Nonverbal Communication in Clinician-Patient Interaction and Influence on Healthcare Outcome

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ABSTRACT

Communication is essential during clinicians' patient encounters in determining the health outcome. The importance of nonverbal communication has received less attention in the patient direct care model, both in practice and healthcare communication. This is because of the nature of the approach itself. Our goal was to investigate the impact nonverbal communication research conducted during the last quarter century has had on various health outcomes. Body language is a powerful tool that may help healthcare providers connect with patients and build mutual respect. In the context of medical encounters, this research aims to provide a summary of the previous research that has been conducted on nonverbal communication. After giving the roles of nonverbal behavior and its importance in medicine, we show how physician nonverbal conduct relates to patient pleasure, trust, or adherence. We then present nonverbal behavior assessment tools. Finally, it has been determined whether or not interpersonal sensitivity affects patient outcomes.

Keywords: Nonverbal Communication, Health Care Outcome, Clinician Patient, Community Medicine, Patient Education and Counseling

INTRODUCTION

This review aims to identify the effect of nonverbal communication on a patient's health outcome during patient-directed care. Clinicians-patient communication is a critical component in determining health outcomes in disease management. In addition, the patient-centered communication model has widely been advocated to achieve a favorable outcome. Several recent studies highlight the importance of non-verbal communication and its implication on patient satisfaction and other health outcomes (Mast, 2007).

Nonverbal communication and non-verbal behaviors are a variety of communicative interactions that carry no linguistic content, including but not limited to; facial expression, smiling, eye contact, body posture (open or closed position), forward or backward leaning, hand gesture, head nodding, paralinguistic speech characteristics such as speech loudness; rate; pitch; pauses

and dialogue. Behaviors such as interruptions, empathy, and emotional connection. These non-verbal communications convey relatedness (Caris-Verhallen et al., 1999; Zolnierek & DiMatteo, 2009). This review considers nonverbal communication and nonverbal behaviors to share the same message.

Communicating nonverbally correlates directly to a clinician's emotional intelligence (EI) and empathy (Burcher, 2011). How a clinician relates to his or her patient may influence patients' satisfaction, trust, compliance to treatment, and prognosis, which are outcome markers of quality of care. There is a positive correlation between physician emotional intelligence (EI) and health care outcome markers, particularly trust. Patient trust is a marker of the quality of healthcare experience.

Considering the pivotal role that non-verbal communication plays in the care process, it has received extraordinarily little attention in medical education and

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healthcare communication literature. Nonverbal cues and behaviors to decipher meaning during care have been replaced by more verbally explicit exchanges, with little reliance on the unstated. Nonverbal cues influence the interaction results, and clinicians must take necessary signals (indicators) from the patient to foster the purpose and goal of the encounter, including future meetings.

REVIEW OF THE RELATED LITERATURE

Studies on caregiver-patient nonverbal behavior have yielded many interesting results in recent decades. Nonverbal communication predicts patient outcomes in correlational and experimental studies. Leaning forward and smiling boosts patient satisfaction, trust, and adherence. We learn how patient characteristics affect communication style reactions. Studying caregivers' and patients' nonverbal behavior. Nonverbal behavior can reveal disease in psychotherapy (e.g., depressive disorder, schizophrenia, autistic troubles). Furthermore, enhancing patients' nonverbal skills, such as reading and interpreting others' nonverbal behaviors, can be part of therapy (Cousin & Mast, 2014). Finally, as caregiver-patient communication developed, theoretically and empirically, we learned how physicians, nurses, therapists, and other healthcare providers should best communicate with their patients, interpret their nonverbal behavior, and adapt to it to ensure the best possible care.

Patient Satisfaction

Patient satisfaction is a measure of the level to which a patient is a content with the healthcare they receive from a healthcare provider. It is an essential and commonly used indicator of the quality of healthcare experience by most health insurance providers (Kravitz, 1998; Thiedke, 2007). Measured appropriately, patient satisfaction or experience provides a measure of the quality of care and provides understanding into a characteristic that is otherwise challenging to objectively measure (Manary et al., 2013). Studies of eye contact, facial expression, body positioning or leaning forward, and visibility of actions (Hannawa, 2011) show a strong association with patient satisfaction (Griffith et al., 2003). Gentle touch, gesturing, and head-nodding also equally impact patient satisfaction. A physician's smile affects patient satisfaction but does not influence trust (Griffith et al., 2003). Conversely, there is a negative association between patient satisfaction and clinician facial expression and/or eye gaze (Rahman et al., 2017).

Patient trust and nonverbal communication

Patient trust is an important fundamental element of medical treatment relationships. Trust in health care interaction is threatened and rapidly eroding by the rapid changes in the health care systems (Pearson & Raeke, 2000). Patient trust has been established to predict instrumental variables of health quality, such as adherence to treatment, preventive services, and continued enrollment or keeping appointments (Thom et al., 2004). Nonadherence to a recommended treatment carries a significant economic burden. For example, in some disease states, more than 40% of patients sustain significant risk by nonadherence to treatment (Martin et al., 2005). Many studies have linked patient trust to certain nonverbal communication styles of eye contact (Hannawa 2014, Hannawa, 2011), facial expression, gestures, head nodding (Hannawa, 2014), body position, leaning forward, and visibility of action (Hannawa, 2011). Face and/or eye gaze negatively influence patient trust (Mast & Cousin, 2013). It has also been demonstrated that a physician's nonverbal behavior that conveys concern to a patient, such as maintaining frequent eye contact, displaying an expression of concern on their face, or keeping a close interpersonal distance, results in a greater degree of patient trust than a physician's behavior that conveys a greater degree of stretch. Regarding patient adherence, it has been demonstrated that a physician touching the patient increases the patient's commitment to their medication (Mast & Cousin, 2013).

Compliance to follow instructions and continue care

Compliance refers to the degree to which a patient's actions align with the recommendations made by a healthcare provider (Winnick et al., 2005). One study found a correlation between vocal tone, eye contact, facial expression, and compliance to follow instructions and continue care among Southeast Asian physicians and patient's interactions (Coelho & Galan, 2012). DiMatteo et al. (1986) studied 28 family practice residents' self-reported empathy, self-monitoring ability, and emotional communication skills as predictors of patient satisfaction, appointment noncompliance, and physician workload. Appointment records were utilized to establish how many patients each S and ANC saw. Self-reported ANC and PS were unrelated to physician workload, although affective communication competence was. Sensitive Ss had fewer cancellations. Nonverbal encoding skill was linked to patient satisfaction and physician workload.

METHODS AND MEASURES

The literature of published articles in the English language was searched within the last 25 years using standard terms about nonverbal communication and health outcomes using NLM, google scholar, and Mendeley. We found many articles on nonverbal communication. In addition, we targeted articles focused on patient satisfaction outcomes, trust, compliance or adhesion to treatment, medical error forgiveness, and emotional relatedness. Forty articles met the criteria and were studied.

The measures promote patient adherence and can lead to cost savings and better patient outcomes. Although these outcomes are encouraging, physicians have limited time and funding and must implement these tactics in a busy practice. No one intervention technique has been proven effective across all conditions and contexts; hence, a combination of the following strategies is generally needed

to improve patient adherence. We present a conceptual framework based on our literature review and the advice of influential organizations to bridge the gap between research and clinical reality. This multidisciplinary framework looks at methods in the context of the healthcare team and system-related issues to reduce implementation time and cost (see Figure 1). The framework views patient adherence as a systems problem, not a patient or physician one, and integrates interventions at the systems level. In the framework, nurses, pharmacists, case managers, health educators, and everyone involved in patient care know their roles. Understanding and appreciating a pharmacist's role in educating patients about medications may allow doctors to focus on other therapeutic components. For example,

community pharmacists can promote drug regimen adherence by providing patients with drug information, recognizing potential adverse drug reactions and interactions, and offering suitable dosage containers or compliance aids. In addition, nurses or other healthcare workers can mail appointment reminders and patient education materials. Atreja et al. (2005) say adherence is a dynamic process that needs evaluation. Closing the feedback loop requires good assessment, which involves creating criteria to gauge adherence and analyzing procedures and outcomes. Creating institution-wide groups to create and implement strategies would help integrate the recommendations into current systems and increase quality.
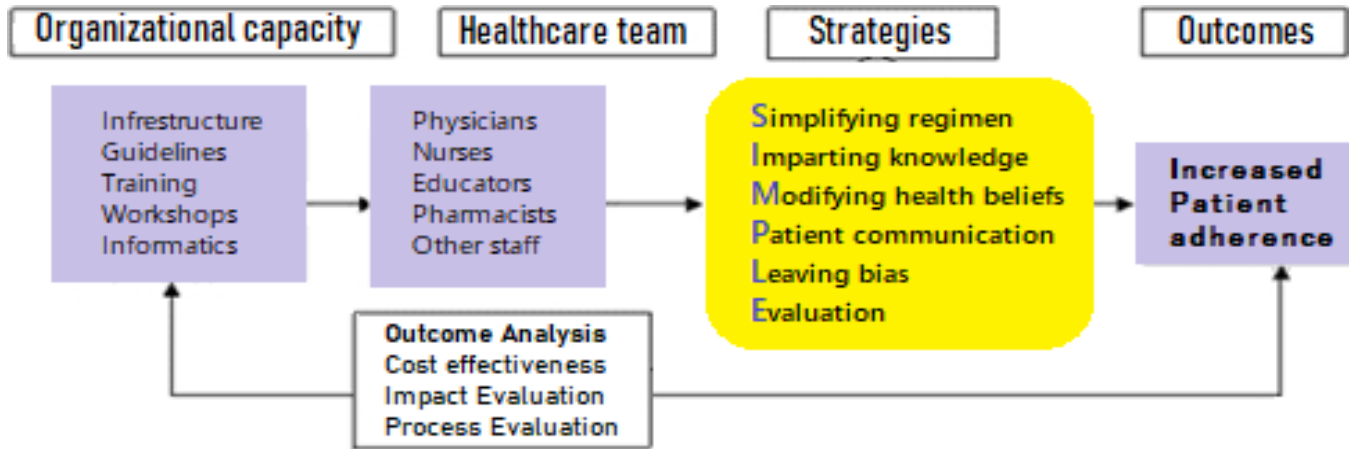

Figure 1: Systematic framework to improve adherence

FORMATS FOR DOCUMENTING AND ANALYZING NONVERBAL BEHAVIOR

There are a variety of approaches that can be taken to operationalize the documenting and analyzing of the same nonverbal action. For example, code how many times a person smiled or how long that person smiled during the

interaction. Alternatively, you could use a global rating of how "smiley" that person appeared during an exchange, which could be a combination of the smiles' frequency, duration, and expansiveness. For example, you could code how many times a person smiled or how long that person smiled during the interaction (Blanch-Hartigan et al., 2018).

Table 1: Structures for Documenting and Analyzing Nonverbal Behaviors

Documenting and analyzing the format	Case in point
Incidence tally	The incidence tally is the number of times an activity was observed, regardless of duration. For example, how often a doctor looked at a patient's chart.
Typical length	The typical length divided by frequency equals average duration (e.g., average speech duration would be total speaking time divided by the frequency of several turns).
Aggregate time	Speaking time and eye contact are commonly measured cumulatively.
Dimple ratings	Global dimple ratings are abstracter than one-behavior ratings. Physician dominance can range from 0 (not dominating) to 5 (very dominant). The problem is determining which sample values represent 0 and 5.
Intensity	Over the whole engagement duration or over a predefined time limit, the behavior's intensity is scored (e.g., how much empathy a physician showed during an interaction).

Rate per unit of time	A rating is assigned to the conduct throughout a period that has been predetermined, such as once per minute.
Evaluation measures with appropriate presenters	These are measures of specific behavior, such as how much a patient smiled, on a scale of 0 to 5. (a lot). The problem is determining which sample values represent 0 and 5.
Existent or absent-minded	A predetermined interaction period is used to code behavior. This sequence can be the whole conversation (e.g., was the consultation interrupted, yes or no) or the presence or absence of the behavior in a pre-specified time interval (e.g., did the physician make eye contact yes or no during 1 min, during the next min, etc.). In the second situation, documenting and analyzing can be done during interactions.
Uncompromising documenting (type)	When documenting and evaluating diverse behaviors, employ category methods. For example, one can code interruptions or grins; usually, frequencies are used.
Process timing	Behavior on- and offset timestamps. This allows extracting duration, frequency, average duration, and behavior evolution over time and integrating the behavior with other timestamped behavior to obtain more complicated indications. For example, time stamping behavior can reveal whether the doctor interrupts the patient more at the end of the consultation. Time stamping can also count frequency.
Verbal correspondence	Which nonverbal activity accompanied spoken information? To determine if a doctor looks at a patient more when asking a lifestyle question than a medical inquiry, you must code the query and document and analyze gazing at the patient.

In addition, selecting a documenting and analyzing format is difficult because previous research has shown that various documenting and analyzing configurations might produce divergent outcomes in some circumstances. For instance, there may not be a correlation between gaze duration and gaze frequency (Hall, 1984, p.78). Choosing the best documenting and analyzing format for your research question is crucial. Table 1 shows how to code behavior. Some micro to macro designs differ. For example, a global rating of how much eye contact the doctor had with her patient is less precise than the onset and offset timestamps. The latter would allow you to code total or average eye contact, do sequential analyses, and code complex nonverbal behaviors. The ratio of speaking time spent looking at the other person to listening time spent looking at the other person indicates dominance in social interaction. You must also decide if documenting and analyzing is a percentage of total interaction. For example, if the excerpts differ in length, frequency counts may be misleading; calculate occurrence rates (e.g., smiles per minute).

FORGIVENESS OF ERROR AND PROPENSITY OF LITIGATION

Higher patient evaluations of trust, empathy, closeness, and forgiveness, as well as lower patient ratings of emotional discomfort and avoidance, are strongly associated with a consistent verbal message in error disclosure and continual physician nonverbal involvement. The repair of the error and the continuous steering of the patient toward the most appropriate subsequent treatment are two of the essential goals that should be accomplished after disclosing an error. To achieve these goals, the patient must have an accurate awareness of the situation and the capacity to participate in informed decision-making for follow-up care. According to Hannawa (2014), the verbal efficacy of physicians is not a sufficient criterion to attain these goals. Instead, their nonverbal participation contributes to a realistic patient self-assessment, enhanced patient knowledge, and positive behavioral intentions on the part of the patient. Therefore, nonverbal involvement is an essential communication skill in the context of error disclosures. This skill can enable physicians to continue caring for their patients' physiological well-being and guide their patients in the direction of corrective follow-up care that is most appropriate for them.

These criteria are outstanding, but their consequences are limited for various reasons. First, a recent study partially confirmed the requirements for adequate error disclosure, recommending more empirical validations and possible standard extensions. Most study designs that produced the criteria depended on patient populations, used correlational rather than causal data, and lacked theoretical frameworks. Despite acknowledgment in the communication literature that emotional messages, medical performance ratings, and patient satisfaction are connected with physicians' nonverbal cues, most error disclosure research has only addressed verbal disclosure contents. According to communication science research, patients will rely on their physician's nonverbal responses during disclosure to make judgments about the error, its implications for their health, the physician's clinical competence, and their future medical care. Only concentration on vocal disclosure messages would generate an incomplete set of error disclosure skills. There is a correlation between a physician's nonverbal

disengagement from an error disclosure and the indication that the error was of a more severe kind, the attribution of responsibility to the doctor, and a greater desire to change physicians (Mazor et al., 2006). The most effective way to acknowledge apologies is through nonverbal communication.

EMPATHY CLINICIAN EMOTIONAL CONNECTION

When discussing the relationship between a patient and their physician, the concept of empathy is frequently brought up. Irving and Dickson (2004) made the recent suggestion that empathy should be treated as an attitude. They brought up the notion that in addition to the cognitive and emotional elements of empathy, there should also be a competence dimension (a behavioral dimension). They went on to point out that the skill dimension reflects the interpersonal process between people in expressing empathy. In contrast, the cognitive and affective dimensions are part of an intrapersonal process that occurs within a single person experiencing empathy for another person.

On the other hand, empathy is more of a process involving activity on the cognitive, affective, and behavioral levels. Empathy is "the process of comprehending, being aware of, being sensitive to, and vicariously experiencing the emotions, thoughts, and experiences of another individual... without having the emotions, thoughts, and experiences fully communicated in an objectively explicit manner," according to one definition found in a dictionary. Empathy can also be described as "the action of understanding, being aware of, and being sensitive to, and vicariously experiencing the feelings, thoughts, and experience. According to Rogers (1957), having empathy means "being sensitive, moment-to-moment, to the changing felt meanings which flow in this other person." This explanation suggests that empathy is a process that develops through time in response to the shifting needs of the target and the environment.

The activity of understanding, being aware of, being sensitive to, and experiencing the feelings, thoughts, and experiences of another person, even though one may not entirely have those same sentiments, ideas, and experiences oneself, is the action that is referred to as empathy (Definition of empathy, n.d.). The capacity to process emotional information about the perception, assimilation, expression, regulation and management of one's feelings is what we mean when we talk about emotional intelligence (EQ). Studies of empathy and emotional connection consistently show an increased likelihood of clinician success in practice, increased patient trust, patient satisfaction, increased adherence to treatment, and a positive view of providers by patients (Atreja et al., 2005; Stewart, 1995).

Because empathy is an essential component of good treatment, doctors must be able to sympathize with their patients. One must have patience, curiosity, and the willingness to subject one's mind to the world of the sick to acquire an acute ability to empathize with others. However, to achieve their goal of developing empathy, today's physicians must first overcome a great deal of resistance. Cynicism, a problematic work atmosphere that is filled with high responsibilities, and a lack of value linked to empathy are some of these factors. In addition, research suggests that many health workers receive insufficient training and education in compassion and the emotional components of providing health care to patients. We think that if physicians had a better understanding of empathy—and, more importantly, if they framed the psychological and behavioral activities involved in this process as acting methods used in emotional labor—they would be better able to successfully incorporate empathy into their daily practice.

DISCUSSION

The research evaluated patients' satisfaction levels, trust, adherence to treatment and preventative service suggestions, continuity of care, error forgiveness, and emotional connection using various nonverbal communication approaches. In the patient-directed model of clinician-patient interactions, the benefits of nonverbal communication are abundantly evident from the research conducted. The level of patient satisfaction is utilized as a standard indicator of success across the study. Positive patient quality of healthcare experience is connected with outcomes such as patient satisfaction, trust, adherence to treatment and compliance, forgiveness of error, and emotional connection. These outcomes are associated with positive patient outcomes. There is no correlation between the clinician smiling and increased patient trust during the session. In addition, the results of at least one study indicate that eye and/or face gaze can hurt the quality of treatment that a patient receives.

Providers need to be situational awareness of their nonverbal communication to notice potentially harmful body language and intentionally alter it. For instance, specific events, such as seeing a problematic patient, resolving a patient complaint, or coping with stress, could generate unfavorable nonverbal reactions. There are many different approaches to take that can assist medical professionals in consciously improving their nonverbal communication. Take, for instance:

- Keep an open, relaxed posture and avoid motions that suggest unwillingness to listen, disapproval, or judgment. Encourage the patient to be honest.
- To demonstrate that you are paying attention, simply nod your head.
- Show interest in the patient's words and avoid nonverbal movements indicating boredom or urgency.
- Smiling is encouraged, as is making good eye contact; nevertheless, you should not stare.

- Take a seat whenever possible, lean forward slightly to communicate that you are paying attention. Do not take a condescending position toward the patient by standing over them and gazing down on them.

Nonverbal messages from technology might frustrate or alienate patients. For example, electronic health records (EHRs) can create barriers to patient participation, such as turning your back on the patient while typing or looking at the computer during delicate discussions. Educating the patient about the EHR and the benefits it offers them, leaving the laptop away during meetings, or using a scribe to capture the clinical interaction may help.

CONCLUSION AND RECOMMENDATIONS

Achieving accountability and improving performance in healthcare depends on having a shared goal that unites the interests of all stakeholders. These goals may vary in importance for each player, but patient trust and satisfaction seem familiar to all. Patient satisfaction and trust assessment are important ways of translating service improvement into outcomes meaning full to patients, especially longevity and improved quality of life. Health-related quality of life (HRQoL) goes beyond direct measures of population health, life expectancy, and causes of death. It is the impact health status has on quality of life and health economic savings. Where health economic savings are the health outcomes achieved per dollar spent. To achieve a high health-related quality of life, there is a need to maximize results influencing this end goal by consciously deciding to fill the current gap in communication and connection between patients and clinicians. This gap can be filled by the appropriate application of various nonverbal styles of communication. No studies compare the relative importance of one kind of nonverbal communication over another. From the current knowledge, applying a combination of styles is better than none. The recommendation to better prepare clinicians through training in medical schools, refresher courses, and sponsored training programs will close this gap. Therefore, it is recommended that studies focus on each technique of nonverbal communication and behavior to determine how each affects the health outcome.

REFERENCES

Atreja, A., Bellam, N., Levy, S. R. (2005). Strategies to enhance patient adherence: making it simple. *MedGenMed.* 7(1). https://ncbi.nlm.nih.gov/pmc/articles/PMC1681370/

Blanch-Hartigan, D., Ruben, M. A., Hall, J. A., Mast, M. S. (2018). Measuring nonverbal behavior in clinical interactions: A pragmatic guide. Patient Education and Counseling, 101(12), 2209-2218. https://doi.org/10.1016/j.pec.2018.08.013

Burcher, P. (2011). Emotional intelligence and empathy: its relevance in the clinical encounter. *Patient Intelligence,* 2011(3), 23-28, https://doi.org/10.2147/PI.S11070

Caris-Verhallen, W. M., Kerkstra, A., & Bensing, J. M. (1999). Non-verbal behavior in nurse–elderly patient communication. *Journal of Advanced Nursing,* 29(4), 808-818. https://doi.org/10.1046/j.1365-2648.1999.00965.x

Coelho, K. R., & Galan, C. (2012). Physician Cross-Cultural Nonverbal Communication Skills, Patient Satisfaction and Health Outcomes in the Physician-Patient Relationship. *International Journal of Family Medicine,* 2012(376907), 1-5. https://doi.org/10.1155/2012/376907

Cousin, G. & Mast, M. (2014). Chapter: *Nonverbal communication in health settings,* In book: Encyclopedia of Health Communication. Publisher: Sage.

DiMatteo, M. R., Hays, R. D., & Prince, L. M. (1986). Relationship of physicians' nonverbal communication skill to patient satisfaction, appointment noncompliance, and physician workload. *Health Psychology,* 5(6), 581–594. https://doi.org/10.1037/0278-6133.5.6.581

Griffith, C. H., Wilson, J. F., Langer, S., & Haist, S. A. (2003). House Staff Nonverbal Communication Skills and Standardized Patient Satisfaction. *Journal of General Internal Medicine,* 18(3), 170-174. https://doi.org/10.1046/j.1525-1497.2003.10506.x

Hall, J. (1984). Nonverbal Sex Differences: Communication Accuracy and Expressive Style, Johns Hopkins Univ. Press, Baltimore.

Hannawa, A. F. (2011). Shedding light on the dark side of doctor-patient interactions: verbal and nonverbal messages physicians communicate during error disclosures. *Patient Education and Counseling, 84*(3), 344-351. https://doi.org/10.1016/j.pec.2011.04.030

Hannawa, A. F. (2014). Disclosing medical errors to patients: Effects of nonverbal involvement. Patient Education and Counseling, 94(3), 310-313. https://doi.org/10.1016/j.pec.2013.11.007

Irving, P. and Dickson, D. (2004). Empathy: towards a conceptual framework for health professionals. *International Journal of Health Care Quality Assurance,* 17(4), 212-220. https://doi.org/10.1108/09526860410541531

Kravitz, R. L. (1998). Patient Satisfaction with Health Care: Critical Outcome or Trivial Pursuit? *Journal of General Internal Medicine,* 13(4), 280-282. https://doi.org/10.1046/j.1525-1497.1998.00084.x

Manary, M., Boulding, W., Staelin, R., & Glickman, S. W. (2013). The Patient Experience and Health Outcomes. *The New England Journal of Medicine,* 368(3), 201-203. https://nejm.org/doi/full/10.1056/nejmp1211775

Martin, L. R., Williams, S. L., Haskard, K. B., & DiMatteo, M. R. (2005). The challenge of patient adherence. *Therapeutics and Clinical Risk Management, 1*(3), 189-199. https://ncbi.nlm.nih.gov/pmc/articles/pmc1661624

Mast, M. S. (2007). On the importance of nonverbal communication in the physician–patient interaction. *Patient Education and Counseling, 67*(3), 315-318. https://doi.org/10.1016/j.pec.2007.03.005

Mast, M.S., Cousin. G. (2013). The role of nonverbal communication in medical interactions: Empirical results, theoretical bases, and methodological issues. In: Martin LR, DiMatteo R. The Oxford Handbook of Health Communication, Behavior Change, and Treatment Adherence.

Mazor, K. M., Reed, G. W., Yood, R. A., Fischer, M. A., Baril, J. L., & Gurwitz, J. H. (2006). Disclosure of Medical Errors: What Factors Influence How Patients Respond? *Journal of General Internal Medicine, 21*(7), 704-710. https://doi.org/10.1111/j.1525-1497.2006.00465.x

Pearson, S. D., & Raeke, L. H. (2000). Patients' Trust in Physicians: Many Theories, Few Measures, and Little Data. *Journal of General Internal Medicine, 15*(7), 509-513. https://doi.org/10.1046%2Fj.1525-1497.2000.11002.x

Rahman, M. M., Chakraborty, S., Paul, A., Jobayer, A. M. and Hossain, M. A. (2017). Wheel therapy chair: A smart system for disabled person with therapy facility. *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE),* pp. 630-635, https://doi.org/10.1109/ECACE.2017.7912981

Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology, 21*(2), 95–103. https://doi.org/10.1037/h0045357

Stewart, M. (1995). Effective physician-patient communication and health outcomes: a review. *Canadian Medical Association Journal, 152*(9), 1423-1433. https://ncbi.nlm.nih.gov/pmc/articles/pmc1337906

Thiedke, C. C. (2007). What Do We Really Know About Patient Satisfaction. *Family practice management, 14*(1), 33-36. https://aafp.org/fpm/2007/0100/p33.html

Thom, D. H., Hall, M. A., & Pawlson, L. G. (2004). Measuring Patients' Trust In Physicians When Assessing Quality Of Care. *Health Affairs, 23*(4), 124-132. https://doi.org/10.1377/hlthaff.23.4.124

Winnick, S., Lucas, D. O., Hartman, A. L., & Toll, D. (2005). How do you improve compliance. *Pediatrics, 115*(6). https://doi.org/10.1542/peds.2004-1133

Zolnierek, K. B., & DiMatteo, M. R. (2009). Physician communication and patient adherence to treatment: a meta-analysis. *Medical Care, 47*(8), 826-834. https://doi.org/10.1097%2FMLR.0b013e31819a5acc

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