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Review

Association between nonverbal communication during clinical interactions and outcomes: A systematic review and meta-analysis

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ABSTRACT

Objective: To conduct a systematic review and meta-analysis of studies reporting associations between patients' and clinicians' nonverbal communication during real clinical interactions and clinically relevant outcomes.

Methods: We searched 10 electronic databases, reference lists, and expert contacts for English-language studies examining associations between nonverbal communication measured through direct observation and either clinician or patient outcomes in adults. Data were systematically extracted and random effects meta-analyses were performed.

Results: 26 observational studies met inclusion criteria. Meta-analysis was performed for patient satisfaction, which was assessed in 65% of studies. Mental and physical health status were evaluated in 23% and 19% of included studies, respectively. Both clinician warmth and clinician listening were associated with greater patient satisfaction ($p < 0.001$ both). Physician negativity was not related to patient satisfaction ($p = 0.505$), but greater nurse negativity was associated with less patient satisfaction ($p < 0.001$). Substantial differences in study design and nonverbal measures existed across studies.

Conclusion: Greater clinician warmth, less nurse negativity, and greater clinician listening were associated with greater patient satisfaction. Additional studies are needed to evaluate the impact of nonverbal communication on patients' mental and physical health.

Practice implications: Communication-based interventions that target clinician warmth and listening and nurse negativity may lead to greater patient satisfaction.

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1. Introduction

Clinicians increasingly use telephone and electronic communication to provide care, but communication during face-to-face interactions remains a central component of patient-centered care and has been shown to influence clinically relevant outcomes in a variety of settings [1–3]. Most research on the links between communication and outcomes has focused on verbal communication. However, a large body of research has shown that nonverbal communication also plays a central role in face-to-face human interactions and is especially important for conveying emotional and relational information [4,5]. Largely because of this research, nonverbal communication is considered an important component of face-to-face clinical interactions [6,7], but whether nonverbal communication influences outcomes subsequent to interactions remains poorly understood [8]. Better understanding of the association between nonverbal communication and clinically relevant outcomes (e.g., patient satisfaction, adherence, and health status) is important for designing interventions to improve patients' and clinicians' communication skills and to promote patient-centered care [8].

Unfortunately, evaluating the links between nonverbal communication and clinically relevant outcomes is difficult for several reasons. The criterion standard for evaluating nonverbal communication is direct observation of clinical interactions (e.g., video recordings or real time observation), which is often intrusive and resource intensive [9,10]. Potential causal pathways linking nonverbal communication and clinically relevant outcomes are also difficult to determine. For example, patients' nonverbal communication can both influence and be influenced by the patient's health status, perceptions of the clinician, and the clinician's communication behaviors [11]. Similarly, a clinician's nonverbal communication may reflect not only a patient's health and the topic being discussed, but also the clinician's perceptions of the patient and the patient's communication behaviors [12–15]. Therefore, associations between nonverbal communication and clinically relevant outcomes may reflect confounding by participants' characteristics, perceptions, or contextual factors. Studying nonverbal communication is also difficult because many aspects of nonverbal communication, such as changes in voice tone and body language, often take place without participants' explicit awareness [16]. Finally, research studies often evaluate nonverbal and verbal communication separately, but verbal and nonverbal communication typically occur simultaneously and are interpreted together during face-to-face interactions [11,17].

For all these reasons, studies of nonverbal communication in clinical interactions have often focused on controlled settings (e.g., interactions involving trainees or actors) rather than on natural settings with real clinicians and patients. Findings from these studies have generally confirmed that nonverbal communication plays a central role in conveying emotional and relational information during clinical interactions [18–20]. These studies have made important contributions to our understanding of nonverbal communication in clinical settings, but interactions involving research participants, students, and actors differ in many important ways from interactions involving real clinicians and patients [21–24]. For example, frequent eye contact between standardized patients and physician trainees has been shown to improve standardized patient satisfaction ratings [25], but these findings may not generalize to real clinical interactions. Thus important questions remain about whether and how patients' and clinicians' nonverbal communication during clinical interactions is related to clinically relevant outcomes.

We conducted a systematic review and meta-analysis of studies reporting associations between patients' and/or clinicians' nonverbal communication during real clinical interactions and clinically relevant outcomes. We had no a priori hypotheses about expected findings. Our goals were to evaluate the published research linking nonverbal communication and these outcomes and to identify any consistent associations with relevance for clinical practice.

2. Methods

2.1. Data source and searches

We searched the following databases: Ovid MEDLINE, CINAHL, PsycINFO, ISI Web of Science, SCOPUS, Anthropology Plus, Communication & Mass Media Complete, EMBASE, ProQuest Dissertations & Theses, and ERIC. A review protocol was not specified in advance. Working with experienced research librarians, we compiled an exhaustive list of nonverbal communication terms from the existing literature (e.g., *nonverbal communication*, *facial expression*) and cross-referenced them with terms indicating clinically relevant outcomes (e.g., *adherence*, *satisfaction*). All studies indexed in searched databases as of June 10, 2010 were potentially eligible. Complete search strategies for Ovid MEDLINE and EMBASE are provided in Appendices A and B. Additional potentially eligible articles were identified by manual literature searches, by examining article reference lists, and by contacting experts in the field of nonverbal communication in medicine.

2.2. Study selection

We included any experimental or observational study of interactions between adult patients and clinicians that examined associations between nonverbal communication measured through direct observation and subsequent clinically relevant outcomes. Nonverbal communication measures included but were not limited to facial expression, gaze or eye contact, body language or gestures, touch, laughter, ratings of voice tone (made from audio recordings that were digitally filtered to obscure verbal content [26]), and global ratings of clinician or patient affect (made from video recordings either with or without audio) [4,11]. Affect ratings are commonly used in nonverbal communication research because they evaluate emotional state, which is conveyed mostly nonverbally [17,18]. We defined clinician as any health professional, including but not limited to physicians, nurses, psychologists, physical therapists, and psychotherapists, interacting with a patient to address a physical or mental health problem. We included only studies of interactions involving real patients and clinicians that took place for the purpose of managing actual health problems.

Clinically relevant outcomes included but were not limited to any of the following: clinician or patient satisfaction, patient adherence, patient mental or physical health, patient understanding of clinicians' recommendations, patient health care utilization, and clinician malpractice history. Although satisfaction may not be considered clinically relevant, we included it for three reasons: satisfaction has been shown to predict other clinical outcomes [27–29], many regulatory agencies use patient satisfaction as a measure of health care quality [30,31], and satisfaction is commonly used as an outcome in research involving clinician–patient communication. Complete inclusion and exclusion criteria are available in Table 1. Demographic factors such as race, age, and sex have been shown to moderate communication during clinical interactions [32–35]. We did not include these factors as part of nonverbal communication for the purposes of this review, but we did not exclude studies that evaluated these moderators if they also reported associations between nonverbal communication and outcomes.