

Impact of nursing students on the quality of care perceived by patients: a systematic review of the literature

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Abstract. – **OBJECTIVE:** The quality assessment process, based on customer satisfaction, is fundamental in the delivery of the best care services. This is most evident in care settings where trainee students are allowed to assist the patients. The purpose of this review is to clarify whether nursing students have an impact on patients' assessment of the quality of their nursing care.

MATERIALS AND METHODS: A systematic literature search was carried out using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guidelines in six databases: PubMed, CINAHL, Cochrane, Web of Science, Scopus, and PsycInfo. Two co-authors independently screened titles, abstracts, and full-text articles, following explicit exclusion and inclusion criteria. Analyses included non-randomized and non-homogeneous samples, involving both selected patients and methods for assessing their satisfaction.

RESULTS: After full-text screening, 30 articles were identified, but only 11 were considered pertinent to the topic of the review. The trainee-patient relationship is based on mutual help and can improve the patient experience and trainee learning. The instruments used to measure perceived quality were found to be valid and reliable.

CONCLUSIONS: The studies under review show high levels of satisfaction among patients when nursing care is delivered through training, particularly when the patients who agree to be treated by nursing trainees have previous expe-

rience of hospitalization and relationships with trainees. Educational background and the empathy and communication skills of both professional nurses and trainees influence patients' perception of the quality of care and their satisfaction with it.

Key Words:

Quality of care, Nursing student, Nursing care, Patient satisfaction, Patient attitude, Clinical competence, Student-patient relation, Patient beliefs, Patient evaluation.

Overview of nursing care quality

Quality is the most important issue in healthcare, and good quality of care is the right of every patient. One of the main goals of national health services in Italy and countries belonging to the World Health Organization (WHO) has been the promotion of better quality of care in terms of fairness of access, quality of life, user satisfaction, and use of resources based on a cost-effectiveness ratio¹. The recent economic crisis in Europe and the COVID-19 outbreak have been a considerable challenge to health systems and assessment of patient satisfaction. Times of pandemic need assessment systems to provide new indicators of healthcare quality, including those relating to nursing students.

In the health sector, quality has many implications, probably larger than in any other sector, as it is influenced by subjectivity. For this reason, the concept of health care quality is difficult to define and to make universally applicable. In trying to define how the quality of care in the 21st century relates to nursing student training, we first need to explore the background of the nursing assessment.

Quality of Care

General background in nursing, quality assessment began with Florence Nightingale, who founded modern nursing and developed a theoretical approach aimed at identifying and eliminating factors that hindered quality improvement². Many definitions of quality followed, of which one of the most recent was stated by the former Institute of Medicine, now Academy of Medicine, in the United States, which defined it as “the degree to which health systems increase the likelihood of expected health outcomes, consistent with current medical knowledge”³. The outcomes refer to perceived quality as the key factor in the classification of health systems and the feature that identifies patients’ preferences toward choosing one healthcare organization over another. Providing patients with services that meet their needs is essential for success in a competitive healthcare environment⁴.

Clinical governance is another quality factor – an approach that arises from two opposing needs that contribute to a single purpose: satisfaction of the patients’ needs via the provision of high-quality services at minimum cost and qualitative improvement of the services provided. The Royal College of Nursing (UK) has described clinical governance as “a process that incorporates all the different parts that come into play to maintain and improve the quality of patient care”⁵.

Quality of Care in Italy

Quality of care in the Italian health system is based on the 32nd article of the Italian Constitution, which states that health is a right for everyone under the guiding principles of universality, fairness, impartiality, and a strong egalitarian ethic. In Italy, there are multiple levels of oversight regarding healthcare. In the middle is the State, which guarantees the right to health for all citizens through a strong system of guarantees and the Essential Level of Assistance (LEA). At the regional level, Regions are responsible for the expenditure required for the implementation of

State health objectives. The transition from local health units (USL), which were mainly based on state principles, to local health authorities (ASL), which are not dependent on central organization, has given the system a corporate imprint by introducing market and competition mechanisms. The introduction of a profit-oriented corporate perspective requires the quality provided by healthcare professionals and perceived by patients to be assessed. The performance assessment cycles and customer satisfaction principles were implemented, aimed at improving both the performance provided and the satisfaction of the patient⁶.

In Italy, the concept of customer satisfaction has been part of the law since the 1990s, particularly Decree n. 29, art. 12, 1993 (DPCM 27/1/94) on the importance of listening to citizens. Listening to citizens became necessary to verify the quality and effectiveness of the services provided in an accurate and focused manner. However, with the advent of the transformation of the Italian National Health System (Legislative Decree n. 502, 12/30/1992), there has been a decentralization and greater autonomy for healthcare companies. They began to use corporate language with patients being referred to as clients⁷. Customer satisfaction is a criterion of performance quality assessment of healthcare organizations and an additional indicator of health protection. The analysis of the care outcomes and customer satisfaction has become fundamental to providing optimal performance, with a focus on the centrality of patients².

Nursing Training and Quality of Care

A relationship based on reciprocal trust between nurse and patient is of fundamental importance in the clinical context. In all areas of care in which the patient is involved, a relationship is created with members of healthcare personnel, particularly with nurses, and is an essential part in the process of optimal care delivery for both parties. The players in this health-patient relationship are all healthcare professionals and include trainee students (8). As well as improving the service, the experience of trainees enriches the service providers. Patient and nurse-trainee often establish a symbiotic relationship, which is different from the one established with other nurses. Patients thus make their own contribution and, by doing so, stimulate the clinical growth of trainees (9). In this line of reasoning, clinical placement is an essential part of nursing education. In this type of collaborative learning, stu-

dents apply what they theoretically learn while interacting with their instructors in the environment where the patient is admitted¹⁰. Studies have defined collaborative training as a shared relationship where cognitive, psychomotor and affective learning takes place, leading to greater motivation among students and healthcare staff. This collaborative method includes the patient in the training process¹⁰. Students also evaluate internship experiences very positively as they improve their self-confidence and dexterity in care procedures that cannot be learned from books. They also tend to consider their relationship with patients as special in terms of humanity and empathy¹¹.

Research AIMS

Based on the above assumptions, it is possible to argue that hospitals hosting nursing degree courses and consequently trainee students in clinical learning environments acquire added value from the input of their trainees, who not only improve care outcomes but also motivate all nurses to work with competence and effectiveness. Although in some cases patients are reluctant to be treated by students because of their lack of confidence and inexperience, patients will often evaluate nursing students positively because, especially in the Italian context where there is a shortage of staff, trainees tend to pay greater attention to their needs than overworked nurses do.

Therefore, the aim of the study was to evaluate whether the quality of nursing care increases when students are admitted to clinical learning contexts. The specific research question was “According to patients, can nursing students influence their well-being in clinical learning contexts?”

Research design – Materials and Methods

To answer the research question, the design of the study involved a combination of PICOM to clarify the research topic and PRISMA to standardize the results:

PICOM

A research topic was formulated through PICOM, a process used to frame and answer a clinical or healthcare-related question. The PICOM developed for this study stood for:

- **P** (population or problem): evaluation nursing performances
- **I** (intervention): when students are present
- **C** (comparison): when students are present and when they are not.
- **O** (outcome): improvement of performance, in terms of quality perceived by-patients
- **M** (methods): the type of studies able to answer the research question: case reports, systematic reviews, scoping reviews, comparative studies, and clinical trials.

Criteria for inclusion and exclusion of articles were developed by the authors and were as follows:

Inclusion criteria

- a) Type of studies: case reports, comparison studies, reviews, clinical trials, and scoping reviews.
- b) Articles involving undergraduate nursing students.
- c) Peer-reviewed literature.
- d) Just articles in English or Italian.
- e) No time limits.

Exclusion criteria

- f) Non-peer-reviewed literature.
- g) Articles not in English or Italian.

Keywords made up of search strings combined using Boolean indicators and without using MeSH terms were:

“quality of care,” “nursing student,” “patient satisfaction,” “nursing care,” “patient attitude,” “student nursing,” “patient,” “clinical competence,” “student-patient relationship,” “patient beliefs” and “patient evaluation”.

PRISMA

The PRISMA method was used to standardize the results. It consists of a 27 items checklist, which includes title, abstract, introduction, methods, results, discussion, and financing of the articles, and a four-step flow diagram, which describes recording, screening, eligibility, and inclusion criteria of the documentation retrieved^{12,13}. In order to avoid contamination in the research by using the same method to reach mutual understanding, research was conducted by two researchers working independently on each database. The research was conducted from July 2019 to August 2019 and subsequently updated from September to November 2020. The databases scanned were: PubMed, CINAHL, Scopus, PsycInfo, and Cochrane.

An outline of the PRISMA-based research is shown in Figure 1: first, 3278 articles (case reports, systematic reviews, scoping reviews, comparative studies, and clinical trials) were selected from each database and identified as pertinent to the query. 3202 texts were then excluded as not pertinent with the search terms by reading the abstracts. 46 texts were then deleted from the remaining corpus of 76 texts because they were duplicates. Of the remaining 30 texts, 15 were excluded because they were not full-text, and 4 more were excluded because the topic was not considered relevant to the research question. At the end of the screening process, 11 studies were considered eligible for in-depth analysis: seven descriptive studies, two reviews, one experimental study, and one quasi-experimental study.

Based on these findings, two different areas of analysis were scrutinized using content analysis¹⁴. To assess the quality of diagnostic accuracy and avoid the risk of bias, the QUADAS-2 method was used¹⁵ (Figure 2).

Results

Demographic Data

The data in the corpus of 11 texts was classified in terms of the type of study used, the research question, demographic characteristics of participants, method of data collection, method of data analysis, and the main issues and concepts contained in the text. The final classification is shown in Table I.

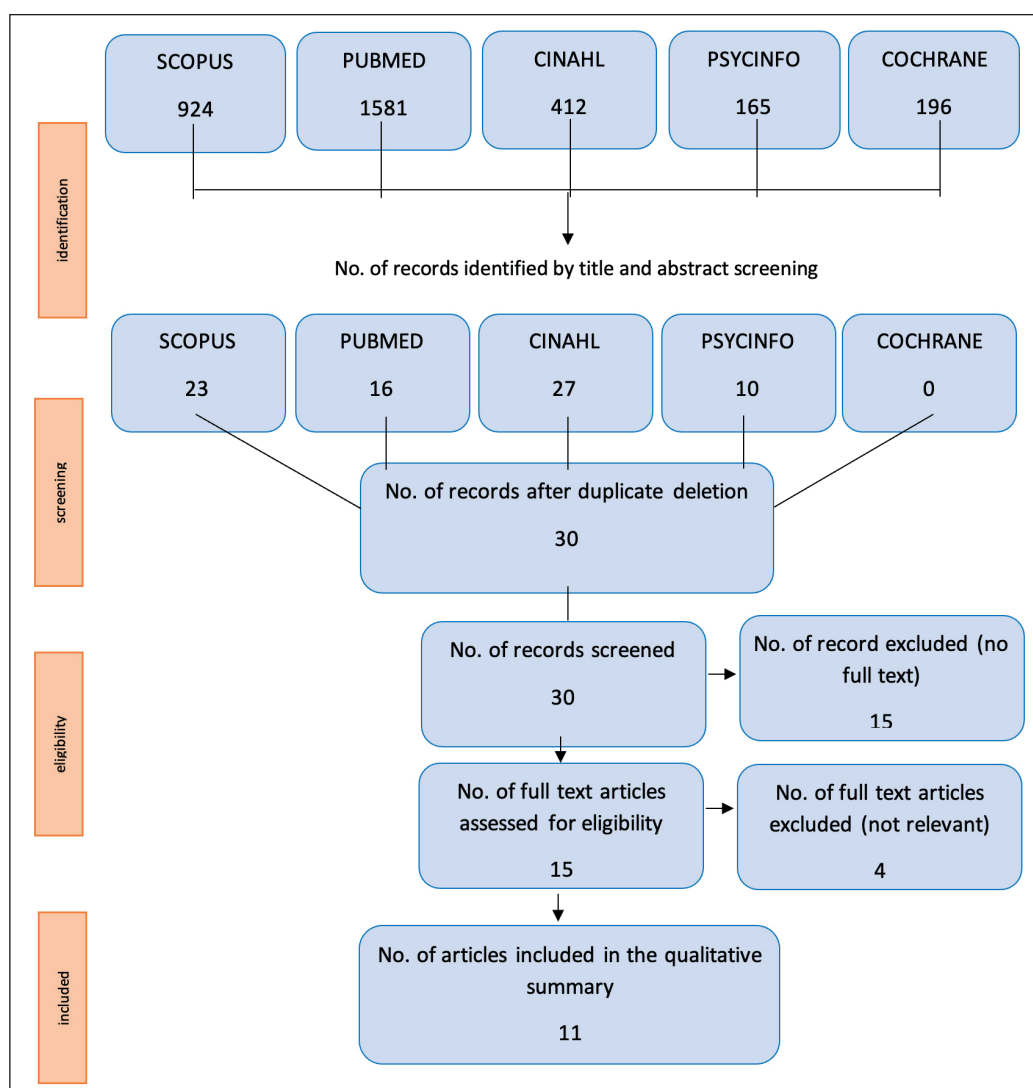


Figure 1. Research according to the PRISMA method.

Study	Risk of Bias				Problems of applicability		
	Patient selection	Test in the studio	Reference standard	Flow and timing	Patient selection	Test in the studio	Reference standard
Oskay et al., 2015	😊	😊	😊	😊	😊	😊	😊
Yidzeji Topcu et al., 2014	😊	😊	😊	😊	😊	😊	😊
Bromage et al., 2007	😊	?	?	😊	😊	😊	?
Eskilsson et al., 2005	😞	😞	😞	😊	😞	😊	😞
Cana et al., 2008	😊	😊	😊	?	😊	😊	😊
Suikkala et al., 2005	😞	😞	😞	😊	😞	?	😊
Facco et al., 2015	😞	😊	😊	😊	😞	😊	😊
Mosson et al., 2006	😞	?	😊	😊	😞	?	😊
Mukumbang et al., 2014	😞	?	😊	😊	😞	😊	😊
Straub et al., 2019	😊	?	😞	😞	😊	😊	😞
Nickles et al., 2020	😊	😊	😊	😞	😊	😊	😞
😊 = low risk 😞 = high risk ? = unclear risk							

Figure 2. Evaluation with QUADAS-2.

Demographic characteristics were not described consistently in the corpus.

Straub et al¹⁶ examined pediatric patients and their parents without identifying gender but classifying patients by age group and correlating the number of parents who answered the questionnaire for each age group. Mukumbang and Adejumo¹⁷ did not take into account the number of patients and students, while Nickles et al¹⁸ defined the number of patients without identifying age and gender; students included in their study were divided into two groups (junior and senior) but the total number was not reported. Due to the lack of consistency in data reporting, statistical analysis could not be reliably performed.

As regards the numbers of patients reported in the studies, these are very varied (see Figure 3). The first three studies described in the chart were those with the largest samples, namely 210 patients in Oskay et al¹⁹, 169 in Topcu et al²⁰, and 500 in Bromage et al²¹. The other studies varied from 12 patients²² to 54²³. The fifth study²⁴ reported in Figure 3 did not specify sample numbers. The second²⁰ and third studies²¹ used a very specific patient typology (urological patients and outpatients in the former and women in a perinatology ward in the latter. Straub et al¹⁶ (study n. 7) included the

number of pediatric patients and parents who answered the questionnaire for a total of 165 subjects.

As regards gender, Figure 4 shows the male/female ratios reported in the texts. Eskilsson et al²⁴ and Facco et al²⁵ did not specify patient gender, while Topcu et al²⁰ in a study of a surgery department reported that 50.9% of patients were women. This study indicated that patient gender and demographic characteristics did not influence their level of satisfaction in relation to the care received by nursing students. The study by Bromage et al²¹ comprised a sample of 363 men and 123 women, with 14 patients not declaring their gender. Results showed a smaller acceptance of nursing students by female patients. The authors hypothesized that the young age of the students created discomfort in female patients under the age of 60 (66%). No preferences were expressed by patients regarding the gender of the student who assisted them, although a study by Cana et al²³, conducted in an oncology ward, showed that 61.1% of the students were female, and dissatisfaction was stated by the male patients; gender, age, income, and duration of admission were important elements in the variation of patient satisfaction coupled with the performance of nursing students, but the only significant factor was gender.

Table I. Summary of data reported in the cited works.

Authors, publication date	Type of study	Question	Characteristics of the participants and context	Data collection method	Data analysis method emerged	Issues and concepts
Oskay et al, 2015 1	Transversal study	Evaluate whether patients are satisfied with the care provided by the nursing students	210 female patients, 79% of age <35 and 21% > 35, admitted to a perinatology department	Demographic data collected with a face-to-face interview, level of satisfaction through the OPPQNC-SF, consisting of 18 items and 4 sub-scales	The data are analyzed with the SPSS, version 17.0, a software for data analysis	Patients are completely satisfied with the assistance received from the students, a correlation between satisfaction and previous admissions also emerges. Women with previous hospitalizations are more satisfied
Topcu et al, 2014 2	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	169 patients, 49.1% men, 50.9% women undergoing surgery, aged between 18 and 65 years	Demographic data collected through a questionnaire, those related to the perception of the hospital experience with a face-to-face interview	The data are analyzed with the SPSS, version 11.0, a software for data analysis	Results show that patients are much more satisfied with the assistance provided individually by students. The satisfaction level of patients without chronic diseases is greater than for patients without. Patients with the lowest educational level are more satisfied
Bromage et al, 2007 3	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	500 patients, 72.6% men, 24.6% women, sex; urological outpatient department	Demographic data relating to the experience with students collected with questionnaires consisting of 9 questions	The data are analyzed with the Stats Direct	Results show that patients have positive attitudes towards students, about sex. 21% of women prefer same-sex students compared to 14% of men who prefer male students. Younger patients, under 30, show objection to the presence of students.
Eskilsson et al, 2005 4	Phenomenological study	Evaluate whether patients are satisfied with the care provided by the nursing students	The sample size is not specified, the care setting is a unit dedicated to student learning (DEU)	Data collected in a face-to-face interview	Not specified	Results show that having genuine meetings with students and establishing a mutual relationship of trust is essential.
Cana et al, 2008 5	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	54 cancer patients, 61.1% women and 38.9% men. The average age is 38.38	Demographic data collected with a patient description form, satisfaction level through OPPQNC-SF, composed of 18 items and 4 sub-scales	The data are analyzed with the SPSS, version 11.5, a software for data analysis	The results show that patients are satisfied, factors such as correct information, respect, confidentiality and availability increase the level of satisfaction

Continued

Table 1 (continued). Summary of data reported in the cited works.

Authors, publication date	Type of study	Question	Characteristics of the participants and context	Data collection method	Data analysis method emerged	Issues and concepts
Suikkala et al, 2005 6	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	30 patients and 30 hospital students; average age of 26-year-old students, 80% are women and 77% of them are from the 3rd year. The average age of the patients is 68 years, 66% women	Data are collected in a semi-structured interview	The interviews are written manually and evaluated with the qualitative analysis of the content	The results show that the student-patient relationship has positive effects for both. Patients are satisfied with the treatment as well as perceiving that they have a central role in student learning
Facco et al, 2015 7	Quasi experimental study	Evaluate whether patients are satisfied with the care provided by the nursing students	14 3rd year students and 19 patients interviewed during the internship and 16 in the post-internship, as one of the objectives of the study is to assess patient satisfaction both in the presence of the student and in his absence	Data are collected with section two of the Newcastle Satisfaction with Nursing Scale (NSNS), composed of 19 items, for each of which corresponds a score from 1 to 5 on a Likert scale	For the analysis of the data the Chi Square test and the two-tailed t-test with significance level equal to $p \leq 0.05$ were used	The results show that patients are satisfied with assistance both during the internship and afterwards. The themes that emerged are the availability, education and presence of the student if necessary
Mossop at el, 2006 8	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	12 patients admitted to an RHA, 58% women and 42% men. The sample age ranges from 65 to 86, the average age is 82	Data collected in a face-to-face interview	The interviews are recorded and transcribed manually. The names have changed to ensure privacy	The results show that patients are extremely satisfied with the assistance provided. They describe students with terms such as: kind, caring, friendly, respectful. One of the patients claims not to be satisfied due to poor preparation
Mukumbang et al, 2014 9	Descriptive study	Evaluate whether patients are satisfied with the care provided by the nursing students	The sample size is not specified, but the patients selected are those who received assistance from nursing students in one of the 11 wards reserved for the clinical training of students	Data collected in a face-to-face interview	The interviews are evaluated through the qualitative analysis of the content	The results show that patients are satisfied with the care provided, feel comfortable with students and consider them competent and skilled. Some of them, however, tell of negative experiences with incompetent and uneducated students

Continued

Table 1 (continued). Summary of data reported in the cited works.

Authors, publication date	Type of study	Question	Characteristics of the participants and context	Data collection method	Data analysis method emerged	Issues and concepts
Straub et al, 2019 10	Descriptive study	Evaluate parents' and patients' perceptions of medical and nursing care on a pediatric ITW.	A total of 109 parents (response rate 60.5%) and 56 patients (31% of total patients, 55 patients (94.8%) > 8 years) participated in the study.	A questionnaire was developed with 8 items + 2 open-ended questions concerning the general aspects of assistance and the evaluation of the IPAPAED department based on an example of a single professional training department	Quantitative data were analyzed with Graph Pad Prism version 7.01 (GraphPad Software, La Jolla, CA, USA). The Mann-Whitney-U-Test was used to identify differences in parental or patients' evaluation or between items of the questionnaire	On a pediatric ITW, according to the parents and patients in the sample, a high level of care is offered and the satisfaction rates are excellent.
Nickles et al, 2020 11	Experimental study	Nursing students implement the teach-back method in a quality improvement project to improve patients' knowledge of medications and satisfaction on the HCAHPS survey.	A 37-bed medical geriatric unit within a 700-bed nonprofit healthcare facility in northern New Jersey. The participants (N = 55) consisted of both male and female patients, with a mean age of 65 (SD = 1.9).	Patient satisfaction, was measured by the One Minute Evaluation and was completed by the patient and/or caregiver upon completion of the medication education. The usefulness and satisfaction with the teaching session was rated on a scale of 1 to 10, from not very useful or not very satisfied (rating = 1) to very useful or very satisfied (rating = 10). The HCAHPS survey (CMS, 2008) for the hospital unit. Responses to survey questions were coded as 0 = Never, 1 = Sometimes, 2 = Usually, and 3 = Always.	The data of the two processes and three outcome measures were analyzed in the "Study" phase of the PDSA Method (Ogrinc et al, 2012) each week of the project. Descriptive statistics were used to describe the data obtained in the project, including improving the "Always" responses in the HCAHPS survey (CMS, 2008)	Results of the One Minute Evaluation (Appendix A) yielded that 96.4% of all participants were highly satisfied with the teach-back method used for their medication teaching. All scores reported by patients were greater than a 5 indicating that 100% of the patients were satisfied with the use of the teach-back method. The results are consistent with the literature showing that the teach-back method contributes to patient satisfaction (Caplin & Saunders, 2015; Tamura-Lis, 2013)

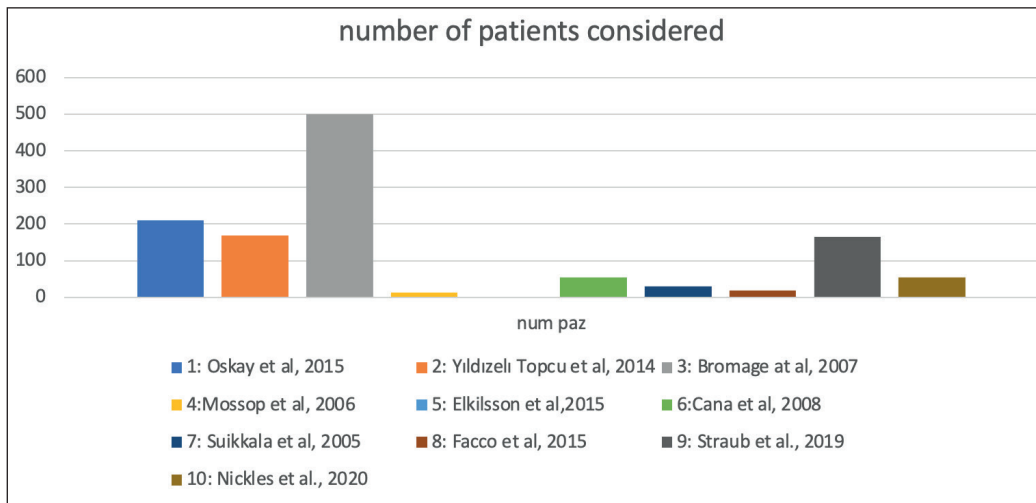


Figure 3. Number of patients considered in the studies.

The two main themes that emerged from the content analysis were: a) the centrality of the patient in the student learning process, and b) the quality assessment tools used to evaluate patient satisfaction with nursing care.

Patient Centrality in the Student Learning Process

In line with the importance attached by national guidelines to customer satisfaction and the promotion of patient centrality in clinical learn-

ing environments, we argue that the patient plays an important role in the learning processes of nursing students and that this can be examined through analysis of patient perspectives.

To explore this question, the corpus of texts was analyzed in terms of the importance of the patient role in the student learning process. In a study that included 12 patients admitted to a gerontological clinical setting²², nursing trainees were described as “loving”, “careful”, “cordial”, “efficient”, and “available”. The trainee-patient relationship was

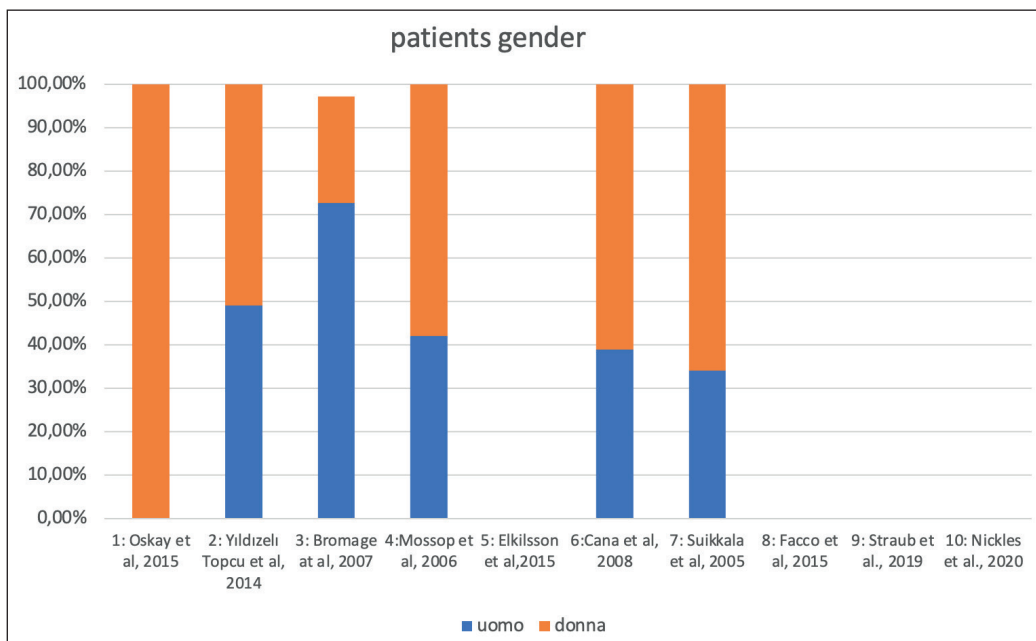


Figure 4. Patients gender (%) considered in the studies.

based on reciprocity and trainees were able to increase the self-esteem of elderly patients. Patients who participated in this research stated that trainees were as competent as the professional nurses, although one expressed concern about the low level of a trainee's experience in clinical placement.

The willingness and commitment of patients to participate in the clinical learning of students was based on the perception they had about the need for long-term clinical placements²⁶. At the same time, the input of patients concerning their relationship with trainees was important for a better clinical understanding of nursing care and communicative or empathic skills. Impediments to developing the trainee-patient relationship came mainly from the seriously ill patients, who were in pain and extremely introverted and/or pessimistic. The duration of the internship also affected the level of quality of the relationship; long-term placements and good support from supervisors were considered essential for good relationships. The nurse-patient relationship is crucial for most students during their training²⁷. The role of the patient in participating in the student's learning process is connected to the need to develop nursing skills. Many patients are aware that they can contribute to trainee's education, so they are sociable, encourage students, and offer constructive criticism²⁷. Other factors that influence the relationship are trainees' personal and educational experiences, patients' characteristics, and the quality of the relationship between trainees and students. The three main discriminating factors between the assistance provided by students and that provided by nurses in the same department were education, availability, and presence²⁵.

Mukumbang and Adejumo¹⁷ aimed to assess the experiences of patients who received care from trainees at a university hospital. Patients defined students as "focused on their needs for assistance", "useful", "excellent" and "friendly". Patients appreciated the work done by students, especially those who showed spontaneity, authenticity and a supportive attitude. Respondents defined students "as competent as qualified nurses"; in fact, very few of them had negative experiences or considered students to be unskilled. According to Oskay et al¹⁹, nursing students who have experience of training in departments dedicated to women's health and treatment of gynecological diseases are described by patients as being able "to respond to care needs and to fulfill them"; they are also able to provide assistance without neglecting the patient's feelings, and to communicate efficiently with the team and the patients.

Female students can apply theoretical knowledge as well as contributing to obstetric care¹⁹. Topcu et al²⁰ assessed patients' perception of student performance: patients were more satisfied with care provided by students dedicated to them individually; patients' low educational status also creates lower expectations and therefore decreases their level of satisfaction with nursing. Topcu et al²⁰ also evaluated central assistance values as respect, kind behavior, and the ability to communicate efficiently. Based on these results, the authors hoped to expand communicative and empathic techniques during student training.

According to Bromage et al²¹, who reported on a sample of 500 patients from a urological clinic, patients who had better acceptance of the students were those who had had previous outpatient experience or previous exposure to trainees, but above all, were those who had been properly informed about the role of the trainee. For this reason, the authors emphasize the importance of patients being well prepared for the integration of trainees into their care pathway. Suikkala et al²⁸, who evaluated 32 studies from 1985 to 2016, showed that the degree of patient initiative in student education varied greatly: patients almost always appreciated their own involvement in students' clinical training, but most of them felt like a passive subject rather than an active participant in the training process.

In Mukumbang and Adejumo¹⁷, the patient is metaphorically defined as a "learning platform" or an "object" on which the student exercises practical skills. The authors underline how patients have a unique perspective on their own clinical situation and that for this reason their role as educators in the clinical training of the students should be increased. The active presence of the patient is helped by a positive, comfortable care environment that supports the student-patient relationship. The patient can even offer his/her assessment on the student, which can complement the supervisor's evaluation.

Eskilsson et al²⁴ asks the question: "Can there be a conflict between the students learning objectives and the needs of the patients?". To answer the question, the authors assessed the patients in a dedicated education unit (DEU) who had agreed to be assisted by students after an explicit explanation about the student role. Patients are vulnerable, fragile and fearful of not being in control of their clinical situation; appropriate information on the student role helps the patient to maintain his/her control. The results showed that if student knowledge was insuf-

ficient, supervisors' support was essential to ensure that both parties felt they were equal participants in the learning process. The authors also stated that all these aspects had to be co-present in an environment focused on learning, such as a DEU²⁴.

Cana et al²³ investigated cancer treatment satisfaction in a group of patients, reporting that levels of satisfaction correlated with information about treatment provided to patients and with the constant care and attention they received from trainee students.

Straub et al¹⁶ reported on the degree of satisfaction of patients and their parents in a pediatric hospital. Supervisors ensured that trainee students were well informed about pediatric patient treatments, individual goals and eventual changes in therapy before meeting the patients and their parents. The students were allowed to participate and help in patient-parent decision-making. The results showed that patients and relatives were satisfied with the care they received, especially when communication and information were provided by doctors, nurses and students in a friendly and empathic manner.

Nickles et al¹⁸ describe the role of the trainee in teaching the use of prescribed medication in meetings between trainees and patients of a medical-geriatric unit. By the end of the eight-week project, students were able to educate 83% of patients on the use of medication. Overall, patients' knowledge of the name, purpose and side effects of prescribed medication improved noticeably in patients. 80% of them were satisfied with instructions on the use of drugs provided by the students, while up to 96.4% of participants were highly satisfied with the educational methods used in the study.

Quality Assessment Tools Used to Evaluate Patient Satisfaction With Nursing Care in Training Environments

In the 11 selected articles, assessment of the quality of service provided by nursing students was carried out using three different methodologies (shown in table II): Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS-SF), Newcastle Satisfaction with Nursing Scale (NSNS), and the Hospital Consumer Assessment of Healthcare Providers and Systems of survey (HCAHPS 10).

In order to assess the perceptions of oncology patients concerning the quality of nursing care, Cana et al²³, used the OPPQNCS-SF. This scale consists of 18 items and four sub-scales: responsiveness, individualization, coordination and competence. Each

answer is given a score from 1 to 6 on the Likert scale, reflecting the frequency of nursing activities (1 = never, 6 = always). Results showed that the scale used is a valid and reliable tool.

Oskay et al¹⁹ used the same scale to assess the quality of care delivered by students to patients in a perinatology department, as no other tools were available to assess satisfaction in non-oncological patients. Straub et al¹⁶ developed a questionnaire on general aspects of care and on the evaluation of interprofessional education in a general pediatric ward (IPAPAED), based on a single professional training department. The questionnaire is made up of eight items, two of which are open-ended. The answers correspond to a score from 1 to 5 on a Likert scale, which reflects the type of quality assessment (1 = very positive, 5 = negative).

Two articles used questionnaires. A study of user satisfaction²⁵, utilized section two of the Newcastle Satisfaction with Nursing Scale, which is composed of 19 items and has also been validated in Italian³. Each question corresponds to a score of 1 to 5 on a Likert scale (1 = not at all satisfied, 5 = completely satisfied). The other five studies were conducted through face-to-face or semi-structured interviews. For example, the survey by Topcu et al²⁰, which was conducted in a surgical setting, used interviews of about 30 minutes for each patient. Interviews were performed in hospital rooms in the first postoperative period.

Finally, Nickles et al¹⁸ used the HCAHPS10 evaluation questionnaire to assess the usefulness and satisfaction of teaching sessions by nursing students. This is a standardized survey tool that has been in use since 2006 and measures patients' prospects in terms of hospital care. The HCAHPS10 survey gives information about patient evaluations of education concerning medication (Table I).

Discussion

According to the results of the articles examined, demographic characteristics such as gender, age, income and length of stay in hospital were important elements for patient satisfaction, as well as nursing student performances. The only significant variable in patient satisfaction was gender, as shown by Bromage et al²¹. In their study, female patients felt uncomfortable when care was provided by nursing students.

From the studies examined, patients were satisfied with trainee assistance and the variables that affected the level of satisfaction differed.

Table II. Quality assessment tools.

	Evaluation of patients' satisfaction with nursing student care on a perinatology ward (Oskay et al, 2015)	Surgical patient perceptions of the care provided by student nurses (Topcu et al, 2014)	Patient attitudes to nursing students in urology outpatients (Bromage et al, 2007)	Nursing education in gerontological clinical setting (Mossop et al, 2006)	The experiences of patients receiving care from nursing student at a DEU: a phenomenological study (Eskillson et al, 2015)	Evaluation of the effects of care given by nursing students on oncology patients' satisfaction (Cana et al, 2008)	Nursing student-patient relationship experiences of student and patients (Suikkala et al, 2005)	The ability of decision making in nursing students and user satisfaction: a quasi-experimental study asi sperimentale (Facco et al, 2015)	Patients' experiences of being nursed by student nurses at a teaching hospital (Mukumbang et al, 2014)	Patients' and parents' perception of care on a paediatric interprofessional training ward (Straub et al, 2019)	Nursing students use of teach-back to improve patients' knowledge and satisfaction: A quality improvement project (Nickles et al, 2020)
Survey			X					X			
Face to face interview	X	X		X	X				X	X	
Semi-structured interview				X			X				
Rating scale	X					X					X

Topcu et al²⁰ showed the importance of student support in the care process and stressed that level of satisfaction with care increases in patients with a low level of education. The authors highlight the empathic and psychological aspects of the relationship between patients and nursing students as being responsible for higher patient satisfaction. They recommend greater attention to psychological and empathic aspects in the study plan of the trainee. Bromage et al²¹ stress that information given to patients about the student's role was an important aspect of patient satisfaction. Two studies^{20,27} showed that most of the patients who chose to be treated by students and accepted the student's presence were those who had had previous experience of hospitalization and relationships with trainees. All researchers agreed on the importance of promptly reporting difficulties that occur when students take care of patients in order to encourage student learning and improve the overall patient experience. Both interpersonal and communicative skills, as well as a professional level of assistance provided by medical and nursing students in the wards, were reassuring¹⁶.

Implementation by nursing students of evidence-based intervention, using quality improvement methods, improved patient outcomes and their satisfaction with the education method¹⁸. Oskay et al¹⁹, aimed at assessing whether the quality of nursing services improved when students were included, highlighted the need to refine research on the issue of quality perceived by the patients. The patients, each in their unique way, can make the student grow both as a professional and as a human being¹⁹. In this framework, the clinical placement must encourage students to adopt a reflexive process, expand their intellectual capacity with scientific knowledge, and include observation and practical experimentation in their technical skill development. Reflexive awareness in the process of learning gives rise to personal and professional growth, which is the goal of learning through training²⁹. Although patient involvement in the student learning process has been the subject of pedagogical studies for many years, it is not yet consolidated in educational practice, and patients' unique personal and care experiences are underutilized in clinical settings³⁰.

Limitations and Future Developments

Overall, the above results provide only a partial answer to the initial research question owing

to a number of limitations. First, the studies were performed on samples of convenience and not on randomized samples, with a pool of non-homogeneous patients, and with different types of assessment of their satisfaction. This undermined the methodological accuracy of studies and consequently did not allow for a meta-analysis, making the review less rigorous. Another limitation concerned the lack of generalization of the results obtained in the review due to the lack of high numbers of samples and numerical indices of the results that could be compared statistically. Another difficulty involved the year of study of the trainee, which was never specified in the studies under review. This is a critical point, considering the current lack of homogeneity in the nursing educational paths of different universities in different countries. Differences and common points in educational objectives need to be specified in order to provide a more accurate description of trainees' situation.

A final limitation of all the studies under review is a lack of control groups. Patients' perceptions of quality of care were analyzed during clinical placement without comparing it to perceptions when trainees were absent. Therefore, it would be helpful in future to foster investigations that assess nursing student contribution in nursing outcomes within internship wards.

Conclusions

It is well known that students are an important resource both for patients and for healthcare organizations³¹. Furthermore, studies have shown that the student represents a motivation for supervisors in clinical training departments to establish a positive learning environment. However, the impact of nursing trainees on the quality of patient care, recognized empirically by all those involved in the sector, is still underestimated. From the studies under review, it would seem that research on the topic is still relatively unexplored.

The patient-student relationship is one of the most important influences on the care process. This relationship is based primarily on trust and is strengthened by patients' involvement and trainees' scientific knowledge. The educational background of students and the relationship they are able to establish with the patient seem to be a core component in patients' perceptions of the quality of the nursing process.

Communication and empathy skills of nurses and students increase both patient satisfaction and the quality of nursing care. The length of time nursing students spend with patients is proportional to the increase in the level of satisfaction perceived by patients²⁰.

In summary, the review shows that an active role of the patient in the learning process of trainee nurses should be encouraged, as it enriches both students and patients. Patients will have a stronger awareness of their therapeutic path and become teachers as well as learners, while students will benefit from their relationship with patients in terms of an improvement in both their technical and personal skills.

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Availability of Data and Materials

The datasets used and/or analyzed during the study are available from the corresponding author on request.

Competing Interests

The authors have no competing interests.

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