

# NURSING STUDENT-PATIENT RELATIONSHIP AND RELATED FACTORS – A SELF-ASSESSMENT BY NURSING STUDENTS

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## Author contributions

Arja Suikkala was responsible for the conception and design of the study, acquisition of data, and interpretation of data. Jouko Katajisto had overall responsibility for the statistical analyses carried out and assisted with the interpretation of data. Arja Suikkala was responsible for drafting the manuscript and all authors revised it critically for important intellectual content. All authors read and approved the final manuscript.

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### ABSTRACT

**Aims and objectives:** To describe the nursing student-patient relationship in terms of three types of relationships – mechanistic, authoritative and facilitative – and analyze the factors related to the type of relationship.

**Background:** As future professionals, nursing students have a central role in facilitating patient autonomy while working in partnership with patients. Supporting student-patient relationship throughout the nursing education may result in positive outcomes for both students and patients.

**Design:** A cross-sectional study.

**Methods:** The data were collected from a convenience sample of Finnish nursing students using a structured web survey. Statistical data analysis was performed using chi-square test, two-sample t-test, one-way analysis of variance and multinomial logistic regression. The STROBE Statement – Checklist for cross-sectional studies was used (Supplementary file 1).

**Results:** Students most often assessed their relationship with the patients as facilitative, followed by authoritative and mechanistic relationships. The results revealed three predictors for facilitative relationship: students' older age, long enough contact time with the patient,

and higher competence in ensuring quality. In authoritative and facilitative relationships, students had significantly more positive perceptions of the contextual factors and consequences of the relationship and higher ratings of self-assessed competence levels than students in a mechanistic relationship.

**Conclusions:** It seems that the facilitative student-patient relationship is connected to the professional competence of nursing students, especially in the area of ensuring the quality of patient care. Therefore, sustaining clinical learning environments and pedagogical approaches that value and support facilitative relationships in students' clinical learning should be enhanced.

**Relevance to clinical practice:** Efforts aimed at contributing to facilitative student-patient relationships have a crucial role in shaping students' competency and in promoting high quality patient care. Thus, supervision of students organized around establishing mutual student-patient relationships with the preceptors acting as facilitators will benefit both students and patients.

## KEYWORDS

Clinical education, Nurse-patient relationship, Nursing education, Nursing students, Patient participation, Survey Designs

What does this paper contribute to the wider global clinical community?

- Nurse educators, preceptors, and all nursing faculty should highlight the importance and strength of relationships with patients as significant for patients' autonomy.
- Facilitative relationships leading to patient-centered clinical learning is more likely if pedagogical approaches organized around student-patient relationships are integrated into the curriculum.
- Experiential and longitudinal studies are needed to examine the facilitative procedures and outcomes of the relationship between students and patients for both parties involved.

## INTRODUCTION

Patient involvement is a central theme in health policy and practice internationally. With aging population and shorter length of hospital stays, health workforce deficits require more effective and efficient use of resources, and thus strengthening of patient participation in care delivery, but also in education of future professionals as well as research. (Jones & Pietilä, 2018; WHO, 2016b). A working partnership with patients can be achieved through a mutual nurse-patient relationship based on trust, respect, empathy, and genuine interest (Dinç & Gastmans, 2013; Jylhä et al., 2017; Wiechula, et al. 2016; Sabater-Galindo, et al. 2016; WHO, 2016a). The intention of the relationship is to impact patients' empowerment and compliance and help them manage their health better through communication based on dialogue, shared decision-making, and active patient participation (Feo et al., 2017; Fleischer et al., 2009; Sabater-Galindo, et al. 2016; Strandas & Bondas, 2018; Tejero, 2012.) Being acknowledged as a person with individual needs in combination with relationship-based care that enhances patient autonomy is an important factor influencing patient satisfaction (Dinç & Gastmans, 2013; Prip, et al. 2018; Tejero, 2012). Rewarding experiences in relationships with patients are positively related to nurses' professional role and job satisfaction, which in turn have a positive impact on patient care (Ding et al., 2019; Dinç & Gastmans, 2013; Strandas & Bondas, 2018; Tejero, 2012).

Therapeutic relationships with patients are essential skills that nursing students and new graduates need concurrently with the technical aspects of care when planning and delivering nursing care with regard to individual patients' needs, preferences and values (Angel & Frederiksen, 2015; Senn, 2013; Chan & Lai, 2019; European Commission, 2005, 2013; Cowen et al., 2018; Towle et al., 2011; Wiechula et al., 2016; WHO, 2016b). The nature of

the student-patient relationship is, however, different from that between nurses and patients because it satisfies both the need for patient caring and for student learning, with the nurse-preceptor in a supportive role (Bleakley & Bligh, 2008; Rowland et al., 2018; Manninen et al., 2014). In these relationships, students aim to develop an understanding of the individual experiences of patient care and treatment, so that they can evolve into empathetic professionals who are able to work in partnership with patients, providing high-quality care that is person-centered, safe and effective (Johansson & Mårtensson, 2019; Jylhä et al., 2017).

There is limited robust evidence on the nursing student-patient relationship even though patients are increasingly being seen as active participants in the clinical education of students (Scammel et al., 2016; Suikkala et al., 2018). Nevertheless, through authentic and meaningful student-patient relationships, actively participating patients have beneficial consequences for students' learning outcomes which cannot be achieved by theoretical or simulation-based education (Rowland et al., 2018; Senn 2013; Suikkala & Leino-Kilpi, 2005).

## BACKGROUND

Throughout the continuum of nursing education, students have different levels of relationships with their patients. In the clinical education context, Suikkala & Leino-Kilpi (2005) have categorized nursing student-patient relationships into three types: mechanistic, authoritative and facilitative relationships. In these relationships, the involvement and intensity of the relationship varies from patients as passive participants, being objects rather than subjects in student learning, to active participants contributing to students' learning and assessment processes. Mechanistic relationship focuses on the students' learning needs to perform single tasks in which interaction between student and patient is one-way and cursory, and where the patient, as the object of the tasks performed, observes the student's care activities. In authoritative relationship, students take the initiative in patient care and patient education by helping patients to meet their needs while patients expect students to make decisions. Interaction, initiated by both the student and the patient, is related to patient care, including characteristics of informal conversation. Facilitative relationship focuses on joint active action where both students and patients benefit through reciprocal dialogue. Patients as equal partners direct their own care and contribute to students' learning. Students, attentive to patients' preferences and needs, act according to them and support patients to use their own resources. (Suikkala & Leino-Kilpi, 2005; Suikkala et al., 2018.)

Establishing relationships with patients is regarded as important by students. Students, however, encounter many sources of stress associated with patient's situation and the impact of the nursing interventions within the clinical setting (Cowen et al., 2016; Kandal et al., 2018; Pulido-Marcos et al., 2012). The value base of students in terms of humanistic and interpersonal competence, which is more likely connected to personality than training,



determines their relationships with patients (Suikkala & Leino-Kilpi, 2005; Wiechula et al., 2016). Furthermore, clinical competence, especially the technical aspects of care, determines student-patient relationships even when students consider their attending to patient's emotional aspects to be better than their clinical competence (Grilo et al., 2014). For patients, the key aspects of trusting relationships include good intellectual and interpersonal competence, such as attentiveness to patient needs, values and preferences, respect, appreciation and a compassionate attitude facilitated by meaningful dialogue (Dinç & Gastmans, 2013; Fleischer et al., 2009; Prip, et al. 2018; Strandas & Bondas, 2018; Suikkala et al., 2018).

Patient's personality factors and commitment to participate determine the involvement and intensity of their relationship with students. (Strandas & Bondas, 2018; Suikkala & Leino-Kilpi, 2005; Suikkala et al., 2018). This can as such create a certain foundation – either positive or negative – for the trajectory of the student-patient relationship (Rowland et al. 2019; Suikkala & Leino-Kilpi 2005). Patients with expertise in health-related issues are seen as promoting students' learning. However, all patients, in their capacity of having unique perspectives and even experiencing health problems for the first time, can be seen as active participants in these processes through the student-patient relationships if the ethical requirements related to balancing between students' learning needs and patients' need of care are ensured (Rowland et al., 2018; Suikkala et al., 2018. In all cases, informed consent to participate in students' clinical learning should be requested by the preceptor in advance and in a way that ensures that patients have a clear understanding of their role, rights and confidentiality (Act on the Status and Rights of Patients 785/1992).

The quality and amount of spending time getting to know one another is essential in establishing a trusting relationship (Dinç & Gastmans, 2013; Johansson & Mårtensson, 2019; Strandas & Bondas, 2018; Suikkala, et al., 2018). In clinical placements, students often face time pressure that can hamper building and maintaining relationship with patients (Dinç & Gastmans, 2013; Strandas & Bondas, 2018; Suikkala & Leino-Kilpi, 2005). Furthermore, reasons such as current and future needs of the patients and changing clinical practices interfere with the possibilities to develop relationships with patients, as ideally described e.g. by Peplau (1988). If professionals tend to dominate the nurse-patient relationship and restrict patient participation, students may regard professionals as role models and consider their own advice and knowledge as justifiable without paying enough attention to the patient's voice (Angel & Frederiksen, 2015; Marcinowicz et al., 2018; Suikkala & Leino-Kilpi, 2005). In favorable circumstances, however, facilitative relationships with patients are possible, even during short encounters (Fleischer et al., 2009).

The nursing student-patient relationship has a central role in clinical education. It is important that students, preceptors and nurse educators identify and understand the variation of the three types of relationships - mechanistic, authoritative and facilitative - as well as related factors. Of these, the facilitative relationship can be regarded as the one to be pursued as it offers advantages for both students and patients, such as professional growth and confidence of students, increased fulfillment of patient-centered care, patient autonomy and satisfaction. (Bleakley & Bligh, 2008; Fröberg, et al., 2018; Rowland et al., 2018; Suikkala & Leino-Kilpi, 2005). Thus, greater emphasis on clinical education with the patient in focus is required.

The aim of this study was to describe the student-patient relationship in terms of three types of relationships – mechanistic, authoritative and facilitative – and analyze the factors related to the type of the relationship. Ultimately, the aim of this study is to enhance clinical learning environments and pedagogical approaches that support students to establish facilitative relationships with patients and thus, improve the quality of clinical education.

## METHODS

### Study design

A cross-sectional design using an electronic self-assessment survey was applied among a convenience sample of nursing students in different parts of Finland. The STROBE Statement – Checklist for cross-sectional studies was used (Appendix S1).

### Participants

A convenience sample of undergraduate nursing students from six Universities of Applied Sciences (UAS) in different parts of Finland was recruited amongst those who attended clinical placement between March 2015 and May 2016. Altogether 1,244 Finnish-speaking nursing students in first, second and last year of nursing degree (bachelor) programs leading to a registered nurse (RN) licensure volunteered to participate in this study during their clinical practicum. The sample represented one-tenth of the population of nursing students in

Finnish UASs in 2015–2016 (Ministry of Education and Culture, 2016). Determined by power analysis, a sample of 308 students was needed for 95% power and a weak effect size (0.10) at the  $p < 0.05$  level of significance. Of all participants, 392 did not respond to the questionnaire. Furthermore, 245 responses were excluded because the respondent could not be classified to any of the three types of relationships. The final number of 607 (49.0%) students included in the study, representing a number-of-participants-to-variables ratio over 15:1, can, however, be regarded ideal (Morgado et al., 2018).

### Data collection

All nursing students were doing their clinical placements in various units covering all health care system. Contact persons at each UASs delivered the web survey hyperlink and two reminders to participants via e-mail during the latter half of the students' clinical placement.

The structured self-report survey contained three parts. The first part consisted of twelve demographic variables such as age, gender, educational background, current years of study, duration and assessment of clinical placement, working experience in health care, being assigned to a specific patient, having enough time for the patient, support received in student-patient relationships, experience of caring for ill family member, and having an idea of the preferred area of nursing after graduation (Table 1).

The second part was the main measure, i.e. the 67-item The Student-Patient Relationship Scale (SPR scale, Suikkala, 2007). The SPR items arranged on a five-point Likert-scale (1=strongly disagree, 5=strongly agree) included self-ratings concerning three types of

relationships: Mechanistic relationship (9 items), Authoritative relationship (11 items), and Facilitative relationship (13 items). Furthermore, the contextual factors of the SPR examined in this study included Student's personal and professional attributes (8 items), Patient's own attributes as a patient (8 items), and Atmosphere during collaboration (5 items). The consequences of the SPR related to the type of relationship included Student's personal and professional growth (4 items), Student's increased confidence and self-esteem (4 items), and Patient's improved health and commitment to self-care (5 items).

The third part of the survey used the 73-item Nurse Competence Scale (NCS; Meretoja et al., 2004) to examine the self-assessed level of competence related to the type of relationship. The NCS is the most widely used generic instrument to measure professional competence (Flinkman et al., 2017). The NCS had items that had to do with seven nurse competence categories: helping role, teaching-coaching, diagnostic functions, managing situations, therapeutic interventions, ensuring quality, and work role. The level of competence was rated using a Visual Analog Scale (VAS) from low (VAS 0–25), quite good (VAS >25–50), good (VAS >50–75) to very good (VAS >75–100) (Meretoja et al., 2004).

### Ethical considerations

This study adhered to the principles of research ethics (All European Academies, 2017; Finnish Advisory Board on Research Integrity, 2012). The approval to conduct the study was obtained from each University of Applied Sciences according to their ethical committee policies. Consent to use the Finnish version of the Nurse Competence Scale was obtained from the copyright holder. All students were informed orally and by written information

letters. Participants gave a written, dated and signed informed consent, and their anonymity and confidentiality was ensured.

## Data analysis

Data analysis was performed by using SPSS 25.0 (SPSS Inc., Chicago, USA) software. The data were described with frequency tables and descriptive statistics. A total of nine sum variables were formed from the items concerning the SPR scale and seven sum variables were formed from the items concerning the NCS scale. The sum variables were calculated by summing the item values and then dividing the sum by the number of items to obtain average scores for the sum scales, thus maintaining the same scales as the individual items.

Type of relationship was formed by comparing three sum variables so that the highest mean value of these sum variables was used to categorize the respondent to the proper relationship. After that, the highest value of sum variables of each respondent was compared to median of all values of this sum variable; it had to be higher than median to be accepted into a particular type of relationship. Based on the analysis of mean values, none of the respondents had similar scores in two types of relationships. If this median criterion was not met, the respondent was categorized into none of the three types. The differences between students with a type and students with no type have been tested using chi square test and two sample t-test.

Chi-square test or one-way analysis of variance with the multiple comparison methods by Tukey (equal variances) and Tamhane (unequal variances) were used to examine the differences between students in the three types of relationship. Multifactor analysis of

variance was used to find effects of background factors on relation type scores (main effect model: continuous variables used as covariates and categorical variables used as fixed factors). Sidak adjustments for multiple comparisons were used for pairwise comparisons. Multinomial logistic regression was used to identify statistically significant factors that predicted the type of relationship. Background factors and the sum variables of the NCS were first analyzed in two separate models; in the final logistic model, only three significant background variables and two significant competence sum variables were used. In all tests, the level of significance was set at  $p < 0.05$ .

#### Validity, reliability and rigor

The content validity of the SPR scale was based on literature review (Suikkala & Leino-Kilpi, 2001) and qualitative interviews (Suikkala & Leino-Kilpi, 2005) with the target population, and the scale has also been tested with nursing students in previous studies (Suikkala, 2007; Suikkala et al., 2008a, 2008b). The NCS is a widely used scale among both nurses (Flinkman et al., 2017) and nursing students (Kajander-Unkuri et al., 2014, 2016; Strandell-Laine et al., 2018.) The principal component analysis did not support a three-factor solution for the theoretical structure of the three types of relationships (33.9% explained variance). This meant that there might be some kind of mixed relationships but we were not interested in them in this phase. Cronbach's alpha coefficients were used to ascertain the internal consistency of the SPR and NCS scales. The internal consistencies of the SPR subscales (Cronbach's  $\alpha$  0.6-0.8) and NCS subscales (Cronbach's  $\alpha$  0.8-0.9) showed acceptable level above 0.7 (Tavakol & Dennick, 2011), with one exception, Patient's attributes as a patient subscale (Cronbach's  $\alpha$  0.6).

## RESULTS

### Characteristics of the respondents

The average age of the students was 29.4 years (SD 9.2), the majority were female (89.8%), and over half of them (60.4%) had a previous social and health care qualification. About half had nursing work experience (46.2%) and experience of caring for ill family member (56.8%). Two-fifths (42.4%) were first year students. Among two-thirds (70.0%), the duration of clinical placement was 2 to 5 weeks. In most cases (90.8%), the clinical placement was perceived as inspiring. Most of the students (91.6%) received support from a supervising nurse. Most (83.0%) had enough time with their patients, but less than half of the students (44.4%) had an assigned patient. Half of the students (55.6%) had an idea of the area of nursing they would work in after graduation. (Table 1.)

### Students' views of their relationship with the patient

Students assessed their relationship with patients most often as facilitative (n=300) or as authoritative (n=256), while a clear minority assessed it as mechanistic (n=51). Means and SDs of the views of all students and students in different types of relationship are presented in more detail in Table 2.



**Table 1 Demographic student data and differences between the three types of relationship**

Demographic variables	All students (n=607)			Students in Mechanistic relationship (n= 51)			Students in Authoritative relationship (n=256)			Students in Facilitative relationship (n=300)			p-value
	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	
Age	29.4 (9.2)			26.4 (8.3)			29.0 (8.8)			30.3** (9.6)			0.012*
Gender													0.151
Male		62	10.2		6	11.8		19	7.4		37	12.3	
Female		544	89.8		45	88.2		237	92.6		263	87.7	
Education													0.052
Senior secondary/Matriculation		240	39.6		30	58.8		97	37.9		113	37.7	
Social or health care		366	60.4		11	21.6		101	39.5		116	38.7	
Other					10	19.6		58	22.7		71	23.7	
Working experience in nursing care													0.003
Yes		326	53.8		16	31.4		143	55.9		168	56.0	
No		280	46.2		35	68.6		113	44.1		132	44.0	
Current years of study													0.087
1 <sup>st</sup> year		257	42.4		24	47.1		96	37.5		138	46.0	
2 <sup>nd</sup> year		183	30.2		12	23.5		82	32.0		89	29.7	
3 <sup>rd</sup> or 4 <sup>th</sup> year		166	27.4		15	29.4		78	30.4		73	24.4	

Table 1 (continues)

Demographic variables	All students (n=607)			Students in Mechanistic relationship (n= 51)			Students in Authoritative relationship (n=256)			Students in Facilitative relationship (n=300)			p-value
	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	
Duration of clinical placement													0.196
2-5 weeks		430	71.0	38	73.5		171	66.8		221	73.7		
6-8 weeks		176	29.0	13	25.5		84	32.8		79	26.3		
Assessment of supervised clinical placement													0.903
Inspiring		550	90.8	47	92.2		233	91.0		271	90.3		
Frustrating		56	9.2	4	7.8		23	9.0		29	9.7		
Assigned to a specific patient													< 0.001
Yes		269	44.4	10	19.6		129	50.4		130	43.3		
No		337	55.6	41	80.4		127	49.6		170	56.7		
							19	7.4		37	12.3		
Having enough time for the patient													0.032
Yes		503	83.0	37	72.5		208	81.3		259	86.3		
No		103	17.0	14	27.5		48	18.8		41	13.7		
Support received from													
Teacher		78	12.9	6	11.8		28	10.9		44	14.7		0.412
Supervising nurse		555	91.6	44	86.3		237	92.6		275	91.7		0.333
Student colleague		117	19.3	15	29.4		47	18.4		55	18.3		0.159
Other person within or outside the ward		110	18.2	3	5.9		48	18.8		59	19.7		0.058
No one		18	3.0	4	7.8		7	2.7		7	2.3		0.096

Table 1 (continues)

Demographic variables	All students (n=607)			Students in Mechanistic relationship (n= 51)			Students in Authoritative relationship (n=256)			Students in Facilitative relationship (n=300)			p-value
	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	Mean (SD)	n	%	
Experience of caring for ill family member													0.063
<i>Yes</i>		344	56.8		23	45.1		157	61.3		164	54.7	
<i>No</i>		262	43.2		28	54.9		99	38.7		136	45.3	
Having an idea of area of nursing after graduation													0.026
<i>Yes</i>		337	55.6		21	41.2		155	60.5		161	53.7	
<i>No</i>		269	44.4		30	58.8		101	39.5		139	46.3	

\*  $p < 0.05$  for Brown-Forsythe test, according to one-way ANOVA.

Post hoc evaluation between groups was performed using the Tukey HSD and Tamhane tests at the 0.05 level.

\*\*  $p < 0.05$  indicates a significant difference from the students in Mechanistic relationship

Table 2 Means and SDs of the views of all students and students in different types of relationship

Sum variables and questions concerning	Cronbach's $\alpha$	All students (n=607)		Students in Mechanistic relationship (n= 51)		Students in Authoritative relationship (n=256)		Students in Facilitative relationship (n= 300)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Mechanistic relationship</b>	0.7								
Focused on student learning		4.1	0.9	4.1	0.9	4.1	0.9	4.1	0.9
Externally directed by supervising nurse's actions		4.6	0.8	<u>4.8</u>	0.4	4.6	0.8	4.6	0.8
Student and patient do not know each other		2.1	1.1	<u>3.4</u>	1.1	2.0	1.0	1.9	1.0
Student's attention focused on technical performance		2.3	1.0	<u>3.2</u>	1.1	2.2	1.0	2.2	1.0
Negligible discussion between student and patient		1.9	1.0	<u>3.3</u>	1.1	1.8	0.9	1.7	0.9
Student observes nurse's actions		4.0	1.2	<u>4.5</u>	0.7	3.9	1.3	4.0	1.2
Student imitates nurse's actions		4.1	0.9	<u>4.4</u>	0.6	4.1	0.9	4.1	0.9
Patient is passive object of nursing actions		3.3	1.2	<u>3.9</u>	1.0	3.3	1.3	3.2	1.2
Patient observes student's actions		2.3	1.2	<u>3.0</u>	1.5	2.3	1.2	2.1	1.1

Table 2 (continues)

Sum variables and questions concerning	Cronbach's $\alpha$	All students (n=607)		Students in Mechanistic relationship (n= 51)		Students in Authoritative relationship (n=256)		Students in Facilitative relationship (n= 300)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Authoritative relationship</b>	<b>0.7</b>								
Focused on assumptions of what is best for the patient		4.1	1.0	4.0	0.9	<u>4.4</u>	0.8	3.0	1.1
Patient care decisions taken by student		3.9	1.1	2.3	1.2	<u>3.9</u>	0.9	3.3	1.1
Student knows the patient as a patient with a certain disease		3.0	1.2	3.0	1.3	<u>3.5</u>	1.1	2.6	1.1
Conversation on care-related issues		4.3	0.9	3.0	1.3	<u>4.6</u>	0.6	4.3	0.8
Conversation on everyday matters		4.6	0.8	3.5	1.4	<u>4.7</u>	0.7	4.6	0.7
Student helps patient to the best of her ability		4.9	2.9	4.7	0.5	<u>5.0</u>	0.2	4.9	0.3
Student provides daily care		4.7	0.6	3.8	1.3	<u>4.9</u>	0.4	4.7	0.5
Student clarifies what is best for the patient		4.4	0.8	3.5	1.1	<u>4.6</u>	0.5	4.3	0.8
Student activates patient in self-care		4.4	0.8	3.4	1.2	<u>4.7</u>	0.6	4.4	0.8
Patient asks student for advice		4.0	1.1	2.8	1.3	<u>4.3</u>	0.9	4.0	1.0
Patient agrees to student's suggestions		4.0	0.9	3.0	1.2	<u>4.2</u>	0.6	4.0	0.9

Table 2 (continues)

Sum variables and questions concerning	Cronbach's $\alpha$	All students (n=607)		Students in Mechanistic relationship (n= 51)		Students in Authoritative relationship (n=256)		Students in Facilitative relationship (n= 300)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Facilitative relationship</b>	0.8								
Focused on the common good of both student and patient		4.7	0.6	4.4	0.6	4.6	0.6	<u>4.8</u>	0.5
Directed by patient's wishes		4.4	0.6	4.1	1.0	4.4	0.7	<u>4.6</u>	0.5
Student and patient know each other personally		4.1	1.0	3.0	1.3	4.0	0.9	<u>4.4</u>	0.7
Conversation on confidential matters		4.1	1.0	3.1	1.3	4.0	1.0	<u>4.4</u>	0.7
Conversation on patient's emotions		4.3	0.9	3.2	1.3	4.2	0.9	<u>4.6</u>	0.7
Student listens to the patient		4.7	0.6	3.9	1.1	4.7	0.6	<u>4.8</u>	0.4
Student acts as an advocate for patient		4.2	1.2	2.9	1.5	4.1	1.2	<u>4.4</u>	0.9
Student encourages patient		4.7	0.6	3.8	1.0	4.7	0.5	<u>4.8</u>	0.4
Patient is expert of own situation		3.9	0.9	3.3	1.1	3.7	0.9	<u>4.2</u>	0.8
Patient expresses opinions to student in care-related matters		4.3	0.9	3.2	1.2	4.1	0.9	<u>4.6</u>	0.5
Patient provides information to student in matters related to the disease		4.0	1.1	2.8	1.2	3.8	1.1	<u>4.4</u>	0.9
Patient gives advice to student		3.2	1.3	2.3	1.1	2.8	1.2	<u>3.7</u>	1.1
Patient gives feedback to student		4.0	1.1	2.6	1.4	3.8	1.1	<u>4.4</u>	0.8

\_\_\_\_ = the highest mean value

## Demographics related to the type of relationship

Five statistically significant differences between the types of relationship with regard to demographic variables were age and working experience in nursing care, being assigned to a specific patient, having enough time for the patient, and perceived future job orientation in nursing. In post hoc analysis, only one significant difference was found. Students in facilitative relationship were about four years older than those in mechanistic relationship ( $p=0.014$ ). (Table 1.)

Multinomial regression analysis revealed three statistically significant demographic factors predicting the type of relationship. Students assessing their relationship with the patient as facilitative were more likely to be older ( $OR=0.94$ ,  $p=0.010$ ) and to be assigned to a specific patient ( $OR=0.40$ ,  $p=0.009$ ) than students assessing their relationship with the patient as mechanistic. Students assessing their relationship with the patient as facilitative were more likely to have enough time for the patient ( $OR=0.58$ ,  $p=0.025$ ) than students assessing their relationship with the patient as authoritative. Students assessing their relationship with the patient as authoritative were, however, more likely to be assigned to a specific patient ( $OR=1.44$ ,  $p=0.047$ ) compared to those assessing their relationship with the patient as facilitative. (Table 3.)

Table 3 Demographic factors predicting the type of relationship

Demographic variables	Mechanistic relationship		Authoritative relationship	
	vs.		vs.	
	Facilitative relationship	Facilitative relationship	Facilitative relationship	Facilitative relationship
	OR	p-value	OR	p-value
Age	0.94	0.010*		
Assigned patient	0.40	0.009*	1.44	0.047*
Having enough time for the patient			0.58	0.025*

\* indicates  $p < 0.05$

Multifactor analysis of variance revealed that students with previous professional qualification were more likely to assess their relationship as authoritative ( $p=0.041$ ) whereas students with nursing work experience were less likely to assess their relationship with the patient as mechanistic ( $p=0.035$ ). In mechanistic ( $p<0.001$ ) and facilitative ( $p=0.032$ ) relationships, students received support in the relationship with patient from a supervising nurse more often than in authoritative relationships whereas support from teacher ( $p=0.50$ ,  $p=0.020$ ) or some other person outside the placement ( $p=0.025$ ,  $p<0.001$ ) was more common in authoritative and facilitative than mechanistic relationships. The clinical placement was more likely perceived as inspiring among students in authoritative ( $p<0.001$ ) and facilitative ( $p=0.019$ ) relationships than mechanistic relationship.

#### Contextual factors related to the type of relationship

Students had positive perceptions (mean  $>4.0$  on the 5-point Likert scale) of the contextual factors of the student-patient relationship, especially in the areas of their personal and professional attributes and atmosphere during collaboration. In post hoc analysis, there were statistically



significant differences between all contextual factors and the types of relationship. In authoritative and facilitative relationships, students had a significantly more positive perception of student's personal and professional attributes ( $p < 0.001$ ), patient's attributes as a patient ( $p < 0.001$ ), and atmosphere during collaboration ( $p < 0.001$ ) than students in mechanistic relationship. No differences were found between students' perceptions in authoritative and facilitative relationships. (Table 4.)

#### Consequences of the student-patient relationship related to the type of relationship

The consequences of the student-patient relationship in the areas of student's personal and professional growth and student's increased confidence and self-esteem were viewed as positive (mean  $> 4.0$  on the 5-point Likert scale). In post hoc analysis, there were statistically significant differences between all consequences of the relationship and the types of relationship. In authoritative and facilitative relationships, students had a significantly more positive perception of student's personal and professional growth ( $p < 0.001$ ), student's increased confidence and self-esteem ( $p < 0.001$ ), and patient's improved health and commitment to self-care ( $p < 0.001$ ) than students in mechanistic relationship. No differences were found between students' perceptions in authoritative and facilitative relationships. (Table 4.)

Table 4 Contextual factors and consequences of the relationship related to the three types of relationship

Sum variables	All students (n=607)			Students in Mechanistic relationship (n=51)		Students in Authoritative relationship (n=256)		Students in Facilitative relationship (n=300)		p-value
	Cronbach's $\alpha$	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Contextual factors</b>										
Student's personal and professional attributes	0.7	4.7	0.3	4.3	0.4	4.7	0.3 **	4.7	0.3 **	<0.001*
Patient's attributes as a patient	0.6	3.6	0.6	3.3	0.8	3.6	0.5 **	3.7	0.5 **	0.001*
Atmosphere during collaboration	0.8	4.4	0.6	4.1	0.7	4.4	0.6	4.5	0.6 **	<0.001*
<b>Consequences of the relationship</b>										
Student's personal and professional growth	0.7	4.7	0.4	4.3	0.6	4.7	0.4 **	4.7	0.4 **	<0.001*
Student's increased confidence and self-esteem	0.7	4.7	0.4	4.1	0.7	4.7	0.4 **	4.8	0.3 **	<0.001*
Patient's improved health and commitment to self-care	0.8	4.0	0.7	3.2	0.8	4.1	0.7 **	4.1	0.7 **	<0.001*

\*  $p < 0.05$  for Brown-Forsythe test, according to one-way ANOVA.

Post hoc evaluation between groups was performed using the Tukey HSD and Tamhane tests at the 0.05 level.

\*\*  $p < 0.05$  indicates a significant difference from the students in Mechanistic relationship

## Level of competency related to the type of relationship

Students' perceptions of their competence in all competence categories were at good level among students assessing their relationship with the patient as authoritative and facilitative (Table 5).

Furthermore, students assessing their relationship with the patient as mechanistic also rated the categories Helping role and Ensuring quality to be at good level while the rest of the categories were rated at rather good level. In post hoc analysis, statistical differences were found between all competence categories and the types of relationship. Students assessing their relationship with the patient as authoritative and facilitative had significantly higher ratings in all seven categories as well as in Overall competence than students who assessed their relationship with the patient as mechanistic. Furthermore, students assessing their relationship with the patient as authoritative had significantly higher ratings in Teaching-coaching ( $p=0.049$ ) than students assessing their relationship with the patient as facilitative.

Teaching-coaching and ensuring quality were revealed as predictors of the type of relationship by multinomial logistic regression analysis. Teaching-coaching reduced the likelihood of mechanistic relationship ( $OR=0.96$ ,  $p<0.001$ ) and increased the likelihood of authoritative relationship ( $OR=1.02$ ,  $p<0.001$ ) compared to facilitative relationship. Ensuring quality reduced the likelihood of authoritative relationship ( $OR=0.98$ ,  $p=0.005$ ) compared to facilitative relationship. (Table 6.)

Table 5 Level of competence related to the three types of relationship

Sum variables	Cronbach's $\alpha$	All students (n=607)		Students in Mechanistic relationship (n=51)		Students in Authoritative relationship (n=256)		Students in Facilitative relationship (n=300)		p-value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Competence categories</b>										
Helping role	0.8	72.5	16.6	60.4	19.3	75.3	14.6**	72.2	16.7**	<0.001*
Teaching-coaching	0.9	63.3	19.8	46.0	20.2	67.0	18.2**	63.1	19.4**	<0.001*
Managing situations	0.9	61.4	(1.9	48.7	23.0	63.5	21.0**	61.7	21.7**	< 0.001*
Diagnostic functions	0.9	61.8	20.4	47.3	19.4	64.9	18.9**	61.5	20.8**	<0.001*
Ensuring quality	0.9	60.9	21.3	50.5	19.2	61.4	20.7**	62.2	21.8**	0.001*
Work role	0.9	57.2	20.3	45.1	20.4	58.3	19.3**	58.3	20.4**	<0.001*
Therapeutic interventions	0.9	55.2	22.83	41.4	23.7	57.6	22.4**	55.4	22.3**	<0.001*
Overall competence	0.9	61.1	18.3	47.9	18.3	63.4	17.2**	61.4	18.5**	<0.001*

Level of competence: Low (0–25), Rather good (>25–50), Good (>50–75), and Very good (>75–100)

\*  $p < 0.05$  for Brown-Forsythe test, according to one-way ANOVA.

Post hoc evaluation between groups was performed using the Tukey HSD and Tamhane tests at the 0.05 level.

\*\*  $p < 0.05$  indicates a significant difference from the students in Mechanistic relationship

Table 6 Nurse competence categories predicting the type of relationship

Sum variables	Mechanistic relationship		Authoritative relationship	
	vs.		vs.	
	Facilitative relationship		Facilitative relationship	
	OR	P-value	OR	P-value
Teaching-coaching	0.96	<0.001*	1.02	<0.001*
Ensuring quality			0.98	0.005*

\* indicates  $p < 0.05$

## DISCUSSION

### Discussion of results

This study illuminates that the nursing student-patient relationship is most often facilitative, followed by authoritative and mechanistic relationship in descending order. Of these, the facilitative relationship, characterized by reciprocity, is seen as a key precondition for the quality of clinical education and as enhancing the delivery of the best possible patient care. (Feo et al., 2017; Suikkala & Leino-Kilpi, 2005; Suikkala et al. 2018). Facilitative student-patient relationships at the core of clinical education intertwine the processes of student learning and patient caring with the contribution of preceptors. Facilitative relationships shape students to work in nurse-patient partnership, allowing patients to provide personal expertise related to their preferences and needs, and feedback about their experience of care and professional performance of students that students do not get anywhere else. (Bleakley & Bligh, 2008; Johansson & Mårtensson, 2019; Rowland et al., 2018.) Therefore, education and retention strategies should aim to support nursing students and new nurses to focus on person-centered care and build facilitative relationships with patients with required competency. What motivates and empowers students as future professionals to work in partnership with patients is the impact it has on both students' personal and professional qualities and on patients' autonomy in their own care. (Ding et al., 2019; Dinç & Gastmans, 2013; Suikkala et al., 2018; Tejero, 2012; WHO, 2016a). Improving the learning outcomes of providing quality care and thus promoting satisfaction and engagement to work as future nurses (Ding et al., 2019) can, in turn, result in higher patient satisfaction and compliance with care (Abdolrahimi et al., 2017; Chan & Lai, 2017; Dinç & Gastmans, 2013; Fröberg, et al., 2018).

Facilitative relationships require time to get to know the patient and establish a trusting relationship (Johansson & Mårtensson, 2019; Suikkala & Leino-Kilpi, 2005; Wiechula et al., 2016). This confirms the importance of students taking care of their own patients and long enough clinical placements as determinants for students to develop relationships with their patients over time, which shifts their focus from seeing patients with a certain health problem to viewing them as unique individuals (Forbes et al., 2016; Suikkala & Leino-Kilpi, 2005). Nevertheless, our study showed that regardless of the quite short length of clinical placements reported by most students, the quality of time spent with individual patients to become acquainted with each other seems to establish a facilitative relationship (Fleischer et al., 2009; Johansson & Mårtensson, 2019; Wiechula et al., 2016). This highlights the importance of commitment to be present and being attentive when entering into mutually beneficial dialogue and collaboration with individual patients (Bleakley & Bligh, 2008; Johansson & Mårtensson, 2019; Rowland et al., 2018; Suikkala et al., 2018). While interacting and working with patients, sensitiveness to ongoing support by preceptors and all nursing staff acting as an educational resource is important, especially for younger students, because they often engender various emotions and psychological reactions in their encounters with patients due to inexperience in their own role in nursing (Cowen et al., 2018; Johansson & Mårtensson, 2019; Kandal et al., 2018). In contrast, rewarding experiences with patients can leave a lasting impression on their motivation towards nursing as a career and transition to a registered nurse (Alshahrani et al., 2018, Suikkala & Leino-Kilpi, 2005).

In this study, students' positive perceptions on their own attributes, patients' attributes as a patient, and atmosphere during collaboration were detected as significant factors associated with both facilitative and authoritative relationships. Although students tend to emphasize patients' emotional and psychosocial needs that characterize facilitative relationships, they can have a sense of inexperience or uncertainty if they cannot answer the patient's questions. They can also be

emotionally distressed due to the patient's situation and may therefore not necessarily be able to support patients in sharing information or engage them in decision-making in their care. (Grilo et al., 2014.) Patients, for their part, are committed to participate in learning relationships with students, especially if students succeed in creating a good atmosphere and positive patient-student encounters (Manninen, 2014; Suikkala et al., 2018). As students work under their preceptor's supervision, the way in which the preceptor and all staff members involved in patient care interact also impacts the atmosphere and therefore, the student-patient collaboration (Wiechula et al., 2016). Hence, a student-patient relationship with interventions that emphasize patients' active participation is important in shaping clinical education with preceptors as supportive role models (Bleakley & Bligh, 2008; Manninen, 2014).

Recent studies on nursing students' perspective have reported that characteristics such as mutual student-patient dialogue and beneficial feedback from patients are connected to students' increased confidence and self-esteem, strengthened motivation, and facilitated growth to a nurse, thus confirming the positive impact of relationships with patients on nursing students (Abdolrahimi et al., 2017; Chan & Lai, 2017; Wiechula et al., 2016). The student-patient relationship including characteristics of facilitative relationship has also been found to benefit patients and increase their satisfaction and self-esteem (Suikkala et al. 2018). The results of this study, however, serve as a reminder that authoritatively performed interventions also have an important role in shaping students' skills and professional abilities. As student-patient relationships are associated with successful learning and caring experiences, preceptors and nurse educators need to be aware of their key role in facilitating students to build collaborative patient-caregiver relationships that benefit both students and patients.



Good levels of competence in all seven categories and in overall level of competence associated with both facilitative and authoritative relationships show that nursing students' competence and their professional behaviors are preconditions for their relationships with the patient (Wiechula et al., 2016). Of these, the rather high level of self-assessed competence in the category of ensuring quality seems to be a determinant of a facilitative relationship. This result shows that students have been committed to the care philosophy and evidence-based practice at their clinical placement and have appraised their own performance according to patient feedback (Meretoja et al., 2004). Meaningful interaction through a facilitative relationship also enables moments of mutual learning concurrently through dialogue (Johansson & Mårtensson, 2019; Rowland et al., 2018). In these encounters, it is important that patients are reassured to express their own preferences and values on issues they determine as significant, which in turn shapes the competency of students to provide person-centered care (Angel & Frederiksen, 2015; Suikkala et al., 2008).

The optimal level of mutuality, an aspect of facilitative student-patient relationship, may not necessarily be achieved due to lack of physical or temporal space or due to the patient's situation (Angel & Frederiksen, 2015). Although students perceive their communication skills to be better than their technical or clinical competence, they may interact with patients in a professional-centered way, referring to authoritatively performed interventions (Grilo et al., 2014). As shown in this study, even if students are assigned to specific patients or have a good competence level in teaching-coaching competence, they may concentrate on the facts and practical issues at hand, instead of engaging in dialogue with patients, in order to sound competent while providing care and patient education. (Arieli, 2013; Chan & Lai, 2017; Cowen et al., 2016.) Furthermore, patients may be used to specific and unequal relationship with professionals and regard students as "professionals" and thus, allow them to have authority over decisions and actions (Angel & Fredriksson, 2015). Collaboration between educational institutions and health care organizations is

essential in exploring and creating the best pedagogical approaches and supervision practices in order to actively engage patients in clinical education, and with regard and respect to their expertise, facilitate both student and patient outcomes. Therefore, more experiential and longitudinal studies are clearly needed to enhance the procedures of this relationship and its outcomes for both students and patients.

### Limitations of the study

The data were collected in real clinical settings. The sample bias was diminished by inviting students from six Universities of Applied Sciences in different parts of Finland and involving as many first, second and last year students in clinical placements as possible. The sample reflected nursing students having their clinical placements in hospitals and other inpatient and outpatient clinical settings. The convenience sample of students may not, however, be representative of all students who had experienced relationships with patients, raising questions about the generalizability of the results. Quite a large amount of student responses (28.8%) were excluded because they could not be categorized into any of the three relationship types. Chi-square tests and two-sample t-tests revealed the selective nature of the sample involved in the study, which represented nursing students who may have been more likely to feel more successful in their clinical placement due to several reasons. They were more often women ( $p=0.044$ ), had more often a previous social and health care qualification ( $p=0.008$ ) and nursing work experience ( $p=0.001$ ), perceived their clinical placement as more inspiring ( $p=0.002$ ), received more often support from someone else than their teacher, preceptor or student colleague ( $p<0.001$ ), and had more often an idea of the area of nursing they would work in after graduation ( $p=0.05$ ) compared to those students who were excluded and could not be categorized to any of the three types of relationships.

Nevertheless, the categorization was crucial to analyze the three types of relationships disclosed in an earlier study (Suikkala & Leino-Kilpi, 2005).

Both the SPR scale (Suikkala et al., 2008a, 2008b, 2009) and NCS scale (Kajander-Unkuri et al., 2014, 2016, Strandell-Laine et al., 2018) have been used before among nursing students. The quite lengthy self-administered scales give rise to limitations that must be considered (Baxter and Norman, 2011). The scales did not assess how students actually behaved or interacted in building relationships with patients. The students might have had a tendency to overestimate their performance and to respond in an idealistic light compared to how they themselves experienced or saw the relationship.

In general, there was a statistically significant difference between students in the three types of relationship. This was partly due to the large sample size. However, the students in all three types of relationships had very positive perceptions (mean >4.0) of their own personal and professional attributes and the differences may not be practically significant. (O'Brien et al., 2015.)

## CONCLUSIONS

Facilitative relationships shift the emphasis to relational values and have an impact on the development of students' competence, especially in the area of ensuring quality. In this transaction, pedagogical solutions that maintain patients as the core of clinical learning need to be highlighted. With the aging of the population and shorter lengths of hospital stays, practices that foster students' learning from and with patients stress enhancing relationships with patients in an effort to strengthen patient autonomy in person-centered health care.

## RELEVANCE TO CLINICAL PRACTICE

Supporting student-patient relationships, especially facilitative relationship, is crucial in shaping future professionals' competence to work in partnership with patients and in promoting high-quality patient care. To be able to foster student-patient relationships in clinical learning, understanding this relationship and related factors is important. Nursing faculty and staff in clinical practice have key roles in highlighting the importance and strengthening of relationships with patients as also significant for patients' autonomy. Patient-centred approach should be implemented throughout nursing education, highlighting the need for pedagogical education for preceptors. Nurse educators are needed to coach preceptors in patient-centred pedagogical approaches. Clinical placements with a pedagogical framework based on patient-centred care enhances the versatile development of students' professional and interpersonal competencies while creating opportunities for them to care for patients independently with the support of their preceptors. Collaboration between nurse educators and preceptors should be intensified as both are in key role in meaningful incorporation of patients in students' learning in all settings where learning occurs. Experiential and longitudinal studies are needed to examine the facilitative procedures and outcomes of the relationship for both students and patients.

## REFERENCES

Abdolrahimi, M., Ghiyasvandian, S., Zakerimoghadam, M., & Ebadi, A. (2017). Therapeutic communication in nursing students: A Walker & Avant concept analysis. *Electron Physician*, *9*(8), 4968–4977. <https://doi.org/10.19082/4968>

Act on the Status and Rights of Patients 785/1992 Retrieved 27th May 2020 from <https://finlex.fi/en/laki/kaannokset/1992/en19920785>

Alshahrani, Y., Cusack, L., & Rasmussen, P. (2018). Undergraduate nursing students' strategies for coping with their first clinical placement: Descriptive survey study. *Nurse Education Today*, *69*, 104–108. <https://doi.org/10.1016/j.nedt.2018.07.005>

All European Academies, 2017. *The European Code of Conduct for Research Integrity*. Revised Edition. Retrieved (8th April 2019) from: [https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics\\_code-of-conduct\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf)

Angel, S., & Frederiksen, K. N. (2015). Challenges in achieving patient participation: A review of how patient participation is addressed in empirical studies. *International Journal of Nursing Studies*, *52*(9), 1525–1538. <https://doi.org/10.1016/j.ijnurstu.2015.04.008>

Arieli, D. (2013). Emotional Work and Diversity in Clinical Placements of Nursing Students. *Journal of Nursing Scholarship*, *45*(2), 192–201. <https://doi.org/10.1111/jnu.12020>

Bleakley, A., & Bligh, J. (2008). Students Learning from Patients: Let's Get Real in Medical Education. *Advances in Health Sciences Education, 13*(1), 89–107. <https://doi.org/10.1007/s10459-006-9028-0>

Baxter, P., & Norman, G. (2011). Self-assessment or self deception? a lack of association between nursing students' self-assessment and performance. *Journal of Advanced Nursing, 67*(11), 2406–2413. <https://doi.org/10.1111/j.1365-2648.2011.05658.x>

Chan, Z. C. Y., & Lai, C.K.Y. (2017). The nurse-patient communication: voices from nursing students. *International Journal of Adolescent Medicine and Health, 29*(6), 1–9. <https://doi.org/10.1515/ijamh-2016-0023>

Cowen, K. J., Hubbard, L. J., & Hancock, D. C. (2016). Concerns of nursing students beginning clinical courses: A descriptive study. *Nurse Education Today, 43*; 64–68. <https://doi.org/10.1016/j.nedt.2016.05.001>

Cowen, K.J., Hubbard, L.J., & Hancock, D.C. (2018). Expectations and experiences of nursing students in clinical courses: A descriptive study. *Nurse Education Today, 67*; 15–20. <https://doi.org/10.1016/j.nedt.2018.04.024>

Dinç, L., & Gastmans, C. (2013). Trust in nurse-patient relationships: a literature review. *Nursing Ethics, 20*(5), 501–16. <https://doi.org/10.1177/0969733012468463>

Ding, B., Liu, W., Tsai, S-B., Gu, D., Bian, F., & Shao, X. (2019). Effect of patient participation on nurse and patient outcomes in inpatient healthcare. *International Journal of Environmental Research and Public Health*, 16(8), E1344. <https://doi.org/10.3390/ijerph16081344>

European Commission, 2005. *Directive 2005/36/EC*. Retrieved (29<sup>th</sup> September 2018) from: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0036&from=EN>

European Commission, 2013. *Directive 2013/55/EU*. Retrieved (29<sup>th</sup> September 2018) from: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013L0055&from=EN>

Feo, R., Rasmussen, P., Wiechula, R., Conroy, T. & Kitson, A. 2017. Developing effective and caring nurse-patient relationships. *Nursing Standard* 31(28), 54–63. <https://doi.org/10.7748/ns.2017.e10735>

Finnish Advisory Board on Research Integrity, 2012. *Responsible conduct of research and procedures for handling allegations of misconduct in Finland*. Guidelines of the Finnish Advisory Board on Research Integrity 2012. Retrieved (8th April 2019) from: [https://www.tenk.fi/sites/tenk.fi/files/HTK\\_ohje\\_2012.pdf](https://www.tenk.fi/sites/tenk.fi/files/HTK_ohje_2012.pdf)

Fleischer, S., Berg, A., Zimmermann, M., Wüste, K., Behrens, J., (2009). Nurse-patient interaction and communication: a systematic literature review. *Journal of Public Health*, 17, 339–353. <https://doi.org/10.1007/s10389-008-0238-1>

Flinkman, M., Leino-Kilpi, H., Numminen, O., Jeon, Y., Kuokkanen, L., & Meretoja, R. 2017. Nurse Competence Scale: a systematic and psychometric review. *Journal of Advanced Nursing*, 73(5), 1035–1050. <https://doi.org/10.1111/jan.13183>

Forbes, J., DiGiacomo, M., Carter, B., Davidson, P, Phillips J. & Jackson D. (2016). In pursuit of an optimal model of undergraduate nurse clinical education: An integrative review. *Nurse Education in Practice* 21, 83–92. <https://doi.org/10.1016/j.nepr.2016.09.007>

Fröberg, M., Leanderson, C., Fläckmand, B., Hedman-Lagerlöf, E., Björklund, K., Nilsson, G.H., & Stenfors, T. (2018). Experiences of a student-run clinic in primary care: a mixed-method study with students, patients and supervisors. *Scandinavian Journal of Primary Health Care* 36, 36–46, DOI: 10.1080/02813432.2018.1426143

Grilo, A. M., Santos, M. C., Rita, J. S., & Gomes, A. I. (2014). Assessment of nursing students and nurses' orientation towards patient-centeredness. *Nurse Education Today*, 34(1), 35–39. <https://doi.org/10.1016/j.nedt.2013.02.022>

Johansson, B., & Mårtensson, L. B. (2019). Ways of strategies to knowing the patient described by nursing students. *Nurse Education in Practice* 38, 120–125. <https://doi.org/10.1016/j.nepr.2019.06.003>



Jylhä, V., Oikarainen, A., Perälä M.-L., & Holopainen, A. (2017). *Facilitating evidence-based practice in nursing and midwifery in the WHO European Region*. World Health Organization.

Retrieved (29<sup>th</sup> September 2019) from:

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0017/348020/WH06\\_EBP\\_report\\_complete.pdf?ua=1](http://www.euro.who.int/_data/assets/pdf_file/0017/348020/WH06_EBP_report_complete.pdf?ua=1)

Kajander-Unkuri, S., Meretoja, R., Katajisto, J., Saarikoski, M., Salminen, L., Suhonen, R. & Leino-Kilpi, H. (2014). Self-assessed level of competence of graduating nursing students and factors related to it. *Nurse Education Today*, 34(5), 795–801. <https://doi.org/10.1016/j.nedt.2013.08.009>

Kajander-Unkuri, S., Leino-Kilpi, H., Katajisto, J., Meretoja, R., Räisänen, A., Saarikoski, M., Salminen, L., & Suhonen R. (2016). Congruence between graduating nursing students' self-assessments and mentors' assessments of students' nurse competence. *Collegian: The Australian Journal of Nursing Practice, Scholarship and Research*, 23(3), 303–312.

<https://doi.org/10.1016/j.colegn.2015.06.002>

Kandal, H. M., Kristiansen, J. & Uhrenfeldt, L. (2018). Nursing students experienced personal inadequacy, vulnerability and transformation during their patient care encounter: A qualitative metasynthesis. *Nurse Education Today* 64, 99–107. <https://doi.org/10.1016/j.nedt.2018.02.008>

Manninen, K., Henriksson, E., Scheja, M., & Silen, C. (2014). Patients' approaches to students' learning at a clinical education ward—an ethnographic study. *BMC Medical Education* 14 (131). <https://doi:10.1186/1472-6920-14-131>

Marcinowicz, L., Andersson, E. K., Bohman, D. M., Hjelm, M., Skarbalien, A., Shpakou, A., Kalinowska, P., Jamiolkowski, J. (2018) Nursing students' perception of the professional nurse's role in four European countries. *International Nursing Review*, 66(2), 250–258.

<https://doi.org/10.1111/inr.12494>

Meretoja, R., Isoaho, H., Leino-Kilpi, H., (2004a). Nurse Competence Scale: development and psychometric testing. *Journal of Advanced Nursing* 47(2), 124–133. <https://doi.org/10.1111/j.1365-2648.2004.03071.x>

Ministry of Education and Culture. (2016). Qualifications of University Applied Sciences Retrieved 26th May 2020 from <https://vipunen.fi/en-gb/polytechnic/Pages/Opiskelijat-ja-tutkinnot.aspx>

Morgado, F.F.R., Meireles, J.F.F., Neves, C.M. et al. (2018). Scale development: ten main limitations and recommendations to improve future research practices. *Psicologia: Reflexão e Crítica* 30 (3) <https://doi.org/10.1186/s41155-016-0057-1>

O'Brien, S. F., Osmond, L., & Yi, Q.-L. (2015). How do I interpret a p value? *Transfusion* 55(12), 2778–2782. <https://doi.org/10.1111/trf.13383>

Peplau, H. E. (1988). *Interpersonal Relations in Nursing*. MacMillan Education Ltd., London.

Jones, M. & Pietilä, I. 2018. The citizen is stepping into a new role”—Policy interpretations of patient and public involvement in Finland. *Health & Social Care in the Community* 26(2):e304-e311. <https://doi.org/10.1111/hsc.12520>

Prip, A., Møller, K. A., Nielsen, D.L., Jarden, M., Olsen, M.-H., Kjaergaard Danielsen, A. (2018).

The patient–healthcare professional relationship and communication in the oncology outpatient setting: A systematic review. *Cancer Nursing*, *41*, E11–E22.

<https://doi.org/10.1097/NCC.0000000000000533>.

Pulido-Martos, M., Augusto-Landa, J. M. ,& Lopez-Zafra, E. (2012). Sources of stress in nursing students: a systematic review of quantitative studies. *International Nursing Review*, *59(1)*, 15–25.

<https://doi.org/10.1111/j.1466-7657.2011.00939.x>

Rowland, P., Anderson, M., Kumagai, A. K., McMillan, S., Vijay, K., Sandhu, V. K., Langlois, S. (2019). Patient involvement in health professionals’ education: a meta-narrative review. *Advances in Health Sciences Education*, *24*, 595.

<https://doi.org/10.1007/s10459-018-9857-7>

Sabater-Galindo, M., Fernandez-Llimos, F., Sabater-Hernández. D., Martínez-Martínez, F., & Benrimoj, S. I. (2016). Healthcare professional-patient relationships: Systematic review of theoretical models from a community pharmacy perspective. *Patient Education and Counseling*, *99(3)*, 339–347.

<https://doi.org/10.1016/j.pec.2015.09.010>

Strandas, M., & Bondas, T. (2018). The nurse–patient relationship as a story of health enhancement in community care: A meta-ethnography. *Journal of Advanced Nursing*, *74(1)*, 11–22.

<https://doi.org/10.1111/jan.13389>

Senn J. F. (2013). Peplau’s Theory of Interpersonal Relations: Application in Emergency and Rural Nursing. *Nursing Science Quarterly*, *26(1)*, 31–35. <https://doi.org/10.1177/0894318412466744>

Strandell-Laine, C., Saarikoski, M., Löyttyniemi, E., Meretoja, R., Salminen, L., & Leino-Kilpi, H. (2018). Effectiveness of mobile cooperation intervention on students' clinical learning outcomes: A randomized controlled trial. *Journal of Advanced Nursing* 74(6), 1319–1331  
<https://doi.org/10.1111/jan.13542>

Suikkala, A. & Leino-Kilpi, H. (2001). Nursing student-patient relationship: a review of the literature from 1984 to 1998. *Journal of Advanced Nursing* 33(1), 42–50.  
<https://doi.org/10.1046/j.1365-2648.2001.01636.x>

Suikkala, A. (2007). *Nursing student-patient relationship and associated factors* (Doctoral dissertation, Annales Universitatis Turkuensis D 788, Turku, Finland) Retrieved from  
<http://urn.fi/URN:ISBN:978-951-29-3463-8>

Suikkala, A., Koskinen, S., & Leino-Kilpi, H. (2018). Patients' involvement in nursing students' clinical education: A scoping review. *International Journal of Nursing Studies*, 84, 40–51.  
<https://doi.org/10.1016/j.ijnurstu.2018.04.010>

Suikkala, A. & Leino-Kilpi, H. (2005). Nursing student-patient relationship: experiences of students and patients themselves. *Nurse Education Today*, 25(5), 344–354.  
<https://doi.org/10.1016/j.nedt.2005.03.001>

Suikkala, A., Leino-Kilpi, H., & Katajisto, J. (2008a). Nursing student-patient relationships: A descriptive study of students' and patients' views. *International Journal of Nursing Education Scholarship*, 5, 15. <https://doi.org/10.2202/1548-923X.1457>

Suikkala, A., Leino-Kilpi, H., & Katajisto, J. (2008b). Factors related to the nursing student-patient relationship: the student's perspective. *Nurse Education Today*, 28(5), 539-549.

<https://doi.org/10.1016/j.nedt.2007.09.004>

Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education* 2; 53–55, <http://dx.doi.org/10.5116/ijme.4dfb.8dfd>

Tejero, L. M. S. (2012). The mediating role of the nurse-patient dyad bonding in bringing about patient satisfaction. *Journal of Advanced Nursing*, 68(5), 994–1002. <https://doi.org/10.1111/j.1365-2648.2011.05795.x>

Towle, A., Bainbridge, L., Godolphin, W., Katz, A., Kline, C., Lown, B., Madularu, I., Solomon, P., Thistlethwaite, J., (2010). Active patient involvement in the education of health professionals. *Medical Education* 44(1), 64–74. <https://doi.org/10.1111/j.1365-2923.2009.03530.x>

Wiechula, R., Conroy, T., Kitson, A. L., Marshall, R. J., Whitaker, N., & Rasmussen, P. (2015). Umbrella review of the evidence: what factors influence the caring relationship between a nurse and patient? *Journal of Advanced Nursing* 72(4), 723–34. <https://doi.org/10.1111/jan.12862>

World Health Organization, WHO, (2016a). Global strategy on human resources for health: workforce 2030. Retrieved 3rd January 2020 from [http://who.int/hrh/resources/global\\_strategy\\_workforce2030\\_14\\_print.pdf?ua=1](http://who.int/hrh/resources/global_strategy_workforce2030_14_print.pdf?ua=1)

World Health Organization. (2016b). Patient engagement. World Health Organization. Retrieved 16th January 2020 from <https://apps.who.int/iris/handle/10665/252269>

## Supplementary File 1. STROBE Statement—checklist of items that should be included in reports of observational studies

	<b>Item No.</b>	<b>Recommendation</b>	<b>Page No.</b>	<b>Relevant text from manuscript</b>
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1	
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2	
<b>Introduction</b>				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-8	
Objectives	3	State specific objectives, including any prespecified hypotheses	9	
<b>Methods</b>				
Study design	4	Present key elements of study design early in the paper	9	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	9-11	
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	9-11	
		<i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants		
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed		
		<i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case		
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	10-11	

Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	10-11
Bias	9	Describe any efforts to address potential sources of bias	13, 23-24
Study size	10	Explain how the study size was arrived at	9-10
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	12
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	12-13
		(b) Describe any methods used to examine subgroups and interactions	12-13
		(c) Explain how missing data were addressed	12-13
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed	9-10
		<i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed	
		<i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
<b>Results</b>			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	14
		(b) Give reasons for non-participation at each stage	9, 23-24
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	14

		(b) Indicate number of participants with missing data for each variable of interest	10, 14-18, 23-24
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	-
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time	-
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure	-
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	14-18
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	-
		(b) Report category boundaries when continuous variables were categorized	-
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	-
<b>Discussion</b>			
Key results	18	Summarise key results with reference to study objectives	19-23
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	23-24
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	19-24
Generalisability	21	Discuss the generalisability (external validity) of the study results	23-24
<b>Other information</b>			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	-



\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).

