



## Original Article



## Assessment of the Relationship Between Student-Teacher Interactions and Professional Development among Nursing Students in Karachi, Pakistan

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## ABSTRACT

Student-teacher interactions (STIs) and professional development (PD) are a crucial part of nursing education. Both contribute to enhancing self-efficacy among nursing students by fostering knowledge, skills, and professional identity. Objectives: To assess the relationship between student-teacher interactions and professional development among nursing students in Karachi, Pakistan. **Methods:** A cross-sectional analytical study was conducted between November 2024 and January 2025 at two nursing institutions: Dow Institute of Nursing and Midwifery and the College of Nursing, Dr Ruth Pfau Civil Hospital, Karachi. A purposive sample of 235 Bachelor of Science in Nursing (BSN) students was included from the 2<sup>nd</sup> to 4<sup>th</sup> years of nursing students. After getting ethical approval and consent from the participants. Data were gathered using a structured, self-developed questionnaire. Data were analyzed using SPSS version 26.0. **Results:** Out of 235, the mean age ( $25.9 \pm 0.891$ ) of the participants, and a majority were female ( $n=157$ , 66.8%), and were studying in their 4<sup>th</sup> year ( $n=122$ , 51.9%). A bulk of participants were not aware of the hidden curriculum. They found a significant positive correlation between STIs and PD (Spearman's  $\rho = 0.789$ ,  $p < 0.010$ ) among respondents. **Conclusions:** This study found a strong relationship between student-teacher interactions and professional development among nursing students in Karachi, Pakistan. It is recommended to conduct longitudinal and qualitative studies to gain deeper insights into student-teacher interactions and their relationship with professional development among nursing students.

## INTRODUCTION

Nursing education mainly encompasses formal and informal training; both play an important role in guiding nursing students throughout their nursing journey [1]. A formal curriculum includes a written syllabus for nursing students to qualify to become professional nurses. Informal curriculum helps students to understand the complexities of patient care and professional conduct that are not always covered in textbooks or lectures. Student-teacher interaction (STI) is a crucial part of the hidden curriculum that enhances the engagement and self-efficacy of nursing students [3]. Usually, students interact with teachers in the classroom and during their clinical

duties [2]. Previous research has shown that STIs engage students in learning constantly [1]. It also motivates students to discuss assignments and queries openly. Constructive feedback from teachers has a significant place in improving the academic performance of students [1, 2]. Moreover, nursing students who are well-guided by their educators become competent in decision-making and problem-solving. A study has shown that 93.2% of nursing students perceived their academic success as linked with positive interactions with faculty [3]. Professional development (PD) refers to acquiring knowledge, skills, and a professional identity that



comprises formal and informal education [4]. It provides platforms for nursing students to understand values and ethics and develop self-efficacy. PD aims to equip student nurses with the prerequisite professional standards. Major elements of PD include the development of clinical reasoning and reflection, and it enhances professional integrity through observation and the preceptorship model. PD is a multifaceted process that is strongly related to student-teacher interactions [3, 4]. These relationships have several attributes, such as caring, reciprocal respect, and open communication, that promote individual and professional growth. The most important part of the learning environment is the teacher, rather than the student. Competent teachers always exhibit high confidence in their students. They understand the significance of student involvement in the learning process [5]. A teacher's first responsibility is to motivate students to be major participants in their learning by providing a conducive learning environment. Finally, when students achieve success in academic learning, it builds a positive relationship between the student and teacher [6]. STI is an ideal situation that allows both teachers and students to work efficiently. Also, the student and teacher can enjoy the learning process and resolve conflicts easily [4]. Previous studies have endorsed that often, teachers impart their students' unforgettable lessons through actions rather than words. When teachers address multiple challenging situations, students find inspiration [7].

Although student-teacher interactions are widely recognized as a key component of the hidden curriculum in nursing education, empirical evidence examining their direct relationship with professional development remains limited, particularly in the Pakistani context. Most existing studies have been conducted in Western or non-local settings, with minimal data from Karachi addressing how these interactions influence students' professional growth. Furthermore, few studies have quantitatively explored this association among undergraduate nursing students across different academic years. Therefore, context-specific research is needed to better understand this relationship and inform educational strategies within local nursing institutions. This study aimed to assess the relationship between student-teacher interactions and professional acquisition among nursing students in Karachi, Pakistan.

## METHODS

A cross-sectional analytical study was conducted among nursing students studying at the Dow Institute of Nursing and Midwifery and the College of Nursing at Dr Ruth Pfau Civil Hospital, Karachi, by using a purposive sampling technique. The duration of the study was three months from November 2024 to January 2025. The study

population comprised 450 BS Nursing students, with 300 from Dow Institute of Nursing and Midwifery and 150 from the College of Nursing at Dr. Ruth Pfau Civil Hospital, Karachi. This study included nursing students who were currently enrolled in the 2nd to 4th year at the time of data collection. However, students enrolled in their first year of studies, absent during data collection, and who did not provide consent were excluded. An ethical approval was obtained from the Institutional Review Board of Dow University of Health Sciences (IRB-2434/DUHS/Approval/2022/776). Written informed consent was obtained from all participants. A sample size was calculated using Open-Epi software by estimating a population proportion with a finite population: Using the formula  $n = \frac{DEFF \cdot p(1-p)}{((d^2/Z^2_{1-\alpha/2})(N-1) + p(1-p))}$ . Where:  $n$  = required sample size,  $N$  = population size,  $p$  = estimated proportion of nursing students demonstrating professional development (main outcome),  $d$  = margin of error,  $Z$  = Z-score at 95% confidence (1.96), DEFF = design effect (set to 1) [8]. Since no previous data were available, a conservative value of  $p = 0.5$  was chosen to maximize the sample size. The parameters were set at  $d = 0.05$ ,  $Z = 1.96$ , and  $DEFF = 1$ . With a population of 450 students, the required sample size was 208. To account for a possible 20% dropout, the sample was increased to 248. Out of this, 13 participants were excluded due to missing data, leaving 235 participants for the final analysis. Data were collected through a structured, self-administered questionnaire developed through an extensive literature review [1-16]. The questionnaire consisted of three sections: The first section included demographic information such as age, gender, year of study, and knowledge about the hidden curriculum. The second section has two domains. 1) Student-teacher interactions have 06 items, and 2) professional development of the nursing students has 6 items. Responses of the participants were recorded on a five-point Likert scale. It ranges from 1 = Strongly Disagree to 5 = Strongly Agree. A pilot test involving 10% ( $n=24$ ) of the sample size of the present study was conducted to assess the instrument's reliability. A Cronbach's alpha of 0.78 confirmed the acceptable internal consistency of the study tool. Data were analyzed using IBM SPSS version 26.0. Descriptive statistics were applied for age, gender, study year, and knowledge about the hidden curriculum. The relationship between Student-Teacher Interactions and Professional Development was checked by using Spearman's correlation test. Total scores for each variable were obtained by summing the responses to their respective items, resulting in overall scores for STIs and PD for each participant. Spearman's rho ( $\rho$ ) was then computed to determine the strength and direction of the relationship between student-teacher interactions and the

professional development of nursing students. A p-value of less than 0.05 was considered statistically significant. The correlation strength was interpreted using the following guidelines: if the value is 0.00–0.19 = very weak, 0.20–0.39 = weak, 0.40–0.59 = moderate, 0.60–0.79 = strong and 0.80–1.00 = very strong.

## RESULTS

A total of 235 participants, mean age of participants was 25.9 ± 0.891, and a majority of participants were female (n=157, 66.8%), and most were studying in their 4th year (n=122, 51.9%). A bulk of students don't know about the hidden curriculum (n=140, 59.5%)(Table 1).

**Table 1:** Demographic Characteristics of the Nursing Students

Variables	Frequency (%)
Age	25.9 ± 0.891
<b>Gender</b>	
Male	78 (33.1%)
Female	157 (66.8%)
<b>Year of Study</b>	
2 <sup>nd</sup> Year	53 (22.5%)
3 <sup>rd</sup> Year	60 (25.5%)
4 <sup>th</sup> Year	122 (51.9%)
<b>Do You Know About the Hidden Curriculum?</b>	
Yes	95 (40.42%)
No	140 (59.5%)

The highest-rated items on the student-to-teacher interactions were found: the clinical instructors were approachable and available during clinical practice (Mean ± SD = 4.41 ± 1.108), and teachers encourage students to discuss their learning issues openly (Mean ± SD = 4.02 ± 1.156). The lowest-rated items, teachers recognized the learning capacity of students (Mean ± SD = 2.14 ± 1.437)(Table 2).

**Table 2:** Student-Teacher Interactions (STIs) among Nursing Students

Items	Mean ± SD
My clinical instructor is approachable and available during clinical practice	4.41 ± 1.108
Teachers acknowledge students' valid opinions in their learning	3.19 ± 1.501
Teachers' feedback is constructive and timely	3.27 ± 1.299
Teachers encourage students to openly discuss their learning issues	4.02 ± 1.156
Teachers provide students with ongoing support during difficult tasks	3.22 ± 1.351
Teachers can recognize the learning capacity of students	2.14 ± 1.437

The highest-rated aspects on professional development (PD) were students' know-how to communicate with patients and families in various situations during their clinical rotations (Mean ± SD = 4.09 ± 0.969), and students have learned to respect patients' cultural competence (Mean ± SD = 4.04 ± 1.014). The lowest-rated responses were simulation-based learning strengthened my clinical skills

(Mean ± SD = 2.99 ± 1.267)(Table 3).

**Table 3:** Professional Development (PD) of the Nursing Students

Items	Mean ± SD
I can perform nursing procedures independently, and I have Learnt	3.67 ± 1.03
I am confident in interpreting clinical data for patient care	3.02 ± 0.27
Simulation-based learning has strengthened my clinical skills	2.99 ± 1.32
I am aware of the ethical principles that guide nursing practice	3.65 ± 1.07
I know how to communicate with patients and families in various situations during their clinical rotations	4.09 ± 0.97
I have learned to respect patients' cultural competence	4.04 ± 1.01

A Correlation Coefficient (Spearman's rho) test showed a strong, statistically significant positive correlation (r=0.789, p<0.010) observed between student-teacher interaction and professional development of the nursing students (Table 4).

**Table 4:** Relationship Between Student-Teacher Interactions and Professional Development among Nursing Students

Domains	Student-Teacher Interaction	Professional Development
Student-Teacher Interaction	1.000	0.789
Professional Development	0.789	1.000

p<0.010(2-tailed)

## DISCUSSION

The present study aimed to assess the relationship between student-teacher interactions and professional development among nursing students in Karachi, Pakistan. The study found a positive correlation between student-teacher interaction and professional development among nursing students. These findings were congruent with previous literature that indicated a significant role of teacher-student interactions in professional development [1-4]. A similar finding was supported that students and teachers' positive relationship profound influence on the academic and professional growth of the students [5]. Moreover, a few studies have highlighted that students' positive behavior modifications were influenced by mentorship and students' engagement in the learning process [5, 6]. In the same way, a study found a positive correlation between teacher and student interaction during academic engagement in administration courses among nursing students [3]. Another study also concluded that a positive relationship between student-to-teacher interaction can enhance the professional and personal skills of students long long-lasting [7]. A positive association between student-teacher interactions and professional development highlights the need to strengthen interpersonal engagement within academic and clinical environments. Moreover, these findings emphasize that a conducive learning environment is a

major attribute to support nursing students in learning both theory and clinical practice. About student-teacher interactions, the majority of participants reported in this study was the availability and approachability of clinical faculty during their clinical duties. It encouraged nursing students to discuss their clinical issues openly. These findings were in line with many studies, that clinical instructor availability can influence students' learning and acquisition of skills. It also fosters support and provides a conducive learning environment [9-11]. A previous study found that clinical practice under the supervision of a clinical teacher showed significant relationships between competence and skills development. Nursing students perceived positive interactions with their teachers by following their guidelines in solving their queries [9]. One of the studies has found that clinical instructors' approachability enhances nursing students' confidence level to perform clinical practice [10]. Teachers' availability during the clinical settings influences on satisfaction of nursing students' learning [11]. In contrast, a study had found that teachers were limited in their progress in professional development, and their students' approach was subjected to specific [12]. Another study focused on teachers' motivations to encourage students to openly discuss their learning issues and the usage of different strategies to solve students' queries on time. Hence, it concluded that teachers' encouragement plays a significant role in shaping student and teacher interactions during class [13]. Another study also explored that teachers' supportive attitude enhances students' confidence to share their thoughts in class during discussions. And students take an interest in justifying their answers by referring to their ideas and opinions. It was concluded that students' engagement in discussion increases when their participation in the class is valued by the teachers [14]. In contrast, many studies have found that most teachers do not hold sessions for discussion during class due to maintaining discipline in the class, time management, and completion of curriculum content within a timeframe. Therefore, teachers have struggled to follow academic calendars and are least interested in spending time on the discussions [6, 13]. Educators should prioritize availability, approachability, and meaningful feedback, as these factors contribute to students' confidence, motivation, and competence. Our study has found highest response was rated by participants in professional development. Such as how to communicate with patients and families, and students learnt to respect patients' cultural competence. Few congruent studies have found that the communication patterns of nursing students were highest who were competent in clinical practice [11, 15]. When a nursing student can do an assigned task clinically, they gradually become confident in their communication.

Therefore, a significant relationship between the readiness of clinical practice and communication skills is an important factor [11]. Incongruent finding from previous study that those nursing students who are not competent in clinical skills face challenges while they are communicating with patients and their relatives [16, 17]. According to one of the studies that nursing students were in trouble as they step forward to professional life. This is due to a huge difference between what they had learned during the nursing degree and the clinical skills that are required in real patient care. At the end, nursing students perceived themselves as unprepared to handle complexities in real scenario of patients. These findings conveyed the importance of pedagogical approaches that are aligned with both theory and practice in nursing education [17]. Furthermore, studies have shown that nursing students' knowledge of cultural competence is essential to dealing with the diverse needs of patients. Few demographic factors significantly influence students' nurse awareness like "age, studying year, and cultural content" [18]. Studies have emphasized that nursing students should know the emotional needs of patients according their cultural differences. So, they become competent to give culturally sensitive care to the patients. The concept of cultural competency as necessary to facilitate patients' culturally sensitive needs in today's era it includes "empathy, cultural sensitivity, and compassionate care" [18, 19] Another study explored that student nurses were not confident for culturally sensitive care even though they had adequate knowledge about domains of cultural diversity. Therefore, educational interventions are needed to develop the concept of transcultural care and its implications among student nurses [20]. This study underscores the necessity of integrating cultural competence into the nursing curriculum. Also, provide structured learning experiences through real-world clinical exposure and reflective practice that can bridge the gap between theoretical knowledge and practical application, particularly in diverse healthcare settings.

This study has certain limitations, including its cross-sectional design, which restricts the ability to establish causality between student-teacher interactions and professional development. The use of purposive sampling and self-reported measures may also introduce response bias and limit generalizability. Additionally, the study was conducted in only two institutions in Karachi, which may not reflect experiences in other regions. Future research should employ longitudinal and mixed-method designs across multiple institutions to gain deeper insights and explore how structured faculty development programs can further strengthen professional growth among nursing students.

## CONCLUSIONS

This study found a strong relationship between student-teacher interactions and professional development among nursing students in Karachi, Pakistan. It is recommended to conduct longitudinal and qualitative studies to gain deeper insights into student-teacher interactions and their relationship with professional development among nursing students.

## Authors' Contribution

Conceptualization: MAR

Methodology: MAR, RMH

Formal analysis: TA

Writing and Drafting: RMH, RH, TA

Review and Editing: RMH, RH, TA, MAR

All authors approved the final manuscript and take responsibility for the integrity of the work

## Conflicts of Interest

All the authors declare no conflict of interest.

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