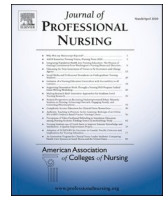


Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

## Journal of Professional Nursing

journal homepage: [www.elsevier.com/locate/jpnu](http://www.elsevier.com/locate/jpnu)

## Identifying engagement and associated factors in nursing students: An exploratory study

Raquel Rodríguez-González, PhD<sup>a,1</sup>, Alba-Elena Martínez-Santos, PhD<sup>a,b,c,1</sup>,  
Noelia Vicho De La Fuente, MSc<sup>a,d</sup>, María-Elena López-Pérez, RN<sup>a</sup>,  
Josefa-del-Carmen Fernandez-De-La-Iglesia, PhD<sup>e,\*</sup>

<sup>a</sup> Department of Psychiatry, Radiology, Public Health, Nursing and Medicine, Faculty of Nursing, University of Santiago de Compostela, Santiago de Compostela, Spain

<sup>b</sup> DIPO Research Group, Galicia Sur Health Research Institute (IIS Galicia Sur), SERGAS-UVIGO, Spain

<sup>c</sup> Dermatology Department, Complejo Hospitalario Universitario de Pontevedra, Pontevedra, Spain

<sup>d</sup> Nursing Department, Galician Health Service, Galicia, Spain

<sup>e</sup> Department of Pedagogy and Didactics, Faculty of Education Sciences, University of Santiago de Compostela, Santiago de Compostela, Spain

## ARTICLE INFO

## Keywords:

Students, nursing  
Work engagement  
Nursing care  
Burnout, psychological

## ABSTRACT

**Background:** Burnout and engagement in health students surpass work life. Although levels of burnout in Nursing students are high, academic engagement is an understudied topic in Nursing, which has shown benefits. The aims were to know the level of engagement of Nursing students and to identify factors that prompt higher levels of engagement.

**Methods:** An exploratory study was conducted during 2019 in three Universities in Spain. The UWES-S-17 questionnaire was used.

**Results:** The sample consisted of 808 Nursing students. An average level of engagement was found. Engagement differed significantly by gender and age, with females and older students showing greater attitudes. Participants in the second year showed lower scores in the willingness to dedicate effort and persistence than those in the first and third year ( $p < 0.05$ ).

**Conclusions:** The identification of the level of engagement and factors involved are an opportunity to probe into this approach by reinforcing positive attitudes in Nursing students. These findings show the need to seek strategies through specific educational interventions and policies. Engagement should be upheld throughout the degree and once they enter the job market to ensure the well-being during academic and future work life, a high-quality nursing care and patient safety.

## Introduction

Burnout is a common syndrome in healthcare which has been extensively studied in the last few decades (Zhu et al., 2015). It is defined as emotional exhaustion, indifference to others and dissatisfaction among workers and students (Hetzel-Riggin et al., 2019; Rezende Lopes & Kenji Nihei, 2020) that occurs as a prolonged response to chronic interpersonal stressors on the job (Maslach & Leiter, 2016). However, positive psychology has become increasingly important, giving rise to new approaches focused on the well-being and strengths of the healthcare workforce rather than dysfunctions, generating an important development in the understanding of the burnout

phenomenon (Hetzel-Riggin et al., 2019; Maslach & Leiter, 2016).

In this way, contrary to what has been studied so far, engagement emerges as an independent and different concept to burnout. Engagement is negatively related to burnout and has been widely researched in the field of human resources (Montgomery et al., 2019). It is a positive, satisfactory, and work-related state of mind, which can be extrapolated to other contexts such as the academic field (Schaufeli & Bakker, 2003). It includes three dimensions, among which are Vigour, understood as willingness to dedicate effort and persistence in the face of difficulties; Dedication, which includes involvement, feelings of enthusiasm, inspiration, and self-esteem; and lastly Absorption, interpreted as concentration and immersion in work or learning (Schaufeli & Bakker, 2003).

\* Corresponding author at: University of Santiago de Compostela, Campus Vida, Xosé María Suárez Núñez, s/n, 15782 Santiago de Compostela, Spain.

E-mail address: [c.delaiglesia@usc.es](mailto:c.delaiglesia@usc.es) (J.-d.-C. Fernandez-De-La-Iglesia).

<sup>1</sup> These authors contributed equally to this work and are co-first authors.

<https://doi.org/10.1016/j.profnurs.2023.06.003>

Received 9 September 2022; Received in revised form 9 June 2023; Accepted 13 June 2023

Available online 23 June 2023

8755-7223/© 2023 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Background

Within the health sciences, Nursing students appear to be a group that frequently suffers from academic burnout (Ríos-Risquez et al., 2018). Numerous factors contribute to this, mainly the curriculum, teaching methodology and social interaction (Batista et al., 2021). In this group of students, high levels of burnout are related to poor academic performance, inappropriate behaviours, such as absence from class or inattention, and anxiety symptoms (Wang et al., 2019). Conversely, academic engagement is related to high performance and a high perception of self-efficacy, as well as greater concentration and immersion in their studies (Hampton et al., 2020). Despite the importance of these aspects, there is little literature on engagement during academic work even though it is essential in nursing education (Agarwal et al., 2020; Docherty et al., 2018; Zhu et al., 2015). Moreover, evidence shows results related to gender or academic year that differ in relation to engagement in health sciences undergraduates (Morales-Rodríguez et al., 2019).

Although little is known about this phenomenon in nursing students, the effect of work engagement and burnout in nurses is well-known. As in most health professionals, nurses suffer from important levels of burnout across clinical settings (Bagnasco et al., 2020). They frequently manifest low personal fulfilment, emotional exhaustion, and depersonalisation regarding their work (Monsalve-Reyes et al., 2018). Among other causes, the origin is commonly related to the characteristics of the job and the precarious working conditions (Monsalve-Reyes et al., 2018; Ruiz-Fernández et al., 2020). This situation is particularly serious in Spanish nurses, who frequently experience the phenomenon of migration in search of promotion and job stability (Gea-Caballero et al., 2019). All these situations negatively affect the quality of life, being related in turn to the appearance of health problems, such as anxiety, depression, and various somatic pathologies (Portero de la Cruz et al., 2020; Ruiz-Fernández et al., 2020). Beyond the consequences for professionals who suffer from burnout, at the healthcare level this situation might have a negative impact on the quality of care or patient safety (Gómez-Salgado et al., 2019; González-Gancedo et al., 2019).

Previous research demonstrates that burnout originated during university stays with graduates once they enter the labour market, demonstrating a chronic nature (Reis et al., 2015). Thus, we see how scarce the research on the phenomenon in healthcare students is, even when the importance of maintaining well-being is relevant before starting the work stage (Reis et al., 2015). Moreover, studies carried out on nursing students have shown the relationship between academic engagement and a good emotional state with a better adaptability (showing more resources in occupational transitions and challenges) and commitment at work (Fang et al., 2018; Ying et al., 2023). In addition, as a practice-based profession, academic and clinical learning influence the transition from student to professional (Dobrowolska et al., 2015; Ying et al., 2023). Considering nurses play a key role in health systems due to their competencies and contact with patients and community (Tschannen et al., 2021), it is pertinent to explore the engagement of these students in our country, where nurses are considered highly qualified and recruited by various countries (Gea-Caballero et al., 2019; Van Riemsdijk, 2013). By recognising the relevant role of nurses in improving population health, new proposals can be developed in academia and nursing practice (Nahm et al., 2022). In this way, not only the quality of the healthcare is reinforced from the first contact with patients, but also the health of the nurses of the future.

Therefore, the aim of our study was to know the level of engagement of Nursing students in Spain, as well as to identify whether factors like gender, academic year and occupation are linked with higher levels of engagement or any of its dimensions.

With this, evidence-based interventions as well as practical decision-making can be subsequently proposed and tested. This leads to the improvement of academic quality and, consequently, engages students in their future work in our social context. This would result in multiple

benefits, both for professionals and for the diverse population they care for.

## Methods

### Study design

Exploratory studies are carried out when the objective is to examine a little-studied research topic or problem or if we want to investigate topics and areas from new perspectives (Hernández Sampieri et al., 2014). Thus, a multi-centre, exploratory and cross-sectional study was carried out in seven Schools of Nursing in three Universities (University of Santiago de Compostela, University of A Coruña and University of Vigo) in the north-west of Spain. To ensure adequate data reporting, the STROBE Checklist was used. This guideline is one of the most widely used in our discipline to report clear and standardised data of observational studies (von Elm et al., 2008).

### Setting and participants

Participants were undergraduate Nursing students (first to fourth academic year) from the region of Galicia (N–W Spain). Students were informed through the Dean's office of each of the schools, which had previously accepted the participation of their institution. After this, the Nursing Degree coordinators/professors electronically distributed the web-based questionnaire to those students enrolled in courses regardless of academic year between February and April 2019. Therefore, a convenience sample was used.

The common framework established by the European Higher Education Area, the national regulations defining the guidelines for Nursing studies in Spain, and the equal access system of the three participating public universities from the same region, allowed us to ensure a homogeneous profile of the total sample, as the academic syllabus of all the participants extremely similar (same competences requirements, contents and sequencing). This implied that none of the first-year students had clinical training with real patients or healthcare institutions. In the case of second and third-year students, theoretical classes are combined with clinical training in health centres. The fourth and last year students carried out clinical training in different healthcare settings, including specialised services (i.e. psychiatry, intensive care, among others), working on their end of degree research project at the same time.

### Instrument

The Utrecht Work Engagement Scale (UWES-S-17) for students (Schaufeli & Bakker, 2003; Spanish translation in Valdez Bonilla & Ron Murguía, 2011) was chosen to measure the participants' engagement. This is a widely used questionnaire for assessing students' academic engagement that has shown correct psychometric validity (Valdez Bonilla & Ron Murguía, 2011) and reliability with Cronbach  $\alpha$  coefficients ranging from 0.815 to 0.919 (Wang et al., 2023; Ying et al., 2023). It is a scale comprised of 17 items assessing the three dimensions that make up engagement: Vigour, Dedication and Absorption on a 7-point scale with a score from 0 (never) to 6 (always). Both in the dimensions and the total score of the scale a higher score implied a greater engagement. The cited manual provided normative scores and their related cut-off scores to determine the level of engagement between very low and very high. In this sense, students with a score  $\geq 5.54$  on the total engagement scale is considered "very high",  $\geq 4.67 \leq 5.53$  is considered "high",  $\geq 3.07 \leq 4.66$  is considered "average",  $\geq 1.94 \leq 3.06$  is considered low and  $\leq 1.93$  is considered "very low". In addition, Sociodemographic data were collected to describe the sample: gender, age, academic year, and whether they performed other occupations.

Ethical issues

The study protocol was presented and subsequently approved by the regional Clinical Research Ethics Committee (approval number 2019/068). Following the current applicable regulations, information concerning the study was included at the beginning of the questionnaire, an online informed consent was obtained, and all collected data were processed anonymously. The data was collected, stored, and processed following the current data protection regulations in our country, the policy of our institution, as well as the provided computer tools that guarantee these aspects and avoid research bias.

Data analysis

To describe the results, means (M), standard deviations (SD) and medians (M<sub>e</sub>) were obtained for the total data of the present study sample. To explore the reliability of the questionnaire, Cronbach’s alpha index was obtained (alpha = 0.895), consistent with the measures in previous studies (Wang et al., 2023; Ying et al., 2023). In order to contrast the effect of the predictor variables, univariate ANOVAs were performed with the factors Gender, Occupation and Academic year. Since the overall score on the UWES-S-17 adjusted to a normal distribution (Kolmogorov-Smirnov (K–S) = 0.025, p = 0.200), a parametric ANOVA was conducted, and significant effects were explored by posteriori pairwise multiple comparisons (adjusted to Bonferroni correction). As the dimensions Vigour, Dedication and Absorption did not fit a normal distribution (Vigour: K-S = 0.061, p ≤ 0.001; Dedication: K-S = 0.100, p ≤ 0.001; Absorption: K-S = 0.062, p ≤ 0.001), robust ANOVAs

based on trimmed means (20 %) were conducted using adjusted critical values (Mair & Wilcox, 2020). Also, significant effects were explored through nonparametric pairwise comparisons, that is, Mann-Whitney U tests (and p values adjusted using Bonferroni correction). Cohen’s d was obtained for all the significant effects. In addition, bivariate correlations between age and the measures obtained using the UWES-S-17 for students (Pearson correlation in the case of the total score and Spearman correlations for the Vigour, Dedication and Absorption dimensions).

Statistical analyses were performed using SPSS 25.0 for Mac (IBM inc.) and R (R Core Team, 2019a), using the foreign (R Core Team, 2019b) and WRS2 libraries (Mair & Wilcox, 2020).

Results

Participant characteristics

The sample consisted of 808 undergraduate Nursing students from three university campuses of the Universities of Santiago de Compostela, A Coruña and Vigo. Eighty-five percent of the sample was women (n = 687), 14.6 % (n = 118) was men, and 0.4 % (n = 3) was defined as non-binary gender, and therefore the latter were excluded from further analyses. By year, 27.5 % of the participants were enrolled in the first year (n = 222), 26 % in the second year (n = 210), 30.8 % in the third year (n = 249), and the remaining 15.7 % in the fourth (n = 127). A total of 59.7 % of the students were dedicated exclusively to their university studies (n = 482), while the remaining 40.3 % (n = 326) combined their studies with other activities (care of dependent people or work activities, among others).

Table 1

Percentage, means, medians, standard deviations or first and third quartiles of the dimensions of the UWES-S-17 and its total score with the level of engagement related to the cut-off score thresholds

		Likert scale (%)							Descriptive statistics			Engagement Level
		0 Never	1	2	3	4	5	6 Always	M	M <sub>e</sub>	Quartiles or SD	
ABSORPTION DIMENSION	I am happy when I am doing tasks related to my studies	1.7	4.6	28.1	18.9	27.0	15.7	4.0	2.84	2.83	[2.17–3.50]	Average
	I forget everything that happens around me when I am absorbed with my studies	4.5	16.1	26.9	18.1	18.7	12.4	3.5				
	I am immersed in my studies	1.1	8.4	26.5	28.5	20.0	11.4	4.1				
	Time flies when I do my tasks as a student	7.2	12.9	27.6	15.6	18.3	11.4	7.1				
	I “get carried away” when I do my tasks as a student	2.5	12.3	30.2	28.7	15.6	8.2	2.6				
DEDICATION DIMENSION	It is difficult to detach myself from my studies	14.9	24.5	24.9	11.3	12.6	7.8	4.1	4.37	4.60	[3.80–5.20]	Average
	To me, my studies are challenging	1.6	5.6	21.7	19.3	23.1	14.6	14.1				
	My studies inspire me new things	1.0	2.6	14.6	18.1	32.4	20.2	11.1				
	I am enthusiastic about my degree	1.6	3.3	8.3	10.1	18.6	27.4	30.7				
	I find the degree that I do full of meaning and purpose	0.5	1.4	6.4	9.5	18.3	25.2	38.6				
	I am proud to do this degree	1.2	1.5	4.5	3.7	8.2	16.7	64.2				
	When I get up in the morning, I feel like going to class or studying	12.5	24.0	28.8	16.1	9.7	7.7	1.2				
VIGOUR DIMENSION	I can continue studying for very long periods at a time	4.1	11.6	23.8	19.4	18.4	15.6	7.1	2.90	2.83	[2.17–3.67]	Low
	In my tasks as student, I do not stop even if I do not feel well	5.3	14.6	26.6	16.0	15.7	14.5	7.3				
	I am very “resistant” to face my tasks as a student	1.9	8.0	20.3	22.5	22.5	17.3	7.4				
	I feel strong and vigorous when I am studying or going to classes	4.2	12.0	24.4	24.1	19.2	11.3	4.8				
	My tasks as student make me feel energetic	3.8	16.6	25.5	19.7	19.1	9.5	5.8				
UWES-S-17 Scale (Total score)									3.37	3.34	0.90	Average

Mean (M), medians (M<sub>e</sub>), Standard deviations (SD) in the case of normal distribution or first and third quartiles in brackets in the case of non-normal distribution. Cut scores for the UWES and Subscales were the following: Absorption dimension (Very high >5.36, High >4.41, Average >2.76, Low >1.61, Very low <1.60). Dedication dimension (Very high >5.80, High >4.91, Average >3.01, Low >1.61, Very low <1.60). Vigour dimension (Very high >5.61, High >4.81, Average >3.21, Low >2.28, Very low <2.17). UWES total score (Very high >5.54, High >4.67, Average >3.07, Low >1.94, Very low <1.93).

Descriptive analysis of engagement in Nursing students and influencing factors

The sample obtained a mean score on the average total scale (range 3.07–4.66), where the Dedication dimension obtained the highest mean score. Table 1 shows the descriptive statistics for the total sample in the overall score and by dimensions (Vigour, Dedication and Absorption) obtained through the UWES-S-17.

In relation to the total scale score, the ANOVA (Gender, Occupation, Academic Year) showed a significant effect of the Gender factor ( $F(1,789) = 26.22, p \leq 0.001, \text{Cohen's } d = 0.41$ ). Posteriori pairwise comparisons showed that females showed a higher overall score ( $M = 3.44, SD = 0.87, M_e = 3.38$ ) than males ( $M = 3.06, SD = 0.96, M_e = 3.11$ ) (see Table 2).

For the Vigour dimension, robust ANOVA (Gender, Occupation, Academic Year) showed a significant effect of the Gender factor ( $F = 7.11, p = 0.018$ ) and the Academic year factor ( $F = 10.39, p = 0.041$ ). Pairwise multiple comparisons showed that, in the case of Gender ( $U = 35,227.50, p = 0.023, \text{Cohen's } d = 0.26$ ), females show a higher score ( $M = 2.94, SD = 1.06, M_e = 2.83$ ) than males ( $M = 2.66, SD = 1.06, M_e = 2.67$ ). In the case of Year, multiple pairwise comparisons showed significant differences between first and second year ( $U = 19,561.00, p = 0.036, \text{Cohen's } d = 0.27$ ) and between second and third year ( $U = 22,168.00, p = 0.036, \text{Cohen's } d = 0.27$ ). Participants in the second year showed lower scores in the Vigour dimension ( $M = 2.69, SD = 0.96, M_e = 2.67$ ) than those in the first ( $M = 2.98, SD = 1.14, M_e = 3.00$ ) and third year ( $M = 2.97, SD = 1.07, M_e = 2.83$ ).

Regarding the Dedication dimension, only a significant effect of the Gender factor was obtained ( $F = 31.14, p \leq 0.001$ ). A posteriori pairwise comparisons ( $U = 29,186.00, p \leq 0.001, \text{Cohen's } d = 0.53$ ) showed that women present a higher score in Dedication ( $M = 4.45, SD = 0.98, M_e = 4.60$ ) than men ( $M = 3.86, SD = 1.23, M_e = 3.87$ ).

Furthermore, in the Absorption dimension, again only a significant effect of Gender was obtained ( $F = 5.61, p = 0.038$ ). A posteriori pairwise comparison ( $U = 35,525.00, p = 0.032, \text{Cohen's } d = 0.21$ ) showed that women present a higher score in this dimension ( $M = 2.87, SD = 0.98, M_e = 2.83$ ) than men ( $M = 2.65, SD = 1.08, M_e = 2.67$ ). Fig. 1 shows mean and standard deviation of each of the dimensions as well as statistically significant relationships.

Finally, significant bivariate correlations were obtained between age and the overall UWES-S-17 score (Pearson's  $r: 0.118, p = 0.001$ ) and between age and the dimensions Dedication (Spearman's  $\rho: 0.154, p \leq 0.001$ ) and Absorption (Spearman's  $\rho: 0.113, p = 0.001$ ). Although higher scores are obtained with greater age, in all cases the correlations are very weak ( $< 0.3$ ).

Discussion

Nursing, although to a lesser extent than at the beginning of its time, is a predominantly female profession. The female students surveyed represent 85 % of the sample. This percentage is consistent with other studies in nursing students (Gómez-Salgado et al., 2019; Ying et al.,

Table 2  
Total score of the UWES-S-17 scale as a function of the variables gender, academic year and occupation

		UWES-S-17 Scale (Total score)		
		Mean	SD	Median
Gender	Female	3.42	0.87	3.38
	Male	3.06	0.96	3.11
Academic year	1	3.35	1.00	3.31
	2	3.28	0.82	3.27
	3	3.42	0.88	3.42
	4	3.44	0.85	3.39
Occupation	I only study	3.32	0.90	3.34
	I combine with other activities	3.44	0.88	3.37

2023) as well as with global data on the nursing profession recently reported by the World Health Organization (2020).

Both at a general level and in each of the dimensions encompassed by the term engagement, female students showed higher scores than men on the UWES-S-17 for students. These findings are in line with previous studies in which work and academic engagement was assessed with the same instrument in the nursing discipline. In two recent studies male nursing students showed lower values than females in different social contexts (Gómez-Salgado et al., 2019; Ying et al., 2023). Conversely, Agarwal et al. (2020) found the opposite effect on gender in favour of male medical students.

Once nurses went into the labour market, researchers found statistically significant differences in favour of women (Allande-Cussó et al., 2021) where female nurses showed higher scores than men in all engagement dimensions (Molero Jurado et al., 2020). Despite the importance of studying gender differences in nursing, this variable has received little attention. In this regard, it has been shown that both female nursing students and professionals place more importance on professional values than their male counterparts. However, this positive relationship regarding discipline decreases with experience (Fernández-Feito et al., 2019).

Furthermore, perceived stress and burnout have been studied in contrast to engagement in several university students, further focusing research on this perspective. A recent study found that being a female medical student was related to lower stress levels compared to males (Agarwal et al., 2020), while others reported more stress in female nursing students (Olvera Alvarez et al., 2019). Thus, burnout and wellness in health sciences students showed different results in relation to gender (Gil-Calderón et al., 2021; Spurr et al., 2021). From the numerous results it appears that the gender variable needs to be studied in more detail in nursing students, even using qualitative approaches to examine the numerous associated factors. Moreover, it is paradoxical that most nurses in management and supervisory positions are men, which again highlights the gender gap to participate in positions of responsibility despite greater initial engagement levels (Smith et al., 2021) and professional values (Fernández-Feito et al., 2019) found in women of this discipline. In this sense, an integrative review has indicated work-life balance and reconciliation as important resilience strategies for nurses (Hart et al., 2014), especially considering that it is a feminised profession. Therefore, it seems logical to think that these situations are related to the traditional role associated to gender stereotypes throughout their personal and professional lives, which must be addressed by different areas of management.

Regarding the level of engagement, we observed an average level consistent with previous studies carried out in health sciences students and measured with the same instrument (Agarwal et al., 2020; Liu et al., 2018; Morales-Rodríguez et al., 2019). Dedication is the engagement dimension that obtained the highest score, followed by Vigour and Absorption, respectively. In previous studies where the UWES-S-17 scale was used, a clear trend was not observed for some of the dimensions (Schaufeli & Bakker, 2003). Despite this, it has been seen that in several cases the dimension with the highest score has been Dedication; this term refers to being strongly involved in work, experiencing pride and challenge (Schaufeli et al., 2002). The lowest scored dimension was Vigour, which is characterised by the willingness to invest effort and perseverance in work despite possible difficulties (Schaufeli et al., 2002). In general, these findings are consistent with the results found in other health sciences students (Agarwal et al., 2020; Liu et al., 2018; Schaufeli & Bakker, 2003).

Our research found that engagement in nursing students increases with age, especially in the Dedication and Absorption dimensions. This relationship between engagement and age has been also described in a study in occupational therapy students (Morales-Rodríguez et al., 2019). Regarding the academic year that Nursing students found themselves in, previous studies determined that they presented greater Vigour, Absorption, Dedication, and Resilience in the first years of their degree



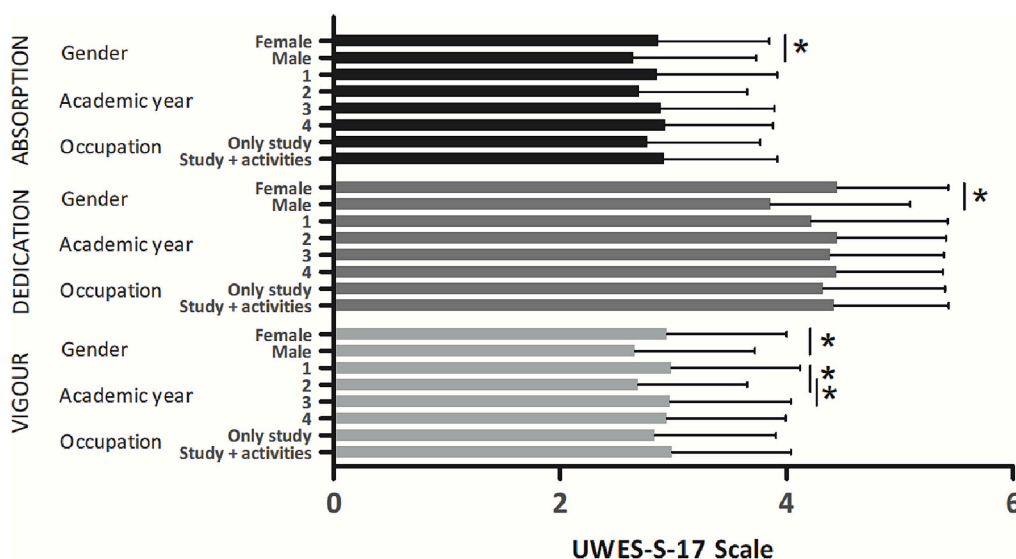


Fig. 1. Total score of the UWES-S-17 scale (mean, standard deviation) as a function of the variables gender, academic year and occupation for each dimension (Absorption, Dedication, Vigour).

\*p < 0.05.

(Fernández-Martínez et al., 2017). In contrast, higher perceived stress has been described in medical students in the second year of their degree (Agarwal et al., 2020). These previous findings agree with those of the present investigation, in which significant differences were found in the Vigour that students showed, as well as greater levels of energy and mental resilience in the first and third year. In the case of our research, this might be related to the degree schedule as Ying et al. (2023) also discuss in their research. The first year comprises only theory courses, assuming a similar study routine in the different Universities. Clinical training is combined with theory courses in the second and third academic years. The effort involved in simultaneously combining the classroom and hospital contexts requires undergraduates to adapt, increasing Vigour which is not perceived until the third year. The fourth year is entirely practical, based on clinical training. Although supervised by university professors, students spend all year in the clinical setting, which may contribute to weakening bonds with academia, as well as increasing the complexity of their competencies. As a result, they may begin to see themselves more as nurses while feeling less identified as students. Therefore, it seems important to specifically analyse this last year as recently indicated by Ying et al. (2023).

Thus, nurses are the largest and most consistent provider of care in the healthcare system (Tschannen et al., 2021). It is interesting to note that health system policies could worsen if work-related stressors that affect the health of new nurses increase (Olvera Alvarez et al., 2019). Therefore, it seems logical to conserve or increase the physical and psychological well-being of future nurses from their position as students (Olvera Alvarez et al., 2019; Reis et al., 2015). In addition, the study of Spanish nurses and students is especially interesting because it exports a high number of graduates to different health systems, mainly in Europe (Galbany-Estragués & Nelson, 2016).

**Strengths and limitations**

In many cases, these studies are only carried out in a single institution. However, our sample consisted of Nursing students from seven Schools belonging to three Universities in north-west Spain. Also, it is important to underline the choice of a widely used, robust and validated instrument. Finally, in contrast to previous research focused on work engagement, our study adds evidence of engagement before entering the labour market. The study has also some limitations that must be considered: future research should increase data related to engagement

in other regions to have a more representative image of Nursing students worldwide. Due to the lack of evidence in this regard, specific methodological designs seem necessary to determine a causal effect between variables.

**Conclusions**

The level of engagement can be considered average, so it is necessary to investigate solutions to improve these levels. It is important to investigate this issue from a university environment to maintain engagement levels in the healthcare context. We have identified that the Vigour dimension showed the least engagement. This suggests that Nursing students may feel overwhelmed and that different strategies should be considered to improve this attitude. Our findings also show the need to seek actions considering the evidence-based gender differences and needs of these students. Moreover, the upholding of engagement should be encouraged throughout the degree, and, particularly in the last years due to its connection with the future job as a nurse.

*Relevance to educational practice*

These findings show the need to seek strategies that enhance Nursing students’ engagement from a practical point of view through specific policies and educational interventions. These actions would contribute to a greater motivation and implication with their future occupation as Nursing professionals, reinforcing their own wellness, the quality of care provided and the patient safety during their academic life and transition to working life.

**Registration number**

The submitted manuscript is based on a research study which was subjected to a full review by the Regional Ethics Committee. This study was approved by the Research ethics committee Pontevedra-Vigo-Ourense (Galician Research Ethics Committee Network) on February 19, 2019 (project number 2019/068).

**CRedit authorship contribution statement**

JF, AM & RR were responsible for the study design. AM, ML, NV & RR performed the data collection. JF performed the data analysis. JF,

AM, NV and RR were responsible for the drafting of the manuscript. ML supervised the study and made critical revisions to the paper for important intellectual content. All authors agreed on the final manuscript.

### Funding sources

No external funding.

### Declaration of competing interest

None.

### Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

### Acknowledgments

We are grateful to Diego Lopez-Cao for his services in editing the manuscript.

### References

- Agarwal, G., et al. (2020). Work engagement in medical students: An exploratory analysis of the relationship between engagement, burnout, perceived stress, lifestyle factors, and medical student attitudes. *Medical Teacher*, 42(3), 299–305. <https://doi.org/10.1080/0142159X.2019.1679746>
- Allande-Cussó, R., et al. (2021). Work engagement in nurses during the Covid-19 pandemic: A cross-sectional study. *Healthcare*, 9(3), 253. <https://doi.org/10.3390/healthcare9030253>
- Bagnasco, A., et al. (2020). A cross-sectional multisite exploration of Italian paediatric nurses' reported burnout and its relationship to perceptions of clinical safety and adverse events using the RN4CAST@IT-Ped. *Journal of Advanced Nursing*, 76(8), 2072–2081. <https://doi.org/10.1111/jan.14401>
- Batista, R., et al. (2021). Burnout and academic satisfaction of nursing students in traditional and integrated curricula. *Revista da Escola de Enfermagem da USP*, 55, Article e03713. <https://doi.org/10.1590/S1980-220X2020002003713>
- Dobrowolska, B., McGonagle, I., Jackson, C., Kane, R., Cabrera, E., Cooney-Miner, D., ... Palese, A. (2015). Clinical practice models in nursing education: Implication for students' mobility. *International Nursing Review*, 62(1), 36–46. <https://doi.org/10.1111/inr.12162>
- Docherty, A., et al. (2018). Enhancing student engagement: Innovative strategies for intentional learning. *Journal of Professional Nursing*, 34(6), 470–474. <https://doi.org/10.1016/j.profnurs.2018.05.001>
- Fang, W., Zhang, Y., Mei, J., Chai, X., & Fan, X. (2018). Relationships between optimism, educational environment, career adaptability and career motivation in nursing undergraduates: A cross-sectional study. *Nurse Education Today*, 68, 33–39. <https://doi.org/10.1016/j.nedt.2018.05.025>
- Fernández-Feito, A., Basurto-Hoyuelos, S., Palmeiro-Longo, M. R., & García-Díaz, V. (2019). Differences in professional values between nurses and nursing students: A gender perspective. *International Nursing Review*, 66(4), 577–589. <https://doi.org/10.1111/inr.12543>
- Fernández-Martínez, E., et al. (2017). Social networks, engagement and resilience in university students. *International Journal of Environmental Research and Public Health*, 14, 1488. <https://doi.org/10.3390/ijerph14121488>
- Galbany-Estragués, P., & Nelson, S. (2016). Migration of Spanish nurses 2009–2014. Underemployment and surplus production of Spanish nurses and mobility among Spanish registered nurses: A case study. *International Journal of Nursing Studies*, 63, 112–123. <https://doi.org/10.1016/j.ijnurstu.2016.08.013>
- Gea-Caballero, V., et al. (2019). Motivations, beliefs, and expectations of Spanish nurses planning migration for economic reasons: A cross-sectional, web-based survey. *Journal of Nursing Scholarship*, 51(2), 178–186. <https://doi.org/10.1111/jnu.12455>
- Gil-Calderón, J., et al. (2021). Burnout syndrome in Spanish medical students. *BMC Medical Education*, 21(1), 231. <https://doi.org/10.1186/s12909-021-02661-4>
- Gómez-Salgado, J., et al. (2019). Engagement, passion and meaning of work as modulating variables in nursing: A theoretical analysis. *International Journal of Environmental Research and Public Health*, 16(1), 108. <https://doi.org/10.3390/ijerph16010108>
- González-Gancedo, J., et al. (2019). Relationships among general health, job satisfaction, work engagement and job features in nurses working in a public hospital: A cross-sectional study. *Journal of Clinical Nursing*, 28(7–8), 1273–1288. <https://doi.org/10.1111/jocn.14740>
- Hampton, D., et al. (2020). Learning preferences and engagement level of generation Z nursing students. *Nurse Educator*, 45(3), 160–164. <https://doi.org/10.1097/NNE.0000000000000710>
- Hart, P. L., et al. (2014). Resilience in nurses: An integrative review. *Journal of Nursing Management*, 22(6), 720–734. <https://doi.org/10.1111/j.1365-2834.2012.01485.x>
- Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). *Investigation methodology* (6a. ed.). México D.F: McGraw-Hill.
- Hetzel-Riggin, M. D., et al. (2019). Work engagement and resiliency impact the relationship between nursing stress and Burnout. *Psychological Reports*, 123(5), 1835–1853. <https://doi.org/10.1177/0033294119876076>
- Liu, H., et al. (2018). Burnout and study engagement among medical students at Sun Yat-sen University, China: A cross-sectional study. *Medicine*, 97(15), Article e0326. <https://doi.org/10.1097/MD.00000000000010326>
- Mair, P., & Wilcox, R. (2020). Robust statistical methods in R using the WRS2 package. *Behavior Research Methods*, 52, 464–488. <https://doi.org/10.3758/s13428-019-01246-w>
- Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*, 15(2), 103–111. <https://doi.org/10.1002/wps.20311>
- Molero Jurado, M. M., et al. (2020). Emotional intelligence components as predictors of engagement in nursing professionals by sex. *Healthcare*, 8(1), 42. <https://doi.org/10.3390/healthcare8010042>
- Monsalve-Reyes, C. S., et al. (2018). Síndrome de burnout y su prevalencia en enfermería de atención primaria: revisión sistemática y metanálisis. *BMC Family Practice*, 19(1), 59. <https://doi.org/10.1186/s12875-018-0748-z>
- Montgomery, A., Panagopoulou, E., Esmail, A., Richards, T., & Maslach, C. (2019). Burnout in healthcare: the case for organisational change. *BMJ*, 366, 14774. <https://doi.org/10.1136/bmj.14774>
- Morales-Rodríguez, F. M., et al. (2019). Education burnout and engagement in occupational therapy undergraduate students and its associated factors. *Frontiers in Psychology*, 10, 2889. <https://doi.org/10.3389/fpsyg.2019.02889>
- Nahm, E. S., et al. (2022). Development of an academic-practice partnership model to anchor care coordination and population health. *Nursing Outlook*, 70(1), 193–203. <https://doi.org/10.1016/j.outlook.2021.09.005>
- Olvera Alvarez, H. A., et al. (2019). Stress and health in nursing students: The nurse engagement and wellness study. *Nursing Research*, 68(6), 453–463. <https://doi.org/10.1097/NNR.0000000000000383>
- Portero de la Cruz, S., et al. (2020). A multicenter study into burnout, perceived stress, job satisfaction, coping strategies, and general health among emergency department nursing staff. *Journal of Clinical Medicine*, 9(4), 1007. <https://doi.org/10.3390/jcm9041007>
- R Core Team. (2019a). R: A language and environment for statistical computing. R Foundation for statistical computing. Retrieved from: <https://www.R-project.org/>.
- R Core Team. (2019b). Foreign: Read data stored by 'Minitab', 'S', 'SAS', 'SPSS', 'Stata', 'Systat', 'Weka', 'dBase'. R package version 0.8-72. Retrieved from: <https://CRAN.R-project.org/package=foreign>.
- Reis, D., et al. (2015). Measuring job and academic burnout with the Oldenburg Burnout Inventory (OLBI): Factorial invariance across samples and countries. *Burnout Research*, 2(1), 8–18. <https://doi.org/10.1016/j.burn.2014.11.001>
- Rezende Lopes, A., & Kenji Nihei, O. (2020). Burnout among nursing students: Predictors and association with empathy and self-efficacy. *Revista Brasileira de Enfermagem*, 73(1), Article e20180280. <https://doi.org/10.1590/0034-7167-2018-0280>
- Rios-Risquez, M. I., et al. (2018). Connections between academic burnout, resilience, and psychological well-being in nursing students: A longitudinal study. *Journal of Advanced Nursing*, 74(12), 2777–2784. <https://doi.org/10.1111/jan.13794>
- Ruiz-Fernández, M. D., et al. (2020). Quality of life in nursing professionals: Burnout, fatigue, and compassion satisfaction. *International Journal of Environmental Research and Public Health*, 17(4), 1253. <https://doi.org/10.3390/ijerph17041253>
- Schaufeli, W., & Bakker, A. (2003). *UWES- Utrecht work engagement scale*.
- Schaufeli, W. B., et al. (2002). The measurement of engagement and burnout and: A confirmative analytic approach. *Journal of Happiness Studies*, 3, 71–92.
- Smith, B. W., et al. (2021). Professional success of men in the nursing workforce: An integrative review. *Journal of Nursing Management*, 29(8), 2470–2488. <https://doi.org/10.1111/jonm.13445>
- Spurr, S., et al. (2021). Examining nursing students' wellness and resilience: An exploratory study. *Nurse Education in Practice*, 51, 102978. <https://doi.org/10.1016/j.nepr.2021.102978>
- Tschannen, D., et al. (2021). Quality improvement engagement and competence: A comparison between frontline nurses and nurse leaders. *Nursing Outlook*, 69(5), 836–847. <https://doi.org/10.1016/j.outlook.2021.02.008>
- Valdez Bonilla, H., & Ron Murguía, C. (2011). *Escala Utrecht de Engagement en el Trabajo*.
- Van Riemsdijk, M. (2013). Obstacles to the free movement of professionals: Mutual recognition of professional qualifications in the European Union. *European Journal of Migration and Law*, 15(1), 47–68.
- von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., Vandenbroucke, J. P., & STROBE Initiative. (2008). The strengthening of reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. *Journal of Clinical Epidemiology*, 61(4), 344–349. <https://doi.org/10.1016/j.jclinepi.2007.11.008>
- Wang, M., et al. (2019). Academic burnout and professional self-concept of nursing students: A cross-sectional study. *Nurse Education Today*, 77, 27–31. <https://doi.org/10.1016/j.nedt.2019.03.004>
- Wang, Y., Zhou, Y., Li, T., & Wang, Y. (2023). A cross-sectional study in college-based nursing education: The influence of core self-evaluation and career calling on study engagement in nursing undergraduates. *Nursing Open*. <https://doi.org/10.1002/nop2.1598>

- World Health Organization. (2020). State of the world's nursing 2020: investing in education, jobs and leadership. Retrieved from: <https://www.who.int/publications/item/9789240003279>.
- Ying, W., Mingxuan, L., Qian, Z., Shuxian, Z., Yufang, G., & Kefang, W. (2023). The mediating role of professional commitment between the clinical learning environment and learning engagement of nursing students in clinical practice: A cross-sectional study. *Nurse Education Today*, 121, 105677. <https://doi.org/10.1016/j.nedt.2022.105677>
- Zhu, Y., et al. (2015). The impact of emotional intelligence on work engagement of registered nurses: The mediating role of organisational justice. *Journal of Clinical Nursing*, 24(15–16), 2115–2124. <https://doi.org/10.1111/jocn.12807>