

## Evaluation of Dental Communication Skills from Patient and Clinical Instructors Perspective Approaches

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### Abstract

*Background: Communication skills of dentists have been demonstrated to be part of the good dental practice. Also, communication skills of clinicians are very crucial in providing better health outcomes for patients. Successful interaction and communication with patients is as vital for dentists as it is for physicians. The study aims: To assess undergraduate dental students' communication skills in relation to their demographics and clinical setting using a three-perspective approach; the student, the patient and the clinical instructor perspective. Methods: A cross-sectional study was conducted using validated modified- communication tools; Patient Communication Assessment Instruments (PCAI), Student Communication Assessment Instruments (SCAI) and Clinical Communication Assessment Instruments (CCAI) which included four communication domains. One hundred and seventy-six undergraduate clinical year students were recruited in this study whereby each of them was assessed by a clinical instructor and a randomly selected patient in two dental clinics in Jeddah, KSA. Results: Comparing the three perspectives, PCAI yielded the highest scores across all domains, followed by SCAI and CCAI ( $p < .001$ ). SCAI exhibited a better score in Year 5 compared to Year 3 and Year 4 ( $p = .027$ ). The male students perceived they performed better than females in all domains ( $p < .05$ ). Patients rated the students higher in the first clinic as compared to the second clinic for the team interaction domain. Conclusion: There was an upward pattern of the communication skills score rated from the clinical instructor perspective to the student*

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*and patient perspectives. The use of PCAI, SCAI and CCAI collectively gave a complementary view of students' communication performance in all the domains assessed.*

**Keywords:** *Clinical, Communication skills, Three-perspective approach.*

## **Introduction**

Communication is about sending and receiving a message and in medicine it means building a doctor-patient relationship, listening, showing empathy, and gaining trust <sup>(1-3)</sup>. In recent years the reasons a patient follows a given dental therapy have been investigated. The role of communication used during dental treatment verbal and non-verbal is the basis of these studies. It has been proved that effective patient-doctor communication can enhance patient satisfaction, improve health outcomes <sup>(4)</sup>, and improve adherence to treatment plans <sup>(5)</sup>. Poor communication can limit patient understanding of their illness or treatment and lead to poorer patient outcomes, or to complaints against services and clinicians <sup>(6)</sup>. Recognizing the importance of having doctors that can demonstrate an acceptable standard of communication skills has renewed interest in communication skills training in undergraduate medical and dental education <sup>(7)</sup>.

In the field of dentistry, apart from having good knowledge and technical skill with the ability to analyze and solve problems, dental professionals must be able to communicate efficiently with their patients <sup>(8-11)</sup>. Communication, which can be verbal or non-verbal, is a process by which information is exchanged between individuals through a common system of language, symbols, signs or behavior <sup>(12)</sup>. It is a process of imparting information through various media, for example, by speaking or writing to reach a particular understanding regarding a matter of interest. Clinicians are deemed able to communicate effectively with their patients when they listen to details that the patients want to convey, are able to gather and synthesize the information accurately, understand the underlying emotions, demonstrate empathy, create a good rapport and lastly ethical and professional <sup>(9)</sup>.

Studies have suggested that good communication skills would improve diagnostic efficiency and decision-making ability which may contribute to increased patient satisfaction, adherence to clinician recommendations, reduced anxiety as well as decreased incidence of negligence <sup>(13, 14)</sup>. Active participation from patients during the communication process helps to empower them in expressing their psychological needs and emotion <sup>(14)</sup>. To reach an agreement between dentists and patients regarding the best treatment options will require dynamic communication during dental visits which will later improve the treatment outcomes <sup>(15)</sup>. Faster recovery has also been reported among patients who experience positive emotions after forming a good dentist-patient relationship <sup>(16)</sup>.

There are many factors that may affect the delivery of information and the effectiveness of communication between clinicians and patients. Language and cultural differences have been identified as the main barriers <sup>(17)</sup>. Additionally, demographic factors such as the age of the patient and the gender of the clinician may also affect patients' satisfaction <sup>(18-20)</sup>. Besides that, patient familiarity with the clinicians and their experience receiving treatment affects the satisfaction in communicating with their clinician <sup>(21)</sup>. Thus, the realization of the importance of communication skills in dentistry has led to dental schools now providing their students with skills-based communication components in their

curriculum. Dentist-patient communication progressively becomes a fundamental learning objective at most dental and medical schools <sup>(8, 9, 22)</sup>.

Many dental schools have implemented competency-based assessment in their undergraduate program which comprises clinical and procedural competency in communication skills. Four domains are assessed namely, professionalism and patient safety, communication skills, diagnostic skills and clinical management <sup>(23)</sup>. Many studies have evaluated the importance and effectiveness of communication skills among dental students <sup>(10, 14, 19, and 24)</sup>. Students usually know the information to be delivered to the patients, but they do not know the correct and suitable methods to deliver the information which may result in misinterpretation by patients. Lack of experience in the clinic and inability to integrate preclinical scenarios into real clinical cases were factors that hindered effective student-patient communication <sup>(20, 25)</sup>.

Recent studies found that communication skills improved due to the student's positive behavior, knowledge enhancement and after effective training in communication <sup>(8, 26)</sup>. It can be clearly seen that the communication skills of dental student clinicians are crucial in providing better health outcomes for patients. Therefore, their communication skills must be assessed during their study period to ensure that they will graduate as a competent dentist with empathy and the ability to develop a good dentist-patient relationship. There has yet to be a study to comprehensively assess a student's communication skills from three different perspectives. Hence, the aim of the study was to assess students' communication skills from the patient, student and clinical instructor perspectives and to evaluate the role of gender, years of clinical experience and clinical setting as potential influencing factors.

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## Methods

### Study design and participants

A cross-sectional study was conducted using the validated self-administered, paper-based questionnaire <sup>(27)</sup> involving three groups of respondents; dental students, patients and clinical instructors. A total of 176 student respondents consisting of Year 3, 4 and 5 clinical year students and each of their patients. The patients were randomly selected to avoid bias using a simple random sampling technique. All the students' names together with their treated patients for each clinical session were compiled, assigned a number and randomly selected by the researchers not involved in the assessment using a random number generator. Ten participants who complied with the following inclusion criteria for each clinical session were recruited into the study until the projected sample size was achieved.

Inclusion criteria for the patient sample included being more than 18 years old with a sufficient understanding of the Malay language or English. Illiterate patients or those lacking the capacity to make their own decisions were excluded from this study. Eighty student respondents were also randomly selected and assessed by clinical instructors for their communication skills during the clinical session either in first dental Clinic (n = 28) or second dental Clinic (n = 52). The present study was approved by the Ethical Committee of University.

The sample size was calculated by using a software program (G\*Power 3.1.9.4). For comparison between students, instructors and patients' perspectives, a repeated ANOVA was indicated and the effect size was set to be 0.25,  $\alpha = .05$ , power = 0.8, number of groups

= 1 and number of measurements = 3. Therefore, a minimum of 28 participants was needed. While for comparison between years of study, the one-way ANOVA approach was applied with the effect size set at 0.25,  $\alpha = .05$ , power = 0.8 and a number of groups = 3. The minimum number required was 159. To achieve both requirements and attrition rate consideration, all 176 clinical year students were recruited into this study.

Three survey instruments were used in this study: Student Communication Assessment Instrument (SCAI), Patient Communication Assessment Instrument (PCAI) and Clinical Instructor Communication Assessment Instrument (CCAI). SCAI and PCAI comprised 40 items that assessed the psychomotor and empathy of the students towards their patients. Items were grouped into four domains namely: being caring and respectful (D1—16 items), sharing information (D2—12 items), tending to your comfort (D3—8 items) and interacting with other team members (D4—4 items).

Each item utilized the Likert-type response statements (on a numerical scale anchored at 1 = poor, 2 = satisfactory, 3 = good, 4 = very good and 5 = excellent). For PCAI, all sections were translated into Arabic language using the forward and backward translation technique after obtaining permission from the respective authors of the questionnaires. The questionnaire was distributed in Arabic during data collection. The CCAI was adopted from PCAI and SCAI. All the clinical instructors were calibrated during the pilot study to ensure standardization prior to the actual data collection.

Content validation and face validation: Content experts that consisted of five public health specialists were selected for the content validation process. The content experts were asked to comment on the sequencing, and understanding of the questions, and indicate its relevance by scale-level index (S-CVI). The S-CVI obtained was 0.9. Prior to the main study, the questionnaires were pre-tested with a group of respondents involving students ( $n = 10$ ), patients ( $n = 10$ ) and clinical lecturers ( $n = 10$ ). A pilot study served as face validation and calibration of the instruments. All respondents were asked to give appropriate comments or suggestions on the questionnaire. No major correction was done and changes were made accordingly.

Data collection: The study was conducted at two different clinics. The first dental clinic is a counseling/consultation style clinic while the second dental clinic is a chair side polyclinic setting. Permission and consent were obtained from patients prior to the data collection and distribution of the questionnaire. A basic language statement outlining the objectives of the study, as well as confidentiality issues and consent were attached to the questionnaire. Patients were instructed to complete the questionnaire at the end of the treatment session away from the presence of the dental students to encourage true scoring. Self-evaluation using SCAI was also done by the dental students concurrently at the end of the treatment session to minimize bias. Clinical instructors evaluated the dental students using CCAI during the same clinical sessions at first and second clinics.

Data were entered and analyzed using the SPSS software program version 28. Descriptive statistics were used to tabulate the demographic data. Comparison of scores between PCAI, SCAI and CCAI was done using repeated measures ANOVA within-group approach. The comparison of each communication domain in PCAI, SCAI and CCAI between academic years was evaluated using one-way ANOVA while the comparison between the clinical setting and students' gender was done using an independent t-test.

## Results

From the total of 176 patient assessments (PCAI), matching 176 students' self-assessments (SCAI) and 80 clinical instructor assessments (CCAI), 432 questionnaires were returned, giving the study a 100% response rate.

Table (1) shows the demographic characteristics of student respondents. The breakdown of the sample yielded 39.2% Year 3 respondents, 31.3% Year 4 respondents and 29.5% Year 5 respondents. Most of the student respondents were female ( $n = 145$ , 82.4%), and Malay ( $n = 172$ , 97.7%) with a mean age of 22.8 years old. The majority of the student respondents had treated between 6 and 10 patients prior to the study being conducted ( $n = 99$ , 56.3%).

Table (2) summarizes the mean scores and standard deviation obtained in each domain based on the perspective of the patient (PCAI), students (SCAI) and clinical instructors (CCAI). Overall, it can be reported that the mean score from PCAI was higher than SCAI and CCAI in all domains. The mean score in CCAI for each domain had the lowest score when compared to the other two groups. The multivariate test of Repeated Measures ANOVA for within-group analysis showed a significant difference in scores for Domain 1 (Caring and respectful) until Domain 4 (Team interaction) ( $p < .001$ ). Patients (PCAI) consistently gave a significantly higher score for the student's communication skills in all the domains assessed compared with the students' self-assessment (SCAI) and clinical instructors' assessment (CCAI).

Table (3) illustrates that comparison of communication domains score in relation to academic year, SCAI reported a significant difference in domain D2 (Sharing information). Post-hoc Tukey test revealed that Year 5 students rated themselves significantly higher in this domain compared to Year 3 students ( $p < .001$ ). No significant difference was observed in all domains reported by PCAI. While from CCAI, a significant difference between academic years was observed in domain D1 (Caring and respectful) and domain D2 (Sharing information). Post hoc Tukey test revealed that Year 4 students were given significantly higher scores in the D1 (Caring and respectful) domain as compared to Year 5 students by their clinical instructor ( $p < .001$ ). Same with domain D2 (Sharing information), Year 4 students were given a significantly higher score in this domain compared to Year 5 students by their clinical instructor ( $p = .002$ ).

Table (4) reveal students' communication skills were also compared in different clinical settings. No significant difference was observed from SCAI at both dental clinics for all domains assessed (D1–D4). As for PCAI, the scores were significantly higher score in domain D4 (Team interaction) in the first dental clinic as compared to the second dental clinic ( $p = .042$ ). While for CCAI, a significantly higher score was exhibited in domain D1 (Caring and respectful) and domain D2 (Sharing information) in the first dental clinic as compared to the second dental clinic ( $p < .001$ ).

Table (5) shows the distribution of communication domain scores in relation to the gender of the student. The male students rated themselves higher in all domains assessed (D1–D4) as compared to female students. Interestingly, from the patients' and clinical instructors' perspectives through PCAI and CCAI, the mean scores were almost similar for both genders in all domains. Further analysis with one-way ANOVA in relation to gender found there were no significant differences ( $p > .05$ ) in CCAI for all domains. For PCAI, female students were rated significantly higher compared to male students in domain D3 (Tending to comfort). However, in SCAI, significant differences were found in all domains with D1: caring and respectful ( $p < .001$ ), D2: sharing information ( $p = .002$ ), D3: comfort ( $p = .012$ ), D4: team interaction ( $p = .004$ ).

Table (1): Characteristics of student respondents (n = 176).

Variables	N (%)
<b>Gender</b>	
Male	31(17.6%)
Female	145(82.4%)
<b>Age</b>	
20–29 years old	175(99.4%)
30–39 years old	1(0.6%)
<b>Academic Year</b>	
Year 3	69(39.2%)
Year 4	55(31.3%)
Year 5	52(29.5%)
<b>Number of patients being treated</b>	
1–5	39 (22.2)
6–10	99 (56.3)
11–15	21 (12.0)
16–20	14 (8.0)
21–25	3 (1.7)
<b>Clinic setting</b>	
First dental clinic	76 (43.2)
Second dental clinic	100 (56.8)

Table (2): Student respondent communication score in all domains from three different perspectives

	PCAI	SCAI	CCAI
Communication domains	Mean (SD)	Mean (SD)	_____ Mean (SD)
D1 Caring and respectful	4.15 (0.61)	3.81 (0.59)	3.57 (0.44)
D2 Sharing information	4.06 (0.65)	3.80 (0.61)	3.48 (0.55)
D3 Tending to comfort	4.14 (0.69)	3.84 (0.58)	3.49 (0.71)
D4 Team interaction	4.01 (0.92)	3.74 (0.68)	3.48 (0.53)

Table (3): Comparison of communication domains score in relation to academic year as assessed by SCAI, PCAI and CCAI

Assessment	Domain	Year 3	Year 4	Year 5	F stats	p Value
		n= 69	n= 55	n= 52		
		Mean (SD)	Mean (SD)	Mean (SD)		
SCAI (n = 176)	D1 Caring and respectful	3.70 (0.65)	3.87 (0.45)	3.88 (0.62)	1.718	.182
	D2 Sharing information	3.64 (0.65)	3.89 (0.48)	3.90 (0.63)	3.693	<.027*
	D3 Tending to comfort	3.72 (0.62)	3.91 (0.49)	3.93 (0.61)	2.669	.072
	D4 Team interaction	3.67 (0.79)	3.75 (0.54)	3.83 (0.65)	0.844	.432
PCAI (n = 176)	D1 Caring and respectful	4.14 (0.60)	4.19 (0.54)	4.11 (0.69)	0.292	.747
	D2 Sharing information	4.05 (0.60)	4.05 (0.68)	4.08 (0.70)	0.045	.956
	D3 Tending to comfort	4.14 (0.68)	4.15 (0.67)	4.13 (0.72)	0.011	.989
	D4 Team interaction	3.96 (0.96)	4.07 (0.82)	4.01 (0.97)	0.225	.799
CCAI (n = 80)	D1 Caring and respectful	3.77 (0.59)	3.88 (0.38)	3.42 (0.37)	10.728	<.001*
	D2 Sharing information	3.77 (0.49)	3.80 (0.48)	3.32 (0.52)	7.953	<.001*
	D3 Tending to comfort	3.66 (0.98)	3.62 (0.98)	3.41 (0.53)	0.879	.419
	D4 Team interaction	3.56 (0.32)	3.44 (0.58)	3.49 (0.58)	0.161	.852

\*Significant at p<0.05, one-way ANOVA.

Table (4): Comparison of communication domains score in relation to clinic setting as assessed by SCAI, PCAI and CCAI

Assessment	Domain	CC clinic	FIRST clinic	T stats	p Value
		n= 100	n= 76		
		Mean (SD)	Mean (SD)		
SCAI (n = 176)	D1 Caring and respectful	3.82 (0.61)	3.72 (0.43)	0.674	.413
	D2 Sharing information	3.80 (0.63)	3.76 (0.49)	0.087	.769
	D3 Tending to comfort	3.85 (0.60)	3.80 (0.45)	0.203	.653
	D4 Team interaction	3.78 (0.70)	3.55 (0.52)	2.878	.092
PCAI (n = 176)	D1 Caring and respectful	4.11 (0.63)	4.31 (0.47)	2.518	.114
	D2 Sharing information	4.02 (0.68)	4.26 (0.44)	3.286	.072
	D3 Tending to comfort	4.10 (0.71)	4.35 (0.51)	3.279	.072
	D4 Team interaction	3.95 (0.96)	4.33 (0.53)	4.202	.042*
CCAI (n = 80)	D1 Caring and respectful	3.42 (0.37)	3.85 (0.44)	21.246	<.001*
	D2 Sharing information	3.32 (0.52)	3.79 (0.47)	16.089	<.001*

	D3 Tending to comfort	3.41 (0.53)	3.63 (0.96)	1.764	.188
	D4 Team interaction	3.49 (0.58)	3.47 (0.43)	0.063	.914

\*Significant at  $p < .05$ , independent t-test.

Table (5): Comparison of communication domains score in relation to students' gender as assessed by SCAI, PCAI and CCAI

Assessment	Domain	Male	Female	T stats	p Value
		n = 31	n = 145		
		Mean (SD)	Mean (SD)		
SCAI (n = 176)	D1 Caring and respectful	4.12 (0.52)	3.74 (0.58)	11.081	<.001*
	D2 Sharing information	4.09 (0.54)	3.73 (0.61)	9.648	.002*
	D3 Tending to comfort	4.08 (0.56)	3.79 (0.58)	6.408	.012*
	D4 Team interaction	4.06 (0.66)	3.68 (0.67)	8.389	.004*
PCAI (n = 176)	D1 Caring and respectful	4.02 (0.67)	4.17 (0.60)	1.599	.208
	D2 Sharing information	3.93 (0.59)	4.09 (0.66)	1.618	.205
	D3 Tending to comfort	3.90 (0.83)	4.19 (0.64)	4.561	.034*
	D4 Team interaction	4.02 (0.72)	4.01 (0.96)	0.004	.952
CCAI (n = 80)	D1 Caring and respectful	3.47 (0.31)	3.59 (0.46)	0.674	.414
	D2 Sharing information	3.36 (0.52)	3.51 (0.56)	0.693	.408
	D3 Tending to comfort	3.51 (0.48)	3.48 (0.75)	0.016	.898
	D4 Team interaction	3.60 (0.56)	3.46 (0.53)	0.760	.386

\*Significant at  $p < .05$ , independent t-test.

## Discussion

The present study described the assessment of students' communication skills from three perspectives: patient, clinical instructor and student self-assessment. This is a type of comprehensive assessment known as 360-degree feedback where an assessment is done by interested stakeholders, self-assessments and supervisors. In our study, the stakeholders are patients and the supervisors are the clinical instructor. A 360-degree review approach is reported to be superior to other traditional forms of evaluation and feedback as this method is known to initiate a vast positive change and provides a more efficient, thorough and accurate assessment of performance reviews <sup>(15)</sup>.

In comparing all three perspectives, the highest mean score was given by patients while the lowest mean score was documented by the clinical instructor. Interaction between students and patients with short non-medical communication before the start of treatment may have built rapport among them <sup>(28)</sup>. Students might develop bonds with the patient following multiple treatment visits, resulting in higher patient scores. This may be due to the sense of empathy experienced by the patients due to the care students demonstrated



throughout the whole treatment process. The lower score from the student themselves might be that they underestimated their communication skills due to their lack of confidence as they were too focused on clinical procedures and felt that they did not perform at their best in communicating with patients, replicating a previous study <sup>(22)</sup>.

As for the clinical instructor, the significantly low score may be due to the more objective assessment and higher expectations for professional conduct by the students. The students might also feel anxious when the clinical instructors (their supervisors) were nearby, which might affect the students' performance of their communication skills during the evaluation. Years of clinical experience may also affect the communication skill and performance of clinicians as it was reported that higher levels of confidence were found in senior as compared to junior year clinical students <sup>(29, 30)</sup>.

Our study assessed three academic years of students where the year 3 students have 1 year of clinical experience, while the Years 4 and 5 have two and 3 years subsequently. Although there was no significant difference found from patients' perspectives in the PCAI, the clinical instructors reported that Year 5 students performed less satisfactorily in the D1 (Caring and Respectful) and D2 (Sharing Information) domains. This finding might be influenced by the higher expectation from clinical instructors for this group as they may have expected that senior students who are close to graduating to perform at a higher professionalism level as compared to either year of studies <sup>(31, 32)</sup>.

Interestingly, among the students, the Year 5 self-assessed the highest score in the D2 (Sharing Information) domain reflecting high confidence that their 5 years of undergraduate training have equipped them well to share information regarding treatment with patients. No significant gender difference was reported from the clinical instructors' perspective. However, from patients' perspectives, female students had been rated a higher score in the domain of empathy which is consistent with a previous study that reported that patients were more satisfied with the female dentist as they demonstrated better empathy and showed greater attention to detail as compared to males <sup>(19, 30)</sup>.

Male student respondents rated themselves higher in all domains of SCAI as compared to female student respondents. This suggests that male dental student clinicians were more confident when interacting with their patients <sup>(33-35)</sup>. However, patients' PCAI scores were generally equal in terms of student gender except in D3: Tending to Comfort where patients rated female students with a higher score than male students. This finding coincided with one of the studies that revealed patients were more satisfied with the overall result of the treatment and developed a better rapport with female dentists compared to male dentists. This may be because females have been reported to bring more empathy, display more kindness and showed greater attention to detail compared to their male counterparts <sup>(19)</sup>.

However, other studies conflicted with these findings and reported that patients' satisfaction is not dependent on the gender of the clinician <sup>(30)</sup>. As for the clinical instructor, the CCAI exhibited no significant differences in the communication score reflecting the instructors' expectations and assessment are non-biased towards gender. Two different settings were assessed in this study. This was done to see if the type of clinical setting would impact student communication performance. The first dental setting is a more conducive communication set-up that involves consultation and discussion on oral health-related issues including caries risk assessment, tooth brushing technique or tobacco cessation technique.

The second dental setting, on the contrary, focuses more on the procedural clinical set-up where treatment is being conducted on patients. First setup offers a more conducive

environment for discussion with the aid of supplementary devices such as posters, models and online educational materials which have proven to promote positive discussion between student and patient<sup>(36, 37)</sup>. Our study found that no significant difference was reported from students' perspectives (SCAI) in both settings. However, both patients (PCAI) and clinical instructors (CCAI) perceived that students performed significantly better in the first dental clinic as compared to the second dental clinic in certain domains.

Patients did feel that students communicate better in domain D4 (Team interaction) in the first dental clinic, and the clinical instructors reported that students perform significantly better in domain D1 (Caring and respectful) and domain D2 (Sharing information) in the first dental clinic. Less intimidating clinical procedures and more discussion between patients and students in the first dental clinic might reduce the patients' anxiety, therefore, promoting better communication which in turn, results in a more positive perception. High fear during dental treatment procedures has also been reported to influence the scoring on communication skills from the patients' perspective<sup>(21, 38-40)</sup>.

As for the clinical instructor, the setup in the first dental clinic, which involves more discussion and consultation, allows them to be able to see more empathy from the students in communicating with their patients through the way they talk, their tone, eye contact, the way they listen and respond to patients' questions, etc. This kind of communication is not easily observed in second dental clinics as students are more focused on their clinical procedures.

Today, the assessments of communication skills are still in the early stage where there is no single method that can be adopted as the gold standard. Therefore, the present survey instruments are suggested to be used as an assessment tool for the communication skills module in our dental school to supplement or replace the existing assessments including the public speaking competency test (summative assessment) and debriefing sessions (formative assessment). Alternative tools that could be considered include the Patient Assessment Questionnaire, Dental Consultation Communication Checklist, Objective Structured Clinical Examination and Problem based Learning<sup>(41- 44)</sup>.

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## Conclusion

Based on the findings of this study, the following conclusions were drawn: The use of PCAI, SCAI and CCAI together provided a complementary view of students' communication performance in all the domains assessed. It helps to provide reliable feedback to the students to identify the area of concern in student-patient communication. There was an increasing satisfaction pattern of the communication skills scores from three perspectives: the clinical instructor, the student and the patient.

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