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Perception of caring among nursing students: Results from a cross-sectional survey

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ABSTRACT

Background: Nursing is an art and science based on knowledge of professional caring. As such, the examination of how students perceive care may improve the way this concept is taught and learnt in nursing.
Objectives: To examine and describe the perception of caring among Spanish nursing students.
Design: A cross-sectional design.
Methods: From an initial population of 500 students, 321 volunteers participated in this study by completing the Caring Dimensions Inventory (CDI-25) during April 2014. Parametric tests were used to perform descriptive analyses of the dimensions of caring and the predominant factor; additionally, inferential (bivariate) analyses were performed of the dimensions of caring and of the predominant factor according to each of the independent variables. A logistic multinomial regression of the predominant psychosocial factor was calculated using the professional-technical factor as a reference, with adjustments for each of the covariates.
Results: The two dimensions most identified by students in relation to caring were: Providing privacy for a patient (D23) and Listening to a patient (D13) whereas the least identified were: Putting the needs of a patient before your own (D19) and Sharing your personal problems with a patient (D16). Overall, students identified caring mostly with the Psychosocial Factor (F1) (psychosocial aspects of care). Students in their first year identified caring more with the professional-technical factor, whereas those in their third and fourth year did so with the psychosocial factor.
Conclusions: The perception of caring among nursing students is a dynamic phenomenon that is modified throughout the nurse education process. The academic year, previous work experience in healthcare and the type of access to the university influence students' perceptions of caring.

1. Introduction

Caring for others is inherent to human beings, representing a practice that has existed since the birth of the human species (Boykin and Schoenhofer, 1993; Collière, 1993; Leininger, 1988; Waldow, 2014). Although, at the end of the 20th century there was much debate on the topic of caring in nursing, at present, there seems to be a worldwide consensus characterizing caring as the object of knowledge of nursing, as manifested in the definition of nursing offered by the International Council of Nurses (ICN, 2018).

This ICN (2018) definition mentions autonomous care; in Spain, nursing did not become a profession with a university degree until 1977, and prior to 2008 there was no access to postgraduate and doctorate courses. On an educational level, these changes have involved a shift from training based on a deterministic, biomedical paradigm, centered on the illness and the separation between body and mind, thus instigating a behavior of subordination and abnegation (Domínguez-Alcón, 1986; Medina Moya, 1999) towards a more holistic training (Fernández Collado, 2004). The latter is mostly taught by nurses, promoting professional autonomy and the importance of professional care. In this manner, the training curriculum has progressively included knowledge from the Human Sciences, which theoreticians such as Watson (1985), postulate as being essential for the understanding of all dimensions of caring.

Boykin and Schoenhofer (1993) proposed that care should be experienced in the classroom. Lea and Watson (1996) affirmed that the examination of how students perceive care may improve the way this concept is taught and learnt in nursing. Bearing this in mind,

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understanding that the previously mentioned educational changes have been consolidated after many years, the authors of this study consider that it is necessary to investigate the vision on caring among students of the Universidad Europea de Madrid, by analyzing which dimensions of caring they give more importance to (biomedical or psychosocial factors) and by comparing these results with other European countries.

1.1. Background

During the 1980s and 1990s, a debate was initiated regarding whether caring should be considered as the essence of nursing. By means of different conferences and publications, leading figures of nursing exposed their points of view (Smith, 2013). The first person to identify caring as the essence of nursing was Leininger (1977) who affirmed that caring is the dominant intellectual, theoretical, heuristic and practical focus of nursing, and that no other profession is so fully concerned with caring behaviors. The author continued to defend and defend this point of view during the Three National Caring Conferences, postulating that the focus of attention should be on nursing research and the epistemological development of care (Leininger, 1988). Soon, nurse theorists such as Watson (1985) added to this, who sustained that nursing is the art and science of care. Benner and Wrubel (1989), maintained that care is the basic form of being in the world, based on which all nursing practice evolves. Thereafter, Newman et al. (1991), published an article analyzing the paradigms of nursing research in which they concluded that nursing is the study of caring within the experience of human health (located in the perspective of the unitary human being), which is something that M. C. Smith suggested in 1994 when she affirmed that nursing is the study of human health and healing through caring (cited in: Smith, 2013, p. 2). These statements have been met by many criticisms, namely, Smith (1990) defended that this idea limited the development of nursing as, besides being an ambiguous term, caring was present in many professions and not necessarily exclusive to nursing; something similar was postulated by Rogers (1992). Thereafter, different literature reviews have been performed with the aim of clarifying the concept of caring (Finfgeld-Connett, 2008; Morse et al., 1990; Swanson, 1999).

Independently of this debate which continues today (Sargent, 2012), whether or not we consider caring as the essence of nursing, there seems no doubt that this concept has and continues to have a profound influence on nursing, as postulated by Morse et al. (1990). The positioning of the authors of this study is within the current that considers that nursing is a scientific discipline whose object of knowledge is professional caring, considering the term 'caring' as a process which encompasses all areas of the classification by Morse et al. (1990).

Caring encompasses all spheres of the human being; i.e. biological, psychological, emotional, social, cultural (Leininger, 1988) and spiritual aspects (Watson, 1985). At times, it is difficult for teachers to convey this broad meaning to students, therefore, concerns arise regarding which dimensions of caring nursing students perceive as being most important as future healthcare professionals, and, consequently, what type of care they will provide when they enter the job market.

Among the validated questionnaires available for measuring the perception of caring in nursing students (Watson, 2009), the Caring Dimensions Inventory (CDI-25), developed and validated by Watson and Lea (1997), is the only instrument developed in the European context and the most used in the studies of perception of caring among students in Europe (Akansel et al., 2013; Cook et al., 2018; Watson et al., 2001; Watson et al., 2003a; Watson et al., 1999a, 1999b; Watson et al., 2003b). The CDI-25 consists of 25 statements of nursing actions based on which respondents are asked whether they think these correspond with caring. The authors elaborated these dimensions based on General Care Categories, Nursing Intervention Lexicon and Taxonomy, Nursing Behaviors and Major Caring Taxonomic Constructs. This tool mainly comprises technical, professional, psychosocial and ethical aspects of care (Lea and Watson, 1996; Watson and Lea, 1997).

In studies performed using the CDI-25, differences are reported in the perception of caring among students according to their age and gender (Watson et al., 1999a; Watson and Lea, 1997, 1998), which is why these aspects were included as independent variables in the present study. Both Benner (1987) and Watson (1985), discuss the influence of professional practice in the development of nursing knowledge. For this reason, other independent variables were established such as: previous contact with nursing care, type of studies performed to access university (R.D.1892/2008, 2008) and academic year.

1.2. Aim

The aim of this study was to examine and describe the perception of caring among undergraduate nursing students of the Universidad Europea de Madrid and to determine if the independent variables selected have any influence on the same.

2. Methods

2.1. Design

A cross-sectional descriptive study was performed.

2.2. Sample/participants

The population comprised the 500 undergraduate students enrolled in the Nursing Degree program of the Universidad Europea de Madrid, in the 2013–2014 academic year.

The entire population was selected, and the sample was comprised of the students who completed the questionnaire (321 participants). The inclusion criteria consisted of students enrolled in the Nursing Degree of the University. The exclusion criteria were: students performing an international university exchange or clinical placements in other provinces at the time of the study; questionnaires that were unintelligible, or in which no independent variable was selected.

2.3. Variables

The independent variables studied were: sex; age; work contact with healthcare (yes/no); types of studies performed to access university (University Entrance Exam (UEA)/Certificate of higher education/Access for students over the age of 25, 40 or 45 years/other university diplomas) and academic year (1st/2nd/3rd/4th).

The main dependent variable was the predominant factor. Additionally, the dimensions of caring and factors of care were considered as dependent variables.

2.4. Data collection

2.4.1. Instrument

The data were gathered throughout April 2014 via a questionnaire that consisted of two parts: one for gathering the sociodemographic data and other independent variables and another for the dependent variables (the dimensions of caring) using the Caring Dimensions Inventory (CDI-25) (Watson and Lea, 1997) (the dimensions of caring are shown in Table 2).

In Watson et al. (1999a, 1999b), the 25 dimensions of caring are grouped in models of 2, 3 or 4 factors: Factor 1 (Psychosocial), Factor 2 (Professional-Technical), Factor 3 (being cheerful with a patient) and Factor 4 (inappropriate aspects of nursing).

For the purpose of this research, factors 1 (Psychosocial and 2 (Professional-Technical) were analyzed because these comprise aspects related with the deterministic and humanistic paradigm. Besides, factor 3 only consisted of a single item (D24) and factor 4 consisted of two (D3 and D16).

In the present study, the students responded to the question, "To

what extent do you consider caring is…" based on a Likert scale (1–5) in which 1 is totally disagree and 5 is totally agree.

2.4.2. Procedure

The questionnaire was given in person to all students after having received an explanation of the study, in which they were ensured that participation was on a volunteer basis and that anonymity was to be guaranteed at all times. Additionally, participants were informed that their decision to participate in the study would not have any influence on their academic outcomes.

Although the questionnaire had no copyright, permission was requested from one of the authors for disseminating the data obtained from the same.

2.5. Ethical considerations

The study was approved by the research committee of the University (CIPI/089/16). Besides the in-person explanation, the questionnaire included a summary of the study purpose and informed consent.

2.6. Data analysis

For the statistical treatment of the data, the Statistical Package for Social Science (SPSS) software version 22 was used.

A descriptive analysis of the independent variables of the study was performed, via the mean and standard deviation in the case of the quantitative variables and via the absolute and relative frequencies in the case of the qualitative variables.

A descriptive analysis was performed based on the students' score for each of the dimensions of caring using the CDI-25, via the mean and standard deviation, considering that these measures of central tendency and dispersion have been used by the authors of the questionnaire in several publications (Watson et al., 2003a; Watson et al., 1999b; Watson et al., 2003b).

For the analysis of the two factors of caring, the 'factor' variable was considered as a continuous quantitative variable and the sum of the assigned score for each student was considered as the value for the analysis of the arithmetic mean of the sum of the score assigned by each student to each of the items that configure this factor. In this manner, two new dependent variables were created:

- The difference of the means of the factors: this was calculated as the difference between the mean of the Psychosocial Factor (F1) and that of the Professional-Technical Factor (F2).
- Predominant factor: This is the factor that each student identified most with caring, it is calculated based on the difference of means, thus, if the result is positive, the predominant factor is the psychosocial factor, if it is negative, the professional-technical factor is predominant, and if it is 0, there is no predominant factor.

An inferential analysis (bivariate) was performed of the dimensions of caring as well as the predominant factor according to each of the independent variables. This analysis was parametric, following the Central Limit Theorem and the criteria of homogeneity of variances (Martínez González et al., 2009, p. 299), the Levine test was requested and the Welch test was used in those dimensions in which homogeneity was not fulfilled. In the case of ANOVA, the same criteria were followed, using the post-hoc Bonferroni contrast (when homogeneity existed) and the Games–Howell test when this was not the case. Significance was considered with bilateral $p < 0.05$ values.

Lastly, a multinomial logistic regression was performed. The dependent variable was the predominant factor, with three possible values: Professional technical factor, Psychosocial factor and No predominant factor. In the multinomial logistic regression, the reference was the professional technical factor.

The independent qualitative variables with > 2 categories (age, academic year and access to university) are incorporated to the model via dummy variables.

The multinomial logistic regression model was created, introducing the variables one by one according to the researchers' criteria and the results of previous research (blockwise entry) (Field, 2013). The possible interactions between independent variables were analyzed. In the first place, the independent variable: academic year was introduced. In second place, adjustments were made of the demographic variables age and sex. Lastly, one by one the remaining independent variables were added to the model (via university access and previous work experience). Previous work experience in healthcare was not significant in the model of multinomial logistic regression, but its introduction interacted with the model, modifying the meaning of the variable access mode to university, therefore the database was segmented according to this variable (previous work experience in healthcare) and the analysis was repeated following the same steps: first model with the dependent variable predominant factor and the independent variable was academic year, second model adjusting also by the socio-demographic variables sex and age, and third model introducing the independent variable, type of access to university.

In all models, the Odds Ratio (OR) and the R2 (Nagelkerke) were calculated.

2.7. Validity and reliability/rigor

The reliability and validity of the CDI-25 was demonstrated by Watson and Lea (1997) (Chronbach's alpha = 0.91). For the translation into Spanish, the validated version by Watson et al. (2003b) was used, except in the dimensions 23 and 24, as, in the version validated into Spanish, these dimensions did not correspond with the original ones featured in the CDI-25, but rather with others belonging to the CDI-35 (Watson et al., 2001). For these two dimensions, a word-for-word translation was performed, in order to avoid altering the reliability and validity reported by the authors.

3. Results

The sample comprised 321 participants, corresponding to 64.20% of the population. Table 1 presents the remaining characteristics of the sample. In total, 69.40% of participants were women and 56.94% were younger than 25, 36.11% were aged between 26 and 35 years, and, 3.82% were aged between 36 and 50 years; the remaining 3.13%

Table 1
Characteristics of participants (n = 321).

Independent variables		n	%
Gender	Men	88	27.4
	Women	200	62.3
	Missing values	33	10.3
Age	< 225	164	51.1
	26–35	104	32.4
	36–50	11	3.4
	> 50	9	2.8
	Missing values	33	10.3
Work experience	Yes	140	43.6
	No	145	45.2
	Missing values	36	11.2
Access to university	PAU	159	49.5
	Certificate higher education	55	17.1
	> 25.40.45	61	19
	Other degrees	29	9
	Missing values	17	5.3
Academic year	1°	45	14
	2°	63	19.6
	3°	90	28
	4°	123	38.3

Table 2
Descriptive analysis of the dimensions of caring ordered by mean and standard deviation.

Item	Dimension	M	SD
D23	Providing privacy for a patient	4.86	0.405
D13	Listening to a patient	4.81	0.467
D21	Involving a patient with his or her care	4.79	0.461
D15	Instructing a patient about an aspect of self-care	4.79	0.448
D25	Observing the effects of a medication on a patient	4.78	0.455
D3	Feeling sorry for a patient	4.76	0.529
D24	Being cheerful with a patient	4.71	0.502
D5	Explaining a clinical procedure	4.71	0.503
D22	Giving reassurance about a clinical procedure	4.69	0.555
D18	Measuring the vital signs of a patient	4.63	0.623
D1	Assisting a patient with an activity of living	4.63	0.591
D11	Being honest with a patient	4.6	0.579
D2	Making a nursing record about a patient	4.57	0.689
D20	Being Technically competent with a clinical procedure	4.56	0.628
D14	Consulting with the doctor about a patient	4.5	0.653
D8	Exploring a patient's lifestyle	4.43	0.713
D10	Being with a patient during a clinical procedure	4.43	0.622
D6	Being neatly dressed when working with a patient	4.42	0.762
D17	Keeping relatives informed about a patient	4.39	0.741
D12	Organizing the work of others for a patient	4.36	0.758
D7	Sitting with a patient	4.28	0.747
D4	Getting to know the patient as a person	4.23	0.772
D9	Reporting a patient's condition to a senior nurse	4.23	0.758
D19	Putting the needs of a patient before your own	3.84	1191
D16	Sharing your personal problems with a patient	3.61	1081

comprised people over the age of 50 (Table 1).

3.1. Dimensions of caring

Overall, the two dimensions that the students' most identified with caring were: D23 (Providing privacy for a patient) (M = 4.86, SD = 0.405) and D13 (Listening to a patient) (M = 4.81, SD = 0.467), whereas the least identified were D19 (Putting the needs of a patient before your own) (M = 3.61, SD = 1.081) and D16 (Sharing your personal problems with a patient) (M = 3.84; SD = 1.191). Table 2 shows the descriptive global results for each dimension ordered according to their mean and standard deviation.

3.2. Factors of care

The students identified both factors with care, however a significant difference (p = 0.011) was found in favor of the psychosocial factor (results for the psychosocial factor (F1) (M = 4.58, SD = 0.36) versus results for the professional–technical factor (F2) (M = 4.53, SD = 0.39). Table 3 displays the predisposing descriptive factors according to the independent variables.

Table 4 displays the significant differences in the bivariate analysis that were found in the perception of the dimensions of caring and the predisposing factor of students according to each of the independent variables. It is important to note that no significant differences were found according to age.

Previous work experience in healthcare was not significant in the bivariate analysis, however upon initiating the models of multinomial logistic regression, without being significant, this modified the results of the model after including the same, therefore we decided to segment the database according to this variable and begin the multivariate analysis once again.

Three models of multivariate logistic regression were constructed using the academic year as a reference and segmenting the data according to the variable previous work experience in healthcare (Table 5).

Lastly, in the third model, adjusting for sex and age and including the type of studies that grant university access, the analysis revealed

Table 3
Descriptive analysis of predisposing factor.

Independent variables		n	Mean	SD
Gender	Men	83	1.41	0.606
	Women	188	1.28	0.624
	Missing values		50	
Age	< 25	151	1.36	0.581
	26–35	100	1.30	0.659
	36–50	11	1.18	0.603
	> 50	9	1.11	0.782
	Missing values		50	
Work experience	Yes	135	1.33	0.669
	No	135	1.34	0.588
	Missing values		51	
Access to university	PAU	145	1.30	0.569
	Certificate higher education	53	1.42	0.663
	> 25.40.45	58	1.34	0.664
	Other degrees	29	1.34	0.670
	Missing values		36	
Academic year	1°	45	1.68	0.521
	2°	63	1.37	0.725
	3°	90	1.25	0.582
	4°	123	1.21	0.599
	Missing values		0	

that:

In the group of students with work experience in healthcare (R^2 = 0.286):

- Students in their third year had a 6.43 greater probability than those in their first year of identifying the caring with the psychosocial factor than with the professional-technical one (p = 0.047) and in their fourth year the probability was 13.43 times greater (p = 0.003).

In the group of students who did not have any work experience in healthcare (R^2 = 0.318):

- Students in their third year had a 3.84 greater likelihood than those in their first year of identifying caring more with the psychosocial factor than the professional-technical one (p = 0.028), whereas in their fourth year this was 3.75 times greater (p = 0.036).
- Students who had accessed university via a certificate of higher education had a 5.59 times greater probability of identifying caring with the psychosocial factor than with the professional-technical one (p = 0.035, OR = 0.179).
- Students who had accessed the nursing degree via other university studies had an 8.33 lesser probability of identifying caring with the psychosocial factor than the professional-technical one (p = 0.031, OR = 0.124).

4. Discussion

The aim of our study was to explore and describe the perception of caring among nursing students. According to our findings, the students' perception of caring changes throughout their academic education, which is a finding that reinforces former studies (Benner, 1987; Cook et al., 2018; Negrillo Duran and Herrera Sanchez, 2013; Pavan Bison et al., 2007; Safadi et al., 2011; Watson et al., 2001; Watson et al., 1999a, 1999b). First year students have a perception of caring that is similar to the existing social image of caring and nursing in our country: based on activities derived from the medical treatment, and, although to a lesser extent, psychological support for the patient (Negrillo Duran and Herrera Sanchez, 2013; Vázquez et al., 2014). The four most valued dimensions in the first year were: D18 (Measuring the vital signs of a patient), D25 (Observing the effects of a medication on a patient), D23 (Providing privacy for a patient) and D13 (Listening to a patient). These results are in line with those found by Albar and Sivianes Fernández (2016) in a study

Table 4
Bivariate analysis of dimensions and predisposing factor.

Dimensions	Year	n	M	SD	p value	Type of access	n	M	SD	p value	Gender	n	M	SD	p value	Experience with healthcare	n	M	SD	p value
D4	**1º**	44	3.95	0.861	0.036															
	4º	122	4.32	0.763																
D6	**2º**	63	4.62	0.58	0.035															
	3º	89	4.27	0.836																
D12	**2º**	63	4.52	0.618	0.027															
	3º	89	4.17	0.864																
D18	**2º**	63	4.79	0.446	0.007															
	4º	122	4.5	0.73																
D24						**UEA**	159	4.73	0.486	0.012						**Yes**	140	4.79	0.412	0.08
						Over the age of 25, 40 and 45	61	4.85	0.358							**No**	145	4.63	0.557	
D3											**Men**	88	4.61	0.668	0.04					
											Women	199	4.78	0.504						
D5											**Men**	88	4.51	0.727	0.005					
											Women	199	4.75	0.446						
D7											**Men**	88	4.09	0.866	0.008					
											Women	199	4.35	0.692						
D10											**Men**	88	4.24	0.727	0.006					
											Women	199	4.47	0.601						
D23											**Men**	88	4.76	0.429	0.047					
											Women	199	4.87	0.417						
D25											**Men**	88	4.66	0.523	0.036					
											Women	199	4.8	0.452						
D17																**Yes**	140	4.25	0.841	0.017
																No	145	4.46	0.646	
Predisposing factor	**1°**	41	1.86	0.521	0.001															
	3°	63	1.25	0.582																
	1°	81	1.86	0.521	0.001															
	4°	117	1.21	0.599																

on professional identity performed by students in the first and fourth year of nursing. The dimensions D23 (Providing privacy for a patient) and D13 (Listening to a patient) also coincide with the results of Cook et al. (2018) of students in their first year. However, D18 (Measuring the vital signs of a patient), D25 (Observing the effects of a medication on a patient) were not among the four most valued dimensions, therefore, it is possible that this may be due to differences of the socio cultural context.

Students in their third year of nursing experience a change in their perception of factors of caring. At this point in time, students in this study were finishing all the theoretical course material, although they had not yet begun the clinical placements of the third and fourth year, having completed the clinical placements of their first and second year. Based on these findings, it appears that the theoretical training received by students leads them to have a more humanistic vision of caring compared to a more technical vision, however, this is a reductionist vision as, besides having gone through several months of caring, after completing the clinical placements in the fourth year, their assessment of the psychosocial factor increased, not only compared to the

Table 5
Multinomial logistic regression model by academic year.

Previous contact with healthcare	Factor psychosocial (F1)[a]		p value	OR	Lower limit	Upper limit
Yes (R^2 = 0.241)	Year[b]	3º	0.014	8.27	1534	44,618
		4º	0.002	12.32	2514	60,337
No (R^2 = 0.241)	Year	3º	0.023	3.5	1189	10,305
Multinomial logistic regression model by academic year adjusting by gender and age						
Yes (R^2 = 0.241)	Year[b]	3º	0.06	5.46	0.934	31,936
		4º	0.002	12.77	2457	66,419
No (R^2 = 0.241)	Year	3º	0.043	3.24	1116	12,276
		4º	0.032	3.7	0.352	2812
Multinomial logistic regression model by academic year adjusting by gender, age and type of access to university						
Yes (R^2 = 0.286)	Year[b]	3°	0.047	6.43	1028	40,239
		4°	0.003	13.43	2466	73,156
No (R^2 = 0.318)	Year	3°	0.028	3.84	1158	12,756
		4°	0.036	3.75	1093	12,896
	Type of access[c]	Certificate in higher ed.	0.035	0.179	0.036	0.887
		Other degrees	0.031	0.124	0.005	3306

[a] Category of reference: Professional-technical factor.
[b] Category of reference: year 1.
[c] Category of reference UEA/University entrance exam.

professional-technical factor, but also compared to themselves. For example, these changes can also be observed in dimensions D18 (Measuring the vital signs of a patient) which is more identified with caring for students in their second year than those in their fourth year or D4 (Getting to know the patient as a person) which is significantly more identified by those in their fourth year compared to first year students. It would be more appropriate to say that, rather than a theoretical-practical gap, a mutually influential relationship exists between both groups, in which students construct their perception of caring, as pointed out by Watson (1985). Watson et al. (1999a) did not find significant changes in their study although later they did affirm that the psychosocial aspects of caring are more clearly perceived as their education progresses (Watson et al., 2001). We were unable to compare our results with those obtained by Akansel et al. (2013) or Cook et al. (2018) because these authors did not measure the factors of caring.

The results of the multinomial regression show that the identification of caring with the psychosocial factor is greater in students who have had previous healthcare work experience. We were unable to find studies that explore the perception of caring in other healthcare professionals besides nurses (for example nurse aides) who work alongside nurses. Therefore, we can only hypothesize that the presence of these other professionals who also have extensive experience caring for patients may have helped nurses integrate the psychosocial aspects of care. However, those who accessed nursing via a certificate of higher education or other academic titles, identify caring more with the professional-technical factor. We were unable to find bibliography on this matter, which may be explained if we consider that these students have not worked or studied with patients directly but rather with biological samples or X-ray images, for example (which is why they do not belong to the group of those with previous healthcare experience). Previous work experience in healthcare and the type of studies performed to access university are two variables that have not been analyzed in previous studies, although, according to our findings, these may have a significant influence on students' perception of care (modifying the OR).

Regarding the influence of gender, in the women surveyed, five of the six dimensions most identified with caring were related with the psychosocial aspect, this could lead one to think that women are more concerned with relational and contextual aspects, as affirmed by Gilligan (1985). Nonetheless, in the multivariate analysis of the factors of caring, there were no significant differences according to gender. This breaks the stereotype that exists in our country in which male students are more focused on the biomedical techniques and aspects of caring (Carrasco Acosta et al., 2005). The studies by Watson et al. (1999b) and Akansel et al. (2013), do not provide data on this aspect, unlike the studies by Watson and Lea (1997). The latter study was based on registered nurses, not students, reporting that the psychosocial vision of men prevails. In Spain, there are no studies on this topic.

Watson et al. (1999a) found that older students identified the psychosocial factor more with caring, compared to the younger students. In our study, age did not have a significant influence neither on the factors nor on the dimensions.

4.1. Limitations

This study was based on a cross-sectional design, which offers a snapshot of the variables at a given point in time, however, as opposed to longitudinal research, it is unable to provide an analysis of how these variables change over time. Also, due to the lack of previous studies on this subject in Spain, we were unable to compare these results with other studies based on the same socio-cultural context. Furthermore, the fourth-year students who performed clinical placements outside the city were excluded as they were unable to complete the questionnaires in person. Additionally, the use of Likert questions forced respondents to choose an answer rather than providing an open response. It is important to note that the age of data (April 2014) may be considered as a further limitation of this study.

5. Conclusion

The perception of caring among nursing students is a dynamic phenomenon which is modified throughout the nurse education process. Although caring is identified with both factors analyzed, in the students who participated in this survey, a psychosocial vision of care predominates, compared to the professional-technical vision. The academic year significantly influences the perception of caring of students: first year students perceive caring as more technical, and, after the third year, psychosocial aspects are most recognized. This data must be considered by governments when evaluating and modifying nursing study plans.

Knowing how the type of university access and previous work experience in healthcare may influence students' perceptions of caring may help teachers in the development of teaching guidelines and for the planning of classes.

No studies have been found in Spain, nor in the last five years in Europe, measuring students' perception of caring. Therefore, this would be a good starting point for future research in other countries and in order to compare results and study programs.

Future research lines could involve the performance of a longitudinal study to evaluate whether these results are confirmed and to determine at which point a change occurs in the perception of caring. Also, it would be necessary to further explore this phenomenon from a qualitative point of view to understand how nursing students' notion of caring is constructed and to analyze the influence of clinical practice on the perception of caring among nursing students.

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Declaration of competing interest

No conflict of interest has been declared by the authors.

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