

Social intelligence, empathy, and self-esteem among undergraduate nursing students: a correlational study



Original article

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Abstract: **Objective:** To investigate the relationship between social intelligence (SI), empathy, and self-esteem among nursing students. **Methods:** A quantitative cross-sectional design was utilized to conduct this study. Data were collected from 465 students from 4 different nursing colleges between April and November 2021. The Tromso Social Intelligence Scale (TSIS), Jefferson Empathy Scale, and Rosenberg Self-Esteem Scale were used to collect data. A complete enumerative technique was used to select the students at the time of data collection. **Results:** Most of the student nurses scored lower in SI. However, they had an acceptable level of empathy and a high level of self-esteem. A correlation was found between self-esteem and gender, as well as empathy and year of study. **Conclusions:** Our findings suggest that nursing students would benefit from improved SI skills. More work is needed to determine how best to incorporate these concepts into nursing curricula and create training programs for nursing students.

Keywords: empathy • nursing • self-esteem • social intelligence • students • education

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1. Introduction

Nursing is a profession built around the philosophy of promoting health by providing holistic care for everyone. Thus, to carry out nursing duties and maintain a therapeutic relationship with patients and families, a nurse must possess a blend of social, professional, and personal abilities such as social intelligence (SI), empathy, and self-esteem.

Students are a major part of any institution. During this stage of their life, they explore new ideas and are enthusiastic about forming new relations. Finding one's place in a peer group is a crucial developmental endeavor for this age group where they live for the approval of their elders and peers. In nursing, students must interact with patients and their family caregivers,

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supervisors, peers, and other healthcare staff for continuous learning. Thus, having good interpersonal skills and developing a good relationship with patients and peers is an important component of nursing students' clinical practice.

1.1. Background

E. Thorndike introduced SI as the ability of an individual to relate to others, recognize social situations, correctly interpret them, and react accordingly. According to Goleman¹ SI can be defined as (1) social awareness (SA), which comprises primal empathy, atonement, empathic accuracy, and social cognition, and (2) social facility, which includes synchrony, self-presentation, influence, and concern. It allows an individual to successfully build and manage interpersonal relationships, navigate social environments, and play appropriate social roles.² SI can be learned and improved through practice by being more aware of self and social environment, and by being empathetic toward others.³ As a domain of work readiness, SI skills are also necessary for the successful transition of graduate students into the workplace.⁴

In a healthcare setting, SI and empathy can be considered essential skills, as they are closely linked to nurses' ability to successfully build a therapeutic nurse-patient relationship. Empathy can be defined as "an individual's ability to understand and share the feelings of others,"⁵ which helps to form positive bonds between individuals and strengthens interpersonal relationships.⁶ It allows nurses to tune into the patients' emotions, which often goes beyond spoken words. Being able to understand others, knowing community norms, understanding complex social situations, and being competent in managing people are vital in nursing. Thus, appropriate expressions of empathy can build patient trust, calm anxiety, and improve overall health outcomes.

Although there is convincing evidence that empathy plays an important role in patient care, the literature suggests that current-generation students in medical services not only show less empathy but also fail to recognize the significance of empathy.⁷ However, previous studies conducted among nursing students have shown positive results, i.e., nursing students were found to have an acceptable level of empathy.^{8,9} The available literature also shows that sociodemographic and academic factors, year of study, future career preference, personality traits, sense of power, stress, and burnout may affect a student's empathy.¹⁰

Empathy is also very closely related to self-esteem, i.e., when individuals react empathetically to others, they often boost their self-esteem in the process.¹¹ The

term self-esteem was first coined by James in 1984 which refers to the contentment or satisfaction individuals have with their characteristics, emotions, thoughts, and status.² A descriptive survey finding by Kim¹² shows that empathy has a positive and significant correlation with self-esteem, interpersonal relationships, and self-efficacy. It infers that empathy may also impact self-esteem, self-efficacy, and better interpersonal relationships of an individual, and vice-versa.

Self-esteem begins developing in adolescence and evolves through middle age. It is an essential quality students must have as it helps them take failure in their stride. A healthy level of self-esteem allows one to view the situation positively and learn from their mistakes. Individuals with a greater level of self-esteem have been shown to have better well-being,¹³ be more socialized,¹⁴ manage stress effectively,¹⁵ be more attentive and be more willing to help others.¹⁶ Previous studies have also reported that nursing students have a higher level of stress and low self-esteem, which put them in a vulnerable position to develop serious mental illnesses such as anxiety and depression, impacting their academic performance¹⁷ and interpersonal relations.¹⁸

1.2. Conceptual framework

The current study has adapted King's conceptual systems theory to examine the relationship between SI, empathy, and self-esteem among student nurses. It has been established in prior research that King's conceptual system theory is a useful framework for analyzing the

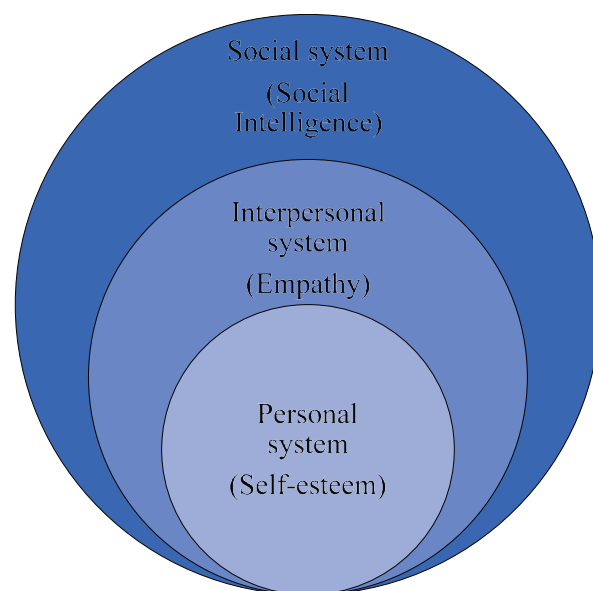


Figure 1. Conceptual framework adapted from King's Conceptual Systems Theory.

interactions and connections between the 3 systems that make up an individual: the personal, the interpersonal, and the social systems.¹⁹ According to the theory, each system is an open system with a unique set of characteristics and capabilities. The open systems interact and influence one another. The investigator assumes that student nurses may use SI, empathy, and self-esteem as tools to facilitate this interaction. The conceptual framework for the research is displayed in Figure 1.

1.2.1. Personal system

According to King's theory, every individual is a personal system that is unique, complete, and open and is in constant interaction with its environment. Each personal system has its own concept of body image, perception, self, space, personal goals, and values. In the current study, each nursing student is viewed as a personal system, where each individual is unique and has a perception of self-esteem that drives their motivation, behavior, and action.

1.2.2. Interpersonal system

King's theory defines the interpersonal system as an interaction between two or more individuals or personal systems through communication, relationships, and roles. A major and important component of any communication and relationship is empathy. In the current study, the researcher assumes that student nurses build and maintain relationships with their peers, teachers, and patients through empathy and empathetic communication skills.

1.2.3. Social system

According to King's theory, the social system is the broader setting in which individuals or personal systems live and interact. This system has set social roles, behaviors, and values that guide the regulation of practice and rules. A person's ability to identify social situations, accurately interpret them, and respond appropriately are all aspects of SI. The researcher in the current study assumes that student nurses engage with others in their social system using their SI and empathy skills, which affect their self-esteem and vice-versa.

1.3. Study aims

The researchers felt the need to conduct this study because Social Intelligence (SI), empathy, and self-esteem are 3 essential attributes for nursing students that may also affect their performance, few research studies have been conducted on the relationship between them among nursing students. This research

will provide valuable insight into understanding how the personal resources of nursing students, such as SI, empathy, and self-esteem are related to each other. The results of this research will also help in identifying the areas where student nurses may need additional support or training, which can be further used to develop effective training programs. Thus, the present correlational study aims to (a) assess the level of SI, empathy, and self-esteem among undergraduate nursing students, and (b) find the relationship between SI, empathy, and self-esteem among undergraduate nursing students at various nursing colleges.

2. Methods

2.1. Design

This descriptive correlational study aims to determine the relationship between SI, empathy, and self-esteem among undergraduate nursing students.

2.2. Study setting

The study was conducted in 4 nursing institutions of selected Taluk that provided permission to conduct the study. These institutions have various nursing programs, with students from different regions of the country.

2.3. Sample, sampling technique, and sample size

The study was conducted among undergraduate (BSc) nursing students enrolled in different colleges in a selected district of a lower-middle-income country (LMIC). The sample size was estimated at 489 participants, based on a standard deviation (SD) of 10.3 (taken from the study findings of Chettri)²⁰, an absolute error of 1%, a 95% confidence interval, and a 20% attrition rate. The participants were selected using a complete enumerative sampling technique. During the data collection period, a total of 500 students were available at the selected study sites. Data were collected directly from the students on-site who were willing to participate in the study and were available during the data collection period. Invitations to participate in the study were also sent through Google Forms to approximately 200 students. The final sample consisted of 465 undergraduate nursing students, with a response rate of 93%.

2.4. Inclusion and exclusion criteria

The study included nursing students enrolled in BSc nursing programs at a selected district of an LMIC, and who consented to participate. Student nurses who were

unavailable during the data collection period, and who did not provide consent were excluded from the study.

2.5. Study instruments

2.5.1. Demographic proforma

This tool was developed to assess the student's background information. The *pro forma* consisted of 15 items: age, gender, religion, nationality, name of institution, year of study, monthly household income in rupees, type of family, occupation of father, occupation of mother, fathers' and mothers' education, number of family members, number of siblings, and spoken languages. The demographic *pro forma* was given to 3 experts to establish validity, and the scale validity index was 1.

2.5.2. Tromso Social Intelligence Scale

This is a standardized scale with 21 items. The 3 factors assessed in the tool were: social information processing (SIP), social skills (SS), and SA which are scored on a 7-point scale. A score of 1 "describes me extremely poor" and a score of 7 "describes me extremely well." The lowest possible score on the scale is 21 and the highest possible score is 147. Higher scores on the scale indicate a higher level of SI. However, according to Meijs et al.,²¹ a reliable composite SI score can be computed by averaging the 21 items. Therefore, a mean and SD of 4.38 ± 0.46 were computed and were used to compare the current study results, i.e., a mean score of ≥ 4.38 is high SI and vice versa. The internal reliability for each factor was evaluated using Cronbach's α coefficient, i.e., the reliability scores for SP, SS, and SA are 0.81, 0.86, and 0.79, respectively.²²

2.5.3. Jefferson scale of empathy (Health professions student version)

It is a 20-item standardized 7-point scale (strongly disagree = 1 to strongly agree = 7) where the sum of all scores is calculated as the total score that can range from 20 to 140. A higher score indicates higher levels of empathy. The reliability was established by Cronbach's α , and the coefficient was 0.78.²³ Permission to use the tool was obtained from Thomas Jefferson University.

2.5.4. Rosenberg self-esteem scale

It is a standardized scale with 10 items; each item has a score of "0" to "3" points under the options: strongly agree, agree, disagree, and strongly disagree, with a total score of 30. Scores <15 , 15–25, and >25 were

inferred as low, healthy, and high self-esteem, respectively. This tool's reported internal consistency reliability ranges from $r = 0.85$ to $r = 0.88$.²⁴

2.6. Procedure for data collection

The data were collected from the participants between April and November 2021. The investigators explained the purpose of the study and obtained consent from each participant. The tools were administered to the consented participants in their classroom or sent to the participants in the Google form based on the institutional administrator's request. Anonymity and confidentiality were maintained throughout the study.

2.7. Data analysis

Data were analyzed using IBM SPSS Statistics for Windows version 20 (Armonk, New York, The USA). Scores were calculated for each of the variables and expressed as means and SD. The Shapiro–Wilk test showed that the data were not normally distributed. Hence, non-parametric tests such as Kruskal–Wallis, Mann–Whitney U test, and Spearman's Rho correlation were used to analyze the data and report the findings.

2.8. Ethical considerations

Permission was obtained from the Institutional Ethics Committee (IEC:01/2021). The study was also registered in the Clinical Trial Registry of India (CTRI/2021/04/032725). Permission from all the colleges of nursing administrators was also obtained. All the participants gave written informed consent.

3. Results

3.1. Description of sample characteristics

The data were collected from 465 undergraduate nursing students (BSc Nursing Program). Table 1 shows that the majority (86.2%) of the participants were female students aged 18–21 years from the first year of the BSc nursing program (42.2%), belonging to nuclear (83.2%) Christian (63%) families living in rural areas (76.8%), and could speak 1–2 languages (72.9%). Most of the students' parents (40% father and 31.8% mother) have secondary education.

3.2. Social intelligence

The results show that most of the participants (52.7%) scored $<4.38 \pm 0.46$, whereas 47.3% scored

Demographic characteristics	<i>f</i>	%
<i>Age (years)</i>		
18–21	444	95.5
22–25	21	4.5
<i>Gender</i>		
Male	64	13.8
Female	401	86.2
<i>Religion</i>		
Hindu	155	33.3
Christian	293	63
Muslim	14	3
Jew	1	0.2
Buddhist	2	0.4
<i>Year of study</i>		
I year	196	42.2
II year	131	28.2
III year	111	23.9
IV year	27	5.8
<i>Monthly household income (rupees)</i>		
199,862	460	98.9
99,931–199,861	2	0.4
74,756–99,930	2	0.4
49,962–74,755	1	0.2
<i>Type of family</i>		
Nuclear	387	83.2
Joint	74	15.9
Extended	4	0.9
<i>Education of father</i>		
Primary	8	1.7
Secondary	186	40
Higher Secondary	99	21.3
Diploma	44	9.5
Degree	93	20
Post-graduation	29	6.2
PhD and above	5	1.1
Uneducated	1	0.2
<i>Education of mother</i>		
Primary	6	1.3
Secondary	148	31.8
Higher Secondary	127	27.3
Diploma	39	8.4
Degree	97	20.9
Post-graduation	44	9.5
PhD and above	2	0.4
Uneducated	2	0.4
<i>Area of living</i>		
Urban	108	23.2
Rural	357	76.8
<i>Languages spoken</i>		
1–2	339	72.9
>2	126	27.1

The Mann–Whitney *U* test was used to test the significant difference between SI, empathy, and self-esteem with the years of study among undergraduate nursing students, and the Spearman rank correlation was used to test the relationship between the study variables.

Table 1. Description of Demographic characteristics in frequency and percentage (N = 465).

Tromso Social Intelligence Subscales	Minimum	Maximum	Mean	SD
SIP	15	49	36.07	6.2
SS	10	46	29.87	5.2
SA	8	45	26.03	6.25

Note: SA, social awareness; SD, standard deviation; SI, social intelligence; SIP, social information processing; SS, social skills.

Table 2. Description of the subscale of SI (N = 465).

Variables	Year of study	<i>f</i>	Mean rank	<i>H</i> (df)	<i>P</i> -value
SI				14.179 (3)	0.003
	1	196	225.25		
	2	131	261.69		
	3	111	203.52		
	4	27	271.3		
Empathy				18.422 (3)	0.001
	1	196	217.9		
	2	131	270.73		
	3	111	207.3		
	4	27	265.22		
Self-esteem				19.148 (3)	0.001
	1	196	202.56		
	2	131	264.85		
	3	111	243.69		
	4	27	255.5		

Note: SI, social intelligence.

Table 3. Association between SI, empathy, self-esteem, and year of study using Kruskal–Wallis (N = 465).

>4.38 ± 0.46 on the Tromso Social Intelligence Scale (TSIS). Table 2 displays the mean and SD of the subscales of the TSIS. The findings demonstrated that SIP ($M = 36.07$, $SD = 6.2$) was rated as the highest subscale followed by SS ($M = 29.87$, $SD = 5.2$) and SA ($M = 26.03$, $SD = 6.25$).

3.3. Empathy

The findings from this study show that the mean empathy score among nursing students was 96.53, where the minimum score was 45, whereas the maximum was 134. It can be inferred that the student nurse's empathy was at an acceptable level.

3.4. Self-Esteem

The results show that most of the students (88.2%) had a high level of self-esteem, whereas 11.8% had healthy self-esteem.

3.5. Association between SI, empathy, and self-esteem and year of study

The data presented in Table 3 show that there was a statistically significant difference in SI between different years of study, $H(3) = 14.179$, $P = 0.003$, with a mean rank of 225.25, 261.69, 203.52, and 271.30 for the first, second, third, and fourth-year undergraduate nursing students, respectively. The data also showed a statistically significant difference in empathy and different years of study among the nursing students, $H(3) = 18.422$, $P = 0.001$ with a mean rank of 217.90, 270.73, 207.30, and 265.22 for first, second, third, and fourth-year undergraduate nursing students

respectively. Additionally, a statistically significant difference was observed in self-esteem and years of study among the nursing students, $H(3) = 19.148$, $P = 0.001$, with a mean rank of 202.56 for year 1, 264.85 for year 2, 243.69 for year 3, and 255.50 for year 4.

3.6. Association between SI, empathy, and self-esteem and gender

There was no association found between gender, SI, empathy, and self-esteem, as shown in Table 4. It can be inferred that the skills of SI, empathy, and self-esteem are not dependent on the gender of an individual.

S. No.	Variables	Gender	<i>f</i>	Mean rank	<i>U</i>	<i>Z</i>	<i>P</i> -value
1	SI	Male	64	233.35	12,691.5	-0.141	0.888
		Female	401	230.80			
2	Empathy	Male	64	213.64	11,593	-1.241	0.214
		Female	401	236.09			
3	Self-esteem	Male	64	254.39	11,463	-1.381	0.167
		Female	401	229.59			

Note: SI, social intelligence.

Table 4. Mann-Whitney test showing the association between the variables and gender (N = 465).

Variables	TSIS subcategories and category	N	Mean rank	<i>U</i>	<i>Z</i>	<i>P</i> -value
Age (years)	SI processing			3325	-2.225	0.026
	18-21	444	236.01			
	22-25	21	169.33			
	SS			3457	-2.007	0.045
	18-21	444	235.71			
	22-25	21	175.62			
	SA			4216	-0.742	0.458
	18-21	444	234			
	22-25	21	211.76			
Gender	SI processing			12,452.5	-0.381	0.703
	Female	401	233.95			
	Male	64	227.07			
	SS			14,813	1.989	0.047
	Female	401	228.06			
	Male	64	263.96			
	SA			13,639.5	0.81	0.418
	Female	401	230.99			
	Male	64	245.62			

Note: SA, social awareness; SI, social intelligence; SS, social skills; TSIS, Tromso Social Intelligence Scale.

Table 5. Mann-Whitney *U* test showing the association between the TSIS subscales and demographics (gender and age) (N = 465).

Spearman's rho	Empathy	Self-esteem	SI
1. Empathy	1		
2. Self-esteem	-0.101* (0.030)	1	
3. SI	0.315** (<0.001)	-0.066	1

Note: SI, social intelligence; *Correlation is significant at the 0.05 level (two-tailed); **Correlation is significant at the 0.01 level (two-tailed).

Table 6. Spearman's rho correlation between SI, empathy, and self-esteem (N = 465)

3.7. Association between TSIS subscales and gender of undergraduate nursing students

The SS subscale of TSIS was significantly associated with gender at $P = 0.047$, with a mean rank of 228.06 and 263.96 for females and males, respectively (Table 5). It can be inferred that the SS component of SI was higher in nursing students who identified themselves as males than females.

3.8. Correlation between SI, empathy and self-esteem

Spearman's rank correlation was computed to assess the relationship between SI, empathy, and self-esteem (Table 6). The study results show that there is a significant but weakly positive correlation between empathy and SI, $r(462) = 0.315$, $P = < 0.001$; a significant but negative weak correlation between empathy and self-esteem, $r(462) = -0.101$, $P = 0.03$; and a negative weak but not significant correlation was found between SI and self-esteem, $r(462) = -0.066$, $P = 0.15$.

3.9. Correlation between TSIS subcategories

Spearman's rank correlation was performed between the subcategories of the TSIS. The results show that there is a positive significant but weak correlation between SS and SIP, $r(462) = 0.312$, $P = < 0.001$; a weak negative but significant correlation between SA and SIP, $r(462) = 0.353$, $P = < 0.001$; and no correlation between SS and SIP, $r(462) = 0.000$, $P = 0.995$.

4. Discussion

The key findings suggest that most of the student nurses had a lower level of SI. However, they had an acceptable level of empathy and a high level of self-esteem. A correlation was also found between self-esteem and gender, as well as empathy and year of study.

The results from this cross-sectional study showed that 465 nursing students participated in the study,

where the age of the participants ranged from 18 years to 25 years, and only 13.8% of the participants identified themselves as male which was similar to findings from previous studies done among nursing students.^{9,25,26} This could be explained by the general perception of nursing as a female-oriented profession, which results in an overall lower percentage of people identified as male enrolling in the nursing program.

SI skills were assumed to be a major factor in the nursing students' social system, which influences their interaction with interpersonal and personal systems. In a study²⁶ done in India, the median SI score among nursing students was found to be 90 (Q1-85, Q3 = 95), which is close to the current study findings of the total TSIS score (91.98 ± 9.77). There is mixed evidence in the literature that SI scores are influenced by gender. Our study findings are similar to those of previous studies^{26,27} where males had higher TSIS scores than females, although the difference was not statistically significant. In contrast, past research^{21,28} shows that female nursing students had a higher SI score than male students. Overall, evidence from the literature shows that nursing students' SI is at an acceptable level, which might be because they have the desire to socialize and learn and because the institution's environment and curriculum provide them with the opportunities to develop the skills to understand others' feelings and emotions.²⁹

In our study, a significant correlation was found between the age of the participants and their SI components of SIP and SS ($P = < 0.05$). It was also found that gender was significantly ($P < 0.05$) correlated with SS, where female ($M = 29.69$) students scored less than male students ($M = 31.01$). Our results are partly similar to a previous study²⁶ where a significant association was found between the SI score of students and their age. In contrast, no significant association was found with their gender. However, in the study done by Malik et al.,²⁷ male participants scored significantly higher than females in the TSIS subcategory of SS and SA, which is similar to our study findings. This difference in the overall result of SI could be because of the various social and cultural factors, gender roles, and stereotypes of the region where the study was conducted.

An important skill in any interpersonal communication is empathy. The researchers assumed empathy as the major component of the interpersonal system which facilitates communication between the personal and social systems. The present study findings showed a higher level of empathy (96.53 ± 14.39) among the students, which is similar to a previous study⁹ done among 279 student nurses, where a mean empathy score was 88.63 (SD = 8.93).

The results of this study also showed that female nursing students scored higher on the Jefferson Empathy Scale (mean rank = 236.09) than male nursing students (mean rank = 213.64) though the difference was not statistically significant ($P = 0.214$). It was also found that the empathy level was significantly different among years of study with the highest score among second-year students, followed by the final year, the first year, and the third year (mean rank = 270.73, 265.22, 217.90, and 207.30 respectively). The study findings are comparable to a previous study⁹ where female students displayed significantly more empathetic ability than male students. In the same study,⁹ it was found that students in their third year displayed the highest level of empathy. This can be explained by the fact that the students get more exposure to the clinical setting and learn advanced nursing care; they develop more empathetic skills during this learning process. Additionally, as students progress through their academic years, gain clinical experience, and are exposed to patients' psychological and physical pain and difficulties, they simultaneously learn empathetic skills.

Self-esteem was considered as the study component of the participants' personal system. It was determined in this study that the mean self-esteem score was 28.44 ± 2.91 , which suggests that most participants (67.1%) in the current study had high self-esteem. This result is similar to previous studies where nursing students were found to have high self-esteem.^{2,30} It can be inferred from these results that nursing students tend to have a healthy to a high level of self-esteem.

The results of previous studies suggested that gender and age do not play a role in the development of self-esteem.² However, the current study shows that there is a difference in self-esteem scores between genders ($P < 0.05$), where female students scored lower than male students. Similar findings were observed in previous studies^{30,31} where the results showed that female students had lower self-esteem than male participants. It can be inferred from these findings that although nursing students' self-esteem is higher when compared with gender, female nursing students have lower self-esteem than males. This could be explained by the societal and cultural aspects of a region, where there are set roles, behaviors, and expectations based on an individual's gender, which impacts their self-esteem and confidence.

The data from this study also showed a statistically significant difference in self-esteem and years of study among nursing students, with a mean rank of 202.56 for year 1, 264.85 for year 2, 243.69 for year 3, and 255.50 for year 4. The findings from a study done in Nepal³² show that nursing students have a high stress level and low self-esteem, which were statistically significant with students' age and type of nursing program. With these findings, it can be assumed that maybe due to high

academic stress and more exposure to advanced medical settings and procedures, students may feel overwhelmed and less confident. It is thus imperative that other factors that contribute to students' self-esteem be explored. Psychological support from family, friends, and teachers as well as counseling, and adequate orientation to the study program is thus, also important for a smooth transition between academic years and to set realistic goals by students.

The investigator tried to analyze the relationship between these 3 open systems through this study. The current study results show a negative correlation between student nurses' empathy and self-esteem which contradicts the previous study findings^{2,10,33} which showed a positive relationship between empathy and self-esteem. In the current study, a negative weak but not statistically significant correlation was found between self-esteem and SI. This finding contrasts with the findings from a previous study² where a strong positive relationship between self-esteem and SI was found. It can be inferred from these contrasting findings that students' value systems, stress, personality,¹⁰ and life experiences might influence the development of empathy and self-esteem. Improving the professional identity of nursing students and placing more emphasis on empathy in their education may help increase nursing students' self-esteem and empathy. Furthermore, various personal factors affect self-esteem throughout childhood. It may also be assumed that as students use their SI to fit among peers and be socially accepted and it may influence their sense of self-esteem negatively when the outcomes are undesirable. Therefore, a well-designed longitudinal study would help verify a causal relationship between self-esteem and empathy.

4.1. Strengths

One of the strengths of this study was using a conceptual framework as a foundation for the study. A nursing theory was used innovatively to develop the conceptual framework. This provided the researchers with a guide to frame the research questions and a direction for the study. Additionally, by providing a comprehensive analysis of student nurses' SI, empathy, and self-esteem, the study adds valuable insight to the literature, which can help researchers identify areas where student nurses need additional support or training, which is the second strength of this study.

4.2. Limitations

There were a few limitations to the study. First, because the current study used a non-probability sampling technique, no generalizations can be made about the

findings. Second, even though this is typical in psychological assessments, the data may be biased because they were collected via self-report questionnaires. The third limitation is the sample size; as the number of students from each college was different and the female-to-male ratio was high, so it is difficult to make comparisons.

4.3. Recommendations for future research

As the skills of SI, self-esteem, and empathy can be learned, utilizing these in theoretical and clinical learning would contribute to nursing students' professional and personal development. In planning interventions to enhance the SI, self-esteem, and empathy of nurse students, it would be beneficial to consider their personal and cultural characteristics. Incorporating these components into the nursing curriculum would also help student nurses in their professional careers. Future studies may also investigate the effects of cultural influences and training programs on SI, self-esteem, and empathy of nursing students.

4.4. Implications for policy and practice

The results of this study provide meaningful insight into the relationship between SI, self-esteem, and empathy which has practical, educational, and professional implications for nursing students. Since the results of this study suggest that student nurses had lower SI and that there is a relationship between student nurses' self-esteem and empathy with their year of study, it may be useful to incorporate these skills as a part of their theoretical and clinical learning. Nurse educators and nurse administrators may use the findings of this study to design training programs and update the nursing curriculum that not only provides theoretical and technical knowledge to nursing students but also teaches humanistic and SS that would contribute to further nursing students' professional and personal development.

5. Conclusions

SI, empathy, and self-esteem are essential components for nursing students to have effective interpersonal relationships with patients and their significant others. The present study determined that students' overall SI, self-esteem, and empathy are of acceptable levels. The study also found a correlation between self-esteem and empathy.

With the increasing patient population and use of technology in India, nursing students may feel overwhelmed in the clinical setting. This may force them to lose interest and performing the nursing care procedures, which are mechanical. Thus, it is necessary to include these concepts in the nursing curriculum and provide a supportive environment where emotions are respected and paid attention. The authors of the current study suggest that improving SI, empathy, and self-esteem, might also improve the quality of the patient-nurse relationship, and student nurses' academic and professional outcomes.

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Ethics approval

Permission was obtained from the Institutional Ethics Committee (IEC:01/2021). The study was registered with the Clinical Trial Registry of India (CTRI/2021/04/032725). Permission from all the Colleges of Nursing administrators was also obtained. All the participants gave written informed consent.

Conflicts of interest

All contributing authors declare no conflicts of interest.

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