ORIGINAL ARTICLE

Commitment, perception and evidence-based practice training in Spanish nursing students: A multicentre cross-sectional study in 2020

Juan Gómez-Salgado PhD, Professor[1,2] ⓘ | Julián Rodríguez-Almagro PhD, Professor[3] ⓘ | Milagros Molina-Alarcón PhD, Professor[4] | Juan Miguel Martínez-Galiano PhD, Professor[5,6] | María del Carmen Solano-Ruiz PhD, Professor[7] | Antonio Hernández Martínez PhD, Professor[3]

[1]Department of Sociology, Social Work and Public Health, Faculty of Labour Sciences, University of Huelva, Huelva, Spain

[2]Safety and Health Postgraduate Programme, Universidad Espíritu Santo, Samborondón, Ecuador

[3]Department of Nursing, Physiotherapy and Occupational Therapy, Faculty of Nursing, University of Castilla-La Mancha, Ciudad Real, Spain

[4]Department of Nursing, Physiotherapy and Occupational Therapy, Faculty of Nursing, University of Castilla-La Mancha, Albacete, Spain

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

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

[7]Nursing Department, School of Health Sciences, Universidad de Alicante, Alicante, Spain

Correspondence
Julián Rodríguez-Almagro, Department of Nursing, Physiotherapy and Occupational Therapy, Faculty of Nursing, University of Castilla-La Mancha, 14 Camilo José Cela st., 13071 Ciudad Real, Spain.
Email: julianj.rodriguez@uclm.es

Abstract

Aims and objectives: To evaluate the commitment and level of self-perceived training in evidence-based practice among students of the Nursing degree of five Spanish universities.

Background: In university Health Sciences degrees, evidence-based clinical practice can directly or indirectly impact the quality of care, the cost of the service provided and the safety of clinical practice.

Design: Multicentre cross-sectional observational study according to STROBE guidelines.

Methods: The evidence-based skills in Practice questionnaire (CACH-PBE, for its acronym in Spanish) and the Utrecht Work Engagement Student Scale (UWES-9S) were used. The study was performed in five Spanish universities (Alicante, Castilla La Mancha, Jaen, Huelva and Seville) from October to December 2020, with 755 participants (Nursing students).

Results: A total mean score of 91.9 points (SD = 11.81) was observed for the CACH-PBE questionnaire and of 36.8 points (SD = 8.48 points) for the UWES-9S. In addition, the multivariate analysis predicted that variables such as sex, academia, university, intention to do a Master or Doctorate degree, the level of work engagement, and the previous training in evidence-based clinical practice were associated with a greater perception of evidence-based practice.

Conclusion: The sample of Nursing degree students has intermediate-high levels of knowledge, skills and attitudes regarding evidence-based practice and work commitment, with differences observed between each of the universities.

Relevance to clinical practice: Nursing students should develop from intermediate to high levels of knowledge, skills and attitudes regarding evidence-based practice and work commitment. There are various actions to promote EBP, such as the

incorporation of a specific course covering the subject into the nursing curriculum, and the selection, for clinical practices, of care units that implemented evidence-based care.

KEYWORDS

evidence-based practice, higher education institutions, nursing education research, teaching, work engagement

1 | INTRODUCTION

Decision-making at clinical practice in healthcare settings can have direct effects on the quality of care offered by healthcare professionals, such as changes into technical procedures or care protocols, as well as have an impact on the cost of the provided service and even promote the concatenation of safety risks for both the patient and the healthcare professional (Barría, 2014; Moore, 2017). In many cases, healthcare professionals make these decisions based on their professional experience or on what they learned during their university studies, or in other cases, as a compendium of scientific evidence and value judgment, even though scientific knowledge is constantly updated (Vincent et al., 2015).

Since the incorporation of European university studies into the Bologna Plan of common educative framework, the objective has been to insist on allowing university degrees in Health Sciences to acquire and develop knowledge, attitudes and skills focused on evidence based-practice (EBP) (Upton et al., 2016). In fact, in Spain, Order 2134/2008 sets out the minimum requirements for the verification of official university degrees that enable the exercise of the Nursing profession, including a reference to EBP when recommending basing nursing interventions on scientific evidence and the available means (Spanish Law & Order, 2134, 2008).

2 | BACKGROUND

EBP appears as a methodological tendency that allows the best available evidence to date to be used to try to solve a particular clinical problem. This EBP began to gain importance in 1972 thanks to Dr Archibald Leman Cochrane (Cochrane, 1989), postulating the need to incorporate and implement the conclusions and evidence available from prevailing randomised clinical trials to guide the medical clinical practice of the time (Felicilda-Reynaldo & Utley, 2015). Sackett et al. (1996) defined EBP as 'the conscientious, explicit and judicious use of the best current evidence in decision-making regarding individual patient care. It means integrating individual clinical expertise with the best available external clinical evidence coming from systematic research'.

Years later, EBP began to be incorporated into other disciplines as it was in the case of Nursing, being recently endorsed as the vertebrate axis of the nursing practice by different international organisations such as the American Institute of Medicine (2003) and the

> **What does this paper contribute to the wider global clinical community?**
> - Evidence based-practice integrates clinical decision making with the best and latest evidence according to the patient preference.
> - Students of the Nursing degree sample can develop from intermediate to high levels of knowledge, skills and attitudes regarding evidence-based practice and work commitment.
> - The Nursing degree can promote the use of evidence-based practice in the nursing professional practice, thus improving the quality, safety and cost-efficiency.

American Nurses Association in 2010 and 2015, being the latter included in *Nursing: Scope and Standards of Practice, Third Edition* (American Nurses Association, 2015). In this regard, the International Council of Nurses (ICN) defined EBP as a 'problem solving approach to clinical decision making that incorporates a search for the best and latest evidence, clinical expertise and assessment and patient preference values within a context of caring', considering the patient as a whole (biopsychosocial being) (ICN, 2012).

Despite all these efforts, recognition and recommendations from international organisations, the reality seems to be very different since neither most healthcare professionals nor organisations seem eager to follow an EBP culture in their daily work (Correa et al., 2020; Moreno-Poyato et al., 2020); in this sense, we need to take into account that clinical practice is often associated to 'what we usually do' instead of 'what we have to do'. R1 The best available evidence is often not used in patient care, and in other cases, there are no decision-making or critical attitude skills implied. It should be added to this that Nursing university degrees do not give importance to EBP either, even though it is included in the curriculum.

Among the difficulties that exist to follow an EBP, barriers related to documentation access such as lack of time, lack of knowledge, language issues, lack of resources and organisational limitations of various kinds can be found. Other authors blame this problem on the lack of awareness and positive attitude of professionals towards everything related to EBP, who, in addition, do not even believe in its positive results when compared with traditional care (Bianchi et al., 2018; Bressan et al., 2017; Warren et al., 2016).

In Spain, training is highly variable from one institution to another; so, it has not yet been systematically implemented in the education system. In some universities, this training is taught within certain subjects in a cross-sectional manner, such as research methods, biostatistics or community studies, among others. It is necessary to overcome these possible barriers because the practice of EBP in nursing care plans can improve the quality of care, offering better health outcomes (Melnyk et al., 2017).

This fact shows that, probably, not only is it necessary to incorporate EBP into the curriculum of the Nursing degrees, but also it is necessary to implement a culture of EBP starting in undergraduate studies, as well as infrastructures to facilitate access to databases, and a periodic review of the skills, perceptions and commitment of teachers and students (Melnyk & Fineout-Overholt, 2011). Both groups must value the quality and excellence in the care they offer to patients, requiring the development of clinical competencies based on clinical judgment, the development of skills to perform quality searches and the ability to put the findings in practice (Burke et al., 2005). In this sense, mechanisms and strategies should be developed from the university level to facilitate skill learning and promote student engagement in this area (Bianchi et al., 2018).

In this line, few studies compare the degree of integration of EBP teaching into nursing students. Therefore, the objective of this study was to evaluate the commitment (engagement) and the level of self-perceived training on evidence-based practice among students of the Nursing degree of five Spanish universities.

3 | METHODS

3.1 | Study design and participants

Multicentre cross-sectional observational study on a population of 5068 students of the Nursing degree of the Spanish universities of Alicante, Castilla La Mancha, Jaen, Huelva and Seville during the months of October–December 2020. The STROBE guidelines for reporting cross-sectional studies were followed (von Elm et al., 2007), and a checklist has been provided as supplementary file (File S1).

The universities included in this study were selected by convenience, as they accepted to participate. The number of students enrolled from first to fourth year in the Nursing degree in each university is: 800 in the University of Alicante; 2148 in the University of Castilla La Mancha; 560 in the University of Jaen; 520 in the University of Huelva and 1040 in the University of Seville.

A method of sampling convenience was followed. The GRANMO tool (Institut Municipal d'Investigació Mèdica, 2012) was used to estimate the sample size. As criteria for this calculation, a reference population of 5068 students was used, with a confidence level of 95%; a prevalence of the factor under study of 50% was considered (as it is a multi-response questionnaire, and it is the most demanding value for estimating the number of subjects required), an absolute error of 4% and a loss rate of 10%. Thus, a minimum of 590 study subjects were required, but the researchers decided to include all those subjects who agreed to participate and met the inclusion criteria.

As inclusion criteria, these were followed: (i) students enrolled in the Nursing degree from first to fourth year of the Universities of Alicante, Castilla La Mancha, Jaen, Huelva and Seville; (ii) students enrolled in the European Region Action Scheme for the Mobility of University Students (ERASMUS) programme who were outside the national territory during the study period and (iii) students enrolled in the programme or Exchange System between University Centres of Spain (SICUE) who were outside their reference university during the period of study. Students were asked to respond according to their university of origin and the internship centres of origin. ERASMUS students from other countries were excluded.

3.2 | Instruments

For data collection, an anonymous self-prepared online questionnaire was used that contained 19 items on the academic characteristics of the students and their expectations of professional future and training in evidence-based clinical practice (EBCP). In addition, the Evidence-Based Skills in Practice questionnaire (CACH-EBP) was used to determine students' self-perception of the EBCP, and the Utrecht Work Engagement Student Scale (UWES-9S) was included to determine students' level of work engagement.

The main result variable was EBCP skills scores and in its three dimensions, using the CACH-EBP instrument (Ruzafa-Martínez et al., 2013). This questionnaire was validated for Spanish nursing students and consists of 25 items with 5 Likert-type response options ranging from highly disagree (1) to highly agree (5), but 9 items had been written in reverse order, so before adding the scores, the mentioned items were recoded. The total score was calculated by adding the scores obtained in the 25 items, obtaining values ranging from 25 (minimum score) to 125 points (maximum score). This instrument consists of 3 dimensions: Attitudes (13 items), Knowledge (6 items), and Skills (6 items). For their comparison, the total score for each dimension was divided by the number of items that formed it. Cronbach's alpha was 0.888 for the entire questionnaire.

Independent variables were variables related to students' characteristics and Work Engagement scores obtained using the Spanish version of the UWES (Serrano et al., 2019). Among the assessed characteristics were sex, academic year, the university they belonged to, whether they planned to enrol in a Master's or PhD programme at the end of their degree, the field of work where they would like to develop professionally and whether they had received any specific training on EBCP at university or during clinical rotations (subject, workshops or specific training courses on EBCP).

UWES Scale consisted of 9 items divided into three subscales: vigour (3 items), dedication (3 items) and absorption (3 items). Responses followed a Likert-type format with seven possible responses ranging from never (0) to always/every day (6). The evaluation of this questionnaire is made through summation; so, the higher the score, the higher the levels of vigour, dedication and

absorption. Cronbach´s alpha for the UWES–S–9 was satisfactory (α = .91). Likewise, the value of average variance extracted (AVE) and the Omega coefficient -Ω- for the UWES–S–9 were satisfactory (AVE = .52, Ω = .911) (Serrano et al., 2019). For the categorisation of UWES-9S values, the cut-off points set out in its manual (Benevides-Pereira et al., 2011). A low level of work engagement was considered with scores below 2.88, a medium level when scores were between 2.88 and 4.66, and a high level when scores were higher than 4.66.

3.3 | Procedure

The questionnaire had previously been piloted in a sample of 30 students. Based on this information, the items and answers of the final version were created. This questionnaire was completely anonymous and distributed among the 5 participating universities via a link on the Virtual Campus. The Virtual Campus may also be known internationally as LMS, the acronym for Learning Management System. It is therefore a learning system designed to create and manage online learning spaces adapted to the needs of teachers, students and administrators.

Before starting the questionnaire, students had to read a fact sheet on the study and objectives and gave their consent to participate by checking a box designed for this purpose. There was an email address in order to answer the questions raised while completing the questionnaire.

3.4 | Statistical analysis

First, a descriptive analysis was performed using absolute and relative frequencies for categorical and mean variables with standard deviation (SD) for quantitative variables with normal distribution. A bivariate analysis was performed with the punctuations of the CACH-EBP instrument with students' characteristics and Work Engagement scores using Student's-Fisher *t*-tests and variance analysis, depending on whether the independent variables had 2 or more categories. Finally, a multivariate analysis was performed using multiple linear regression to determine the factors associated with the perception of competencies in EBP. Thus, the effect of each of the factors studied on the self-perception of competencies in EBP was obtained through the difference in mean scores on the CACH-EBP scale with their respective 95% confidence intervals; $p \leq .05$ values were considered statistically significant. Prior to its application, the adequacy of the regression was studied through the analysis of the residuals (normality, collinearity, heterogeneity and independence). All calculations were performed with the SPSS 24.0 programme (IBM, Armonk NY, US).

3.5 | Ethics considerations

Participants responded to the questionnaire voluntarily and accepted the informed consent. The questionnaire explained in detail the study subject matter and included the participant's consent. Participants' responses were recorded anonymously, and data were treated confidentially. There was no coding that would allow the identity of the participants to be known. Once the information was collected from each university, the data were exported to a single database stored in a computer at the University of Castilla la Mancha, where they were analysed. The rest of the databases were deleted.

The study was conducted under the 'Ethical Principles for Medical Research in Humans' contained in the latest version of the Helsinki Declaration (Fortress Amendment, Brazil, October 2013). This study was also approved by the Ethics Committee of the General Council of Nursing, with record date of 5 May 2020. The data obtained during the study were processed in accordance with Organic Law 3/2018, of December 5, on the Protection of Personal Data and Guarantee of Digital Rights.

4 | RESULTS

4.1 | Characteristics of the study sample

A total of 755 nursing students from the five mentioned universities participated. The mean age was 22.5 years (*SD* = 5.59), with 80.1% (605) being women. As for the distribution by universities, the largest in participation was Seville with 32.1% (242), followed by Castilla La Mancha with 15.9% (163), 17.9% (135) from Huelva, 15.9% (120) from Jaen and 12.6% (95) from Alicante. All other features can be found in Table 1.

4.2 | Expectations for the future and commitment of students

In terms of future expectations at the training level, 44.0% (332) of students claimed to have a master's degree in mind and 11.7% (88) planned to start the Doctoral programme. As regards the area of work after completion of training, for 85.4% (645), their objective would be to devote themselves to the field of care and only 1.3% (10) and 1.6% (12) would be devoted to research and teaching respectively. In terms of level of engagement, the mean score was 36.8 points (*SD* = 8.48 points) on the UWES-9S scale. The dimension with the highest score was Dedication, with a mean score of 15.1 points (*SD* = 2.98) (Table 2).

4.3 | Training and perception of EBP

Students were then asked whether they knew what EBP was, answering yes 90.6% (686) of them, with 79.6% (601) of participants claiming to have received training on EBP at the university and 24.4% (184) in clinical rotations. In terms of the type of training, bibliographic search was the most frequent training area for

TABLE 1 Characteristics of the students, academic and professional future expectations

Variable	N = 755 n (%)	N = 755 Mean (SD)
Age		22.5 (5.59)
Gender		
Male	150 (19.9)	
Female	605 (80.1)	
Academic year		
First-Second	377 (49.9)	
Third-Fourth	378 (50.1)	
University		
University of Alicante	95 (12.6)	
University of Castilla-La Mancha	163 (15.9)	
University of Jaen	120 (15.9)	
University of Huelva	135 (17.9)	
University of Sevilla	242 (32.1)	
Are you planning to do a Master's degree after completing your studies?		
No	87 (11.5)	
I'm not sure at this moment	336 (44.5)	
Yes	332 (44.0)	
Are you planning to do a Doctorate after completing your studies?		
No	336 (41.9)	
I'm not sure at this moment	351 (46.5)	
Yes	88 (11.7)	
After completing your studies (Degree, Specialty, Master's or Doctorate), in which field would you like to develop professionally?		
I'm not sure at this moment	67 (8.8)	
Healthcare	645 (85.4)	
Teaching	12 (1.6)	
International cooperation	19 (2.5)	
Research	10 (1.3)	
Management	2 (0.3)	
Utrecht Work Engagement Scale V−9		36.8 (8.48)
Vigour		9.6 (3.67)
Dedication		15.1 (2.98)
Absorption		12.1 (3.29)

TABLE 2 EBCP. Training, knowledge, skills and attitudes

Variable	N = 755 n (%)	N = 755 Mean (SD)
Do you know what EBCP is?		
No	71 (9.4)	
Yes	684 (90.6)	
Have you received any specific training in EBCP at university?		
No	154 (20.4)	
Yes	601 (79.6)	
During clinical rotations, have you attended any training on EBCP?		
No	571 (75.6)	
Yes	184 (24.4)	
Have you received previous training in EBCP as regards?		
Bibliographic search	710 (94.0)	
Management of bibliographic managers (Mendeley, Zotero, Reference Manager, Endnote, etc.)	527 (69.8)	
Critical reading	551 (73.0)	
Health studies design	91 (8.6)	
Basic statistics	506 (67.0)	
Management of any statistical software (SPSS, Epi info and Stata.)	416 (55.1)	
Scientific writing	300 (39.7)	
Scientific posters development	283 (37.5)	
Preparation and presentation of oral scientific communications	244 (32.3)	
CACH-PBE Total score		91.9 (11.81)
CACH-PBE Attitudes score		53.6 (6.89)
CACH-PBE Attitudes score/13		4.1 (0.53)
CACH-PBE Skills score		19.7 (3.89)
CACH-PBE Skills score/6		3.3 (0.65)
CACH-PBE Knowledge score@ CACH-PBE		18.2 (4.51)
Knowledge score/6		3.1 (0.75)

Abbreviation: EBCP, Evidence-Based Clinical Practice.

4.4 | Factors related to EBP perception

94.0% (710) of the sample, followed by critical reading of studies for 73.0% (551) and the use of bibliographic managers for 69.8% (527) of them.

On the contrary, when applying the CACH-EBP instrument, it was observed that the total mean score was 91.9 points (SD = 11.81), with the Attitude dimension being the best rated with a mean score of 4.1 points (SD = 0.53) (Table 2).

In Table 3, mean scores and all responses are displayed, following the Likert scale for each of the items on this instrument.

The next step was to determine the relationship between the characteristics of the students and their training with respect to the perception of EBP. In this way, when conducting the bivariate analysis, it was observed that all independent variables were associated with CACH-EBP scores ($p \leq .05$) except for the issue related to the professional field to which students would like to dedicate themselves professionally after their undergraduate training (Attitudes p-value = .126, Skills p-value = .811, Knowledge p-value = .410, Total score p-value = .841). In this sense, variables such

TABLE 3 Evidence-based practice questionnaire scores (CACH-PBE)

Variable	Mean (SD)	Highly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Highly agree n (%)
				Evidence-based practice skills (CACH-PBE)		
EBP helps in decision making in the clinical practice	4.4 (0.72)	1 (0.1)	3 (0.4)	90 (11.9)	242 (32.1)	419 (55.5)
I trust myself to scientifically assess the quality of a scientific article	3.9 (0.79)	4 (0.5)	30 (4.0)	148 (19.6)	400 (53.0)	173 (22.9)
Applying EBP will allow improving the nursing/physician role	4.3 (0.77)	4 (0.5)	6 (0.8)	108 (14.3)	294 (38.9)	343 (45.4)
A nursing/physician contract should include time to devote to literature reading and assessment	3.9 (0.90)	9 (1.2)	28 (3.7)	188 (24.9)	303 (40.1)	188 (24.9)
Majoritarian application of EBP will allow increasing autonomy as compared to other professions	4.3 (0.76)	3 (0.4)	7 (0.9)	101 (13.4)	309 (40.9)	335 (44.4)
I would really appreciate the application of EBP when I work as a nurse in the future	4.4 (0.73)	2 (0.3)	4 (0.5)	86 (11.4)	278 (36.8)	385 (51.0)
EBP application improves patient care	4.5 (0.70)	3 (0.4)	4 (0.5)	58 (7.7)	251 (33.2)	439 (58.1)
I would like to contribute to applying EBP in the future	4.0 (0.88)	7 (0.9)	21 (2.8)	173 (22.9)	286 (37.9)	268 (35.5)
I am interested in reading scientific articles[a]	2.1 (0.98)	203 (26.9)	337 (44.6)	145 (19.2)	48 (6.4)	22 (2.9)
The changes in care derived from implementing EBP will be minimal[a]	2.2 (0.91)	167 (22.1)	351 (46.5)	177 (23.4)	47 (6.2)	13 (1.7)
I am glad EBP is just a theoretical approach that is not put in practice[a]	1.9 (0.97)	290 (38.4)	286 (37.9)	132 (17.5)	26 (3.4)	21 (2.8)
If I could, I would do a course in EBP	3.8 (0.89)	15 (2.0)	32 (4.2)	192 (25.4)	353 (46.8)	163 (21.6)
I would like to have better access to scientific evidence published on nursing/medicine	4.3 (0.72)	2 (0.3)	6 (0.8)	84 (11.1)	324 (42.9)	339 (44.9)
I feel able to pose a clinical question to start a search for the best scientific evidence	3.3 (0.92)	17 (2.3)	124 (16.4)	251 (33.2)	304 (40.3)	59 (7.8)
I don't feel able to perform scientific evidence searches on the main biomedical sciences databases[a]	2.7 (1.05)	84 (11.1)	306 (40.5)	186 (24.6)	146 (19.3)	33 (4.4)
I don't feel able to perform scientific information searches about the issue on the main bibliographic récords[a]	2.6 (0.98)	78 (10.3)	339 (44.9)	188 (24.9)	131 (17.4)	19 (2.5)
I feel able to assess the scientific quality of an article	3.2 (0.95)	31 (4.1)	165 (21.9)	255 (33.8)	268 (35.5)	36 (4.8)
I don't feel able to assess whether the results obtained in a scientific study are valid[a]	2.9 (0.98)	45 (6.0)	227 (30.1)	265 (35.1)	183 (24.2)	35 (4.6)
I feel able to assess the practical usefulness of a scientific study	3.4 (0.88)	19 (2.5)	102 (13.5)	246 (32.6)	346 (45.8)	42 (5.6)
I know how to pose structured clinical questions according to the PICO format (patient, intervention, comparison and result)	3.3 (1.13)	59 (7.8)	132 (17.5)	173 (22.9)	298 (39.5)	93 (12.3)
I know the main sources that offer reviewed and catalogued data from the point of view of the evidence (Joanna Briggs, Cochrane Library, Evidence-Based Nursing)	3.0 (1.14)	77 (10.2)	204 (27.0)	179 (23.7)	235 (31.1)	60 (7.9)

TABLE 3 (Continued)

Variable	Evidence-based practice skills (CACH-PBE)					
	Mean (SD)	Highly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Highly agree n (%)
I don't know the most important features of major research designs[a]	2.9 (1.05)	61 (8.1)	220 (29.1)	227 (30.1)	206 (27.3)	41 (5.4)
I know the different levels of evidence of research studies designs	3.2 (1.07)	47 (6.2)	167 (22.1)	212 (28.1)	264 (35.0)	65 (8.6)
I don't know the different degrees of recommendation regarding the adoption of a particular medical procedure or health intervention[a]	3.1 (1.02)	40 (5.3)	200 (26.5)	243 (32.2)	221 (29.3)	51 (6.8)
I know the main association measures (RR, OR, etc.) and measures of potential impact (NNT, NND, risk difference, relative risk reduction.) that allow to evaluate the magnitude of the effect assessed in research studies	3.0 (1.18)	88 (11.7)	189 (25.0)	187 (24.8)	220 (29.1)	71 (9.4)

[a]Items written in reverse order. EBP: Evidence-Based Practice.

as sex, academic year, university, intention to do a Master's or Doctorate degree, level of work engagement and previous training in PCBE were associated with the perception of EBP ($p \leq .05$; Table 4).

Finally, a multivariate analysis was carried out with the most decisive variables, finding lower overall scores in women versus men (median: −2.06; 95% CI: −3.94, −0.19; $p = .031$); higher scores among those who intend to do a Master's degree (median: 1.89; 95% CI: 0.33, 3.44; $p = .018$); higher scores among those with higher scores in work engagement dimensions (median: 0.32; 95% CI: 0.23, 0.40; $p < .001$) and higher scores among those who had received previous training at university (median: 11.28; 95% CI: 0.36, 13.19; $p < .001$; Table 5).

5 | DISCUSSION

This study tried to assess the level of commitment, self-perception and training on evidence-based practice in five samples of students of the Nursing degree from five Spanish universities.

As in other samples of nursing students (Ruzafa-Martínez et al., 2016), the first courses are expected to show lower levels in the Attitudes, Skills and Knowledge in EBP dimensions than higher courses. This phenomenon may be explained because, as years progress, the contents taught in the field of EBP increase. While this is true, in Brown et al.'s sample of 352 Nursing students from 2 universities of California, USA, agreed that in intermediate years (second and third year), Skills scores were higher and dropped slightly in the last year. In this sense, it may be efficient to carry out specific courses that include EBP content throughout the university academic period, as Leach et al. (2016) also state.

By dimensions, the results are similar in terms of the Knowledge and Skills dimensions but strikingly higher in the Attitude category.

In this sense, the results seem to be very similar to the study by Mena-Tudela et al. (2018) carried out on a sample of students of the Nursing degree of Castellon (Spain), where higher values manifested in the Attitude dimension were obtained, followed by Skills and where the Knowledge dimension yielded lower results. In other studies that were carried out at national level (Ruzafa-Martínez et al., 2016), such as the one developed on a sample of Nursing students from Murcia (Spain), a higher mean score was reported in Knowledge than in Attitudes. Internationally, the results go in line with those found in the present study sample. A clear example is the study by Labrague et al. (2019) conducted in Oman on a sample of 248 Nursing students, in which the mean values for the three EBP domains (knowledge, skills and attitudes) were 3.41 ($SD = 0.66$), 3.62 ($SD = 0.51$) and 3.41 ($SD = 0.68$) respectively.

It is especially relevant, as in other studies (Mena-Tudela et al., 2018; Zelenikova et al., 2015) that, within the items of the CACH-EBP scale, the one with the highest score is the 'the practice of EBP improves patient care' item. In the qualitative study conducted by Brooke et al. (2015) on two samples (England and Slovenia), students showed to be in line with this practice despite finding EBP and research discouraging and difficult to understand. This information may make students think that EBP is considered an element for improving quality in patient care.

As for sex, the present study indicates that Nursing female students have lower mean EBP values than males, unlike in the studies by Labrague et al. (2019) and Blackman and Giles (2017), among others.

The level of work engagement shown in our study can be considered intermediate-high, and with values slightly higher than those offered by similar studies (Carmona-Halty et al., 2019; García-Rodríguez et al., 2015), with the Dedication dimension offering the highest scores. The fact that the Dedication dimension is the one that offers the highest mean score has been previously

TABLE 4 CACH-PBE and its relationship with students' characteristics and academic and professional future expectations. Bivariate analysis

Variable	Attitudes Mean (SD)	Value p	Skills Mean (SD)	Value p	Knowledge Mean (SD)	Value p	Total score Mean (DE)	Value p
Gender		0.449		0.042		0.012		0.038
Male	54.0 (7.45)		20.3 (3.77)		19.3 (4.13)		93.7 (12.01)	
Female	53.5 (6.75)		19.6 (3.91)		18.3 (4.59)		91.4 (11.70)	
Academic year		<0.001		0.001		<0.001		<0.001
First-Second	52.6 (6.98)		19.3 (3.91)		17.9 (4.81)		89.8 (12.10)	
Third-Fourth	54.6 (6.65)		20.2 (3.82)		19.1 (4.13)		93.9 (11.15)	
University		0.266		0.001		<0.001		0.001
University of Castilla-La Mancha	53.7 (6.74)		18.9 (4.02)		17.2 (4.27)		89.8 (11.10)	
University of Jaen	53.8 (7.68)		20.6 (3.93)		20.9 (4.23)		95.3 (13.26)	
University of Sevilla	54.2 (5.59)		20.2 (3.58)		17.9 (4.65)		92.3 (11.14)	
University of Alicante	53.6 (6.95)		19.3 (3.58)		18.9 (2.64)		92.2 (10.43)	
University of Huelva	52.5 (7.73)		19.7 (3.89)		18.6 (4.51)		90.4 (12.69)	
Are you planning to do a Master's degree after completing your studies?		0.001		<0.001		0.001		<0.001
No	52.1 (7.78)		19.4 (3.59)		18.7 (3.94)		90.1 (11.64)	
I'm not sure at this moment	53.1 (6.68)		19.2 (3.81)		17.8 (4.45)		90.1 (11.67)	
Yes	53.1 (6.73)		20.4 (3.96)		19.1 (4.64)		94.1 (11.63)	
Are you planning to do a Doctorate after completing your studies?		<0.001		0.072		0.045		0.001
No	52.8 (6.85)		19.9 (3.87)		18.6 (4.42)		91.2 (11.67)	
I'm not sure at this moment	53.7 (6.62)		19.5 (3.81)		18.2 (4.50)		91.4 (11.53)	
Yes	56.3 (7.43)		20.5 (3.69)		19.5 (4.80)		96.2 (12.60)	
After completing your studies (Degree, Specialty, Master's or Doctorate), in which field would you like to develop professionally?		0.126		0.811		0.410		0.841
I'm not sure at this moment	54.9 (6.89)		19.4 (3.56)		17.4 (4.37)		91.8 (11.76)	
Healthcare	53.4 (6.84)		19.8 (3.93)		18.6 (6.05)		91.7 (11.78)	
Teaching	53.3 (8.57)		20.3 (4.79)		19.9 (6.05)		93.6 (17.24)	
International cooperation	57.3 (5.72)		19.3 (2.83)		18.5 (4.50)		95.1 (9.39)	
Research	52.9 (9.16)		19.0 (4.05)		19.3 (4.16)		91.2 (14.24)	
Management	55.5 (6.36)		22.5 (2.12)		18.0 (5.66)		96.0 (11.82)	
Utrecht Work Engagement Scale V–9		<0.001		<0.001		<0.001		<0.001
Low	50.6 (8.24)		18.0 (3.97)		16.9 (3.90)		85.6 (10.96)	
Intermediate	53.6 (6.67)		19.5 (3.70)		18.1 (4.22)		91.2 (10.90)	
High	54.6 (6.64)		20.6 (4,00)		19.6 (4.93)		94.8 (12.46)	

TABLE 4 (Continued)

	Attitudes		Skills		Knowledge		Total score	
Variable	Mean (SD)	Value *p*	Mean (SD)	Value *p*	Mean (SD)	Value *p*	Mean (DE)	Value *p*
Have you received any specific training in EBCP at university?		0.024		<0.001		<0.001		<0.001
No	49.7 (7.53)		17.7 (3.88)		14.9 (4.06)		82.3 (11.02)	
Yes	54.6 (6.34)		20.3 (3.73)		19.4 (4.16)		94.3 (10.71)	
Have you received any specific training in EBCP during clinical rotations?		<0.001		<0.001		<0.001		<0.001
No	53.3 (6.94)		19.5 (3.94)		18.1 (4.65)		90.9 (12.05)	
Yes	54.6 (6.66)		20.7 (3.59)		19.6 (3.89)		94.9 (10.51)	

Abbreviation: EBCP, Evidence-Based Clinical Practice.

TABLE 5 CACH-PBE and its relationship with students' characteristics and academic and professional future expectations. Multivariate analysis

	Attitudes		Skills		Knowledge		Total score	
Variable	Mean (SD)	Value *p*	Mean (SD)	Value *p*	Mean (SD)	Value *p*	Mean (DE)	Value *p*
Gender		0.432		0.059		0.010		0.031
Male	Ref		Ref		Ref		Ref	
Female	−0.47 (−1.64, 0.70)		−0.64 (−1.30, 0.24)		−0.96 (−1.69, −0.23)		−2.06 (−3.94, −0.19)	
Academic year		0.022		0.109		0.330		0.018
First-Second	Ref		Ref		Ref		Ref	
Third-Fourth	1.14 (0.16, 2.11)		0.45 (−0.10, 99)		0.30 (−0.31, 0.91)		1.89 (0.33, 3.44)	
Utrecht Work Engagement Scale V−9	0.13 (0.08, 0.19)	<0.001	0.09 (0.06, 0.12)	<0.001	0.09 (0.06, 0.13)	<0.001	0.32 (0.23, 0.40)	<0.001
Have you received any specific training in EBCP at university?		0.024		<0.001		<0.001		<0.001
No	Ref		Ref		Ref		Ref	
Yes	4.66 (3.46, 5.86)		2.26 (1.58, 2.93)		4.36 (3.61, 5.10)		11.28 (9.36, 13.19)	
Have you received any specific training in EBCP during clinical rotations?		0.849		0.145		0.301		0.489
No	Ref		Ref		Ref		Ref	
Yes	−0.11 (−0.26, 1.03)		0.48 (−0.17, 1.13)		0.28 (−0.44, 0.91)		1.89 (0.33, 3.44)	

Abbreviation: EBCP, Evidence-Based Clinical Practice.

confirmed by studies such as the one carried out on a sample of 1009 nursing students from Castilla y Leon (Spain) (Liebana-Presa et al., 2018), and on a sample of 467 Chinese Nursing students (Liu et al., 2014). Unlike CACH-EBP, UWES-9S shows higher values in women than in men.

Among the limitations that the study may pose are those derived from the methodology used. First, due to the use of self-administered questionnaires, researchers should rely on the veracity of the data offered by participating students. In this sense, although the objective of the study focuses on nursing students, it might be interesting to include other Health Sciences degrees in future research. Another limitation refers to the variability that exists between Spanish universities since, despite having the same set of laws and legislation in education, training is not systematised for all centres. Thus, the training in EBP could be variable among the universities that participated in this study. Finally, it should be highlighted that it is not possible to determine causality when using a cross-sectional study design.

6 | CONCLUSIONS

Students of the Nursing Degree sample have intermediate-high levels of knowledge, skills and attitudes regarding EBP and work commitment, with differences between each of the universities, lower overall scores on women versus men, higher scores among those who intend to do a Master's degree and higher scores among those who have received previous training at the university.

In this regard, it seems that including specific content on EBP during the Nursing degree, such as a specific course about EBP and clinical practices into care units that use evidence-based care, can promote the future use of what is learned in nursing professional practice, thus improving the quality, safety and cost-efficiency of the service. In this sense, the authors recommend the inclusion of specific training in EBP (literature review, critical reading and development of Clinical Practice Guidelines, among others) in all nursing degree syllabuses in order to improve the training of future professionals.

7 | RELEVANCE TO CLINICAL PRACTICE

Nursing students should develop from intermediate to high levels of knowledge, skills and attitudes regarding evidence-based practice and work commitment. There are various actions to promote EBP, such as the incorporation of a specific course covering the subject into the nursing curriculum, and the selection, for clinical practices, of care units that use evidence-based care.

Analysing both the level of commitment and the level of knowledge, skills and attitudes regarding EBP can allow for certain training deficiencies to be identified that, in the long run, can impair the professional performance of Nursing in the future by not providing quality tools, knowledge and strategies for the improvement of functions. In addition, strategies aimed at increasing an EBP will have an impact not only on the quality of care, but also on the safety and cost-efficiency of the service.

ETHICAL APPROVAL

The study was conducted under the 'Ethical Principles for Medical Research in Humans' contained in the latest version of the Helsinki Declaration (Fortress Amendment, Brazil, October 2013). It was also approved by the Ethics Committee of the General Council of Nursing (Spain) in May 2020.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Juan Gómez-Salgado, Julián Rodríguez-Almagro, Juan Miguel Martínez-Galiano and Antonio Hernández Martínez involved in conceptualisation; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; visualisation; roles/writing—original draft and writing—review and editing. Milagros Molina-Alarcón and María del Carmen Solano-Ruiz involved in conceptualisation; data curation; formal analysis; investigation; methodology; resources; software; supervision; validation; visualisation; roles/writing—original draft and Writing—review and editing.

DATA AVAILABILITY STATEMENT

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

ORCID

Juan Gómez-Salgado https://orcid.org/0000-0001-9053-7730
Julián Rodríguez-Almagro https://orcid.org/0000-0002-6239-2842

REFERENCES

American Nurses Association. (2015). *Nursing: Scope and Standards of Practice,* Third Edition. Silver Spring. Retrieved from https://www.nursingworld.org/nurses-books/nursing-scope-and-standards-of-practice-3rd-ed/ (accessed on 23 Feb 2021)

Barría, M. (2014). Implementing evidence-based practice: a challenge for the nursing practice. *Investigación y Educación en Enfermería, 32*(2), 191–193. https://doi.org/10.17533/udea.iee.v32n2a01

Benevides-Pereira, A. M., Fraiz de Camargo, D., Porto-Martins, P. C. (2011). *Escala Utrecht de Engagement en el Trabajo: Introducción a la primera versión al español.* GEBEP. Disponible en: https://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test_manual_UWES_Espanol.pdf

Bianchi, M., Bagnasco, A., Bressan, V., Barisone, M., Timmins, F., Rossi, S., Pellegrini, R., Aleo, G., & Sasso, L. (2018). A review of the role of nurse leadership in promoting and sustaining evidence-based practice. *Journal of Nursing Management, 26*(8), 918–932. https://doi.org/10.1111/jonm.12638

Blackman, I. R., & Giles, T. M. (2017). Can nursing students practice what is preached? Factors impacting graduating nurses' abilities and achievement to apply evidence-based practices. *Worldviews on Evidence-Based Nursing, 14*(2), 108–117. https://doi.org/10.1111/wvn.12205

Bressan, V., Bagnasco, A., Bianchi, M., Rossi, S., Moschetti, F., Barisone, M., Pellegrini, R., Aleo, G., Timmins, F., & Sasso, L. (2017). Barriers to research awareness among nurses in Italy. *Journal of Nursing Management, 25*(4), 243–245. https://doi.org/10.1111/jonm.12494

Brooke, J., Hvalič-Touzery, S., & Skela-Savič, B. (2015). Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today, 35*(7), e6–e11. https://doi.org/10.1016/j.nedt.2015.02.026

Burke, L. E., Schlenk, E. A., Sereika, S. M., Cohen, S. M., Happ, M. B., & Dorman, J. S. (2005). Developing research competente to support evidence-based practice. *Journal of Professional Nursing, 21*, 258–363.

Carmona-Halty, M. A., Schaufeli, W. B., & Salanova, M. (2019). The Utrecht Work Engagement Scale for Students (UWES-9S): Factorial validity, reliability, and measurement invariance in a Chilean sample of undergraduate university students. *Frontiers in Psychology, 10,* 1017. https://doi.org/10.3389/fpsyg.2019.01017

Cochrane, A. L. (1989). Archie Cochrane in his own words. Selections arranged from his 1972 introduction to "Effectiveness and Efficiency: Random Reflections on the Health Services" 1972. *Controlled Clinical Trials. 10*(4), 428–433. doi: https://doi.org/10.1016/0197-2456(89)90008-1

Correa, V. C., Lugo-Agudelo, L. H., Aguirre-Acevedo, D. C., Contreras, J. A. P., Borrero, A. M. P., Patiño-Lugo, D. F., & Valencia, D. A. C. (2020). Individual, health system, and contextual barriers and facilitators for the implementation of clinical practice guidelines: A systematic metareview. *Health Research Policy and Systems*, *18*(1), 74. https://doi.org/10.1186/s12961-020-00588-8

Felicilda-Reynaldo, R. F. D., & Utley, R. (2015). Reflections of evidence-based practice in nurse educators' teaching philosophy statements. *Nursing Education Perspectives*, *36*(2), 89–95. https://doi.org/10.5480/13-1176

García-Rodríguez, J. J., Labajos-Manzanares, M. T., & Fernández-Luque, F. (2015). Los estudiantes de Grado en Enfermería y su compromiso con los estudios. *Enfermería Global*, *14*(38), 169–177. https://doi.org/10.6018/eglobal.14.2.198261

Institut Municipal d'Investigació Mèdica. (2012). *Calculadora de Grandària Mostral GRANMO*. Version 7.12. Barcelona, Spain. Available at: https://www.imim.es/ofertadeserveis/software-public/granmo/ Accessed on 28 Jan 2022

Institute of Medicine (US). (2003). Committee on the Health Professions Education Summit. In A. C. Greiner, & E. Knebel (Eds.), *Health Professions Education: A Bridge to Quality*. National Academies Press (US). Available at: https://www.ncbi.nlm.nih.gov/books/NBK221528/ doi: https://doi.org/10.17226/10681 (accessed on 23 Feb 2021)

International Council of Nurses. (2012). *Closing the gap: From evidence to action*. International Council of Nurses. Available at: https://www.nursingworld.org/~4aff6a/globalassets/practiceandpolicy/innovation--evidence/ind-kit-2012-for-nnas.pdf (accessed on 28 Feb 2021).

Labrague, L. J., McEnroe-Pettite, D., Tsaras, K., D'Souza, M. S., Fronda, D. C., Mirafuentes, E. C., Yahyei, A. A., & Graham, M. M. (2019). Predictors of evidence-based practice knowledge, skills, and attitudes among nursing students. *Nursing Forum*, *54*(2), 238–245. https://doi.org/10.1111/nuf.12323

Leach, M. J., Hofmeyer, A., & Bobridge, A. (2016). The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: a descriptive longitudinal survey. *Journal of Clinical Nursing*, *25*(1–2), 194–203. https://doi.org/10.1111/jocn.13103

Liebana-Presa, C., Fernández-Martínez, M. E., Vázquez-Casares, A. M., López-Alonso, A. I., & Rodríguez-Borrego, M. A. (2018). Burnout and engagement among university nursing students. *Enfermería Global*, *17*(2), 131–152. https://doi.org/10.6018/eglobal.17.2.268831

Liu, J. Y., Liu, Y. H., & Yang, J. P. (2014). Impact of learning adaptability and time management disposition on study engagement among Chinese baccalaureate nursing students. *Journal of Professional Nursing*, *30*(6), 502–510. https://doi.org/10.1016/j.profnurs.2014.05.002

Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice*. Wolters Kluwer/Lippincott Williams & Wilkins Health.

Melnyk, B. M., Fineout-Overholt, E., Giggleman, M., & Choy, K. (2017). A test of the ARCC© model improves implementation of evidence-based practice, healthcare culture, and patient outcomes. *Worldviews on Evidence-Based Nursing*, *14*(1), 5–9. https://doi.org/10.1111/wvn.12188

Mena-Tudela, D., González-Chordá, V. M., Cervera-Gasch, A., Maciá-Soler, M. L., & Orts-Cortés, M. I. (2018). Eficacia de una intervención educativa de Práctica Basada en la Evidencia en estudiantes de segundo año de enfermería. *Revista Latino-Americana de Enfermagem*, *26*, e3026. https://doi.org/10.1590/1518-8345.2502.3026

Moore, L. (2017). Effectiveness of an online educational module in improving evidence-based practice skills of practicing registered nurses. *Worldviews on Evidence-Based Nursing*, *14*(5), 358–366. https://doi.org/10.1111/wvn.12214

Moreno-Poyato, A. R., Casanova-Garrigos, G., Roldán-Merino, J. F., & Rodríguez-Nogueira, Ó. (2020). MiRTCIME.CAT working group. Examining the association between evidence-based practice and the nurse-patient therapeutic relationship in mental health units: A cross-sectional study. *Journal of Advanced Nursing*, *77*(4), 1762–1771. https://doi.org/10.1111/jan.14715

Ruzafa-Martinez, M., Lopez-Iborra, L., Moreno-Casbas, T., & Madrigal-Torres, M. (2013). Development and validation of the competence in evidence based practice questionnaire (EBP-COQ) among nursing students. *BMC Medical Education*, *13*, 19. https://doi.org/10.1186/1472-6920-13-19

Ruzafa-Martínez, M., Molina-Salas, Y., & Ramos-Morcillo, A. J. (2016). Evidence-based practice competence in undergraduate Nursing Degree students. *Enfermería Clínica*, *26*(3), 158–164. https://doi.org/10.1016/j.enfcli.2015.06.002

Sackett, D. L., Rosenberg, W. M., Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't. *BMJ*, *312*(7023), 71–72. https://doi.org/10.1136/bmj.312.7023.71

Serrano, C., Andreu, Y., Murgui, S., & Martínez, P. (2019). Psychometric Properties of Spanish Version Student Utrecht Work Engagement Scale (UWES-S-9) in High-school Students. *The Spanish Journal of Psychology*, *22*, E21. https://doi.org/10.1017/sjp.2019.25

Spanish Government. (2008). *Law 2134/2008, de 3 de julio, por la que se establecen los requisitos mínimos para la verificación de los títulos universitarios oficiales que habiliten para el ejercicio de la profesión de Enfermero*. Boletín Oficial del Estado (BOE) num174, de 19/7/2008.

Upton, P., Scurlock-Evans, L., & Upton, D. (2016). Development of the student evidence-based practice questionnaire (S-EBPQ). *Nurse Education Today*, *37*, 38–44. https://doi.org/10.1016/j.nedt.2015.11.010

Vincent, D., Hastings-Tolsma, M., Gephart, S., & Alfonzo, P. M. (2015). Nurse practitioner clinical decision-making and evidence-based practice. *Nurse Practitioner*, *40*(5), 47–54. https://doi.org/10.1097/01.NPR.0000463783.42721.ef

Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., Vandenbroucke, J. P., & Initiative, S. T. R. O. B. E. (2007). Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ (Clinical Research ed.)*, *335*(7624), 806–808. https://doi.org/10.1136/bmj.39335.541782.AD

Warren, J. I., McLaughlin, M., Bardsley, J., Eich, J., Esche, C. A., Kropkowski, L., & Risch, S. (2016). The strengths and challenges of implementing EBP in healthcare systems. *Worldviews on Evidence-Based Nursing*, *13*(1), 15–24. https://doi.org/10.1111/wvn.12149

Zelenikova, R., Beach, M., Ren, D., Wolff, E., & Sherwood, P. R. (2015). Graduate nursing students' evaluation of EBP courses: a cross-sectional study. *Nurse Education Today*, *35*(1), 265–270. https://doi.org/10.1016/j.nedt.2014.09.010

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.