Original Article

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The Relations of Nursing Clinical Teacher Effectiveness, Clinical Belongingness Sense, and Compassionate Competencies among Undergraduate Nursing Students: A Cross-Sectional Correlation Study

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Abstract

Introduction: Nursing teachers influence their students' views and values, creating Compassionate Competence (CC) and Clinical Belonging Sence (CBS). Their work extends beyond technical abilities, as they foster empathy and community in order to provide good patient care. The purpose of this study was to examine the link between CC and CBS and Nursing Clinical Teacher Effectiveness (NCTE).

Methods: This cross-sectional correlation study was conducted on 237 nursing students (response rate of 94.5%) selected using census sampling; the Belongingness Scale-Clinical Placement Experience (BES-CPE), Compassionate Competence Scale, and Nursing Clinical Teacher Effectiveness Inventory were used to collect the data. The data were analyzed using descriptive statistics, the Chi-square test, the Pearson correlation test, and the linear regression test in SPSS (ver.16).

Results: Both discovered factors account for 21.4% of CC, with a positive connection with NCTE (r=0.392, P=0.001) and CBS (r=0.564, P=0.001). CBS and CC also showed a strong positive connection (r=0.424, P=0.001). NCTE can explain why CBS (31.42%) is nearly twice as high as CC (16.06%) among nursing students. NCTE teaching skill was positively connected with self-esteem (r=0.544, P=0.001), CBS efficiency (r=0.528, P=0.001), continuity (r=0.367, P=0.001), and CC insight (r=0.374, P=0.001). Interpersonal communication and personality qualities in NCTE had a moderate connection with efficiency (r=0.491, P=0.001) and self-esteem (r=0.468, P=0.001) in CBS. Furthermore, female students received considerably higher NCTE scores than male students (P=0.012).

Conclusions: Continuous training for clinical faculty is essential for mentoring nursing students, improving their skills and attitudes toward quality patient care and instilling a sense of belonging and compassion.

Keywords: Teacher; Compassionate; Competencies; Nursing students

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Introduction

Students entering the nursing profession must have a strong theoretical foundation as well as clinical experience. Clinical education strives to improve nursing students' competences and skills, allowing them to apply their theories in practice (1). However, research reveals a significant gap: many current clinical training programs fail to provide students with the critical skills and confidence required for clinical competence (2, 3). This gap is influenced by clinical educators' features, which have been identified as crucial in integrating theory to practice and supporting effective learning experiences (4, 5). A qualitative meta-synthesis research conducted in China found that Effective Instructional Behaviors of Clinical Nursing Teachers comprised strong instructional literacy, robust professional competence, and harmonious faculty-student interactions (6).

Within this context, the concept of a sense of belonging emerges as a significant factor influencing student behavior and success. Defined as an emotional experience marked by feelings of security, acceptance, and connection to a group, a sense of belonging is critical in fostering academic engagement and motivation (7). Haggerty and colleagues (8) discovered this notion in psychiatric nursing for the first time, and it has since been acknowledged for its influence on students' academic performance and general integration into healthcare environments (7). When nursing students' fundamental needs for belonging are not addressed, their capacity to concentrate on higher-level competences suffers (9, 10). Furthermore, compassion is an important component of nursing education because it incorporates the ethical, professional, and effective communication components required for patient care (11). Despite its significance, compassion is frequently disregarded in nursing curricula (12), and many instructors fail to emphasize its development (13). Furthermore, professional nursing values somewhat mediated the association between compassion competence and cultural competence (14).

There is growing concern that, despite significant investments, health systems are still unable to provide comprehensive and compassionate treatment to patients (15-18). It is important to remember that students can only develop competence if their requirements for belonging in the clinical setting are addressed (19, 20). While previous literature has investigated the individual effects of nursing clinical teacher effectiveness (NCTE), sense of belonging (CBS), and compassion competence (CC) on nursing education, there is a noteworthy lack of research that examines these three interconnected factors together. Understanding how NCTE affects CBS and CC is crucial for improving clinical teaching. This study seeks to close this gap by exploring interactions between these variables, thus improving the emotional and professional preparation of nursing students in Iran and eventually leading to better training results and patient care.

Methods

Study design and participants

The cross-sectional correlation investigation was carried out at Urmia University of Medical Sciences. Participants were informed of the study objectives and the fact that their participation was voluntary. Before the research, all individuals provided written informed consent. The nursing students filled out the questionnaire anonymously. They were also assured that if they desired, the study findings would be made available to them.

This study was carried out in a western province of Iran. Two institutions in the area offered bachelor's degree nursing programs in collaboration with public and private universities at various educational levels, from undergraduate to postgraduate. Nursing students at the university level were chosen from Iran's Urmia area for ease of access.

The sample size was estimated 165 nursing students based on a power analysis that aimed for a 95% confidence level and 99% power. Previous research (21) found a connection coefficient of 0.59 between nursing students' assessments of their clinical teachers' level of care and their professional conduct. To guarantee enough representation and to account for anticipated dropouts, a total of 200 nursing students were recruited using census sampling.

The target population consisted of 237 nursing students enrolled in the fourth, fifth, sixth, seventh, and eighth semesters of their bachelor degree program. The inclusion criteria were being Persian-speaking bachelor nursing students, being willing to participate, and having completed at least three semesters of nursing education (22). This timeline was thought required to guarantee that students received adequate clinical training, which was critical for appropriately measuring their sense of belonging in the clinical setting. Students who declined to continue their studies or did not complete the questionnaire in its entirety were excluded. Furthermore, first-year students were removed from the research because of a lack of expertise in hospital training, which was critical for determining clinical belongingness.

Data Collection and Measurements

The study group provided written and verbal material to mentors and administrators prior to the start of the review. School leaders provided permission for data collection from designated nursing students. Participants were informed of the research objectives and procedures and were assured that they can withdraw from the study at any time. Before this study, mentors shared an audio recording of a letter from the research group emphasizing the voluntary and confidential nature of participation. Data collection took place face-to-face in the clinical setting, with prior arrangements made with consent from mentors and the current study researcher, involving nursing students from the fourth to eighth semester.

In this study, the tools used for collecting data included the Demographic Characteristics Information Sheet (DCIS), the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) by Knox and Mogan (23), Compassion Competence (CC) by Lee and Seomun (24), and the Belongingness Scale-Clinical Placement Experience (BES-CPE) by Levett-Jones, et al. (25). The DCIS collected information on age, gender, marital status, clinical experience, residence status, and interest in the nursing profession.

To address missing data, we omitted the cases with incomplete surveys from the analysis. This approach was taken to ensure the integrity of the results, as incomplete responses could have skewed the findings. The final analysis was conducted on the completed questionnaires from the remaining participants.

The NCTEI was a self-reported survey with 47 items, rated on a seven-point scale from ranging "never used" to "always using". The survey had five subscales: teaching ability, nursing competence, evaluation, personality, and interpersonal relations. The highest and lowest possible scores on the survey were 329 and 47, respectively. The results were also reported as the mean score for each subscale. The content validity ratio (CVR) and the content validity index (CVI) of the NCTEI were found to be above 0.70 and 0.99, respectively, by a group of 20 faculty members from Shiraz Nursing and Midwifery School. Furthermore, Cronbach's alpha coefficient was utilized to assess the reliability of the overall scale and its subscales, including teaching ability, nursing competence, evaluation, personality, and interpersonal relations, with values ranging from 0.87 to 0.95 (23).

The BES-CPE, a self-administered research tool with 34 items scored on a five-point Likert-type scale, measures clinical belongingness. Higher scores indicate a higher sense of belonging. The questionnaire consists of three subscales: esteem (13 items), connectedness (10 items), and efficacy (8 items), with items 6, 12, and 22 not belonging to any subscale. Some items, such as 10, 14, 22, and 26 are scored in reverse. The mean score for each subscale is used for reporting results, with possible scores ranging from 34 to 170. Nursing students with higher scores are more likely to feel connected to clinical environments (25). Ashktorab, et al. introduced the translated version of the questionnaire for the first time. The Persian version of the BES-CPE was translated, culturally adapted, and validated in Iran. The psychometric results confirmed its high validity and reliability in the Iranian population, making it suitable for use in clinical settings. The average calculation method was used to determine the CVI and overall validity of the scale, yielding a score of 0.92. Additionally, the reliability of the entire scale and its sub-scales (esteem, connectedness, efficacy) were assessed using Cronbach's alpha coefficients, resulting in values of 0.92, 0.85, 0.86, and 0.80, respectively (26).

The CC scale, created by Lee and Seomun in 2016, is a self-assessment tool with 16 questions that assess three main components: communication, sensitivity, and insight. For instance, questions in the communication section focus on the importance of communication with patients. The sensitivity section delves into awareness of patients' emotional changes, while the insight section examines the respondent's positive perspective on patients based on their clinical experiences. Participants rate each question on a scale of 1 to 5. The overall score is determined by averaging the scores of all questions (24). Niroomandan and Ahi (2018) conducted a translation and psychoanalysis of the tool with a sample of 330 nurses. Content validity was confirmed by 12 expert nurses, explaining 79.60% of the variance through Varimax rotation. Question 8 was assigned to the first factor in the validity testing. Internal correlations for the test ranged from 0.31 to 0.65. The acceptable level of the CVR in this study (with 12 specialized nurses) was considered to be 0.62, and the CVI was 0.79. Reliability analysis using Cronbach's alpha coefficient yielded a value of 0.91 for the overall test, with subscale reliabilities for communication, sensitivity, and insight of 0.88, 0.77, and 0.73, respectively. The retest reliability of the scale was estimated to be 0.80 (27).

Data Analysis

The data were analyzed through various statistical methods such as mean, standard

deviation, t-test, linear regression, and Pearson's correlation coefficient using IBM SPSS Statistics for Windows, version 16.0 (IBM Corp). The significance level was considered a p value under 0.05. Before the statistical testing, the Kolmogorov-Smirnov test was utilized to validate the normal distribution of the data, which was confirmed with a p-value exceeding 0.05.

Ethical Considerations

This study was extracted from the master of science thesis in medical education sponsored by Smart University of Medical Sciences, Tehran, Iran, (with the approved ethical code: IR.VUMS.REC.1401.054). Before commencing the study, we obtained ethical approvals and engaged with department heads to ensure transparency regarding our study objectives and methodologies. The research adhered to the Declaration of Helsinki principles, ensuring that participants understood the study objectives and procedures. They were assured of data confidentiality and their right to withdraw from the study and provided written informed consent before participating.

Results

Participant Demographics

The study began with a sample size of 248 nursing students, but 11 declined to participate for personal reasons. Finally, 237 nursing students (94.5%) completed the surveys. The respondents' mean age and standard deviation were 23.08 (3.13 years). The majority of nursing students were female (67.1%, 159), unmarried (89.9%, 213), and lived in dorms (51.9%, 123).

A t-test was utilized to determine the association between demographic data and CBS, CC, and NCTE characteristics. There was a significant gender difference in CBS and CC characteristics, with female nursing students having a higher average NCTE than male students (P=0.012). There was no statistically significant difference in effective clinical conduct of professors and CC among undergraduate nursing students based on family nurse presence, residency status, employment experience, and interest in the nursing profession (Table 1).

Compassion Competence, Clinical Belongingness Sense, Nursing Clinical Teacher Effectiveness, and their Relationships

Based on the findings of this investigation, the mean and standard deviation of NCTE scores (179.27±26.15), CBS scores (3.56±0.48), and CC scores (59.47±9.50) were computed. Communication skills were determined to be the greatest competency among nursing students (24.78±7.45), whereas insight was recognized as the lowest (14.35±4.07). The NCTE was most visible in the teaching skill category (65.05±10.31), whereas the interpersonal communication domain demonstrated the least effective conduct among professors (21.61±4.18). CBS scores ranged from (1.28±0.17) to (0.13±0.17) among undergraduate nursing students. The Pearson test findings in Figure 1 revealed a moderate positive correlation between NCTE and CC (r=0.392, P=0.001).

Table 1: Relationship among Iranian undergraduate nursing students' demographics and their Compassion Competence (CC), Clinical Belongingness Sense (CBS), and Nursing Clinical Teacher Effectiveness (NCTE)

Compounds Variations		CC Mean±SD	P-value	CBS Mean±SD	P-value	NCTE Mean±SD	P-value
Gender	Female	59.59±9.769	P=0.274 [a]	3.56±0.49	P=0.318[a]	179.84±28.35	P=0.012[a]
	Male	59.23±8.99		3.55±0.48		178.11±21.09	
Marital status	Single	59.64±9.29	P=0.072 [a]	3.54±0.49	P=0.770[a]	178.07±25.93	P=0.636 [a]
	Married	57.91±11.31		3.7083±0.43		189.95±26.18	
Work experience	Yes	59.41±9.44	P=0.803 [a]	3.58±0.48	P=0.942[a]	179.68±26.88	P=0.216 [a]
	No	58.66±9.53		3.48±0.50		176.26±23.35	
Nurse relative	Yes	59.26±10.148	P=0.257[a]	3.56±0.46	P=0.651[a]	182.54±25.16	P=0.591 [a]
	No	59.58±9.17		3.56±0.49		177.54±26.57	
Resident status	At home	59.49±9.83	P=0.306 [a]	3.57±0.44	P=0.134[a]	182.71±24.54	P=0.694 [a]
	In dorm	59.45±9.22		3.54±0.526		176.08±27.26	
Interest to the nursing profession	Yes	59.01±9.81	P=0.290 [a]	3.55±0.47	P=0.386[a]	180.04±26.81	P=0.456 [a]
	No	60.48±8.78		3.57±0.52		177.60±24.78	
Educational semester	Semester 5	58.02±9.99	P=0.417 [b]	3.56±0.53	P=0.828 [b]	23.78±2.86	P=0.501 [b]
	Semester 6	59.15±10.62		3.55±0.51		30.16±4.49	
	Semester 7	60.25±9.21		3.52±0.43		24.96±2.88	
	Semester 8	60.62±8.02		3.61±0.48		27.35±3.94	

[a]The independent t-test was used to compare two groups; Bold text indicates statistically significant at P-values<0.05; Compassion Competence=(CC); Clinical Belongingness Sense=CBS; Nursing Clinical Teacher Effectiveness= NCTE; SD=Standard Deviation; [b] ANOVA test was used to compare the means of more than two groups.

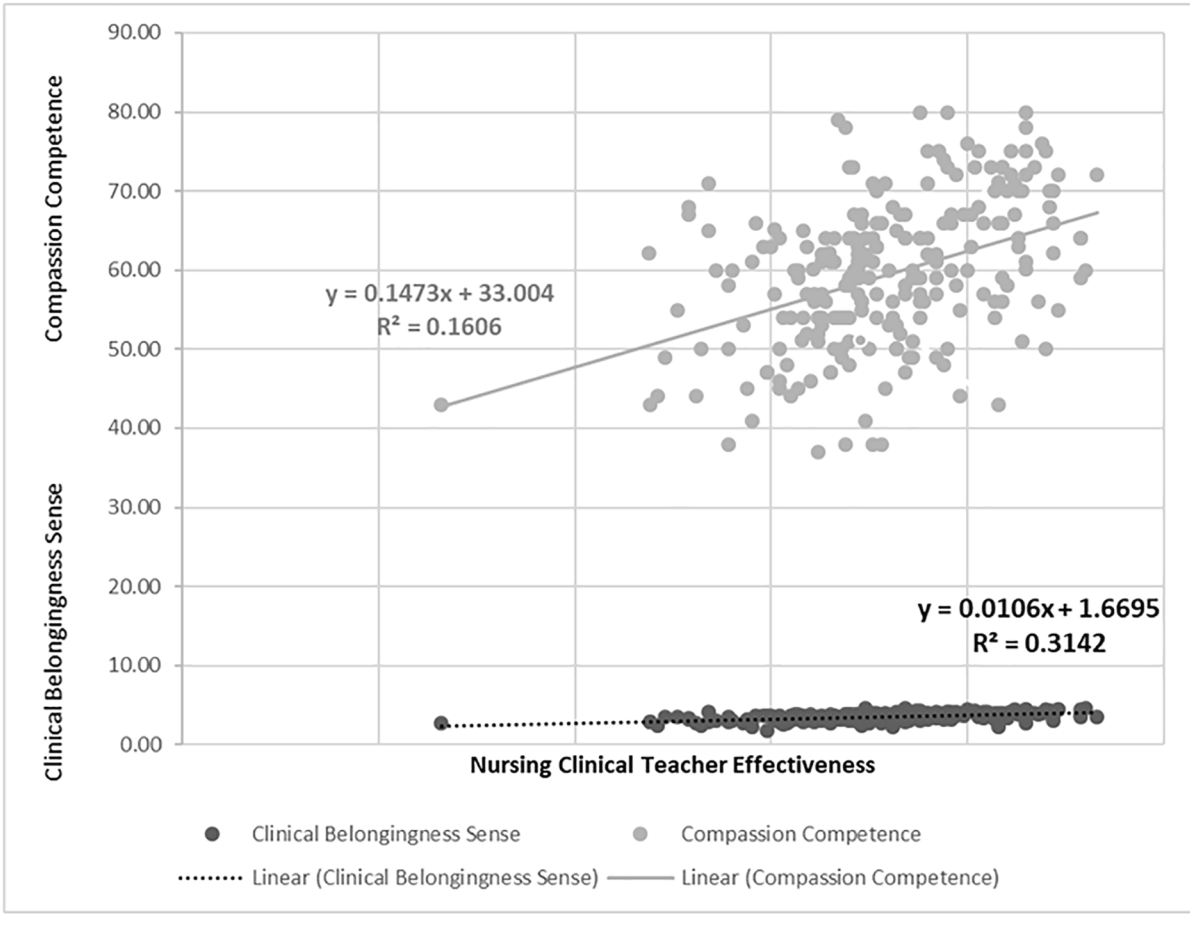

Figure 1: Correlation between Compassion Competence(CC), Clinical Belongingness Sense(CBS), and Nursing Clinical Teacher Effectiveness(NCTE) among Iranian undergraduate nursing students

There was also a statistically significant moderate positive connection between NCTE and CBS among undergraduate nursing students (r=0.564, P=0.001). Furthermore, there was a moderate positive connection between CBS and CC among undergraduate nursing students (r=0.424, P=0.001).

Table 2 shows that teaching ability in NCTE has a substantial positive statistical link with self-esteem (r=0.544, P=0.001) and efficiency (r=0.528, P=0.001) for the CBS variable. NCTE clinical competency subscale also had a moderate positive statistical association with continuity (r=0.367, P=0.001), all three domains of insight (r=0.374, P=0.001), sensitivity (r=0.342, P=0.002), and relationship (r=0.356, P=0.0001) concerning nursing students' CC variables. Furthermore, NCTE nursing competence domains showed a moderately favorable statistically significant association with efficiency (r=0.490, P=0.001), self-esteem (r=0.478, P=0.001), and attachment (r=0.389, P=0.001) in respect to the CBS variable. It also had a moderate positive link with the relationship domain (r=0.322, P=0.001) connected to CC, but a weak positive relationship with insight (r=0.314, P=0.001) and sensitivity (r=0.317, P=0.001). Furthermore, interpersonal communication and NCTE personality characteristics exhibited a somewhat good statistical association with efficiency (r=0.334, P=0.001; r=0.491, P=0.001), self-esteem (r=0.341, P=0.001; r=0.468, P=0.001), and attachment (r=0.415, P=0.001; r=0.338, P=0.001) associated to CBS. However, these factors exhibited a weak positive statistical association with insight (r=0.236, P=0.001; r=0.301, P=0.001), sensitivity (r=0.230, P=0.001; r=0.283, P=0.001), and relationship (r=0.241, P=0.001; r=0.292, P=0.001) in relation to CC. NCTE assessment also revealed a mild positive statistically significant association with insight (r=0.266, P=0.001), sensitivity (r=0.307, P=0.002), communication (r=0.274, P=0.0001), and continuity (r=0.199, P=0.001) associated to the CBS variable. However, this evaluation domain had a relatively favorable link with efficiency (r=0.426, P=0.001) and self-esteem (r=0.385, P=0.001) in terms of the CBS variable (Table 2).

Finally, the study found a statistically significant relationship between the domains of

Table 2: The relationship between Compassion Competence(CC) with the subscales of Clinical Belongingness Sense(CBS) and Nursing Clinical Teacher Effectiveness(NCTE) among Iranian undergraduate nursing students

Variables	The subscales		CC	CBS	NCTE
The subscales of CC	Communication	r*	0.941	0.378	0.360
		P-value	0.001	0.001	0.001
	Sensitivity	r*	0.896	0.402	0.357
		P-value	0.001	0.001	0.001
	Insight	r*	0.879	0.383	0.354
		P-value	0.001	0.001	0.001
The subscales of CBS	Self-esteem Continuity	r*	0.483	0.883	0.540
		P-value	0.001	0.001	0.001
	Efficiency Self-esteem	r*	0.267	0.882	0.421
		P-value	0.001	0.001	0.001
	Continuity	r*	0.410	0.872	0.548
		P-value	0.001	0.001	0.001
The subscales of NCTE	Teaching Ability	r*	0.383	0.537	0.937
		P-value	0.001	0.001	0.001
	Nursing Competence	r*	0.350	0.511	0.908
		P-value	0.001	0.001	0.001
	Evaluation	r*	0.309	0.410	0.871
		P-value	0.001	0.001	0.001
	Interpersonal Relations	r*	0.260	0.424	0.742
		P-value	0.001	0.001	0.001
	Personality	r*	0.320	0.477	0.720
		P-value	0.001	0.001	0.001

*Pearson test used to compare the relations between the study variables; Compassion Competence=CC; Clinical Belongingness Sense=CBS; Nursing Clinical Teacher Effectiveness=NCTE

Table 3: Regression analysis between independent variables and the Compassion Competence(CC)

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	P-value*	95% Confidence Interval for B	
	B	SE	Beta		Lower Bound	Upper Bound
CBS	5.806	1.367	0.298	0.001	3.112	8.499
NCTE	0.081	0.026	0.224	0.002	0.031	0.132
Constant	24.192	4.450		0.001	15.425	32.958

*Linear regression was used to validate the analysis of the results at statistically significant p-values<0.05, R=0.463, R-Square=0.214, Standard Error of the Estimate=8.46102, Durbin-Watson=2.024; SD=Standard Deviation; SE=Standard Error; Nursing Clinical Teacher Effectiveness=NCTE; Clinical Belongingness Sense=CBS.

efficacy and self-esteem related to CBS variables and three domains of insight (r=0.360, P=0.001 and r=0.437, P=0.001), sensitivity (r=0.408, P=0.001 and r=0.458, P=0.001), and relationship (r=0.375, P=0.001 and r=0.429, P=0.001) related to CC variables. However, there was a modest statistically significant link between three the domains of CC variables, namely communication (r=0.238, P=0.001), sensitivity (r=0.275, P=0.001), and insight (r=0.237, P=0.001), and the continuous range of CBS variables.

Predicting Compassion Competence(CC) based on Clinical Belongingness Sense(CBS) and Nursing Clinical Teacher Effectiveness(NCTE)

Analysis of variance results showed a statistically significant result (F=234.31.927, p<0.001) for regression analysis. Furthermore, linear regression findings indicated a substantial link between CBS and NCTE, with CC having a correlation value of 0.463 and an explanation coefficient of 0.214. This suggests that these factors may explain 21.4% of CC among undergraduate nursing students (r=0.463, R2=0.214, Standard Error of Estimate=8.461, Durbin-Watson=0.24) (Table 3). Furthermore, CC was predicted using self-esteem (p=0.001) as a CBS subscale and assessment (p=0.001) as an NCTE subscale, with the influence of each mediator's variable controlled for (r=0.520, R2=0.270) (Table 4).

Predicting Clinical Belongingness Sense(CBS) and Compassion Competence(CC) based on Nursing Clinical Teacher Effectiveness(NCTE)

According to Figure 1, the correlation coefficients of nursing students' CBS and CC with NCTE were 0.564 (R2=0.318) and 0.392 (R2=0.154), respectively. These data show that

Table 4: Regression analysis between the subscales of independent variables and the Compassion Competence(CC)

Independent Variables	The Subscales	Mean±SD	Unstandardized Coefficients		Standardized Coefficients	P-value*	95% Confidence Interval for B	
			B	SE	Beta		Lower Bound	Upper Bound
CBS	Self-esteem	1.28±0.17	21.203	4.922	0.389	0.001	11.505	30.902
	Continuity	1.05±0.17	-7.810	4.448	-0.148	0.080	-16.575	0.954
	Efficiency	0.91±0.13	9.399	6.410	0.136	0.144	-3.230	22.029
NCTE	Teaching Ability	65.05±10.31	0.141	0.191	0.062	0.460	-0.234	0.516
	Nursing competence	34.03±5.71	0.067	0.148	0.034	0.650	-0.224	0.359
	Evaluation	30.70±5.39	0.624	0.145	0.389	0.001	0.338	0.909
	Interpersonal relations	21.61±4.18	-0.230	0.131	-0.148	0.080	-0.487	0.028
	Personality	27.87±4.85	0.276	0.189	0.136	0.144	-0.095	0.648
Constant			20.622	4.501		0.001	11.753	29.491

*Linear regression was used to predict CC based on the subscales NCTE of and CBS at statistically significant p values<0.05, r=0.520, R-Square=0.270, Std. Error of the Estimate=8.26294, Durbin-Watson=2.085; SD=Standard Deviation; SE=Standard Error; Nursing Clinical Teacher Effectiveness=NCTE; Compassion Competence=CC; Clinical Belongingness Sense=CBS.

roughly twice as many nursing students' CBS (31.42%) as their CC (16.06%) can be explained individually by the variable of instructors' persuasive actions. The findings of the analysis of variance were provided to validate the regression analysis. The regression analysis results are valid and significant in CBS (R2=0.318, F235=109.802, p<0.001) and CC (R2=0.154, F235=42.72, p<0.001) (Figure 2).

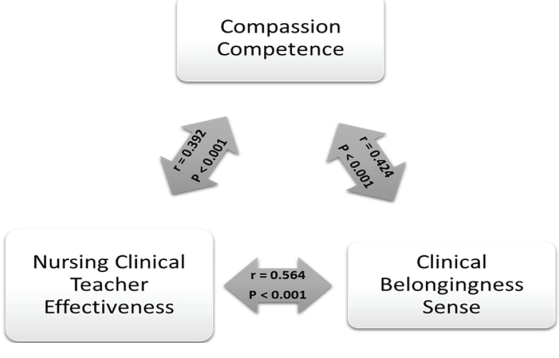

Figure 2: Comparing the scatterplot figure of the correlation of the Nursing Clinical Teacher Effectiveness (NCTE) with the Nursing Students' the Compassion Competence (CC) and Clinical Belongingness Sense (CBS)

Discussion

The study findings revealed a substantial positive link between CC and NCTE, with a prediction score of 27.67 percent, with the majority of students having a high mean CC and NCTE scores. In this regard, a review of many research demonstrated that while nursing students had a high level of CC, this attribute has been shown to have inconsistent impacts on their nursing professionalism and clinical performance stress (28). CC has been demonstrated to have a good link with secondary traumatic stress and quality of life among practicing nurses but a negative correlation with missed nursing care and job burnout (29). According to Çiftçi and Dincer (2023), even students with an average level of CC reported low spiritual views and spiritual care, highlighting the need for more research into the relationship between these factors (30). Alquwez, et al. (2021) discovered moderate levels of caring behavior and compassion competence (CC) among nursing students, with self-kindness and mindfulness as major predictors (31). According to Jeong and Seo (2022), communication skills play an important role in mediating the link between CC and patient-centered care, which is impacted by characteristics such as professionalism and stress. It should be highlighted that despite the favorable link between CC and NCTE, CC may be impacted by a number of factors, including nursing professionalism, clinical practice stress, traumatic stress, spiritual care, and loving conduct.

In this study, we found a slight positive connection between NCTE and CBS, with a prediction score of 15.36%. Notably, the effectiveness of the faculty, including credentials and teaching abilities, had a substantial impact on students' self-esteem and perceived efficacy in the CBS environment. Previous research has found a favorable link between CBS and different aspects of professional conduct among nursing students (21, 32). A recent study has also found a considerable correlation between clinical teachers' supporting or neutralizing conduct and students' level of clinical engagement (33, 34). Bahramnezhad, et al. (2022) stressed the importance of interpersonal connection between clinical professors and students in establishing

a sense of acceptability in clinical settings (35). Interestingly, Noreen, et al. (2023) found that poor clinical supervision and a lack of orientation toward belonging might have a negative impact on CBS and clinical performance in Pakistani nursing students. Furthermore, previous research has found an inverse link between CBS and inappropriate actions among nurses, as well as feeling of stress among nursing students (36-39). These disparities may be due to cultural differences and the different clinical conditions in which nursing students work, implying that improving faculty teaching quality and creating clear assessment standards might considerably boost the students' sense of belonging in clinical settings. Furthermore, there was a statistically significant positive link found between CC and CBS among undergraduate nursing students. There were weak positive connections between CC domains—communication, sensitivity, and insight—and clinical sense of belonging, which includes effectiveness, self-esteem, and attachment. A study in Iran found a favorable connection between clinical self-efficacy and CBS (32). According to Borrott, et al. (2016), students want their clinical professors to respect them and communicate well (40). However, problems such as less compassionate care and passive coping methods have been recognized as the risk factors for compassion fatigue among nursing students in China (41). In Iran, Ghafourifard, et al. (2022) underlined that both human and organizational variables influence the nurses' ability to provide compassionate care (42). Su, et al. (2020) found that good interpersonal interactions and role modeling by nursing leaders had a substantial impact on students' effectiveness in providing compassionate care (43). Kavradım, et al. (2019) discovered a favorable association between compassion and professional values of Turkish nursing students (44), and Hagerman, et al. (2020) indicated that self-compassion promotes different elements of well-being in nursing students, leading to academic performance (45).

This study focuses on the importance of compassionate competence in nursing students' clinical belonging, with nursing students scoring best in the communication area of CC and lowest in the insight domain. Notably, native nursing students with job experience had much higher CC levels than non-natives. In addition, students in the seventh semester had the greatest CC, while those in the eighth semester had the lowest. Gender and marital status did not show significant variations in compassionate competences, which is consistent with the findings of Edoho Samson-Akpan, et al. (2022) (46). However, significant associations were found between CC and variables such as country of residence, marital status, semester, and age (30). In contrast, Kavradım, et al. (2019) reported no variation in compassion levels among Turkish nursing students between their first and third years, while female students demonstrated more compassion than men (44). Furthermore, Yi, et al.(2022) found that night-shift students had increased compassion fatigue (47). Understanding these elements is critical for improving nursing students' compassionate competence while also promoting their professional development and well-being. Most nursing students reported a strong sense of clinical belonging, albeit this dropped from the fifth to the eighth semester. The self-esteem domain had the lowest average, while the attachment domain had the highest. Interestingly, there were no significant variations in clinical belonging depending on gender, residency status, or interest in nursing. Grobecker (2016) and Borrott, et al. (2016) discovered no relationship between affiliation and demographic characteristics like age or gender (38, 39). Previous research on the link between belonging and demographic characteristics has produced conflicting results, highlighting the complexities of this issue (32, 33). Understanding a feeling of belonging in clinical settings is critical for nursing students since it can be influenced by a variety of personal and environmental variables. Further study into these disparities is needed to properly guide nursing education and practice.

Limitations

The respondents' mental states may have impacted their responses when completing the surveys. To reduce fatigue and potential bias, we divided the surveys into two halves. Before beginning their hospital training, nursing students had a 15-minute introduction lesson in a quiet instruction room in the hospital setting. It is advised that the surveys should be completed outside of internship hours to ensure accuracy and avoid weariness. To effectively analyze variables such as CC tools, CBS, and NCTE, it is recommended that checklists and observation tools should be employed and not depend entirely on self-reporting. Because this study concentrated on one academic level of nursing students in a specific location of Iran, it would be good to undertake a larger-scale investigation with students from various academic levels to confirm the findings.

Conclusion

Finally, combining NCTE with CBS has been demonstrated to significantly increase the nursing

students' prediction abilities for clinical reasoning and CC. These frameworks are critical in training students for successful nursing jobs because they boost their confidence, decision-making abilities, and CBS. One useful strategy is to create educational programs that incorporate experiential learning, such as simulations and role-playing, allowing students to exercise clinical reasoning and compassion in a controlled environment. Mentorship programs that connect students with seasoned nurses might also help them feel more connected to their community. Reflective techniques, such as writing and group conversations, promote personal development and self-awareness of compassion and belonging. Nursing educators may improve students' readiness to provide compassionate patient care by prioritizing the NCTE and CBS frameworks, as well as these tactics, resulting in the creation of trained and sympathetic healthcare workers who are linked to their communities.

Authors' Contribution

All authors contributed to the discussion, read and approved the manuscript, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of interest

The authors declare that they have no conflicts of interest.

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