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Clinically Relevant Correlates of Accurate Perception of Patients’ Thoughts and Feelings

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The goal was to explore the clinical relevance of accurate understanding of patients’ thoughts and feelings. Between 2010 and 2012, four groups of participants (nursing students, medical students, internal medicine residents, and undergraduate students) took a test of accuracy in understanding the thoughts and feelings of patients who were videorecorded during their actual medical visits and who afterward reviewed their video to identify their thoughts and feelings as they occurred (Test of Accurate Perception of Patients’ Affect, or TAPPA). Participants’ accuracy scores were then correlated with participants’ attitudes toward

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Decades of research on clinician–patient interaction have revealed a great deal about the behavior of physicians and other health care providers when talking with patients (Arora, 2003; Epstein & Street, 2007; Roter & Hall, 2006), and about the patient outcomes associated with clinicians’ behavior. Patient-centered medical practice—encompassing a range of skills and attitudes including adoption of the biopsychosocial model (Engel, 1982), concern with emotional and psychosocial functioning, and interpersonal responsiveness—is now the prevailing ideal in research on quality of care. Patient-centeredness has been demonstrated to have important correlates including more patient satisfaction, better adherence to regimen, reduced health care utilization, decreased litigation, and better health outcomes (Finset, 2011).

To make wise choices about how to behave toward the patient, a clinician must adapt his or her communication to the patient’s affective and cognitive states, personality, background, attitudes, and expectations. The importance of this skill is acknowledged in virtually all discussions of patient-centeredness (Roter, Frankel, Hall, & Sluyter, 2006; Roter & Hall, 2006; Schmid Mast, 2007).

Yet there has been only a small amount of research on clinicians’ accuracy in perceiving patients (Hall, 2011). However, research in nonclinician populations provides a strong rationale for pursuing this topic in the clinical domain (e.g., Hall, Andrzezewski, & Yopchick, 2009). The few studies that exist on clinicians show that accuracy of perceiving affective states is correlated with clinically relevant variables, including medical students’ empathic tendencies, patient-centered attitudes, observer-coded patient-centered behavior, and observer-rated rapport with patients (Hall, Blanch, Roter, & Frankel, 2009); occupational therapy students’ and nursing students’ clinical fieldwork evaluations (Tickle-Degnen, 1998; Zysberg, Levy, & Zisberg, 2011); and patient outcomes, including satisfaction with the physician (DiMatteo, Taranta, Friedman, & Prince, 1980), adherence to appointment schedules (DiMatteo, Hays, & Prince, 1986), and the warmth and engagement of a standardized patient interacting with a medical student (Hall, Blanch, Roter, & Frankel, 2009).

In all of the existing studies involving clinicians, the clinicians’ accuracy of interpersonal perception was measured with generic tests showing target persons’ affective states conveyed through nonverbal cues. To achieve a higher degree of naturalism and relevance, the present research used a new test specifically designed for clinician test takers, the Test of Accurate Perception of Patients’ Affect (TAPPA), which measures ability to identify the thoughts and feelings of actual patients who were videotaped during actual medical visits (Hall et al., 2014).

Four groups—three of them clinicians in training—took the TAPPA and then their accuracy on that test was correlated with a variety of clinically relevant variables. In all of the groups it was hypothesized that better performance on the TAPPA would predict clinically relevant variables.

METHOD

Participants

Group 1 (analogue patients) was recruited at Northeastern University in Boston, MA. Members were students from the Psychology Department’s Participant Pool (majoring in many subjects) who participated for partial course credit or were recruited via posters offering monetary remuneration. The other three groups were undergraduate nursing students at Northeastern University (mostly fourth- and fifth-year students), medical students at Johns Hopkins University in Baltimore, MD (mostly fourth-year students), and internal medicine residents at Beth Israel Deaconess Medical Center in Boston, MA (second- and third-year residents). These groups were recruited via e-mail solicitation for paid volunteers sent by a faculty member in their program. All participants signed an informed consent approved by the human subjects committees at their respective institutions and Northeastern University.

Measures and Hypotheses

All groups took the Test of Accurate Perception of Patients’ Affect (TAPPA), either in a laboratory setting or via an Internet link. The TAPPA contains 48 audiovisual clips of patients interacting with their physicians in actual medical visits. The clips were selected on psychometric criteria from an initial pool of more than 500 such clips from
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Table 2 gives basic data on the TAPPA. Performance was significantly above the guessing level ($p < .001$) in all groups.
Recall of Actor-Physician’s Statements

Participants in Group 1 who scored higher on the TAPPA remembered more of what was said (and not said) by the actor-physician whom they watched while imagining they were the patient, $r(190) = 0.20, p < .01$. However, because gender was a significant predictor of both recall, $r(190) = 0.27, p < .001$, and the TAPPA, $r(190) = 0.16, p < .05$, a partial correlation was calculated to control for gender while looking at the association between the TAPPA and recall. The partial correlation was still significant, $r(189) = 0.16, p < .05$.

Patient-Centered Attitudes

Table 3 shows correlations for the scales measuring patient-centered attitudes. More favorable attitudes about the relevance of psychosocial issues in clinical interactions were significantly correlated with the TAPPA according to the meta-analysis across the three clinician groups ($p < .05$). There was also a marginally significant ($p < .10$) correlation of the TAPPA with the Caring scale of the PPOS.

Nurses’ Clinical Courses

Nursing students (Group 2) had taken between one and six clinical courses, which were courses with a patient care component. The number of such courses taken correlated significantly with the TAPPA, controlling for the students’ age and year in the program, partial $r(71) = 0.24, p < .05$. The more clinical course experience the nursing students had, the higher they scored on the TAPPA.

Behavior in Taking a Social History

For medical students (Group 3), the TAPPA was examined in relation to RIAS scoring of their social history taking (Table 4). Most of the significant and marginally significant correlations support the hypothesis that higher TAPPA scores would predict more patient-centered behavior in the medical student, consistent with an earlier RIAS-coded study using a different emotion recognition test (Hall, Blanch, et al., 2009). Overall, more engagement by the medical students was positively predicted by the TAPPA.

Hypothesis-consistent correlations were especially evident for female medical students; those who scored higher on the TAPPA made more partnership statements (facilitating statements to encourage patient disclosure) and were rated as more respectful and interactive, and less hurried, than those who scored lower on the TAPPA. Also, with higher scoring female medical students, the patient was rated as more respectful. The significant positive correlation with the female students’ respectfulness replicates a similarly significant correlation for female medical students’ respectfulness with emotion recognition accuracy measured with a different test in the previous study (Hall, Blanch, et al., 2009). Also, the marginally significant positive correlation for patients’ dominance toward a female medical student was paralleled by a significant correlation for patients’ dominance toward a female medical student in the earlier study. Increased dominance in patients can be seen as an indicator of active participation and engagement and therefore a desirable outcome; indeed, among the female medical students, patient dominance was significantly positively correlated with patient warmth, engagement, and interactivity.

For male students, correlations of the TAPPA with the RIAS had a different pattern, with the most notable effect being for social conversation by both the student and the

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**TABLE 1**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Percent Female</th>
<th>Age (M)</th>
<th>Percent Non-Hispanic White</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Analogue patients</td>
<td>192</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Nursing students</td>
<td>77</td>
<td>100</td>
<td>21.60</td>
<td>86</td>
</tr>
<tr>
<td>3 Medical students</td>
<td>44</td>
<td>59</td>
<td>27.02</td>
<td>68</td>
</tr>
<tr>
<td>4 Internal medicine residents</td>
<td>42</td>
<td>43</td>
<td>29.00</td>
<td>64</td>
</tr>
</tbody>
</table>

*Omits two males and one student with unreported gender; these students’ scores on the TAPPA were indistinguishable from the remaining students’ scores.

**TABLE 2**

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Analogue patients</td>
<td>0.48</td>
<td>0.12</td>
<td>0.21–0.75</td>
</tr>
<tr>
<td>2 Nursing students</td>
<td>0.55</td>
<td>0.09</td>
<td>0.33–0.73</td>
</tr>
<tr>
<td>3 Medical students</td>
<td>0.56</td>
<td>0.10</td>
<td>0.33–0.75</td>
</tr>
<tr>
<td>4 Internal medicine residents</td>
<td>0.49</td>
<td>0.11</td>
<td>0.23–0.71</td>
</tr>
</tbody>
</table>

*Note. Possible range of scores was 0.00 to 1.00, with 0.25 being the guessing level.

**TABLE 3**

<table>
<thead>
<tr>
<th>Group</th>
<th>Caring</th>
<th>Sharing</th>
<th>Psychosocial</th>
<th>Partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.11 (75)</td>
<td>−0.11 (75)</td>
<td>0.03 (75)</td>
<td>−0.05 (75)</td>
</tr>
<tr>
<td>3</td>
<td>0.20 (41)</td>
<td>0.18 (41)</td>
<td>0.43** (41)</td>
<td>0.21 (41)</td>
</tr>
<tr>
<td>4</td>
<td>0.13 (39)</td>
<td>0.18 (39)</td>
<td>0.12 (40)</td>
<td>−0.02 (39)</td>
</tr>
</tbody>
</table>

$M_w =$ mean correlation weighted by group size.

Note. In Groups 3 and 4, correlations control for participant gender (partial correlation). $M_w =$ mean correlation weighted by group size. Degrees of freedom are in parentheses.

$^{+}p < .10. ^{*}p < .05. ^{**}p < .01.$

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TABLE 4
Correlations of Test of Accurate Perception of Patients’ Affect (TAPPA) With RIAS Coding of Clinical Interaction (Group 3)

<table>
<thead>
<tr>
<th>RIAS Variable</th>
<th>Men (n = 18)</th>
<th>Women (n = 22)</th>
<th>Total Group</th>
<th>Gender Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical student</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial information</td>
<td>0.45⁺</td>
<td>-0.36⁺</td>
<td>0.07</td>
<td>*</td>
</tr>
<tr>
<td>Facilitation and partnership</td>
<td>0.06</td>
<td>0.47⁺</td>
<td>0.21</td>
<td>ns</td>
</tr>
<tr>
<td>Social conversation</td>
<td>-0.59**</td>
<td>0.02</td>
<td>-0.22</td>
<td>*</td>
</tr>
<tr>
<td>Engaged</td>
<td>0.42⁺</td>
<td>-b</td>
<td>0.34⁺</td>
<td>n/a</td>
</tr>
<tr>
<td>Hurried</td>
<td>0.22</td>
<td>-0.63**</td>
<td>-0.20</td>
<td>**</td>
</tr>
<tr>
<td>Respectful</td>
<td>0.14</td>
<td>0.54⁺</td>
<td>0.39⁺</td>
<td>ns</td>
</tr>
<tr>
<td>Interactive</td>
<td>-0.02</td>
<td>0.44⁺</td>
<td>0.17</td>
<td>ns</td>
</tr>
<tr>
<td>Patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion statements</td>
<td>-0.49⁺</td>
<td>0.37⁺</td>
<td>-0.08</td>
<td>**</td>
</tr>
<tr>
<td>Social conversation</td>
<td>-0.48⁺</td>
<td>-0.03</td>
<td>-0.35⁺</td>
<td>ns</td>
</tr>
<tr>
<td>Warm</td>
<td>-0.49⁺</td>
<td>0.27</td>
<td>-0.20</td>
<td>*</td>
</tr>
<tr>
<td>Respectful</td>
<td>0.11</td>
<td>0.49⁺</td>
<td>0.28⁺</td>
<td>ns</td>
</tr>
<tr>
<td>Dominant</td>
<td>-0.49⁺</td>
<td>0.39⁺</td>
<td>-0.11</td>
<td>**</td>
</tr>
<tr>
<td>Distressed</td>
<td>-0.33</td>
<td>0.41⁺</td>
<td>-0.02</td>
<td>*</td>
</tr>
</tbody>
</table>

Note. Table shows only variables for which \( p \leq 0.05 \) for men, women, total group, or the difference between the male and female correlations. RIAS = Roter Interaction Analysis System; n/a = Not applicable; ns = Not significant at \( p \leq 0.05 \), two-tailed. For the total group, correlations control for participant gender (partial correlation).

*Four students were not part of the standardized patient study.

bNo variance for women on the “engaged” variable.

⁺\( p < .10 \), *\( p < .05 \), **\( p < .01 \).

This research examined the role of accurate perception of patients’ thoughts and feelings in the context of clinical care. Accurate perception was measured with the Test of Accurate Perception of Patients’ Affect (TAPPA). Results in four groups of participants provided evidence that this skill was correlated with several clinically relevant variables. Analogue patients remembered more of what an actor-physician said in a scripted interaction if they had scored higher on the TAPPA. This finding suggests that if the roles were reversed, clinicians’ TAPPA skill would predict their ability to recall what the patient has said, which could have important ramifications for the success of clinical care.

Among the medical students, the TAPPA positively predicted several aspects of the students’ behavior with a patient
as well as the behavior of the patient. Interestingly, the patterns of correlations were quite different for female and male students. The female pattern was as would be expected considering prior work in the field with comparable measures of nonverbal sensitivity, but the male pattern was not. One possible explanation may be that high-TAPPA males responded to patients with a more “professional take charge and fix it” approach consistent with engaging in less social talk but providing more psychosocial information and counseling. The high TAPPA females appeared to take a more “support and listen” approach by actively facilitating patient input, being interactive, and conveying a respectful and unhurried demeanor. The consequences for patients were evident in greater emotional disclosure to female students and a more positive demeanor. Further research is needed to replicate and understand these different patterns. Interestingly, the earlier described study that reported correlations between an emotion recognition test and RIAS-coded behavior of medical students in a standardized patient interaction also found different patterns of correlations for male versus female students (Hall, Blanch, et al., 2009).

In a different set of clinical interactions for the same medical students, ratings of interpersonal skills made by four standardized patients were significantly correlated with the TAPPA. This further suggests that interpersonal accuracy translates into desirable behavior patterns.

Across the three clinician groups, there was evidence that more patient-centered attitudes in terms of caring values and endorsement of the importance of psychosocial discussion correlated positively with the TAPPA.

Together, these results strongly indicate that a clinician’s skill in perceiving patients’ thoughts and feelings is relevant to clinical practice. While some of the effects were modest in magnitude, it must be remembered that the TAPPA is an objective performance measure and that it shares no method variance with any of the other clinical variables with which it had significant relations, which were based on courses taken, self-reported attitudes, coding by independent observers, and ratings made by standardized patients.

If research using the TAPPA and other interpersonal accuracy tests continues to suggest that this is a clinically important skill, several avenues of application open up. One is to conduct intervention studies that both train the skill and follow the trained and untrained groups to assess the clinical impact of the training. Another would be to incorporate this body of scientific evidence as well as a training protocol into communication skills courses for clinicians. The TAPPA could be a particularly appropriate and accepted tool in such training programs because of its relatively high ecological validity (i.e., the stimuli show actual patients in their own medical visits).

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