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Awareness of Non-Verbal Communication Among Physicians: A Cross-Sectional Study

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Abstract

Background: Non-verbal communication (NVC) conveys social cues, influencing trust, satisfaction, and clinical outcomes in patient-physician interactions. It includes elements like eye contact, gestures, and tone. Despite its complexity, NVC plays a critical role in healthcare, underscoring the need for its integration into medical education to enhance communication skills and foster effective doctor-patient relationships. This study evaluates KSMC physicians' perception of non-verbal behavior, the personal and specialty factors that influence it, and its impact on patient outcomes.

Methods: A cross-sectional study of 201 physicians from King Saud Medical City, Riyadh, using a structured questionnaire to assess non-verbal communication skills. Data was analyzed via IBM SPSS 29.0.

Results: This study assessed 201 physicians at King Saud Medical City, Riyadh. Participants were predominantly male (n=113, 56.2%) and Saudi (n=145, 72.1%), with most aged 20–30 years old (n=75, 37.3%). Nearly half of physicians were residents (n=89, 44.3%), and the majority had postgraduate education (n=156, 77.6%). 133 (66.2%) reported receiving training in communication skills during their undergraduate years, while 100 (49.8%) reported receiving it during their postgraduate years. Higher awareness scores were observed among females (mean=35.0, p=0.024), non-Saudis (mean=35.3, p=0.035), consultants (mean=35.5, p=0.024), and those trained during the undergraduate years (mean=34.8, p=0.021). Listening scores varied significantly by specialty (p=0.032), with nephrologists scoring highest (mean=24.7). Emotional interaction skills were higher among female doctors (mean = 20.1; p = 0.004). Overall, listening had the highest category score (22.0 ± 2.55, 88%), while emotional interaction scored lowest (19.5 ± 2.74, 78%).

Conclusions: This study highlights significant differences in non-verbal communication skills among physicians based on gender, nationality, training, and specialty. Listening skills were the most used, while emotional interaction skills needed improvement, emphasizing the importance of tailored training to enhance communication and patient care outcomes.

Keywords: non-verbal communication; physician; patient; outcomes; consultant

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1. Introduction

Non-verbal cues consist of elements of expression that convey social rather than factual information and serve as rich communicative signals across all forms of visual or aural media [1]. Non-verbal communication (NVC) is less easy to interpret and continues even in silence. It operates at a less conscious level, leaks spontaneous cues and is the channel most responsible for communicating attitude, emotion & affect. It plays a significant role throughout the medical interview and is an important variable in doctor-patient interaction [2].

The study of non-verbal communication describes the accuracy with which people use NVC to convey intended meanings and the accuracy with which they understand others' NVC [3]. To date, investigators have focused on the verbal components of the medical interview and largely neglected NVC. However, NVC, by its nature, is a complex variable to assess [4]. The physician's NVC behavior is crucial to the patient's impression of their physician. Appropriate eye contact, proper distance, body orientation, and crossed legs and arms have been associated with patients' reports of satisfaction [5].

NVC refers to communication without linguistic content. It can be conceptualized as being composed of nine elements: eye contact, facial expression, touch, distance, gestures, postures, tone of voice, dress, and the structure of the examination room [6]. NVC substantially influences one's perception of conversation and, consequently, likely has a crucial impact on trust. It should be noted that no 'one size fits all' approach to communication. Patients' socio-demographic and personality characteristics may determine how they perceive NVC and, consequently, their trust [7].

Patient-physician communication is considered the backbone of healthcare visits, since it affects patient satisfaction, adherence to treatment, clinical outcomes and patient trust [8]. In both undergraduate and postgraduate medical education, educators specializing in communication should consider how to integrate lessons on non-verbal communication into their curricula. [9]. The available evidence emphasizes the importance of examining this facet of communication skill instruction, enabling learners to observe their own non-verbal conduct [10].

Non-verbal cues in Physician – patient communication, they asserted that efficient physician-patient communication is a fundamental clinical aspect and is the heart and soul of medicine [11]. Communication is an important domain of the patient-centered approach from the patient's perspective. In addition to understanding NVC from a patient's perspective, physicians must understand how their own NVC behaviors may be interpreted by patients [12]. In their literature review, they noted the advantages of the NVC for the consultation process [13]. Non-verbal communication constitutes a crucial element in healthcare settings, influencing the dynamics between healthcare providers and patients, and significantly impacting the quality of care delivered [14]. It encompasses a wide array of cues, including facial

expressions, body language, tone of voice, and physical proximity, all of which contribute to the emotional tone of interactions and the conveyance of messages beyond spoken words [15]. The effective utilization of non-verbal cues can foster trust, enhance empathy, and improve patient satisfaction. At the same time, misinterpretations or a lack of awareness in this domain can lead to misunderstandings, anxiety, and diminished therapeutic outcomes [8].

A doctor's non-verbal communication, including body language, establishes the path and structure of medical care from the moment the patient first encounters the doctor [16]. Being attentive to these cues enables physicians to establish stronger connections with their patients. Non-verbal communication contributes a dimension of warmth, empathy, care, reassurance, and support to interpersonal interactions [17]. We proposed that the outcomes of our study might serve as a foundation for defining future goals in workshops and seminars focused on enhancing communication skills.

2. Methodology

2.1.Study design

This cross-sectional study aimed to explore physicians' awareness and perceptions of non-verbal communication (NVC) at King Saud Medical City (KSMC) across all specialities and disciplines.

2.2.Sampling Method

A convenience sampling method was employed, including all physicians from various specialities and care units at KSMC-Riyadh who consented to participate. Both male and female physicians were eligible. Participants were recruited through their WhatsApp accounts to ensure ease of access and engagement.

2.3.Study Tool

The data collection tool was developed by the researchers, drawing from international surveys on non-verbal communication and relevant literature [18,19]. It comprises two sections. The first section collected demographic information, while the second included descriptive statements to assess physicians' perceptions and awareness of NVC cues and behaviours. Responses were captured using a Likert scale ranging from "always" to "never."

2.4.Data analysis

The analysis was conducted using SPSS version 29.0, in which the data were coded and examined. Descriptive statistics provided a summary of the demographic variables. Quantitative data were reported as means and standard deviations, whereas categorical data were presented as frequencies and

percentages. To evaluate the relationships between variables, independent-samples t-tests and one-way ANOVA were utilised, with a threshold for statistical significance set at $p < 0.05$.

2.5.Study Variables

2.5.1. Dependent Variable

Physicians' recognition and awareness of NVC were assessed through questionnaire items focusing on skills and descriptive statements.

2.5.2. Independent Variables

Demographic and personal factors, such as gender, speciality, and prior training in communication skills, were hypothesised to influence physicians' perceptions of NVC

3. Results

A total of 201 physicians from all specialties and care units at King Saud Medical City (KSMC), Riyadh, were enrolled in the current study. Men outnumbered women (56.2% vs 43.8%, respectively), with a male-to-female ratio of 1.3:1. The vast majority of participants were Saudi (n = 145, 72.1%), and most were in the age group of 20 to 30 years (n = 75, 37.3%). Regarding participants' marital status, nearly half (n = 97, 48.3%) were married, and 89 (44.3%) were single. About 156 (77.6%) of the participants were postgraduates, and 83 (41.3%) had less than 5 years' practice. The average number of patients seen by most physicians was 20 to 30 patients per week (n = 58, 28.9%) and 30 to 60 patients per week (n = 56, 27.9%). Moreover, 89 participants (44.3%) were residents, and 48 (23.9%) were consultants. Regarding participants' training in communication skills, 89 (44.3%) had training in the last five years, 133 (66.2%) had training during undergraduate years, and 100 (49.8%) had training during postgraduate years (Table 1).

Table (1) Socio-demographic characteristics of the participants (n=201).

Variable	Categories	N (%)
Gender	Male	113 (56.2)
	Female	88 (43.8)
Nationality	Saudi	145 (72.1)
	Non-Saudi	56 (27.9)
Age (in years)	20 - 30	75 (37.3)
	31 - 40	55 (27.4)
	41 - 50	39 (19.4)
	Above 50	32 (15.9)
Marital status	Single	89 (44.3)
	Married	97 (48.3)
	Divorced	12 (6)
	Widow	3 (1.5)
Highest educational level	University	45 (22.4)
	Postgraduate	156 (77.6)
Years of practice	Less than 5 years	83 (41.3)
	5 - 10 years	40 (19.9)
	More than 10 years	78 (38.8)
Average number of patients seen a week	Less than 20 patients	39 (19.4)
	20 - 30 patients	58 (28.9)

	30 - 60 patients	56 (27.9)
	More than 60 patients	48 (23.9)
Position	Resident	89 (44.3)
	Registrar	24 (11.9)
	Senior Registrar	40 (19.9)
	Consultant	48 (23.9)
Have had training in communication skills in the last five years?	Yes	89 (44.3)
	No	112 (55.7)
Have you had training in communication skills during your undergraduate years?	Yes	133 (66.2)
	No	68 (33.8)
Have you had training in communication skills in the postgraduate years?	Yes	100 (49.8)
	No	101 (50.2)

N: Frequency, %: Percentage

Regarding the specialities of the participating physicians, the majority specialise in family medicine. (n = 88, 43.8%) followed by obstetrics and gynaecology (n = 13, 6.5%), paediatrics (n = 12, 6%), intensive care unit (n = 10, 5%) and general surgery (n = 9, 4.5%). The details of the specialities, along with the number of physicians in each unit, are illustrated in Figure 1.

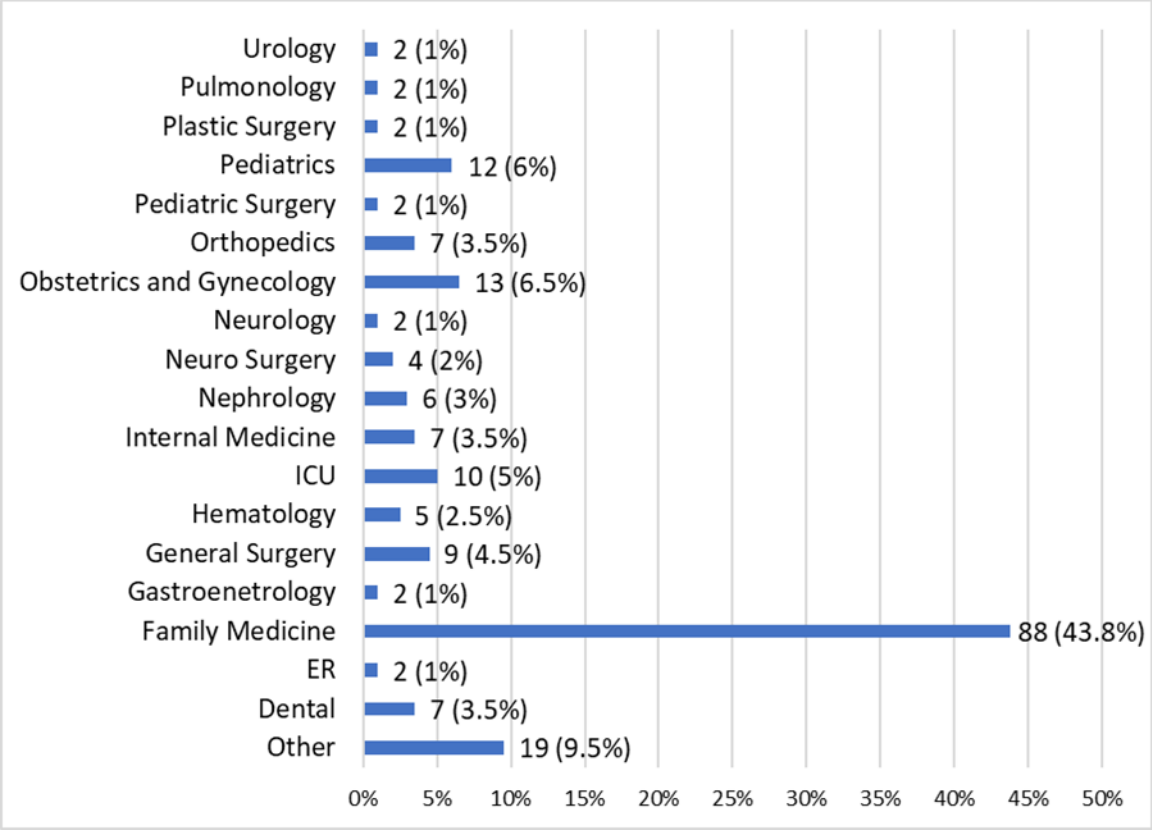

Figure (1) Speciality of the participants.

The responses to the parameters assessing the awareness of non-verbal personal characteristics among the participating physicians were summarised in Table 2. Regarding the non-verbal personal characteristics during speaking, during the initial moments about two thirds of the participants (n = 135,

67.2%) always making eye contact, offering a warm greeting, and sharing a smile, 91 (45.3%) always make an effort to refrain from interrupting their patients and 113 (56.2%) always give their full attention to the patient without glancing at the computer screen. About 103 (51.2%) of the participants always adjust their facial orientation and expression throughout the encounter, and a lower percentage (n = 78, 38.8%) always alters their body posture and the positions of their hands and legs as the encounter progresses. Moreover, during the encounter, 89 (44.3%) of the participants maintained strong eye contact, 85 (42.3%) often adjusted their proximity to the patient as appropriate, and 88 (43.8%) always varied their para-linguistic cues, including tone, volume, and pitch, as needed.

Table (2) Perception and awareness of non-verbal communication characteristics.

Statement:	Always	Often	Some-times	Rarely	Never
	N (%)				
Speaking: to reveal more information					
I prioritise the initial crucial moments, which include making eye contact, offering a warm greeting, and sharing a smile.	135 (67.2)	58 (28.9)	5 (2.5)	3 (1.5)	0 (0)
I make an effort to refrain from interrupting my patients in the initial 1-2 minutes of conversation.	91 (45.3)	70 (34.8)	27 (13.4)	12 (6)	1 (0.5)
I give my full attention to the patient without glancing at the computer screen during the initial moments.	113 (56.2)	59 (29.4)	27 (13.4)	2 (1)	0 (0)
I adjust my facial orientation and expression throughout the encounter.	103 (51.2)	81 (40.3)	14 (7)	3 (1.5)	0 (0)
I alter my body posture and the positions of my hands and legs as the encounter progresses.	78 (38.8)	73 (36.3)	40 (19.9)	10 (5)	0 (0)
I consistently maintain strong eye contact throughout the entire encounter.	89 (44.3)	83 (41.3)	22 (10.9)	7 (3.5)	0 (0)
I adjust my proximity to the patient as appropriate during the encounter.	82 (40.8)	85 (42.3)	27 (13.4)	6 (3)	1 (0.5)
I vary my para-linguistic cues, including tone, volume, and pitch, as needed during the encounter.	88 (43.8)	72 (35.8)	34 (16.9)	6 (3)	1 (0.5)
Listening: to encourage them to disclose more information					
I refrain from interrupting my patients while they are speaking.	84 (41.8)	82 (40.8)	22 (10.9)	6 (3)	7 (3.5)
Listening within the context of the ongoing discussion.	122 (60.7)	61 (30.3)	15 (7.5)	3 (1.5)	0 (0)
Having the capacity to recall and preserve crucial information.	105 (52.2)	65 (32.3)	25 (12.4)	5 (2.5)	1 (0.5)
I employ both non-verbal and verbal signals, such as saying, "I understand" or "Tell me more," and nodding, to convey my engagement and comprehension during a conversation.	119 (59.2)	65 (32.3)	16 (8)	1 (0.5)	0 (0)
I utilise my knowledge and skills to overcome obstacles related to physical or environmental challenges.	120 (59.7)	66 (32.8)	15 (7.5)	0 (0)	0 (0)
Emotional interaction skills					
I adjust my feelings during a difficult consultation.	19 (9.5)	34 (16.9)	101 (50.2)	44 (21.9)	3 (1.5)
I adopt my listening style to match the patient's pace, tone, and communication preferences.	81 (40.3)	82 (40.8)	38 (18.9)	0 (0)	0 (0)
Maintaining Focus: I Resist the urge to let my mind wander or think about my response while the patient is talking.	58 (28.9)	74 (36.8)	57 (28.4)	6 (3)	6 (3)
I pay attention to micro expressions: (These are brief, involuntary facial expressions that occur in response to specific emotionally charged topics.)	62 (30.8)	71 (35.3)	53 (26.4)	10 (5)	5 (2.5)

Being Empathetic (I try to understand the emotions and feelings of my patients)	119 (59.2)	67 (33.3)	10 (5)	0 (0)	5 (2.5)
Giving and getting feedback skills					
I mentally condense and synthesise the patient's stories and accounts during the encounter.	74 (36.8)	83 (41.3)	37 (18.4)	7 (3.5)	0 (0)
I am open to and welcome constructive feedback from my patients.	115 (57.2)	58 (28.9)	21 (10.4)	7 (3.5)	0 (0)
I tend to be cautious about interrupting patients who are talkative.	40 (19.9)	72 (35.8)	78 (38.8)	11 (5.5)	0 (0)
I used to formulate mental strategies for the management plan for my patients.	78 (38.8)	75 (37.3)	37 (18.4)	11 (5.5)	0 (0)

N: Frequency, %: Percentage

Regarding non-verbal personal characteristics during listening, 84 (41.8%) of the participants always refrain from interrupting their patients while they are speaking, 122 (60.7%) always listen within the context of the ongoing discussion, and 105 (52.2%) always have the capacity to recall and preserve crucial information. More than half of the participants always employ both non-verbal and verbal signals to convey their engagement and comprehension during a conversation (n = 119, 59.2%) and always utilise their knowledge and skills to overcome obstacles related to physical or environmental challenges (n = 120, 59.7%).

Regarding participants' emotional interaction skills, half (n = 101, 50.2%) sometimes adjust their feelings during difficult consultations, and 82 (40.8%) often adapt their listening style to match the patient's pace, tone, and communication preferences. About 74 (36.8%) participants often maintain their focus by resisting the urge to wander or think about their response while the patient is talking, and 71 (35.3%) often pay attention to micro expressions. A higher percentage of them (n = 119, 59.2%) are always empathetic, understanding patients' emotions and feelings.

Regarding the giving and receiving feedback skills, more than a third of the participants (n = 83, 41.3%) were often mentally condensed and synthesised the patient's stories and accounts during the encounter, and 115 (57.2%) were always open to and welcomed constructive feedback from their patients. Moreover, 78 (38.8%) of the participants sometimes tend to be cautious about interrupting talkative patients, and 78 (38.8%) always use mental strategies in their management plans for patients (Table 2).

The overall score of perceptions and awareness of non-verbal communication characteristics was 92.2 ± 8.43 out of 110 (83.8%), the highest category score was for listening (22.0 ± 2.55, 88%), while the lowest category score was for emotional interaction skills (19.5 ± 2.74, 78%) (Table 3).

Table (3) Total score and categories of perceptions and awareness of non-verbal communication characteristics

Non-verbal personal characteristics score:	No. of items	Maximum score	Mean ± SD	Percentage of mean
Speaking	8	40	34.4 ± 3.70	86%
Listening	5	25	22.0 ± 2.55	88%
Emotional interaction skills	5	25	19.5 ± 2.74	78%
Giving & getting feedback skills	4	20	16.3 ± 2.31	81.5%
Total	22	110	92.2 ± 8.43	83.8%

SD: standard deviation, percentage

Regarding the factors associated with the perception and awareness of non-verbal communication skills, the results showed that there was significant difference in non-verbal communication skills during speaking score according to gender, nationality, position and training in communication skills in the undergraduate years (P = 0.024, 0.035, 0.024 and 0.021 respectively); higher score of perception and awareness of non-verbal communication skills during speaking observed in females, non-Saudi, consultants and participants having training in communication skills in the undergraduate years com-pared to others. There was also a significant difference in non-verbal communication skills during listening, as measured by the listening score, according to nationality and age (P = 0.003 and 0.029, respectively); non-Saudis had higher scores than Saudis, and the score improved with age. The results revealed that females had a higher emotional interaction skills score than males (P = 0.004). There was also a significant difference in the giving and receiving feedback skills score according to gender and nationality (P = 0.049 and 0.008, respectively); females and non-Saudis had higher scores than others. Other factors did not show any significant difference in perception and awareness of non-verbal communication score (P > 0.05) (Table 4).

Table (4) Factors associated with perception and awareness of non-verbal communication characteristics

Variable	Awareness of non-verbal communication skills score			
	Speaking	Listening	Emotional interaction skills	Giving & getting feedback skills
	Mean ± SD			
Gender:				
Male	33.9 ± 3.68	22.0 ± 2.69	19.0 ± 2.91	16.0 ± 2.33
Female	35.0 ± 3.63	22.0 ± 2.38	20.1 ± 2.37	16.7 ± 2.24
P value	**0.024***	0.936	**0.004***	**0.049***
Nationality:				
Saudi	34.0 ± 3.89	21.7 ± 2.58	19.5 ± 2.56	16.0 ± 2.34
Non-Saudi	35.3 ± 3.00	22.9 ± 2.28	19.6 ± 3.16	17.0 ± 2.09
P value	**0.035***	**0.003***	0.793	**0.008***
Age (in years):				
20 - 30	34.3 ± 3.97	21.6 ± 2.57	19.8 ± 2.72	16.2 ± 2.37
31 - 40	33.9 ± 3.93	21.6 ± 2.84	19.3 ± 2.87	16.2 ± 2.28
41 - 50	35.4 ± 3.21	22.8 ± 1.95	19.9 ± 2.64	16.5 ± 2.11
Above 50	34.3 ± 3.08	22.7 ± 2.38	19.0 ± 2.66	16.5 ± 2.51
P value	0.276	**0.029***	0.413	0.917
Marital status:				

Single	34.2 ± 3.81	21.8 ± 2.50	19.9 ± 2.72	16.3 ± 2.41
Married	34.4 ± 3.68	22.2 ± 2.62	19.2 ± 2.82	16.3 ± 2.31
Divorced	35.1 ± 3.58	22.1 ± 2.61	19.5 ± 2.07	16.5 ± 1.62
Widow	34.7 ± 2.08	23.3 ± 2.08	18.7 ± 3.06	16.3 ± 2.52
P value	0.889	0.616	0.450	0.993
Educational level:				
University	34.9 ± 3.20	21.8 ± 2.31	19.4 ± 2.73	16.4 ± 2.28
Postgraduate	34.2 ± 3.82	22.1 ± 2.62	19.6 ± 2.74	16.3 ± 2.32
P value	0.265	0.633	0.653	0.655
Years of practice:				
Less than 5 years	34.2 ± 3.79	21.6 ± 2.52	19.9 ± 2.68	16.2 ± 2.35
5 - 10 years	34.0 ± 4.22	22.0 ± 2.88	19.4 ± 3.10	16.5 ± 2.41
More than 10 years	34.8 ± 3.31	22.5 ± 2.35	19.2 ± 2.58	16.3 ± 2.24
P value	0.467	0.057	0.287	0.783
Average number of patients seen a week:				
< 20 patients	34.0 ± 3.67	21.7 ± 2.41	19.7 ± 2.69	16.2 ± 2.37
20 - 30 patients	34.6 ± 3.25	21.9 ± 2.51	19.0 ± 2.93	16.2 ± 2.38
30 - 60 patients	34.5 ± 4.11	22.3 ± 2.64	19.5 ± 2.64	16.1 ± 2.35
> 60 patients	34.2 ± 3.81	22.0 ± 2.66	20.0 ± 2.62	16.8 ± 2.10
P value	0.867	0.810	0.327	0.343
Position:				
Resident	34.5 ± 3.70	21.7 ± 2.56	19.6 ± 2.91	16.3 ± 2.36
Registrar	34.0 ± 3.93	21.9 ± 2.95	20.5 ± 2.40	17.0 ± 1.99
Senior Registrar	33.1 ± 3.58	22.3 ± 2.37	19.0 ± 2.44	16.5 ± 2.00
Consultant	35.5 ± 3.42	22.4 ± 2.49	19.4 ± 2.72	15.8 ± 2.55
P value	**0.024***	0.458	0.160	0.187
Training in communication skills in the last five years:				
Yes	34.7 ± 3.87	22.1 ± 2.65	19.4 ± 2.78	16.3 ± 2.36
No	34.1 ± 3.55	21.9 ± 2.48	19.6 ± 2.71	16.3 ± 2.28
P value	0.297	0.558	0.567	0.880
Training in communication skills in the undergraduate years:				
Yes	34.8 ± 3.53	22.2 ± 2.42	19.8 ± 2.81	16.5 ± 2.32
No	33.5 ± 3.90	21.7 ± 2.78	19.0 ± 2.55	15.9 ± 2.23
P value	**0.021***	0.236	0.079	0.071
Training in communication skills in the postgraduate years:				
Yes	34.6 ± 3.49	22.1 ± 2.62	19.3 ± 2.85	16.3 ± 2.25
No	34.1 ± 3.89	21.9 ± 2.50	19.7 ± 2.61	16.3 ± 2.37
P value	0.283	0.679	0.263	0.944

**: significant p-value, SD: standard deviation*.

Regarding the association between perception and awareness of non-verbal communication skills and speciality, the results showed a significant difference in non-verbal communication skills during listening according to speciality (P = 0.032); the highest scores were observed among nephrologists and pulmonologists, while the lowest scores were observed among neurologists. There was no significant difference in other categories of non-verbal communication skills scores (P > 0.05) (Table 5).

Table (5) Perception and awareness of non-verbal communication skills according to speciality

Specialty	**Awareness of non-verbal communication skills score**			
	Speaking	**Listening**	**Emotional interaction skills**	**Giving & getting feedback skills**
	Mean ± SD			

Dental	33.3 ± 3.59	22.1 ± 1.95	19.4 ± 2.07	14.0 ± 1.98
ER	36.0 ± 2.83	21.0 ± 2.83	20.0 ± 1.41	16.0 ± 1.41
Family Medicine	33.7 ± 4.13	21.4 ± 2.63	19.8 ± 2.62	16.3 ± 2.31
Gastroenterology	36.0 ± 2.83	23.0 ± 0.00	18.5 ± 2.12	15.5 ± 0.71
General Surgery	34.4 ± 3.21	23.3 ± 0.87	18.8 ± 1.99	16.7 ± 1.73
Haematology	36.2 ± 2.78	23.2 ± 1.30	18.6 ± 3.05	15.4 ± 3.36
ICU	35.8 ± 3.77	22.2 ± 2.44	18.4 ± 2.22	16.4 ± 1.84
Internal Medicine	34.7 ± 1.50	22.4 ± 2.37	20.9 ± 1.77	16.9 ± 1.87
Nephrology	36.5 ± 2.74	24.7 ± 0.52	21.5 ± 2.81	18.8 ± 1.17
Neurosurgery	33.5 ± 3.00	23.0 ± 2.16	17.5 ± 3.70	15.8 ± 2.63
Neurology	33.0 ± 0.00	19.0 ± 0.00	20.0 ± 0.00	12.0 ± 0.00
Obstetrics and Gynaecology	34.5 ± 4.16	21.2 ± 3.19	20.1 ± 2.25	16.1 ± 2.47
Orthopaedics	34.6 ± 3.46	23.3 ± 2.22	17.3 ± 3.55	15.6 ± 2.30
Paediatric Surgery	34.5 ± 2.12	23.0 ± 2.83	16.0 ± 4.24	16.0 ± 2.83
Paediatrics	36.9 ± 3.00	23.6 ± 1.73	20.1 ± 2.68	17.3 ± 2.80
Plastic Surgery	34.0 ± 0.00	23.0 ± 0.00	19.0 ± 2.83	17.5 ± 0.71
Pulmonology	36.0 ± 4.24	24.0 ± 1.41	20.0 ± 4.24	18.5 ± 2.12
Urology	36.5 ± 0.71	22.5 ± 0.71	20.5 ± 0.71	18.0 ± 0.00
Other	33.7 ± 3.35	21.5 ± 3.04	19.0 ± 3.61	16.21 ± 2.20
P value	0.520	**0.032***	0.252	0.095

SD: standard deviation, ICU: intensive care unit, ER: emergency room

4. Discussion

Non-verbal communication (NVC) plays an important role in medical interactions, influencing trust, satisfaction, and patient clinical outcomes [20]. NVC includes eye contact, facial expressions, gestures, posture, tone, and environmental factors [13]. The medical literature highlights its importance in physician-patient communication, emphasizing tailored approaches based on patient demographics and preferences [21]. Previous research shows that NVC affects patient engagement, satisfaction, and consultation dynamics, with technology use significantly affecting communication [22]. Integrating NVC training into medical education is essential to enhance communication skills and improve the quality of patient care [23]. This study assessed non-verbal communication skills among KSMC physicians, revealing significant and emphasizing targeted improvements for better patient care.

Our study demonstrated that overall awareness and perception of non-verbal communication skills were relatively high, with an average score of 92.2 ± 8.43 out of 110 (83.8%). However, Balaji et al. (2019) showed that the mean score for non-verbal communication skills was 7.2 ± 2.8, with a mean percentile score of 28.8 ± 11.5 [24]. Listening skills were rated highest (88%), followed by speaking skills (86%), while emotional interaction skills were the lowest-rated category (78%). These non-verbal skills align with Silverman et al. (2010), which highlights different NVC skills such as maintaining eye contact, appropriate posture, effective use of records, gestures, head nods, and tone of voice, enhancing patient satisfaction, understanding, and emotional detection [25]. Moreover, Gender emerged as a significant factor, with female physicians scoring higher in emotional interaction skills (P = 0.004) and overall

communication skills during speaking and feedback-giving (P = 0.024, P = 0.049). This aligns with previous literature by Bylund and Makoul et al. (2002), suggesting that female physicians often excel in empathy and communication, possibly due to greater emotional sensitivity and patient-centered behavior, thereby influencing communication awareness [26]. Moreover, Hall and Roter et al. (2002) found no significant difference between male and female patients in their tendency toward emotional expression [27]. Younger physicians (20–30 years) demonstrated higher listening skills scores, which improved with age (P = 0.029). This aligns with evidence that younger physicians, due to recent training, may be better equipped with contemporary communication techniques [28].

Moreover, training in communication skills, particularly during undergraduate years, significantly enhanced speaking skills (P = 0.021). However, postgraduate training did not show similar significance, suggesting that early education in communication may have a lasting impact. This finding underscores the importance of incorporating structured communication training into medical curricula, as several studies have advocated early exposure to patient interaction skills [29].

Significant differences in listening skills were observed across specialties (p = 0.032), with nephrologists and pulmonologists scoring highest and neurologists lowest. This variability may reflect differences like patient interactions across specialties. For instance, specialties such as nephrology and pulmonology often involve managing chronic conditions, which require consistent, empathetic communication [30]. In contrast, neurologists may face time constraints in high-acuity settings, potentially limiting their ability to focus on listening skills. Similar findings were reported by Sliwa and Gulbrandsen et al. (2002, 2013), who observed that specialties that require long-term patient relationships tend to score higher in communication skills [31,32].

Notably, non-Saudi physicians scored higher in speaking (p = 0.035) and in giving and receiving feedback (p = 0.008) compared to Saudi physicians. This could be attributed to differences in training programs and cultural influences on communication styles. A study by Zhang et al. (2023) highlighted the impact of cultural diversity on participants' communication, which may enhance their skills [33]. Additionally, the study found that awareness of listening skills improved with age (p = 0.029), suggesting that experience plays a role in the development of effective communication behaviors. Similarly, previous literature shows that experience enhances communication by integrating verbal and non-verbal cues, including body language, facial expressions, and word choice, enabling individuals to understand each other more effectively in diverse interactions [34].

This research offers important perspectives on the non-verbal communication abilities of KSMC physicians; however, it is not without its constraints. The cross-sectional nature of the study limits the

ability to draw causal conclusions, and reliance on self-reported information could introduce bias. The use of convenience sampling may have introduced selection bias and limited the generalizability of the findings to all physicians in Saudi Arabia or other healthcare settings. Participants who were more interested in communication skills may have been more likely to participate in the study. Furthermore, the study's focus on a single site limits the applicability of its findings to other contexts within Saudi Arabia. The small number of participants in specific specialties reduces the statistical power needed to detect subtle variations. Moreover, the investigation did not evaluate the direct effects of non-verbal communication on patient outcomes.

5. Conclusion and Recommendations

This study highlights the critical role of non-verbal communication skills in medical practice, with notable differences across gender, nationality, age, and specialty. Addressing gaps through targeted training, particularly during undergraduate education, and emphasizing empathy and listening in specialty-specific contexts can significantly enhance physician-patient interactions. Future research should examine the impact of these interventions on patient outcomes to validate their importance in clinical practice further.

The study highlights key implications for enhancing physician communication training. Gender disparities in emotional interaction and feedback skills suggest the need for tailored interventions to support male physicians, emphasizing empathy and interpersonal connection. Integrating comprehensive communication modules into undergraduate medical education, including verbal and non-verbal skills, is essential, with simulation-based learning offering practical exposure. Specialty-specific training, such as workshops and CME programs, can address lower communication scores in fields like neurology by focusing on listening and empathy tailored to diagnostic-heavy specialties. Additionally, the higher scores among non-Saudi physicians emphasize the importance of cross-cultural training to enhance interactions in multicultural healthcare settings like Saudi Arabia. These measures could improve patient engagement, satisfaction, and overall healthcare outcomes. Future research should address these limitations using longitudinal designs, objective assessments, diverse samples, and measurable patient outcomes.

6. Declarations

6.1 Conflict of Interest Statement

The authors have no conflict of interests to declare.

6.2 Funding Disclosure

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

6.3 Ethical Consideration

The IRB of the KSMC Research and Innovation Center approved the study proposal (protocol code H1RI-19-Sep23-01 and date of approval 25-09-2023).” Researchers ensured participant anonymity and confidentiality of the collected data. Findings will be disseminated in future publications.

The informed consent was obtained through an electronic agreement, with participants selecting an "agree" option before completing the questionnaire. A copy of the consent form, along with its Arabic translation, was included in the proposal. Participants were informed about the study's purpose and assured that their identities and responses would remain confidential

6.4 Use of AI tools declaration

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

6.5 Abbreviations

NVC	Non-verbal communication
SD	standard deviation
ICU	intensive care unit
ER	emergency room

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