



## Research article

# Caring for nursing students is caring for patients: A multicentre cross-sectional study on the relationship between nursing students' caring and the perception of instructors' caring

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## ABSTRACT

**Background:** Caring in nursing is a fundamental aspect, yet teaching and fostering caring behaviours in nursing students remain challenging. Clinical instructors play a crucial role in this process.

**Objectives:** The aims of this study were a) to describe nursing students' caring behaviours and perceptions of instructor caring, b) to assess sex-related and year of course differences in students' caring behaviours and perceptions of nursing caring, and c) to investigate the association between nursing students' caring and their perception of instructors' caring.

**Design:** A multi-centre, cross-sectional observational study was conducted.

**Setting:** The study involved undergraduate nursing students from four teaching hospitals of a university in Northern Italy.

**Participants:** A total of 316 nursing undergraduate students participated in the study (83.9 % female, 16.1 % male, 23.1 % 1st year, 48.1 % 2nd year, 28.8 % 3rd year).

**Methods:** Participants completed online self-reported surveys assessing caring behaviours, empathy, burnout, and perceptions of instructor caring. Caring behaviours, expressive and instrumental caring, were measured using the Caring Behaviour Inventory (CBI), and perceptions of instructor caring were assessed using the Nursing Students' Perceptions of Instructor Caring (NSPIC) questionnaire.

**Results:** Students' caring behaviours were positively associated with their perceptions of instructor caring, particularly in relation to a supportive learning climate and instructor flexibility. Female students displayed higher scores in expressive caring, while students in their second and third years demonstrated increased instrumental caring behaviours. Responding to Individual Needs was significantly lower in third-years students, compared to first- and second-year ones.

**Conclusions:** This study emphasizes the crucial role of clinical instructors in shaping nursing students' caring attributes. However, the influence of sex on caring behaviours remains unclear, necessitating further investigation. These findings underscore the significance of nurturing caring behaviours in nursing education and offer insights for selecting, training, and supporting clinical instructors, to foster more compassionate and competent nurses.

## 1. Introduction

Caring is considered to be fundamental for nurses (Fenizia et al., 2019; Inocian et al., 2022) and it is often the main reason why people

decide to go into nursing (ten Hoeve et al., 2017). Despite the lack of a consensus on a definition (Ghanbari-Afra et al., 2022; Sebrant and Jong, 2021), caring can be described as Instrumental Caring, the act of doing care, and Expressive Caring, the attitude in relationships; both are

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needed to provide competent and compassionate care (Inocian et al., 2022). Caring is considered a core learning objective for nursing students, and it must be taught and fostered during nursing undergraduate degree, however, teaching caring is not always straightforward (Romero-Martín et al., 2022).

One way of teaching caring is through modelling (Romero-Martín et al., 2022), for example, during clinical placements with clinical nurse instructors (Suliman and Warshawski, 2022). Previous studies showed that clinical instructors as knowledge experts, can be perceived by students as role models (Romero-Martín et al., 2022; Suliman and Warshawski, 2022). Clinical placements, therefore, are thought to influence students to develop caring behaviours (Hu et al., 2022; Inocian et al., 2022). However, it is currently unclear what specific characteristics of clinical instructors are required to promote caring behaviours in students.

As Nursing faculty's own caring behaviours might improve students' caring behaviours (Romero-Martín et al., 2022), it is possible that clinical instructors' caring behaviours are also influencing students' caring behaviours. However, the only study that investigated this association is old and excluded first year nursing students (Labrague et al., 2015). Furthermore, it is still unclear whether students' sex or year of course have an effect on their caring behaviours (Inocian et al., 2021; Tong et al., 2023). Having this information could help nursing faculty and clinical instructors to help students achieve greater levels of caring. Therefore, the aims of this study were a) to describe nursing students' caring behaviours and perceptions of instructor caring, b) to assess sex-related and year of course differences in students' caring behaviours and perceptions of nursing caring, and c) to investigate the association between nursing students' caring and their perception of instructors' caring.

## 2. Methods

This is a multi-centre cross-sectional observational study. The sample was composed of all the undergraduate nursing students from the 4 teaching hospitals of a university in Northern Italy (N = 775). Student were asked via posts on the University e-learning website to participate in the study between June and December 2021. In the posts, the study was explained, with specifics regarding Ethical Approval, and there was a link to the Informed Consent Form and online survey. To improve the response rate, we also did a face-to-face presentation of the study to the class, showing the QR code with the link. The study was approved by the Ethical Committee of the study center (Protocol number: 0004266/21). Students completed an online survey after providing their consent electronically. Participation was voluntary, and students' anonymity was protected by design.

### 2.1. Measures

Caring was measured with the Italian version of the Caring Behaviour Inventory (CBI), a 24 items, self-reported inventory with 4 subscales: Being With, Doing with Competence, Responding to Individual Needs, and Providing Effective Care; each item is scored on a 6-point Likert scale, and higher scores indicate a higher caring (Fenizia et al., 2019; Tomietto et al., 2014). Being With and Responding to individual needs correspond to Expressive Caring, while Doing With Competence and Providing Effective Care correspond to Instrumental Caring (Fenizia et al., 2019).

Perception of the instructor caring of the most recent clinical internship was measured with the Italian version of the Nursing Students' Perceptions of Instructor Caring (NSPIC) (Arrigoni et al., 2017; Wade and Kasper, 2006). The NSPIC is a 31-item, self-reported questionnaire that measures 4 dimensions: *Instills Confidence Through Caring* (NSPIC-Confidence), *Supportive Learning Climate* (NSPIC-Support), *Control Versus Flexibility* (NSPIC-Control), and *Respectful Sharing* (NSPIC-Respect). Each item is scored on a 6-point Likert scale, and higher scores

indicate a higher instructors' caring (Arrigoni et al., 2017).

Since caring was associated with empathy and burnout in previous literature (Ferri et al., 2015; Picard et al., 2016), we decided to also measure these concepts to use them as controlling variables. Empathy was measured with the Italian version of the Brief - Interpersonal Reactivity Index (IRI) (Ingoglia et al., 2016). It is a 16-item questionnaire which measures 4 dimensions: Empathic Concern (IRI-Empathic Concern) i.e., the ability or tendency to experience feelings of compassion, understanding or concern in response to the negative experiences of others; Personal Distress (IRI-Personal Distress) i.e., the ability or tendency to experience feelings of distress or discomfort when witnessing the dramatic experiences of others; Perspective Taking (IRI-Perspective Taking) i.e., the ability and tendency of a subject to assume the point of view, the perspective of other people; and Fantasy (IRI-Fantasy) i.e., the ability or tendency to imagine oneself in imaginary situations. Since the IRI-Fantasy has been proven irrelevant to patient care (Hojat et al., 2005), it was not administered in this study. Each item is scored on a 5-point Likert scale, with higher scores indicating higher empathy (Ingoglia et al., 2016).

We measured burnout with the Italian version of the 19-item Copenhagen Burnout Inventory (Fiorilli, 2015; Kristensen et al., 2005), which measures 3 subdimensions of burnout in health-care professionals: Personal Burnout, Work-related Burnout, and Client-related Burnout. Each item is scored on a 5-point Likert scale, with a total higher score which indicates higher burnout (Fiorilli, 2015; Kristensen et al., 2005). The sociodemographic questionnaire inquired about age, biological sex (i.e., female/male), nationality, teaching hospital provenance, and year of course.

### 2.2. Data analysis

Descriptive analysis included the calculation of the average values and the standard deviation of the study variables. *t*-tests and analyses of variance (ANOVA) with Bonferroni post-hoc correction was used to contrast students' socio-demographics in CBI scores. Four hierarchical regression models explored the effects of NSPIC on each CBI subscale. For each regression model, IRI and Burnout scores were introduced as covariate in Step 1. An increase in total CBI subscales' explained variance at Step 2 ( $\Delta R^2$ ) would mean that the inclusion of the NSPIC variables improved the prediction of CBI scores. Regression models were adjusted by sex, age, and year of study. Standardized estimate ( $\beta$ ), F, R<sup>2</sup> and R<sup>2</sup>-change ( $\Delta R^2$ ) for each step were provided. *P*-value was set at <0.05 for *t*-tests and ANOVAs. Due to the high number of predictors in our regression model, Bonferroni correction was applied and results from regression analysis were considered to be statistically significant at a *p*-value of <0.001. All analyses were performed using SPSS 26.

## 3. Results

We received 316 responses (response rate = 46.6 %). The sample was composed mainly of young, female students, the majority of which were 2nd year students. Socio-demographic characteristics of the sample are described in Table 1.

Overall, the highest scored CBI dimensions were Responding to individual needs and Doing with competence, and the highest scored NSPIC dimensions were NSPIC-Confidence and NSPIC-Support (Table 2).

Regarding sex-related differences in CBI scores, we found that female students had significant higher scores than their male counterpart in the caring behaviours Being With [ $t(314) = 3.06, p = .002$ ] and Responding to Individual Needs [ $t(314) = 2.88, p = .001$ ] (Table 2). As per year of course differences in CBI scores, we found that Doing with Competence [ $F(2,313) = 15.42, p < .001$ ] and Effective Care [ $F(2,313) = 18.73, p < .001$ ] had significantly higher scores in second- and third-year students compared to first-year. On the other hand, Responding to Individual Needs had significantly lower scores in third-years students, compared

**Table 1**  
Socio-demographic characteristics of the sample (N = 316).

Variables	% (N) or M (SD)
Age	22.37 (9.35)
Sex	
Female	83.9 (265)
Male	16.1 (51)
Year of Course	
1st	23.1 (73)
2nd	48.1 (152)
3rd	28.8 (91)
Nationality	
Italian	95.6 (302)
EU	1.9 (6)
Extra-EU	2.5 (8)

Notes. EU = European Union.

to first- and second-year ones [ $F(2,313) = 4.77, p = .009$ ] (Table 2). There were no significant sex-related or year of course differences in NSPIC scores (Table 2).

Students' caring behaviours were associated with their perception of instructor's caring. Greater perception of a 'Supportive learning climate' (NSPIC-Support) promoted caring behaviours Being With and Doing with Competence. Greater perception of an instructor promoting flexibility and autonomy rather than control (NSPIC-Control) was associated with greater caring behaviour Doing with Competence (Table 3).

#### 4. Discussion

This study aimed at investigating the association between nursing

students' caring and the perception of instructors' caring, and assessing sex-related and year of course differences. We found that students' caring behaviours were associated with their perception of instructor's caring, with higher level of caring associated with instructors who were perceived as supportive of the learning climate and promoting flexibility. Lastly, we found higher level of Expressive Caring associated with being female and higher levels of Instrumental Caring associated with being in second or third year of course. To the best of our knowledge this is one of the first studies that investigates the association between nursing students' caring and the perception of instructors' caring, including nursing students of all years of study. This is relevant because it can help nursing faculty and clinical instructors better understand, and therefore foster, caring behaviours in nursing students.

Students' caring behaviours were associated with their perception of instructor's caring. NSPIC-Support was associated with caring behaviours Being With and Doing with Competence. This is in contrast with previous literature reporting no association between Supportive Learning Climate (NSPIC-Support) and caring behaviours (Labrague et al., 2015), however they treated the CBI as a whole rather than looking at single subscales, so comparability is limited. Our results show that feeling supported and cared for by the clinical instructor in a non-judgemental way, allows students to develop both their Expressive and Instrumental Caring. This is coherent with previous literature that shows how positive caring relationships in clinical placements (Labrague et al., 2016) and an encouraging clinical learning environment (Inocian et al., 2022) are essentials to the development in students of caring attributes in students.

NSPIC-Control was associated with caring behaviour Doing with Competence, which is coherent with previous literature (Labrague et al., 2015). It is possible that when clinical instructors give enough flexibility

**Table 2**  
Sex-related and year of course differences in Caring Behaviours Inventory and Nursing Students' Perceptions of Instructor Caring scores (N = 316).

	Total score (N = 316) (mean ± SD)	Sex		Year of course		
		Female (N = 265) (mean ± SD)	Male (N = 51) (mean ± SD)	1st year (N = 73) (mean ± SD)	2nd year (N = 152) (mean ± SD)	3rd year (N = 91) (mean ± SD)
		<b>CBI</b>				
Being with <sup>S</sup>	5.06 ± 0.55	5.18 ± 0.53	4.93 ± 0.57	5.13 ± 0.56	5.15 ± 0.51	4.09 ± 0.58
Doing with competence <sup>Y</sup>	5.26 ± 0.55	5.16 ± 0.59	5.36 ± 0.51	5.03 ± 0.66	5.44 ± 0.52	5.31 ± 0.47
Responding to individual needs <sup>S,Y</sup>	5.58 ± 0.35	5.67 ± 0.31	5.49 ± 0.39	5.61 ± 0.31	5.62 ± 0.33	5.50 ± 0.41
Providing effective care <sup>Y</sup>	4.95 ± 0.73	4.47 ± 0.71	5.43 ± 0.74	4.59 ± 1.13	5.16 ± 0.52	5.10 ± 0.54
<b>NSPIC</b>						
Support	4.95 ± 0.99	4.97 ± 1.02	4.87 ± 0.89	4.98 ± 0.95	4.88 ± 1.05	5.05 ± 0.95
Confidence	5.51 ± 0.79	5.52 ± 0.80	5.46 ± 0.76	5.56 ± 0.70	5.43 ± 0.89	5.59 ± 0.69
Respect	1.78 ± 0.87	1.79 ± 0.88	1.73 ± 0.80	1.74 ± 0.82	1.91 ± 0.94	1.58 ± 0.74
Control	1.72 ± 0.83	1.71 ± 0.81	1.78 ± 0.96	1.82 ± 0.92	1.78 ± 0.83	1.55 ± 0.75

Notes. CBI = Caring Behaviour Inventory; S = significant sex-related differences; Y = significant year of course differences; NSPIC = Nursing Students' Perceptions of Instructor Caring.

**Table 3**  
Regression analysis of caring behaviours and perception of instructor's caring (n = 316).

Variables	Being with		Doing with competence		Responding to individual needs		Providing effective care	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
	(β)	(β)	(β)	(β)	(β)	(β)	(β)	(β)
NSPIC-Support		<b>0.316**</b>		<b>0.311**</b>		<b>0.230**</b>		0.212
NSPIC-Confidence		0.224		0.165		0.161		0.024
NSPIC-Respect		-0.010		-0.118		-0.050		-0.044
NSPIC-Control		-0.085		<b>-0.234**</b>		-0.001		-0.139
F	11.059***	8.094***	8.042***	6.989***	14.221***	9.525***	4.019***	3.563***
R2	0.201	0.227	0.155	0.202	0.244	0.256	0.084	0.114
ΔR2	0.026		0.047		0.012		0.030	

Notes. NSPIC = Nursing Students' Perceptions of Instructor Caring.

Controlling variables were: sex, age, year of study, Interpersonal Reactivity Index- Empathic Concern, Interpersonal Reactivity Index - Personal Distress, Interpersonal Reactivity Index - Perspective Taking, Burnout.

to autonomously provide care students are stimulated in their accountability and responsibility toward care, heightening the caring behaviour Doing with Competence. Overall our results strengthen and contribute to the existing body of evidence showing the key role of clinical instructors and their caring behaviours toward students in developing their caring, professional skills, and identity in nursing students (Hu et al., 2022; Inocian et al., 2022; Suliman and Warshawski, 2022).

In our study, we found sex-related differences in caring behaviours, with female students having higher scores of Being With and Responding to Individual Needs, namely Expressive Caring. This is coherent with previous studies reporting that male and female nurses exhibit different patterns in caring behaviours (Inocian et al., 2021; Tong et al., 2023) but in contrast with others who did not find gender differences in caring (Fernández Trinidad et al., 2019; Ferri et al., 2020). Expressive Caring is performed in patient-centred interactions (Fenizia et al., 2019), which might benefit from higher ability in emotions recognition. When looking at the general population, females seem to show more prosocial behaviours and perform better than males in emotions recognition tasks and others' inner state recognition (Rochat, 2023). This might be coherent with previous literature that showed that male student nurses have lower emotional intelligence than their female counterparts (Deng et al., 2023; Lorenzo et al., 2019; Štiglic et al., 2018). Sex-related differences in caring behaviours in our study may also reflect previous findings that reported female nurse and medical students outscoring their male colleagues in self-transcendent and other-oriented values (Ardenghi et al., 2023; Ardenghi et al., 2021; Luciani et al., 2020). However, some argue that gender-role orientation, namely femininity and masculinity, rather than sex (biological variable) or gender (socio-cultural variable) (Nielsen et al., 2021), affect caring behaviours, with femininity being positively associated with caring behaviours (Liu et al., 2019). Overall, the effect of sex and gender on caring remains unclear and controversial and it should be further investigated.

Lastly, Instrumental Caring (Doing with Competence and Effective Care) had significantly higher scores in second- and third-year students compared to first year. Responding to Individual Needs had significantly lower scores in third-year students, compared to first- and second-year ones. Our results are coherent with previous literature which showed an increase in Instrumental Caring in second- and third-year students (Ferri et al., 2020). Some older studies (Khademian and Vizeshfar, 2008; Zamanzadeh et al., 2014) also found a preference for older students toward Instrumental rather than Expressive Caring. Our results might be explained by a tendency in the curricula toward more technical subjects in second and third years of Nursing with students focussing more on these. Another explanation could be the effect of burnout in more senior students, which might make responding to individual needs of patients more burdensome, as others have noted (Pajnikihar et al., 2020). Moreover, these students did their clinical internships when Covid-19 cases were still high, so they might have experienced more difficulties in learning how to provide personalised care but not in learning nursing techniques (Clari et al., 2021). More high-quality longitudinal studies will be helpful to better understand the relationship between caring and year of course.

#### 4.1. Limitations and strengths

This study uses a cross sectional design and had a relatively low response rate. However, being one of the first studies that investigates the association between nursing students' caring and the perception of instructors' caring, the design is acceptable. Future studies will need to use a longitudinal design and achieve higher response rates. To achieve a higher response rate, we would recommend face-to-face recruitment and a pen-and-paper study measure administration. We also recognise nurses and nursing students are subjected to several requests to participate in studies, which might lower response rates. The Italian version of the Caring Behaviours Inventory (Fenizia et al., 2019) has a different

factorial structure than the original version (Wu et al., 2006), with dimensions with different names, which might complicate cross-country comparability. Furthermore, in the literature, the concept of caring is measured by several instruments severely limiting comparability. The Italian version of the Nursing Students' Perceptions of Instructor Caring (Arrigoni et al., 2017) has 4 factors instead of 5, like the original (Wade and Kasper, 2006), because the factor "Appreciation of life's meanings" was eliminated. Furthermore, items loaded on different factors than the original version (Arrigoni et al., 2017); this might complicate cross-country comparability. Future studies could decide not to use self-reported questionnaire but to use other designs, such as qualitative studies with observations as data collection instrument. Lastly, for this study, we measured sex and not gender, gender expression, or gender-role orientation; including these concepts in further studies could deepen the understanding and interplay of sex, gender, and gender roles on caring. However, we measured main concepts with valid, reliable, and widely used instruments and our results are generalizable to similar contexts.

## 5. Conclusions

The aim of this multicentre cross-sectional study was to describe the relationship between nursing students' caring behaviours and their perceptions of instructor caring. Our findings underscore the key role of clinical instructors in shaping nursing students' caring attributes and professional development: a supportive learning climate and instructor flexibility play a crucial role in fostering caring behaviours. This emphasizes the significance of clinical placements and the role of instructors as role models in nurturing the development of caring in undergraduate nursing students. Educators might want to enhance teaching methodologies and provide a supportive learning environment, to better equip their students in becoming more caring and competent nurses. Furthermore, it is important to select and train clinical instructors for their caring abilities and behaviours.

The role of sex on caring behaviours remains an unclear and contentious concern. While our study found female students displaying higher scores in expressive caring, it is evident that future studies are required to better understand the role of sex, gender, gender expression, and gender-role orientation in shaping caring behaviours in nursing students. Future studies should also further investigate the relationship between nursing students' caring behaviours and their perceptions of instructor caring with longitudinal, qualitative, or mixed method studies. Findings of this study not only contribute to the advancement of nursing education but also have significant implications for the quality of patient care, as caring for nursing students is intrinsically tied to caring for patients.

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#### Ethical statement

The study was approved by the Ethical Committee of the University of Milano – Bicocca (Protocol number: 0004266/21).

#### CRedit authorship contribution statement

**Michela Luciani:** Writing – original draft, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Stefano Ardenghi:** Writing – original draft, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Giulia Rampoldi:** Writing – review & editing, Methodology, Conceptualization. **Selena Russo:** Writing – review & editing, Methodology, Conceptualization. **Marco Bani:** Writing – review & editing, Methodology,



Conceptualization. **Maria Grazia Strepparava:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Stefania Di Mauro:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Davide Ausili:** Writing – review & editing, Supervision, Methodology, Conceptualization.

## 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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