



COMMUNICATION SKILLS FOR DOCTORS: CAN MIRROR NEURONS BE THE BRIDGE TO PATIENTS' MIND?

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KEYWORDS :

"People don't care how much you know, until they know how much you care"

- Theodore Roosevelt

Effective doctor-patient communication is the heart of clinical medicine. Many call it to be an art. Recent findings have provided a neuro behavioral perspective in understanding the mechanism of this complex but vital component of the doctor-patient relationship. Empirical research has demonstrated that contingent interpersonal responses are accompanied by contingent neurobiological responses. Neuroscientists have now discovered a mirror neuronal system that contributes to this attuned responsiveness, with special relevance to empathy. Understanding the underlying mechanisms can also help optimize and make doctor-patient communication more effective.

In this paper, the neuro-scientific basis of various aspects of communication skills is presented, with mirror neurons and empathy being at the core. The possibility of training medical students in communication skills based on the action understanding and imitation potential of mirror neurons is proposed.

Communication Skills - A Major Prerequisite for Medical professionals

Communication skills are generally considered as 'soft skills'. They however have the potential to prove valuable in effective patient care. A professional conversation between patients and doctors helps shape the diagnosis, initiate therapy, and establish a caring relationship. The degree to which these activities are successful depend, in large part, on the communication and interpersonal skills of the physician. Patients often regard their doctors as one of their most important sources of psychological support.⁹

A doctor-patient interaction consists of three central functions. The first is gathering data to understand the patient's problem. Next is developing rapport and responding to the patient's emotions and finally educating patients about their illness and motivate them to adhere to treatment plans. The interaction has a cognitive component (information gathering, making and communicating decisions and explanation of what needs to be done) as well as an emotional component (building rapport, attentive listening and a supportive approach while responding and addressing concerns).

Empathy has been defined as the 'ability to understand and share the feelings of another'. It's a powerful way of providing this support which helps patients in reducing feelings of isolation and validating their feelings or thoughts as normal and to be expected.¹ From a cognitive and therapeutic perspective, empathy has a larger and deeper meaning. It is described as "a visceral and cognitive understanding of another's emotions or motivations, allowing a person to take another's viewpoint, understand intentions behind their actions more fully and feel what the others feel".⁵

The way a doctor communicates plays a significant role in establishment a rapport, enabling and encouraging patients to share information. Responding in an empathetic manner coupled with a positive reappraisal focusing on positive coping skills of patients are shown to have value.⁶ A person centered approach rather than symptom

centered approach is more effective. Positive non-verbal communication and doctor's explicit expression of empathy have positive impact on patient's expression of their illness and concerns, and relieves their stress.

The Concept of Mirror Neurons

Mirror neurons were first discovered in the early 1990's. Italian researchers discovered a special class of cells in the brains of monkeys that fire when an action is observed and when it carries out the same action on its own.⁶ Subsequently, these were discovered in humans. Research has demonstrated multiple specialized mirror neuron systems that perform and understand the actions, intentions, emotions and behavior of others through action understanding and direct imitation without the need for any cognitive reasoning.⁸⁹

That mirror neurons respond during both the observation and execution of an action, suggests a neural basis for the link between perception and action. The potential of harnessing the mirror neuron mechanism in communication skill training for doctors is proposed.

Mirror neurons and learning new skills

Mirror neurons thus play a role in skill acquisition through imitation.¹⁰ The learning occurs via an "action understanding – imitation – motor representation – new knowledge – new action" sequence that is mirror neuron mediated. Active observation and repeated practice leads to acquisition of skills.

This potential of action observation and imitation emphasizes the role of guided observation coupled with practice in the learning of communication skills. It also highlights the importance of role modeling. Performing an action while seeing and hearing oneself perform should be enough for neurons involved in performance to start responding to the sight and sound of the same action. The fact that five hours of piano lessons suffice for the premotor cortex to start responding to piano music supports this view.¹¹

Effective use of Mirror neuron philosophy has been demonstrated in surgical skill training for psychomotor training and whole philosophy of surgical technique.¹²

Mirror Neurons & Empathy

Many studies have independently reported that the mirror neuron system is involved in empathy.^{13,14,15} Experiments have shown that certain brain regions, in particular the anterior insula, anterior cingulate cortex, and inferior frontal cortex, are active when people experience any emotion (disgust, happiness, pain, etc.) and when they see another person experiencing an emotion. A large-scale network for empathy is composed of the mirror neuron system in the insula, and the limbic system. , , , , , Gallese, Keysers and Rizzolatti (2004) proposed a unifying neural hypothesis attributing the ability to understand the other's action to the mirror neuron system and experiential understanding of others' emotions.

Mirror neurons dissolve the barrier between self and others. On account of this mirror neurons are sometimes referred to as "empathy neurons", "Dalai Lama neurons" or "Gandhi Neurons". Malfunctioning mirror neurons are likely responsible for the lack of

empathy found in severely autistic people, which is described as the "Broken mirror hypothesis" of autism.^{16,30}

Mirror neurons in doctor-patient communication

Based on the theories presented hitherto, we now propose a hypothesis linking and inter-twining these theories, to propound how the Mirror mechanism may be practically utilized in imparting communication skills training to doctors.

Mirroring

One of the most powerful communication skills is reflective listening or verbal mirroring. The concept of "Mirroring" as a way to build connections among people and encourage empathy was first propounded in by Virginia Satir, an influential therapist of the twentieth century. Following Satir's innovative work, prominent social scientist Richard Bandler, developed Neuro-linguistic Programming (NLP) demonstrating the application of mirroring to improve communication and teamwork at workplace especially in sales and marketing.

As a mirror reflects back one's image, the receiver verbally reflects back to the sender words that let the sender know for sure that the message sent was the message received. Mirroring involves the receiver putting his or her own viewpoint aside and letting the sender know in words that they see or know the sender's point of view. The receiver (listener) puts into words what the sender thinks and believes, feels (emotions), has done, has not done, is doing or wants to do (behaviors), wants and needs, values and wants you to understand Tonya Reiman's, in her book 'The YES Factor', has meticulously elaborated how Doctor Patient communication can be made more effective using 'Mirroring' techniques¹⁷

Five techniques of Mirroring:

1. Body Movements- The doctor must closely observe and 'mirror' the patient's hand gestures, eyebrow movements, body postures, etc. to reflect empathy. For example, if the speaker leans forward, your leaning forward too shows interest; posture sends a message.

2. Facial Expressions- Mirroring with facial expressions to reciprocate the patient's feeling establishes an instant connection between doctor and the patient.

3. Breathing- Our rate of breathing can be a fair indicator of our state of mind. In times of anxiety, the breathing grows heavier and in times of relaxation, the breathing occurs at a slower pace. This pattern can be utilized by the doctor for matching breathing pace of the patient and gradually calming the patient down as he unconsciously starts mirroring the doctor.

4. Voice – The doctor must grasp the emotions of the patient through the expression of words, vocal tone, speed and cadence of speech.

5. Blinking- The doctor must try and follow the pace of blinking pattern of the patient. This marks a subtle emphasis that the doctor has an empathetic connect with the patient.

These techniques can be demonstrated through videos and role plays to medical students.¹⁷

Imitation and Mind reading:

Mirror neurons appear to form a cortical system matching observation and execution of goal-related motor actions. This can be utilized in Communication skills for Imitation and Mind reading.

A majority of us have encountered someone who seems to anticipate, at all times, what one is about to say, always able to finish off our sentence or sentences. These people can totally empathize without speech. We may presume that their mirror neurons, along with the neurons found in Broca's area (those related to language), are able to quickly construct simulations and patterns (just as those of a kinetics activity are built), and 'predict' in a way, what the other will say.

Learning and using imitative behavior helps in controlling conversations. Being able to internally imitate others, we "feel" what they are feeling which leads to understanding intentions & motives through contextual cues. We then respond compassionately and appropriately. This 'intuitive' ability of a doctor can help him/ her build up a strong bridge to patient's faith in the doctor. We propose that, this

'intuitive prediction ability' need not be innate and can be acquired as a skill through harnessing the mirror mechanism.

Techniques for training Doctors for Communication skills:

Teaching communication skills is not an easy task. The understanding that action imitation and observation can play a significant role, can guide us in the planning of communication skills teaching, methodology, choice of methods and clarifying the role of teachers. The following initiations can be made for harnessing Mirror mechanism in imparting communication skill training to doctors.

- Workshops involving live interaction of trainee doctors with Standardized patients.
- Audio-Visual Training for demonstrating Communication Skills
- Internalization of practice of Mind Reading, imitation

A trainee doctor may watch another skilled communicator demonstrate techniques of mirroring i.e. body movements, facial expressions, breathing, voice and blinking; and focus on specific components of his action. As he observes movements of the skilled communicator keenly, his mirror neurons will get fired exactly in a manner that they would fire when he himself would perform the act of communicating. It is expected that the trainee intensely visualizes the entire procedure in his mind with imagining the splitting of every action to the minutest of details. He should then execute the conversation himself with complete affective integration. This observation-execution of communicative actions leads to repeated firing of the mirror neurons responsible for these actions.

This repeated firing of the mirror neurons may lay down the neuro-motor pathways necessary for the performance, making the skill automatic without requiring any conscious effort. The lay-down of these pathways is called as "grooving", which implies internalization of the acquired skills. 'Grooving' is essential so that the communication skills newly acquired become a part of everyday interaction with the patients in the most natural way.

The ultimate goal is person-centered communication and way of thinking, as opposed to disease-centered or symptom-centered approach. This will lead to better trust in the doctor, improved adherence to treatment and overall patient as well as physician satisfaction.

Research will continue to shed more light, but what is known can be the basis for improved approaches to teaching communication skills. Training medical professionals in communication skills has been found to improve doctor-patient communication.²⁹ Doctors may not inherently have excellent communication skills. Instead they can understand the theory of good doctor-patient communication, learn and practice these skills, and be capable of modifying their communication style if there is sufficient motivation, self-awareness, self-monitoring, and training.'

"We are exquisitely social creatures. Our survival depends on understanding the actions, intentions and emotions of others. Mirror neurons allow us to grasp the minds of others not through conceptual reasoning but through direct simulation by feeling, not by thinking" - Rizzolatti

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