (0.04, 9.57)	
Suffered anxiety crisis				
No	35 (61.4)	22 (38.6)	1 (ref.)	1 (ref.)
Yes	25 (22.1)	88 (77.9)	5.60 (2.80, 11.21)	5.13 (2.39, 11.04)
Chronic illness				
No	54 (37.2)	91 (62.8)	1 (ref.)	
Yes	6 (24.0)	19 (76.0)	1.88 (0.71, 5.00)	
All subjects passed until now				
No	30 (34.5)	57 (65.5)	1 (ref.)	
Yes	30 (36.1)	53 (63.9)	0.93 (0.50, 1.75)	
Activity to relax (paint, meditation, yoga, etc.)				
No	30 (36.1)	53 (63.9)	1 (ref.)	
Yes	30 (34.5)	57 (65.5)	1.08 (0.57, 2.02)	
Had Covid-19 infection				
No	28 (35.5)	52 (65.0)	1 (ref.)	
Yes	32 (35.6)	58 (64.4)	0.98 (0.52, 1.83)	
Exercise regularly				
No	32 (34.8)	60 (65.2)	1 (ref.)	
Yes	28 (35.9)	50 (64.1)	0.95 (0.51, 1.79)	

(Continues)

TABLE 2 (Continued)

| Variable | Anxiety disorder (GAD-7≥5) | | OR 95% CI | aOR 95% CI |
	No N (%)	Yes N (%)		
Living in City during degree				
No	26 (32.1)	55 (67.9)	1 (ref.)	
Yes	34 (38.2)	55 (61.8)	0.77 (0.41, 1.44)	
Motivation to finish degree				
No	4 (19.0)	17 (81.0)	1 (ref.)	
Yes	56 (37.6)	93 (62.4)	0.39 (0.13, 1.22)	
Satisfaction with lecturers				
Very little	1 (12.5)	7 (87.5)	1 (ref.)	1 (ref.)
Satisfied	21 (27.3)	56 (72.7)	0.38 (0.04, 3.29)	0.39 (0.36, 4.24)
Very satisfied	32 (41.0)	46 (59.0)	0.21 (0.02, 1.75)	0.22 (0.02, 2.34)
Extremely satisfied	6 (85.7)	1 (14.3)	0.02 (0.01, 0.47)	0.03 (0.01, 0.79)
Expectations with nursing degree				
Little	1 (16.7)	5 (83.3)	1 (ref.)	
Just enough	7 (22.6)	24 (77.4)	0.69 (0.07, 6.88)	
Well covered	35 (33.3)	70 (66.7)	0.40 (0.05, 3.56)	
Very well covered	17 (60.7)	11 (39.3)	0.13 (0.01, 1.26)	
Satisfaction with university (resources, access, classrooms, etc.)				
Very little	1 (33.3)	2 (66.7)	1 (ref.)	
Satisfied	14 (23.0)	47 (77.0)	1.68 (0.14, 19.92)	
Very satisfied	31 (38.3)	50 (61.7)	0.81 (0.07, 9.27)	
Extremely satisfied	14 (56.0)	11 (44.0)	0.39 (0.03, 4.92)	

Note: Bivariate and multivariate analysis.

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval.

clinical and care subjects and have even carried out internships in nursing laboratories, simulations, and placements in health centers.

Having a high degree of satisfaction with teachers acted as a protective factor. Although we did not find other research that studies this factor and its association with anxiety, some researchers have found general satisfaction with the experience during academic and practical training and simulations as a protective element against anxiety.[37–39] While other researchers have not find a sufficient association between good training rich in high-fidelity simulations, together with student satisfaction, and the reduction of subsequent anxiety levels.[40] Li et al.,[41] found that dissatisfaction with university education does increase the risk of suffering from anxiety, something that is in line with other authors.[42] This highlights the importance of the role of the teacher, especially in health degrees, giving priority to their face-to-face pedagogical function.

Regarding limitations, the symptoms of anxiety were self-reported and were not a diagnosis nor based on an assessment carried out by a professional. On the other hand, as it was an online and anonymous questionnaire, we believe that students can respond more honestly, avoiding socially expected and accepted responses.[25,26,42] In this sense, the online questionnaire has emerged in recent years as a tool for clinical research, although not without controversy, and has proven to be useful and reliable for data collection.[43,44] We believe memory bias is not present nor has it notably influenced the results as the symptoms considered referred to the last 2 weeks. To increase the response rate, the questionnaire was designed by adjusting it to parameters recommended by other authors and clinical research guidelines, thereby reducing the burden per response and improving participation.[45,46]

It is essential to determine and understand the factors associated with anxiety among nursing students to actively monitor those students at risk of developing anxiety or worsening their symptoms if they currently suffer from it. More research is needed to analyse the weight of other variables throughout future nurses' educational and

professional development, in addition to contemplating the transition to the professional world.

5 | IMPACT PARAGRAPH

General anxiety disorder (GAD) is present in the university population, especially in nursing students as well as in other health degrees. Recently a tool has been validated with screening properties in university nursing students. Using it, and seeing how sociodemographic factors play a role in the appearance of GAD, will help to detect students at risk or prevent the symptoms to affect dramatically the students. We know from our results that religious beliefs and practicing them routinely or previous anxiety crises can lead to GAD. The power of the findings is based on the direct application to the academic environment as well as the clinical environment, being a nursing degree and a mixed-method learning process.

6 | CONCLUSION

Having religious beliefs and also practising them routinely, as well as having suffered a previous anxiety crisis are associated with the presence of anxiety in Nursing degree students. Second-year students (progress in the degree), who are also satisfied with the Nursing degree faculty, have fewer symptoms of anxiety.

7 | RELEVANCE TO CLINICAL PRACTICE

Knowing the factors that associate with an increased risk of developing anxiety in nursing students, will allow not only lecturers but clinical professionals too to approach the cases that may benefit from early detection and treatment.

AUTHOR CONTRIBUTIONS

Sergio Martínez-Vázquez: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing—original draft; Writing—review & editing. **Juan Miguel Martínez-Galiano**: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing—original draft; Writing—review & editing. **Rocío Adriana Peinado-Molina**: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing—original draft; Writing—review & editing. **Antonio Hernández-Martínez**: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing—original draft; Writing—review & editing.

ORCID
Sergio Martínez-Vázquez http://orcid.org/0000-0002-8752-459X

REFERENCES

1. Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA). (2005). *Libro Blanco Grado en Enfermería* (La Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA) (ed.)). La Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA) http://www.aneca.es/var/media/150360/libroblanco_jun05_enfermeria.pdf

2. Mª Fernández Araque A. Competencias de las profesiones sanitarias. *Nursing*. 2008;26(7):56.

3. Ministerio de Educación y Ciencia. (2005). *REAL DECRETO 55/2005, de 21 de enero, por elque se establece la estructura de las enseñanzas universitarias y se regulan los estudiosuniversitarios oficiales de Grado.* https://www.boe.es/eli/es/rd/2005/01/21/55

4. Martínez-Galiano JM, Parra-Anguita L, Delgado-Rodríguez M, González-Cabrera M. Nursing education in a real-life context: the teaching ward round. *Nursing Reports*. 2021;11(1):45-53. doi:10.3390/nursrep11010005

5. Meedya S, Moroney T, Nielsen W, Najafi Bokat I. Digital explanations and nursing students' perception of learning science. *Nurse Educ Pract*. 2019;41:102636. doi:10.1016/j.nepr.2019.102636

6. Simpson M-CG, Sawatzky J-AV. Clinical placement anxiety in undergraduate nursing students: a concept analysis. *Nurse Educ Today*. 2020;87:104329. doi:10.1016/j.nedt.2019.104329

7. Rodríguez-Almagro J, Hernández-Martínez A, Romero-Blanco C, Martínez-Arce A, Prado-Laguna MC, García-Sanchez FJ. Experiences and perceptions of nursing students during the COVID-19 crisis in Spain. *Int J Environ Res Public Health*. 2021;18(19):10459. doi:10.3390/ijerph181910459

8. Neal-Boylan L. Book review: Benner P, Tanner C, Chesla C, expertise in nursing practice: caring, clinical judgment, and ethics, second edition, Springer Publishing: New York, 2009, 497 pp.: 9780826125446, US $60.00 (pbk). *Nurs Ethics*. 2010;17(5):675. doi:10.1177/0969733010376334

9. Collado-Boira EJ, Ruiz-Palomino E, Salas-Media P, Folch-Ayora A, Muriach M, Baliño P. "The COVID-19 outbreak"—an empirical phenomenological study on perceptions and psychosocial considerations surrounding the immediate incorporation of final-year Spanish nursing and medical students into the health system. *Nurse Educ Today*. 2020;92:104504. doi:10.1016/j.nedt.2020.104504

10. Gallego-Gómez JI, Campillo-Cano M, Carrión-Martínez A, et al. The COVID-19 pandemic and its impact on homebound nursing students. *Int J Environ Res Public Health*. 2020;17(20):7383. doi:10.3390/ijerph17207383

11. Simonelli-Muñoz AJ, Balanza S, Rivera-Caravaca JM, Vera-Catalán T, Lorente AM, Gallego-Gómez JI. Reliability and validity of the student stress inventory-stress manifestations questionnaire and its association with personal and academic factors in university students. *Nurse Educ Today*. 2018;64:156-160. doi:10.1016/j.nedt.2018.02.019

12. Ranse K, Ranse J, Pelkowitz M. Third-year nursing students' lived experience of caring for the dying: a hermeneutic phenomenological approach. *Contemp Nurse*. 2018;54(2):160-170. doi:10.1080/10376178.2018.1461572

13. Gallego-Gómez JI, Balanza S, Leal-Llopis J, et al. Effectiveness of music therapy and progressive muscle relaxation in reducing stress before exams and improving academic performance in nursing students: a randomized trial. *Nurse Educ Today*. 2020;84:104217. doi:10.1016/j.nedt.2019.104217

14. Taylor LM, Eost-Telling CL, Ellerton A. Exploring preceptorship programmes: implications for future design. *J Clin Nurs*. 2019;28(7-8):1164-1173. doi:10.1111/jocn.14714

15. Savitsky B, Findling Y, Ereli A, Hendel T. Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Educ Pract*. 2020;46:102809. doi:10.1016/j.nepr.2020.102809

16. Zis P, Artemiadis A, Bargiotas P, Nteveros A, Hadjigeorgiou GM. Medical studies during the COVID-19 pandemic: the impact of digital learning on medical students' burnout and mental health. *Int J Environ Res Public Health*. 2021;18(1):349. doi:10.3390/ijerph18010349

17. Hasanpour M, Maroufizadeh S, Mousavi H, Noughani F, Afshari M. Prevalence of generalized anxiety disorder among nursing students in Iran during the COVID-19 pandemic: a web-based cross-sectional study. *Int J Africa Nurs Sci*. 2021;15:100360. doi:10.1016/j.ijans.2021.100360

18. Mulyadi M, Tonapa SI, Luneto S, Lin W-T, Lee B-O. Prevalence of mental health problems and sleep disturbances in nursing students during the COVID-19 pandemic: a systematic review and meta-analysis. *Nurse Educ Pract*. 2021;57:103228. doi:10.1016/j.nepr.2021.103228

19. Martínez-Vázquez S, Martínez-Galiano JM, Peinado-Molina RA, Gutiérrez-Sánchez B, Hernández-Martínez A. Validation of general anxiety disorder (GAD-7) questionnaire in Spanish nursing students. *PeerJ*. 2022;10:e14296. doi:10.7717/peerj.14296

20. Löwe B, Decker O, Müller S, et al. Validation and standardization of the generalized anxiety disorder screener (GAD-7) in the general population. *Med Care*. 2008;46(3):266-274. doi:10.1097/MLR.0b013e318160d093

21. Ball HL. Conducting online surveys. *J Hum Lact*. 2019;35(3):413-417. doi:10.1177/0890334419848734

22. Cheung T, Wong S, Wong K, et al. Depression, anxiety and symptoms of stress among baccalaureate nursing students in Hong Kong: a cross-sectional study. *Int J Environ Res Public Health*. 2016;13(8):779. doi:10.3390/ijerph13080779

23. Kochuvilayil T, Fernandez RS, Moxham LJ, et al. COVID-19: knowledge, anxiety, academic concerns and preventative behaviours among Australian and Indian undergraduate nursing students: a cross-sectional study. *J Clin Nurs*. 2021;30(5-6):882-891. doi:10.1111/jocn.15634

24. Bryan JL, Lucas SH, Quist MC, et al. God, can I tell you something? The effect of religious coping on the relationship between anxiety over emotional expression, anxiety, and depressive symptoms. *Psycholog Relig Spiritual*. 2016;8(1):46-53. doi:10.1037/rel0000023

25. McKee SA, Hinson RE, Wall A-M, Spriel P. Alcohol outcome expectancies and coping styles as predictors of alcohol use in young adults. *Addict Behav*. 1998;23(1):17-22. doi:10.1016/S0306-4603(97)00008-7

26. Stoppa TM, Lefkowitz ES. Longitudinal changes in religiosity among emerging adult college students. *J Res Adolesc*. 2010;20(1):23-38. doi:10.1111/j.1532-7795.2009.00630.x

27. Al-Shagawi MA, Ahmad R, Naqvi AA, Ahmad N. Determinants of academic stress and stress-related selfmedication practice among undergraduate male pharmacy and medical students of a tertiary educational institution in Saudi Arabia. *Trop J Pharm Res*. 2018;16(12):2997. doi:10.4314/tjpr.v16i12.26

28. Coelho LS, Tony ACC, Laguardia GCA, et al. Are symptoms of depression and anxiety in nursing students associated with their sociodemographic characteristics? *Rev Bras Enferm*. 2021;74(suppl 3):e20200503. doi:10.1590/0034-7167-2020-0503

29. Aloufi MA, Jarden RJ, Gerdtz MF, Kapp S. Reducing stress, anxiety and depression in undergraduate nursing students: systematic review. *Nurse Educ Today*. 2021;102:104877. doi:10.1016/j.nedt.2021.104877

30. Hashemi N, Nazari F, Faghih A, Foroughi M. Effects of blended aromatherapy using lavender and damask rose oils on the test anxiety of nursing students. *J Educ Health Promot*. 2021;10:349. doi:10.4103/jehp.jehp_88_21

31. Onieva-Zafra MD, Fernández-Muñoz JJ, Fernández-Martínez E, García-Sánchez FJ, Abreu-Sánchez A, Parra-Fernández ML. Anxiety, perceived stress and coping strategies in nursing students: a cross-sectional, correlational, descriptive study. *BMC Med Educ*. 2020;20(1):370. doi:10.1186/s12909-020-02294-z

32. Jimenez C, Navia-Osorio PM, Diaz CV. Stress and health in novice and experienced nursing students. *J Adv Nurs*. 2010;66(2):442-455. doi:10.1111/j.1365-2648.2009.05183.x

33. Hernández-Martínez A, Rodríguez-Almagro J, Martínez-Arce A, Romero-Blanco C, García-Iglesias JJ, Gómez-Salgado J. Nursing students' experience and training in healthcare aid during the COVID-19 pandemic in Spain. *J Clin Nurs*. Published online February 15, 2021. doi:10.1111/jocn.15706

34. Gupta P, BK A, Ramakrishna K. Prevalence of depression and anxiety among medical students and house staff during the COVID-19 health-care crisis. *Academic Psychiatry*. 2021;45(5):575-580. doi:10.1007/s40596-021-01454-7

35. Hwang E, Kim J. Factors affecting academic burnout of nursing students according to clinical practice experience. *BMC Med Educ*. 2022;22(1):346. doi:10.1186/s12909-022-03422-7

36. Melendez Chavarry JB (2022). *Correlación entre el miedo a la COVID-19 y el trastorno de ansiedad generalizada en universitarios de Lambayeque*. https://tesis.usat.edu.pe/handle/20.500.12423/4634

37. Dearmon V, Graves RJ, Hayden S, et al. Effectiveness of simulation-based orientation of baccalaureate nursing students preparing for their first clinical experience. *J Nurs Educ*. 2013;52(1):29-38. doi:10.3928/01484834-20121212-02

38. Labrague LJ, McEnroe-Petitte DM, Bowling AM, Nwafor CE, Tsaras K. High-fidelity simulation and nursing students' anxiety and self-confidence: a systematic review. *Nurs Forum*. 2019;54(3):358-368. doi:10.1111/nuf.12337

39. Turner K, McCarthy VL. Stress and anxiety among nursing students: a review of intervention strategies in literature between 2009 and 2015. *Nurse Educ Pract*. 2017;22:21-29. doi:10.1016/j.nepr.2016.11.002

40. Yuan HB, Williams BA, Fang JB. The contribution of high-fidelity simulation to nursing students' confidence and competence: a systematic review: the contribution of high-fidelity simulation. *Int Nurs Rev.* 2012;59(1):26-33. doi:10.1111/j.1466-7657.2011.00964.x

41. Li W, Gillies R, He M, et al. Barriers and facilitators to online medical and nursing education during the COVID-19 pandemic: perspectives from international students from low- and middle-income countries and their teaching staff. *Hum Resour Health.* 2021;19(1):64. doi:10.1186/s12960-021-00609-9

42. Kim S-H, Park S. Influence of learning flow and distance e-learning satisfaction on learning outcomes and the moderated mediation effect of social-evaluative anxiety in nursing college students during the COVID-19 pandemic: A cross-sectional study. *Nurse Educ Pract.* 2021;56:103197. doi:10.1016/j.nepr.2021.103197

43. Paul J, Seib R, Prescott T. The internet and clinical trials: background, online resources, examples and issues. *J Med Internet Res.* 2005;7(1):e5. doi:10.2196/jmir.7.1.e5

44. Price A, Vasanthan L, Clarke M, Liew SM, Brice A, Burls A. SMOOTH: self-Management of open online trials in health analysis found improvements were needed for reporting methods of Internet-based trials. *JCE.* 2019;105:27-39. doi:10.1016/j.jclinepi.2018.08.017

45. Phillips AW, Reddy S, Durning SJ. Improving response rates and evaluating nonresponse bias in surveys: AMEE Guide No. 102. *Med Teach.* 2016;38(3):217-228. doi:10.3109/0142159X.2015.1105945

46. Rolstad S, Adler J, Rydén A. Response burden and questionnaire length: is shorter better? A review and meta-analysis. *Value Health.* 2011;14(8):1101-1108. doi:10.1016/j.jval.2011.06.003