

## ORIGINAL ARTICLE

## ACTIONS SPEAK LOUDER THAN WORDS: IMPACT OF KINESICS ON UNDERGRADUATE MEDICAL EDUCATION

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**Background:** Nonverbal communication constitutes significant proportion of human communication besides spoken words. This study explored teacher's perceptions about impact of kinesics (facial expressions, gestures, head movements and postures) on undergraduate medical education within a classroom setting. **Methods:** A survey-based exploratory research was carried out from July–August 2020. Medical teachers from two private dental colleges of Islamabad were included in the sampling frame. The survey questions were validated and approved by all authors before execution. Frequencies and percentages of closed-ended questions were calculated while thematic analysis for open-ended questions was done by all authors to get consensus on themes, hence ensuring analytical triangulation. **Results:** Forty-six teachers responded to the survey. The most frequently shown facial expressions were 'happiness and enthusiasm' (76.1%) creating friendly, conducive, and motivating learning environment. 'Smile' was considered powerful communicative signal (95.7%) whereas 'anger' was thought to be communication barrier leading to stressful and demotivating learning environment. Neutral expressions were considered helpful to maintain class decorum. 'OK sign with raised thumb' (50%) was found helpful to develop special teacher-student connection and 'head nod' (84.8%) was encouraging students to continue giving answers. Standing posture (81%) exhibited teacher's commitment towards teaching and produced active learning environment. **Conclusion:** Teachers should start lecture with welcoming facial expressions, i.e., smile to build rapport with students. Anger should be avoided as it demotivates students by making learning environment stressful. We need to train faculty regarding effective use of nonverbal communication strategies to improve student's learning experience and to create positive learning environment.

**Keywords:** Nonverbal communication; Kinesics; Gestures; Postures; Undergraduate; Classroom setting.

**Citation:** Aziz A, Khan AM, Niazi Z, Mirza TI, Fazal S. Actions speak louder than words: Impact of kinesics on undergraduate medical education. J Ayub Med Coll Abbottabad 2021;33(4):623–8.

## INTRODUCTION

Humans have been gifted by Allah's greatest gift in the form of communication which helps in social connection.<sup>1,2</sup> Nonverbal communication (NVC) or body language constitutes significant proportion (55%) of human communication besides spoken words (38%) and tone of our voice (7%).<sup>1,3</sup> Nonverbal communication is defined as behaviour of the face, body, or voice without the linguistic content.<sup>2,3</sup> Broadly speaking, NVC includes four main areas; *proxemics* (the use of personal space and distance), *kinesics* (body postures and movement), *oculesics* (the communicative aspects of eye behaviour such as gaze and movement) and *vocalics* (para-language such as vocal tone and intonation).<sup>4,5</sup> The word kinesics comes from the root word kinesis, which means "movement," and refers to the study of hand, arm, body, and face movements<sup>5</sup> and it is one of the most powerful ways that humans can communicate nonverbally.<sup>6</sup> Significant published literature is available on effective use of NVC in the fields of Islamic studies such as '*Conversation Analysis of Muhammad (PBUH) for exploring his Effective Use of Nonverbal*

*Communication including Paralinguistic Features*;<sup>7</sup> business,<sup>8</sup> psychology,<sup>2</sup> during patient-doctor interactions<sup>9</sup> or the student's interactions with simulated patients. But limited literature is available on NVC to be effectively used as a teaching strategy for the medical educators.<sup>3</sup> Although NVC plays a significant role while communicating in our daily lives and it can powerfully impact the learning experience when used correctly,<sup>3</sup> but medical educators are unaware of its effective use as a specific instructional strategy. Hence, this study will produce awareness among medical teachers to effectively use this strategy in order to create positive learning environment by motivating and engaging learners. The recommendations of the study might be useful for curriculum developers to integrate the effective use of NVC along with other well-established active learning strategies within the curriculum.

## MATERIAL AND METHODS

Survey-based exploratory research comprising of open and closed-ended questions was carried out from July–August 2020. Ethical approval was taken from

institutional review committee of Islamic International Dental College (Ref. No. IIDC/IRC/2020/003, dated July 02, 2020) and institutional review board of Dental Section of Islamabad Medical and Dental College, Islamabad (Ref. IMDC/DS/OG/336, dated July 28, 2020). Medical teachers (Assistant Professors, Associate Professor and Professors) of two private sector dental colleges of Islamabad were included in sampling frame and demonstrators were excluded to get relevant insight. Survey was shared in both colleges via institutional WhatsApp groups utilizing purposive sampling technique. It was found that majority of the participants gave relevant and elaborative responses hence explained the central phenomenon quite well. Open and closed-ended questions were developed by utilizing few steps from guidelines of AMEE 87 for questionnaire development in educational research.<sup>10</sup> Firstly, literature review of NVC was conducted. Secondly, telephonic interviews were conducted with medical teachers (n=04) regarding their concepts about NVC. Thirdly, fifteen items were developed in the form of survey under three themes (face expressions, gestures, head movements and postures) related to kinesics. Fourthly, the survey was sent to five experts in the field for their relevancy with targeted area to be studied. The items were then re-arranged, re-phrased and omitted as required. Lastly, pilot testing was conducted (n=05) to see comprehension level and to manage technical errors. After minimal corrections, the survey was approved by all authors and it was executed along with consent form to ensure confidentiality and anonymity. Final Survey consisted of nineteen items under three themes. The data was coded by first author and then shared with other authors for data analysis. Frequencies and percentages were calculated for closed-ended questions and demographics while thematic analysis was performed for open-ended questions. In-vivo analytic codes were developed by authors after familiarizing with data by carefully reading lines and segments. Later, codes were merged to generate subthemes and later consensus was made among all authors regarding themes. The aim was to get diverse perspectives of each author and to ensure analytical triangulation.<sup>11</sup>

**RESULTS**

Forty-six teachers responded with predominance of females (76.1%) with age range 36-45 years (67.4%). Assistant Professor was the predominant designation (58.7%) with equal responses from basic sciences (50%) and clinical sciences (50%) and teaching experience range 1-10 years (73.9%) (Table-1).

Frequencies and percentages of closed-ended questions (Table-2) revealed that happiness and enthusiasm were the most frequently used (76.1%) facial expressions showing mood/ emotions and personality trait of the teachers, respectively. Smile was considered as the

powerful communicative signal (95.7%). Most of the participants (93.5%) declared that they start their lecture with smile and most of them (65.2%) smile genuinely during their lectures. Majority of participants (82.6%) told that they match their facial expressions with content of the lecture. ‘OK sign with raised thumb’ was frequently used (50%) gesture, while majority of the participants (64.3%) were not using any hand movement. Head nod (84.8%) and standing postures (81%) were used by majority of the participants during lectures.

Our study has explored the teacher’s perceptions about the impact of kinesics (facial expressions, gestures, head movements and postures) on undergraduate medical students and learning environment (Table-III). A total of twenty-three subthemes emerged from the data under three main themes. Participants said that happy mood of teacher develops urge in weak students to improve academically while anger on their face produces communication barrier due to stressful learning environment which undermines teacher’s respect by the students. On the other hand, smile on teacher’s face is useful to bridge gap between teachers and students but it may cause non-serious environment according to few participants. It was also reported that enthusiastic personality of teacher gains attention of the crowd and stimulates student’s learning. Almost half of the participants expressed those neutral expressions are good to maintain decorum of the class. Use of gestures by teachers such as ‘OK sign with raised thumb’ and ‘hand gesture to indicate size or shape of an object’ helps in developing special teacher-student connection which boost student’s confidence. On the other hand, majority of participants said that gestures like clicking pens can be distracting and shows confused attitude of teachers. Head nod encourages students continue giving answers and increases their self-confidence. Among postures, standing type of posture during lecture shows teacher’s commitment towards teaching and produces active learning environment.

**Table-1: Characteristics of the study participants (n= 46)**

Characteristics		n	(%)
<b>Gender</b>	Male	11	23.9
	Female	35	76.1
<b>Age Groups (Years)</b>	A1: 25-35	6	13
	A2: 36-45	31	67.4
	A3: 46-55	5	10.9
	A4: 56-65	3	6.5
	A5: 66-75	1	2.2
<b>Designation Groups</b>	D1: Professor	10	21.7
	D2: Associate P	9	19.6
	D3: Assistant P	27	58.7
<b>Basic Sciences</b>	BS	23	50
	<b>Clinical Sciences</b>	CS	23
<b>Teaching Experience (Years)</b>	TE1: 1-5	19	41.3
	TE2: 6-10	15	32.6
	TE3: 11-15	8	17.4
	TE4: 16-20	3	6.5
	TE5: 21-25	1	2.2
	TE6: 26-30	-	-
	TE7: >30	-	-

**Table-2: Frequencies and percentages of closed-ended questions**

THEMES		Frequency (n)	Percentage %	
<b>A. FACIAL EXPRESSIONS</b>				
1	Teacher's use of facial expressions showing mood or emotions during lectures:			
	Happiness/ Joy	35	76.1	
	Sadness	2	4.3	
	Anger/ Frowning	2	4.3	
	Surprise	5	10.9	
	Fear	1	2.2	
	Disgust	0	0	
	Anxiety	1	2.2	
	Neutral expressions	21	45.7	
2	Smile as a powerful communicative signal:			
	Yes	44	95.7	
	No	2	4.3	
3	Start of lecture with opening or welcoming facial expressions, i.e., Smile:			
	Yes	43	93.5	
	No	3	6.5	
4	Type of smile used by teachers during lectures:			
	Social smile (voluntary or primarily made for others)	16	34.8	
	Smiling with eyes (involuntary, spontaneous, or genuine)	30	65.2	
5	Facial expression expressed by teachers as a personality trait:			
	Excitement/ Energy/ Passion/ Enthusiasm	35	76.1	
	Tiredness	0	0	
	Confusion	0	0	
	Frustration	0	0	
	Shyness	0	0	
	Boredom	0	0	
	Neutral expressions	11	23.9	
6	Matching facial expressions with lecture content:			
	Yes	38	82.6	
	No	8	17.4	
<b>GESTURES</b>				
1	Use of gesture/ symbol by teachers during lecture:			
	OK sign with raised thumb	23	50	
	Circling index finger around the side of your head (he/ she is crazy)	0	0	
	Rolling your hand over and over in front of you (move on)	6	13	
	Pointing directly at learner (student) while asking a question	9	19.6	
	Hand gesture to indicate size or shape of an object	20	43.5	
	Hold the index finger with the thumb to create a small circle (the "OK gesture")	4	8.7	
	Cutting motion with the hand horizontally to the side says – "No. No way."	3	6.5	
	Waving a finger to scold	2	4.3	
	Taking a palm (or both) closer to the chest to show that we are truthful, caring, and responsible (gesture to show gratitude and appreciation towards the audience)	9	19.6	
	A power grip (closing your hand into a fist)	1	2.2	
2	Use of behavior and movements by teachers:			
	Clicking pens	4	9.5	
	Shaking legs	0	0	
	Self-touching	Scratching	1	2.4
		Twirling hair	0	0
		Fidgeting with fingers or hands	0	0
	Cough or throat clearing sounds	2	4.8	
	Rubbing one's hands together (something dramatic or surprising coming)	3	7.1	
	Glancing at watch or clock	5	11.9	
	None of the above	27	64.3	
<b>HEAD MOVEMENTS AND POSTURES</b>				
1	Use of head movements and postures:			
	Head nod (head tilting up and down to indicate agreement, acceptance, or acknowledgement)	39	84.8	
	Putting hands on hips while standing (power position)	0	0	
	Leaning back while sitting	4	8.7	
	Leaning forward while sitting	7	15.2	
	Putting hand under the chin while sitting with a group	4	8.7	
	Putting hands in pockets	2	4.3	
2	Types of postures used during lectures:			
	Standing	34	81	
	Sitting	1	2.4	
	Both	7	16.7	

**Table-3: Teacher’s Perceptions on the Impact of Kinesics on Undergraduate Medical Education within a Classroom Setting**

Impact of Facial Expressions		
Codes	Subthemes	Participant’s quotations
Happy mood of teacher	Urge to Improve	‘Students who are not performing good develop an urge to improve their performance in order to gain happiness of the teacher’ (M, A4, D1) ‘Students will definitely enjoy my lecture and will show interest in the subject’ (F, A3, D3)
	Friendly, Conducive and Motivating Environment	‘The mood of the teacher plays an important role. If I show happiness, the environment becomes relaxed and very conducive for learning’ (F, A2, D2) ‘Students can discuss easily all the ambiguities’ (F, A2, D3) ‘A happy expression is always motivating for students and relaxes the learning environment’ (F, A3, D3)
Anger on teacher’s face	Lack of Teacher’s Respect	‘Students express lack of respect and do not respond’ (F, A3, D1)
	Communication barrier	‘Anger reduces participation and students feel unwelcomed’ (M, A2, D1) ‘Anger conveys negative signal to students creating communication barrier inhibiting interactive learning’ (M, A4, D1))
	Stressful and Demotivating Learning Environment	‘Students will be afraid to ask questions... The overall environment will be tense which will affect learning process’ (F, A2, D3) ‘Anger will demotivate students’ (F, A3, D3)
	Controlled Teaching Environment	‘For certain instances, anger is also helpful to control students and get them attentive’ (F, A2, D2)
Smile on teacher’s face	Rapport Building	‘A smile at the start of a lecture welcomes the students and eases them. It builds mutual trust’ (F, A2, D2) ‘Smile can be used to bridge gap between students and teacher. Smile breaks the ice, lessens the anxiety, makes other feel noticed and welcomed’ (F, A2, D3)
	Healthy and Productive Learning Environment	‘Smiling gives a sense of reassurance to the students...useful tool for confused, anxious and academically weak students... Learning environment is more positive, more productive and outcome is increased’ (F, A2, D3) ‘Smile is contagious, it spreads happiness’ (F, A2, D2)
	Distraction and Non-Seriousness among Students	‘I think, smile usually distract students from the topic’ (M, A1, D3) ‘Generally, our teaching environment is not that healthy...smile is usually taken wrongly, and environment becomes non-serious’ (M, A4, D2)
Enthusiastic or energetic personality	Grabbing attention and Stimulating Learning	‘Passion on the teacher’s part stimulates passion in the students’ (F, A2, D1) ‘Teacher’s enthusiasms attract student’s attention’ (F, A2, D3) ‘If teacher shows enthusiasm, this is contagious’ (F, A3, D1) ‘Creates interest among the students and stimulates them to learn more and more’ (M, A4, D1)
	Pleasant Learning Environment	‘It creates pleasant teaching environment’ (M, A2, D3)
Neutral expressions	Maintaining Class Decorum	‘Staying neutral helps in maintaining distance between teacher and students’ (F, A2, D3) ‘It maintains class decorum’ (F, A3, D3)
	Smooth and Focused Teaching	‘It helps in keeping focus on the topic’ (M, A1, D3) ‘Helps in smooth teaching’ (M, A4, D2)
Matching facial expressions with content of lecture	Long Lasting Impression	‘Students may not remember the exact words...may remember the expressions related to it...help them memorize things’ (F, A2, D1) ‘Leave long lasting impression on their mind and help them associating different topics to different gestures and expressions’ (F, A2, D3)
	Hard to Match Expressions	‘It is hard to match my facial expressions while discussing human biology’ (F, A2, D2)
Impact of Gestures		
OK sign with raised thumb	Teacher-Student Special Connection	‘Students feel appreciated and noticed which make them feel special’ (F, A2, D2) ‘Gestures makes student feel that you are connected to them’ (F, A2, D3)
	Boosting Student’s Confidence	‘It increases confidence of student’ (F, A2, D2)- alignment
Clicking pen	Gaining attention	‘Both sounds of clicking and movement of pen bring attention and send the idea (dual effect)’ (F, A3, D1)
	Distracting and Confused Attitude	‘Some of actions allow distraction of the students’ (F, A2, D3) ‘All movements show confused attitude’ (F, A2, D2)
Impact of Head Movements and Postures		
Head nod	Encouragement	‘Students are encouraged to ask question or continue to give an answer’ (F, A3, D1) ‘Head nod encourages the student and increases self-confidence’ (F, A2, D3)
Standing posture	Commitment of the teacher	‘It conveys a message that you are putting in your full effort to make them understand the subject being taught’ (M, A4, D1)
	Active learning environment	‘Standing can let you have direct eye contact and it communicate energy and effort’ (F, A3, D1) ‘Students can see you properly and you can have their full attention’ (F, A1, D3)

\*M-Male, F-Female, A-Age group (1-5), D-Designation group (1-3)

## DISCUSSION

The study has explored teacher's perceptions regarding impact of kinesics (facial expressions, gestures, head movements and postures) on students and learning environment. Comparing with a previous study<sup>12</sup> in which a different methodology was used among secondary school students, most of our findings have replicated previous findings showing that kinesics has impact on students and learning environment. Both studies have few common findings such as active, conducive, and motivating learning environment due to happy mood and enthusiastic personality of a teacher. Activated pleasant emotions such as enthusiasm reflect well-being of teachers.<sup>13</sup> Other common findings are long lasting retention due to matching facial expressions with content of lecture.

On the contrary, our study also exposed other aspects such as lack of respect by students and stressful environment caused by anger on teacher's face. Anger nullifies weeks of teacher-student rapport building hence, teacher's respect is undermined.<sup>14</sup> Anger adversely affects teachers themselves too.<sup>15</sup> One of the participants though told that anger could be used to control teaching environment. Moreover, it is reported that smile on teacher's face helps in rapport building with students, though one of the participants also said that it could be distracting and could create non-serious environment. In a previous study<sup>16</sup> it was reported that smile was the cause of negative emotional and motivational responses of students though in a virtual learning environment. Whereas another study explained beautifully that smile used in a classroom setting was powerful to invite student's smile and it can be used as a resource for teachers to produce relevant actions.<sup>17</sup> Participants of our study also told that neutral expressions could maintain class decorum and help in smooth and focused teaching.

Our study has shown that hand gesture to indicate size or shape of an object when used by the teachers complement their speech and enriches information hence, influence learning.<sup>18,19</sup> Similarly 'OK sign with raised thumb' is used to indicate approval, excellence and satisfaction by the teacher.<sup>20</sup> Although gestures are central aspect of communication and bring energy to speech<sup>20,21</sup> but, various gestures like clicking pens, shaking legs and self-touching etc. show confused attitudes of teachers according to majority of the participants and might lead to distraction. One of the participants in contrast to previous opinion said that clicking pen could be used for gaining student's attention in class.

Among postures, the standing posture during lectures was used by majority of the participants. They told that standing posture show professional attitude, their commitment, and interest towards teaching and creates active learning environment. Teacher's position while teaching matters very much as every position or movement send message to the students and to send correct message, a teacher should be able to use correct position for better teaching-learning experience.<sup>22</sup>

The data was collected only from teaching faculty of dental colleges whereas, it could have been collected from teaching faculty of other health professions such as medicine, nursing, pharmacy, and physiotherapy to get broad perspectives.

## CONCLUSION

Nonverbal communication strategies should be used correctly by medical teachers to get positive impact on learners and learning environment. Teachers should be enthusiastic and in happy mood while communicating with students within a classroom setting. Therefore, lecture can be started with powerful communicative signal such as smile which induces healthy and productive learning environment and also helps in building rapport with students. Conversely, anger should be avoided as it creates stressful learning environment which demotivates students and affects their learning process. Gestures such as 'OK sign with raised thumb' can be used by teachers as they boost student's confidence and develops special teacher-student connection. Similarly, the standing type of posture should be frequently used by teachers as it gathers student's attention and creates active learning environment.

This study will produce awareness about the correct use of NVC strategies to attain healthy and active learning environment which can motivate and engage learners. It is suggested for the curriculum developers to integrate the effective use of NVC along with other well-established active learning strategies within the curriculum. Future research should collect student's perspectives to see how NVC of their teachers affects them and the learning environment within a classroom setting. Moreover, the data may be collected from other health professions to gain broad perspectives.

## AUTHOR'S CONTRIBUTION:

AA: Conceptualization of study design, literature review, questionnaire development, data collection, analysis, and interpretation. AMK: Drafting manuscript, Table-1 & 2. ZN: Data collection, Table-2, contribution in writeup, TIM: Thematic analysis,

proof reading. SF: Data collection, coding, data interpretation.

**Conflict of Interest:** None to declare.

**Funding Disclosures:** None to declare.

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*Submitted: October 7, 2020*

*Revised: May 29, 2021*

*Accepted: September 1, 2021*

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