



Contribution of nursing students to clinical settings: A multi center cross sectional study

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ABSTRACT

Aims: To describe the contribution of nursing students to clinical settings based on the perceptions of nurse preceptors and to examine whether certain characteristics of nurses' professional activity are associated with a positive perception of nursing students.

Background: Most clinical agencies receive many nursing students each year, who acquire clinical competencies under the guidance of a registered nurse preceptor. However, there is limited evidence of the contributions made by nursing students during clinical placements.

Methods: A multi-center cross-sectional study was carried out between June and December 2019. A convenience sample of Registered Nurses ($n = 927$) was recruited from four public hospitals in Spain. The Nursing Student Contributions to Clinical Settings' questionnaire was used. In addition, sociodemographic, work and teaching activity variables were collected. Multivariable logistic regression was used to determine the variables associated with positive student contributions.

Results: The nursing student contributions were deemed favorable by 70.7% of the nurse preceptors, mainly because the nursing students are future professionals who know the center, support the development of the nurses' teaching role and constitute a link between the health center and the university. Certain professional characteristics of the Registered Nurses were significantly associated with a positive perception of the contributions of nursing students: having daily coffee breaks (Odds ratio: 2.60; 95% Confidence interval: 1.27–5.32), high levels of professional satisfaction (Odds ratio: 2.13; 95% Confidence interval: 1.21–3.75) and work in medical-surgical units (Odds ratio: 1.62; 95% Confidence interval: 1.08–2.41). In contrast, nurses with greater work experience (≥ 30 years) (Odds ratio: 0.48; 95% Confidence interval: 0.27–0.85) and who worked at units where 10 or more students perform clinical practice (Odds ratio: 0.57; 95% Confidence interval: 0.36–0.90) were associated with a lower probability of positive perceptions.

Conclusions: In Spain, the contributions made by nursing students to clinical settings are favorable, both for the nursing profession and for healthcare institutions. Their contributions are influenced by the professional characteristics of the Registered Nurses, as well as the environment and the teaching activity within the units.

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1. Introduction

Globally, most Registered Nurses routinely perform an important teaching role during their working day as preceptors of nursing students. Many studies have gathered nurses' perceptions of interactions with nursing students during their clinical learning. Previous research has found that staff nurses involved in teacher-led clinical practice, identified this teaching task as a responsibility and a source of stress, even a conflict at times, in addition to being an extra burden at work (Anderson et al., 2020; Hanson et al., 2018). However, positive attitudes towards nursing students have also been reported. Some authors found that nurses feel that they contribute towards shaping their future co-workers, enjoying the presence of students on the unit and feeling satisfied with their participation in nursing students' learning (Halcomb et al., 2012; Hanson et al., 2018). Consequently, among the nursing staff, there is a degree of ambiguity towards their role as preceptors.

Studies on preceptorship in clinical settings have focused on the competency of nurses who fulfill the role of preceptor or mentor. In general terms, nurse preceptors are routinely encouraged to create appropriate learning environments, characterized by a reciprocal relationship with students, developing certain personal characteristics such as motivation or the ability to cooperate with other professionals and to individually supervise the student's learning and development as future nurses (Pramila-Savukoski et al., 2020; Tuomikoski et al., 2020). As a result, much of the existing literature has focused on Registered Nurses' ability to train nursing students during clinical placements (Mikkonen et al., 2022); however, little is known about the contributions of nursing students to nurses or to clinical agencies during clinical learning.

2. Background

The contributions of nursing students to clinical practice agencies have been studied primarily in the United States. Concretely, by examining their contribution towards aspects such as time allocation, professional development and staff satisfaction, as well as on the quality of care, including performance protocols and quality standards in the clinical units (Morrison and Brennaman, 2016). This concept includes the benefits and limitations of mentoring undergraduate nursing students (Slaughter-Smith et al., 2012). Although nursing students' contributions can be examined from the perspective of the students themselves, the patients and their families and the nurse preceptors, most previous studies approached this concept from the latter perspective (Matsumura et al., 2004; Morrison and Brennaman, 2016; Slaughter-Smith et al., 2012).

In general, nursing students' contributions have been found to be positive, especially for enhancing the learning environment in the clinical setting, providing the nurses with mentoring opportunities and/or participating in the professional development of students (Slaughter-Smith et al., 2012). However, negative contributions have also been outlined, as some staff nurses felt that they threatened the development of their professional role (Matsumura et al., 2004) or were frustrated with some students who were less involved (Slaughter-Smith et al., 2012). Some of these studies have revealed differences when evaluating these contributions according to the professional experience of the nurses, with a more positive perception among those with less professional experience (Morrison and Brennaman, 2016) or according to the clinical unit (Matsumura et al., 2004; Morrison and Brennaman, 2016). Nonetheless, some of these studies were conducted with small samples and certain clinical units were underrepresented.

Hardly any studies have been conducted outside the United States measuring nursing students' contributions, even though nursing students worldwide spend long periods completing their training in hospitals (e.g., in Europe, 2300 h of undergraduate clinical training are required) (Rafferty et al., 2019; Visiers-Jiménez et al., 2022). It is also important to consider that the characteristics of the clinical learning environment may be different in international contexts. This

phenomenon should be further explored, using questionnaires validated in large samples and incorporating other variables of interest regarding the Registered Nurses themselves and the characteristics of the clinical units, including the teaching load.

Identifying the contributions of nursing students (positive or negative) could be the starting point for 1) improving the management of clinical practices, addressing aspects of clinical training management that may be negative 2) communicating student contributions among Registered Nurses, highlighting positive contributions and seeking solutions to negative aspects of the nurse/student interaction and 3) considering whether nursing students are a positive asset to clinical agencies.

Therefore, the main objective was to describe the contribution of nursing students to clinical settings based on the perceptions of nurse preceptors. The specific objective was to examine whether certain characteristics of nurses' professional activity are associated with a positive perception of nursing students.

3. Methods

3.1. Study design

Cross-sectional study.

3.2. Setting and sample

In this study, a sample of nurse preceptors was recruited by convenience sampling. This multicenter study took place in four public hospitals in Asturias, Cantabria and León (north of Spain) between January 2019 and March 2020. Two hospitals were level 3, between 500 and 1000 beds each and two were level 2 with < 500 beds. Most of the hospitals in Spain are teaching centers where the nursing students perform clinical placements on a yearly basis. Each university schedules the clinical practice of its nursing students in numerous placements at each center. Therefore, practically all the clinical units of each hospital receive nursing students where nurse preceptors are directly involved in the student's learning.

The inclusion criteria were Registered Nurses who had had regular contact with undergraduate students (at least three months per year). Those nurses who, in addition to their hospital activity, were also university professors, were excluded. The sample size was calculated considering the total number of Registered Nurses working in clinical units in the four selected hospitals ($n = 2400$), a confidence level of 95%, a precision of 3% and an expected proportion of positive contributions of 50%, resulting in the need for 820 Registered Nurses (including an expected 10% rate of exclusions for missing data).

3.3. Variables and questionnaire

Basic sociodemographic variables were collected, including sex, age and highest academic degree (Nursing degree/ Official Master's degree or Doctorate). In relation to professional activity (occupational and workplace variables), the following data were collected: professional experience (years), work satisfaction (10-point rating scale between 1: not at all satisfied and 10: very satisfied), emotional exhaustion (frequent, occasional, never/ sporadic), frequency of coffee breaks during the working day (never, sporadically (1–2 days), regularly (3–4 days), every day), hospital size (<500 beds, 500–1000 beds), unit (intensive care and emergency services, medico-surgical, other services), number of students (1–4, 5–9, ≥ 10) and months with students in the clinical unit (year) (1–3, 4–6, ≥ 7).

The *Nursing Student Contributions to Clinical Settings questionnaire* (CEECE, Spanish acronym) was used to assess the contributions of nursing students from the perspective of nurse preceptors. This is a self-administered scale with 24 items detailing contributions that can be made by nursing students in the clinical agencies where they carry out

their training. The CEEEC scale was developed and validated in Spain and is available for consultation elsewhere (Fernández-Feito et al., 2021).

The nurses rated each contribution according to a Likert scale between 0 (totally disagree) and 4 points (totally agree). The total score ranged from 0 to 96 points, where a higher score implied more positive student contributions. Nursing students' contributions were classified as negative (<48 points) or positive (48–96). The Cronbach's alpha of the questionnaire in our sample was 0.94.

3.4. Data collection

The research team consisted of two doctoral nurses and university professors who led the study, a doctoral student in health sciences, a professor in psychometrics and three Registered Nurses trained to standardize data collection, who were responsible for personally visiting all the clinical units where nursing students were attending clinical training, informing the supervisor and the other Registered Nurses on each unit of the study. An opaque box was deposited for collecting the questionnaires anonymously within four weeks after the presentation of the study. At least three reminder rounds were carried out in those units where initial participation was lower. Data collection took place between June and December 2019.

3.5. Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics v.27 (Armonk, NY: IBM Corp). Absolute and relative frequencies (%) were used to describe the qualitative variables and the mean and 95% confidence interval (CI) were used to summarize the total score of the questionnaire and its items. A bivariate analysis was performed using the chi-square test to compare the students' contributions according to the nurses' professional activity. Crude and adjusted odds ratios (ORs) and their 95% CIs were calculated using logistic regression models to determine the association between the positive contributions of nursing students and the personal (sex and highest academic degree) and professional characteristics of Registered Nurses, professional experience, work satisfaction, emotional exhaustion, frequency of rest, hospital size, unit, number of students and months with students present in the unit). Only *p* values < 0.05 were considered statistically significant.

3.6. Ethical considerations

All nurses provided informed consent to participate in this research. All participants were informed that they could withdraw from the study whenever they wanted and without consequences. Participation in this study did not involve any compensation and had no repercussions on nurses' professional activity. The study was approved by the Research Ethics Committee of Asturias (REF 19/18). In addition, a favorable report was obtained from the ethical committees of the other hospitals included in the study.

4. Results

The study involved 927 nurse preceptors. After eliminating incomplete questionnaires, i.e., those with missing information in the section on student contributions (*n* = 38) or variables related to professional activity (*n* = 16), the final sample consisted of 873 nurses. A total of 1300 questionnaires were distributed with a participation rate of 71.3%.

4.1. Description of sample

The main characteristics of the sample are presented in Table 1. The most common profile was a female nurse, between 35 and 49 years of age and with a nursing degree. Regarding their professional activity, the professional experience of nurses ranged between 10 and 29 years

Table 1
Characteristics of participants.

	N (%)
Sociodemographic characteristics	
Sex	
Women	774 (88.7)
Men	99 (11.3)
Age	
<35 years	306 (35.1)
35–49 years	423 (48.5)
≥ 50 years	144 (16.5)
Highest academic degree	
Nursing degree	739 (84.7)
Official Master's degree or Doctorate	134 (15.3)
Characteristics related to nurses' professional activity	
Professional experience	
<10 years	260 (29.8)
10–29 years	529 (60.6)
≥ 30 years	84 (9.6)
Work satisfaction	
1–5 points	112 (12.8)
6–8 points	573 (65.6)
9–10 points	188 (21.5)
Emotional Exhaustion	
Frequent	227 (26.0)
Occasional	366 (41.9)
Never/sporadic	280 (32.1)
Having daily coffee breaks	
Never	53 (6.1)
Sporadically (1–2 days)	269 (30.8)
Regularly (3–4 days)	413 (47.3)
Every day	138 (15.8)
Hospital size	
<500 beds	163 (18.7)
500–1000 beds	710 (81.3)
Unit	
Intensive Care and Emergency Services	225 (25.8)
Medico-surgical	329 (37.7)
Other services	319 (36.5)
Students at the unit (year)	
1–4 students	187 (21.4)
5–9 students	287 (32.9)
≥ 10 students	399 (45.7)
Months with student presence at the unit (year)	
1–3 months	200 (22.9)
4–6 months	457 (52.3)
≥ 7 months	216 (24.7)

(60.6%) and self-reported job satisfaction was between 6 and 8 points (65.6%). Up to 26.0% had frequent emotional exhaustion and 36.9% were never or sporadically able to rest during their work shift. Most nurses worked at a level 3 hospital (500–1000 beds) and in clinical units (excluding intensive care and emergency services), where there were usually 10 or more nursing students in clinical training, between 4 and 6 months per year.

4.2. Nursing students' contributions

The mean score on the questionnaire was 54.6 (95%CI: 53.7–55.6). According to the established cut-off point, the preceptors' perception of nursing students' contributions was positive for 70.7% of the sample. As shown in Table 2, the highest rated contributions were: 'Become future nurses who know the healthcare center', 'Enable nurses to carry out their teaching role' and 'Constitute a link between the healthcare center and the university'. In contrast, the contribution of nursing students for decreasing workload was the worst rated. In general, nurses identified fewer contributions of nursing students in terms of caring for patients and their families.

When exploring the association between nursing students' contributions and nurses' characteristics (Table 3), it was observed that the perception of nursing students' contributions was influenced by nurses' professional experience and satisfaction, workload, type of unit and

Table 2

Contributions of nursing students according to mean score for each item.

Nº	Nursing Students...	Mean	95% CI
14	Become future nurses who know the healthcare center	2.97	2.91–3.03
23	Enable nurses to carry out their teaching role	2.96	2.90–3.02
13	Constitute a link between the healthcare center and the university	2.50	2.42–2.57
12	Represent a responsibility for nurses	2.47	2.40–2.53
6	Enhance the learning environment of the health center	2.43	2.37–2.49
8	Encourage staff to update their knowledge	2.42	2.35–2.48
22	Collaborate in the integration and teaching of other students	2.39	2.32–2.45
3	Generate satisfaction in nurses by participating in the professional development of students	2.38	2.33–2.44
19	Participate in interdisciplinary collaborative work	2.37	2.31–2.43
16	Contribute to the recognition of the nursing profession	2.36	2.30–2.42
15	Encourage the development of empathy among staff	2.36	2.30–2.41
17	Intellectually stimulate staff with different or innovative perspectives	2.31	2.25–2.38
20	Improve the reputation of the institution	2.30	2.24–2.36
5	Act as a reminder to update the work protocols	2.30	2.23–2.37
21	Are helpful for the development of technological skills among staff	2.25	2.18–2.31
11	Provide comprehensive care to patients	2.22	2.16–2.29
18	Improve the work environment	2.12	2.06–2.18
2	Stimulate staff to work according to scientific evidence	2.01	1.94–2.08
7	Provide a break in the care of demanding patients	1.99	1.92–2.07
10	Increase patient and family satisfaction	1.99	1.92–2.05
24	Monitor the patient's status more frequently	1.92	1.86–1.99
9	Promote interest in research among nurses	1.89	1.83–1.96
4	Increase communication with patients and families	1.88	1.81–1.94
1	Help to lighten the workload	1.81	1.74–1.88

CI: confidence interval.

teaching activity. Thus, the probability of positive contributions was significantly higher among nurses who were able to rest daily during their work shift (OR: 2.60; 95%CI: 1.27–5.32), those had a high professional satisfaction (9–10 points) (OR: 2.13; 95%CI: 1.21–3.75) and who worked in a medical-surgical unit (OR: 1.62; 95%CI: 1.08–2.41). In contrast, positive perceptions regarding nursing students' contributions were less likely among nurses with more work experience (≥ 30 years) (OR: 0.48; 95%CI: 0.27–0.85) and who worked in units where 10 or more students were involved in clinical practice (OR: 0.57; 95%CI: 0.36–0.90).

5. Discussion

This cross-sectional study conducted in several hospitals in Spain described the contributions of nursing students to clinical practice care settings and identified several social and occupational characteristics of Registered Nurses associated to positive perception of nursing students. According to our findings, nurse preceptors reported an overall positive perception regarding the overall contributions of nursing students, which is generally in line with other authors (Díaz-Alonso et al., 2022; Matsumura et al., 2004; Morrison and Brennaman, 2016; Slaughter-Smith et al., 2012). In addition, we were able to identify the characteristics of the Registered Nurses (less professional experience and high work satisfaction) and the work environment (medico-surgical unit, having daily coffee breaks during their work shift and <10 nursing students in the unit (per year)) associated with positive perceptions regarding the contributions of nursing students.

According to the ranking of the highest scoring nursing students' contributions, the presence of students strengthened the nursing profession and clinical agencies, even though the contributions were minor in terms of lightening the nurses' workload and the provision of high-quality patient care. Concretely, the students' most positive contribution was that they are trained as staff of the institution, which means that the nurses are altruistically performing a task not only for the university, by training its students, but also for the clinical agency itself, by training its future employees. In addition, it should be considered that

Table 3

Exploratory analysis for the association between the characteristics related to nurses' professional activity (occupational and workplace variables) and positive contributions about nursing students.

	n (%)	ORc (95% CI)	p-value	ORa (95% CI)	p-value
Sex					
Women	542 (70.0)	REF		REF	
Men	75 (75.8)	1.34 (0.82–2.17)	0.239	1.40 (0.84–2.34)	0.197
Highest academic degree					
Nursing degree	520 (70.4)	REF		REF	
Official Master's degree or Doctorate	97 (72.4)	1.10 (0.73–1.66)	0.636	1.05 (0.66–1.65)	0.847
Professional experience					
<10 years	207 (79.6)	REF		REF	
10–29 years	354 (66.9)	0.52 (0.36–0.74)	< 0.001	0.51 (0.35–0.73)	< 0.001
≥ 30 years	56 (66.7)	0.51 (0.30–0.88)	0.016	0.48 (0.27–0.85)	0.011
Work satisfaction					
1–5 points	65 (58.0)	REF		REF	
6–8 points	407 (71.0)	1.77 (1.17–2.69)	0.007	1.61 (1.03–2.53)	0.036
9–10 points	145 (77.1)	2.44 (1.47–4.05)	< 0.001	2.13 (1.21–3.75)	0.008
Emotional Exhaustion					
Frequent	151 (66.5)	REF		REF	
Occasional	269 (73.5)	1.40 (0.97–2.00)	0.070	1.15 (0.78–1.70)	0.470
Never/sporadic	197 (70.4)	1.20 (0.82–1.74)	0.355	0.89 (0.58–1.37)	0.600
Having daily coffee breaks					
Never	31 (58.5)	REF		REF	
Sporadically (1–2 days)	186 (69.1)	1.59 (0.87–2.91)	0.133	1.33 (0.71–2.51)	0.378
Regularly (3–4 days)	290 (70.2)	1.67 (0.93–3.00)	0.085	1.52 (0.81–2.84)	0.188
Every day	110 (79.7)	2.79 (1.40–5.54)	0.003	2.60 (1.27–5.32)	0.009
Hospital size					
<500 beds	119 (73.0)	REF	0.469	REF	0.186
500–1000 beds	498 (70.1)	0.87 (0.59–1.27)		0.75 (0.50–1.15)	
Unit					
Intensive Care and Emergency Services	140 (62.2)	REF		REF	
Medico-surgical	244 (74.2)	1.74 (1.21–2.51)	0.003	1.62 (1.08–2.41)	0.019
Other services	233 (73.0)	1.65 (1.14–2.37)	0.008	1.47 (0.98–2.19)	0.061
Number of students in the unit (per year)					
1–4 students	147 (78.6)	REF		REF	
5–9 students	209 (72.8)	0.73 (0.47–1.13)	0.155	0.80 (0.51–1.28)	0.353
≥ 10 students	261 (65.4)	0.52 (0.34–0.77)	0.001	0.57 (0.36–0.90)	0.017
Months with student presence at the unit					

(continued on next page)

Table 3 (continued)

	n (%)	ORc (95% CI)	p-value	ORa (95% CI)	p-value
1–3 months	155 (77.5)	REF		REF	
4–6 months	319 (69.8)	0.67 (0.45–0.99)	0.044	0.74 (0.49–1.12)	0.152
≥ 7 months	143 (66.2)	0.57 (0.37–0.88)	0.011	0.71 (0.44–1.17)	0.181

ORc: crude odds ratio; ORa: adjusted odds ratio; CI: confidence interval.

the majority of Registered Nurses in Spain have a heavier workload than other countries in the region, with one of the lowest nurse-to-patient ratios in Europe (Granel-Giménez et al., 2022; Rafferty et al., 2019). It is therefore particularly important to share these results with the management of the healthcare agencies, to propose a series of measures to improve the working conditions for nurse preceptors. Firstly, the workload on nurses could be reduced by assigning them fewer patients during each shift while instructing nursing students, since it is evident that they generate an overexertion for the worker by having to assume their daily activity and adequately training students simultaneously. In addition, it is important to increase their satisfaction and enable moments of rest during the workday to reinforce their role as preceptors. Secondly, this activity could be rewarded by a certificate or acknowledgment on their personnel file as some nurses have suggested (Anderson et al., 2020; Morrison and Brennaman, 2016). Finally, it would also be possible to offer regular targeted education on the responsibilities of a preceptor within their working day for those nurses who routinely train students as part of their professional development (Pramila-Savukoski et al., 2020; Tuomikoski et al., 2018). These proposals are complementary and can be assumed collaboratively by the universities and healthcare systems. Currently, in Spain, training programs on collaborative preceptorship are inexistent or are very limited (Martínez-Linares et al., 2019). In short, the favorable predisposition of nurses towards the presence of nursing students in the units could be improved by implementing actions that enable them to develop their preceptor role under better conditions (Hanson et al., 2018). A closer relationship between the university and the clinical agencies would allow nurse preceptors to know the learning objectives of the university curriculum in detail and for nurse preceptors to contribute their expertise to improve the design of the training program (Díaz-Alonso et al., 2022; Tuomikoski et al., 2018). This would align the objectives of the university and the health system.

In addition, some of our findings allow us to make some recommendations for an improved management of clinical training in health care settings in collaboration with nursing schools (Mbakaya et al., 2020). In the clinical units evaluated, the teaching activity was highly relevant since almost half of the units had 10 or more nursing students and the presence of these students lasted between four and six months per year. Given that the nurses with less experience (and therefore younger), were those with the best perception of the students (Morrison and Brennaman, 2016), this collective could constitute the best profile to assume the role of nurse preceptors, without underestimating the experience and involvement of some nurses with more extensive professional experience. This finding may have several explanations: the smaller generation gap among younger RN facilitates communication codes and interpersonal relationships, which may be accompanied by a greater understanding of the student's role (Díaz-Alonso et al., 2022; Morrison and Brennaman, 2016).

In addition, it is important to consider that, preferably, the number of students tutored in each unit each year should be moderate or low and that most of the clinical practices should be carried out in units with a lower degree of specialization. In units with patients requiring advanced care, such as intensive care units, nursing students may feel a lack of confidence, fear and anxiety in such challenging environments (González-García et al., 2020; Inayat et al., 2021). Training in these

units is necessary, however, preceptorship for undergraduate nursing students is difficult when the teaching task is added to the provision of care to complex patients.

It is well known that an overwhelming presence of students has a negative influence on learning (Abuosi et al., 2022; Arkan et al., 2018; Gill Meeley, 2021; Mbakaya et al., 2020) and conditions the disposition of the nurses towards the students, especially if they are new students to the unit or just beginning their education, since they require more dedication and effort from the nurses during their learning process (Hanson et al., 2018). However, reducing the student: nurse ratio may conflict with the high number of students who must complete their clinical training hours. Thus, clinical agencies should conduct a detailed review of all clinical units at each center, considering them as possible teaching units or optimally distribute the number of students throughout the year. In addition, agreements with all clinical agencies that can train undergraduate students, both public and private, should be encouraged, by publicizing their positive contributions to the institution. Often, university managers only seek to train their students at highly specialized healthcare centers, because it implies prestige and they understand that the training offered at these centers will be of higher quality. However, if professionals at centers with increasing and complex care pressure become overburdened and preceptor duties are mandatory, this can lead to a reduction in the quality of student training, or worse still, to a reduction in the quality of patient care. In contrast, smaller centers with a lower level of complexity may be more friendly and effective environments for general undergraduate training.

In short, based on the results of this study, the presence of nursing students in clinical units in Spain should be commended, as they make positive and interesting contributions. Nursing students are not just a passive subject receiving training, rather, they allow nurses to reflect on their own professional development and clinical practice, update their knowledge and share evidence-based information and best practices to students to improve their clinical learning (Halcomb et al., 2012).

Moreover, considering the nursing students' contributions described in this study, clinical agencies should invest in quality training of nursing students and allocate resources to this area, as an investment for the future of the agencies and the nursing profession. Publicizing these results would improve the relationship between nurses and nursing students and between the university and the health care system. Finally, the dissemination of these results among nursing students would enhance the value of their clinical training by highlighting their positive contribution to the development of the nursing profession.

This study has certain limitations and strengths. Given the voluntary and unpaid participation of nurse preceptors in this study, it is possible that those who participated were those who were most interested in contributing their opinion on the topic addressed. In contrast, one of the main strengths was the large sample size; its characteristics suggest that the sample was representative of the entire nursing community. Furthermore, another strength was that most of the Registered Nurses had more than 10 years of experience. Therefore, they were professionals who were familiar with the hospital and who had trained students for several years and consequently had a comprehensive and reflective vision of the phenomenon under study. Another limitation was that the Registered Nurses offered their perception of the nursing students' contributions considering undergraduate students, without distinguishing by academic year (first year, second year, etc.); however, it would be interesting to analyze the students' contributions in greater depth according to their academic year (Hanson et al., 2018). Finally, all the hospitals included in this study were public centers. It would be appropriate to continue with this line of research in private or subsidized centers where nursing students also perform clinical practices.

6. Conclusions

Preceptor nurses perceived that nursing students make overall positive contributions to clinical settings, both to the nursing profession itself

and to healthcare institutions. This perception was more positive among young Registered Nurses who were working at medical-surgical units, were satisfied with their work and with limited work overload. In short, it is important to value the presence of nursing students in clinical settings, promoting actions to improve the working conditions of the nurses involved in the clinical training of nursing students, as well as to carefully plan the clinical placements offered in nursing schools to avoid overloading the units and to ensure that the contributions of nursing students continue to be positive.

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CRediT authorship contribution statement

A. Fernández-Feito: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Y. Valcárcel-Álvarez:** Investigation, Writing – original draft. **E. Andina-Díaz:** Investigation, Writing – original draft. **P. Parás-Bravo:** Investigation, Writing – original draft. **J. Díaz-Alonso:** Methodology, Writing – original draft. **E. García-Cueto:** Methodology, Software, Validation, Formal analysis, Writing – review & editing. **A. Lana:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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