Evaluation of a Communication Survey and Interprofessional Education Curriculum for Undergraduate Health Professional Students

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Abstract

INTRODUCTION Effective communication is an essential competency for collaborative, interprofessional practice. Listening partnerships (taking turns listening for a specified time) are believed to develop more skillful communication. This pilot study examined the perceived communication abilities among undergraduate health profession students enrolled in a multi-section foundational Introduction to the Health Professions course.

METHODS The research design employed a control group (using the established communication curriculum) and an intervention group (using repeated practice with listening partnerships throughout the duration of the semester). The study compared student perceptions of their own verbal and non-verbal communication abilities before and after enrollment in the course. The study also examined the test-retest reliability of the instrumentation: the Froehlich Communication Survey.

RESULTS Results revealed students reported improved perceptions of their communication abilities after engagement with both the established curriculum as well as the experimental curriculum. An increase in student perception of their ability to listen with compassion was demonstrated only through the interventional curriculum. Statistical analysis revealed good test-retest reliability of the instrument.

CONCLUSION Results suggest that student perceptions of their own verbal and non-verbal communication abilities can be enhanced through intentionality of curriculum and active teaching and learning activities.

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Evaluation of a Communication Survey and Interprofessional Education Curriculum

**Implications for Interprofessional Practice**

- Although in the development phase, Froehlich's Communication Survey appears to be a viable tool for assisting students across health professions in becoming more aware of communication strengths and areas for improvement in self and others.

- An intentionally-delivered interprofessional curriculum that uses active teaching strategies, including the use of listening partnerships (taking turns listening in pairs or triads), appears to enhance health professional students’ perceptions of their verbal and non-verbal communication abilities.

- Repeated practice with listening partnerships appears to enhance student perceptions of their ability to listen with compassion.

- An important area for future research is examining the correlation between students’ perceptions of their communication skills and their actual communication abilities with patients, clients, family, and interprofessional team members.

**Introduction**

Scholars increasingly note the importance of effective communication with patients, family, and interprofessional health care team members in the provision of quality healthcare (Alpert, 2011; Boschma et al., 2010; Institute of Medicine [IOM], 2000; Joint Commission, 2015; Lingard, Regehr, Orser et al., 2008; O’Sullivan, Chao, Russell, Levine, & Fabiny, 2008; Reisdorff et al., 2006; Sargeant, MacLeod, & Murray, 2011; Sutcliffe, Lewton, & Rosenthal, 2004; Taylor, 2008). The Joint Commission (2013) tracks sentinel events or “unexpected occurrences involving death or serious physical or psychological injury, or the risk thereof” and identified breakdowns in communication within health care teams as one of many root causes of medical errors. The Commission’s 2015 report showed that 563/887 sentinel events in 2013 were due to communication errors—second only to human factors as a root cause of medical errors. In 2014 and by the second quarter of 2015, communication as a root cause of sentinel errors had dropped to 3rd place behind human factors and leadership (Joint Commission, 2015).

Studies show communication skills of health professionals do not necessarily improve over time or with clinical experience (Fallowfield, Jenkins, Farewell, Saul, Duffy, & Eves, 2002; Fellowes, Wilkinson, & Moore, 2004). Although data reported to the Joint Commission is voluntary and not epidemiologic, a review of their data could lead one to speculate on whether the communication skills of health professionals might be improving. Studies do show that communication skills can improve with the proper training. While lectures appear to have limited impact in teaching communication skills, effective active teaching methodologies include the following: small group discussion, role play, coaching, written reflection combined with interviews and field note reports, videotapes, feedback, skill practice, multi-disciplinary panels, simulated patients in Objective Structured Clinical Examinations (OSCE), and interactive role-play (Berkhof, van Rijssen, Schellart, Anema, & van der Beek, 2011; Boschma et al., 2010; Harmsen et al., 2005; Kleiner, Link, Travis Maynard & Carpenter, 2014; O’Sullivan, Chao, Russell, Levine & Fabiny, 2008; Sargeant, MacLeod, & Murray, 2011; Shield, Tong, Tomos, & Besdine, 2011; Trad, 2013).

**Listening Partnerships in an Occupational Therapy Curriculum**

Harris and Templeton (2001) found clients ranked ‘listening’ as the most important behavior of health professionals. Although one could argue that...
speaking-up and asserting oneself is just as important as listening. Alpert (2011) stated, “the commonest failure in communicating information is the result of inattentive or inaccurate listening” (p. 381). When working with individuals from cultural groups different from our own, listening can become even more complex and challenging (Black & Wells, 2007). To enhance communication skills with diverse clients and colleagues, listening partnerships have been used as a formal training method in small group communication and culture seminars in an occupational therapy curriculum at the University of New England, Biddeford/Portland, ME (UNE) for over 20 years (Froehlich & Nesbit, 2004; Froehlich, 2010; Froehlich, Roy, Augustoni, Arsenault, & Eldredge, 2014).

Listening partnerships, defined as taking turns listening and speaking with a peer for a mutually agreed upon amount of time, are based on the theory and practice of co-counseling, also known as re-evaluation counseling (Kauffman & New, 2004; Jackins, 1981). Students are initially asked to listen to each other for one minute each way without saying anything as the listener in order to raise awareness of the common communication practice of frequent interruptions. Students then engage in repeated listening partnerships in pairs or small groups where they no longer refrain from speaking as listeners, but refine use of effective verbal and non-verbal communication. These techniques include asking open and close-ended questions, rapport building, clarification, validation, eye contact, reflection and summarizing. Questions related to gender, race, class, culture, age, sexual orientation, religion, and disability support meaningful dialogues on diversity in listening partnerships. Students report in reflective journals that repeated practice taking turns in class listening for 2-5 minutes each way and a minimum of 10 minutes each way as a weekly homework assignment supports the development of better listening and speaking skills. They also report that this exercise sharpens mental focus and attentiveness during conversations.

Communication and Cultural Competence Surveys

To improve the assessment of learning outcomes related to effective communication and cultural competence, Froehlich developed effective communication and cultural competence surveys (Froehlich et al., 2014). The surveys contain Likert-type scale items allowing participants to indicate their level of agreement with survey statements. Qualitative open-ended questions then ask students to identify goals related to improving effective communication and cultural competence. These surveys have been piloted with occupational therapy students in a communication and culture course with favorable reviews (Froehlich et al., 2014). Some students report that their communication skills improve simply by completing the communication survey while others appreciate the awareness they gain regarding their deficits in cultural knowledge from the cultural competence survey. For the purposes of this study, only the communication survey was evaluated.

Listening Partnerships in an Interprofessional Course

UNE has implemented an innovative undergraduate health profession curriculum (Pardue, 2013). This curriculum is required for all undergraduate health care students including nursing, dental hygiene, athletic training, applied exercise science, and health wellness and occupational studies (pre-OT) majors. The program of study involves four courses which address the interprofessional collaborative competencies (values and ethics, roles and responsibilities, interprofessional communication, and interprofessional teamwork and team-based care) as advanced by a national expert panel (Interprofessional Education Collaborative [IPEC], 2011). The courses include: Introduction to the Health Professions, Health Care Issues, Methods of Scholarly Inquiry, and Ethics for Interprofessional Practice (Pardue, 2013). Faculty from the described majors developed and continually refine these courses. Interprofessional faculty meetings offer rich opportunities for faculty to learn from, with and about each other in shaping these courses into excellent, interprofessional learning experiences for students.

In alignment with competencies identified by the IPEC expert panel report (2011), the Introduction to Health Professions course at UNE focuses on assisting students to learn the various roles and responsibilities of diverse health care professionals. The explored disciplines include the fields of medicine, nursing, dental, pharmacy, rehabilitation, athletic training, applied exercise science, and nutrition. Additionally, the course introduces basic foundational skills common to all health professions, examining infection control, ergonomics...
and obtaining vital signs/ measurements. Finally, an emphasis on interprofessional communication, cultural competency, and interprofessional teamwork and team-based care is central to this course.

Each of the authors contributed to the development of Introduction to Health Professions, and Froehlich introduced the use of the communication and cultural competence surveys, as well as listening partnerships to faculty teaching this course. These learning tools were integrated into each of three separate class lessons on communication over the duration of the semester (see Table 1).

This three-class format focused exclusively on communication represents the original, established curriculum. The authors wondered if student perceptions of their communication skills would be enhanced if they received the established curriculum coupled with the opportunity to practice listening partnerships, not just in three communication classes, but at each class meeting over the duration of the semester. The aims of the study are twofold: to examine the test-retest reliability of the Froehlich Communication Survey, and to compare student perceptions of the development of their communication skills among learners enrolled in the original curriculum and those engaged in repeated listening partnerships. This study received approval by the University Institutional Review Board.

**Methods**

The subjects were all undergraduate students 18 years or older in their first or second year of health profession study who self-enrolled or were enrolled by the registrar in multiple sections of the Introduction to Health Professions course. Ten sections had 20-30 students, and two sections had 14-15 students. Each section had students from 3-6 different health care majors. The majority of participants were first year students from athletic training, applied exercise science, health wellness and occupational studies, nursing, and dental

**Table 1. Established Communication Curriculum**

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Cultural Competence and Listening Skills</td>
<td>Teamwork and Assertiveness</td>
<td>Obtaining a Health History and Motivational Interviewing</td>
</tr>
<tr>
<td>Froehlich’s communication and cultural competence surveys</td>
<td>Assertiveness inventories</td>
<td>Video and case presentation</td>
</tr>
<tr>
<td>Cultural awareness video and discussion</td>
<td>Interprofessional case studies</td>
<td>Health history organization</td>
</tr>
<tr>
<td>Introduction to listening partnerships</td>
<td>Conflict resolution exercises</td>
<td>Cultural considerations of obtaining a health history</td>
</tr>
<tr>
<td>Facilitating open communication and therapeutic relationships</td>
<td>Discussion of inclusion and creating a safe environment</td>
<td>Role play health history interview and motivational interviewing</td>
</tr>
<tr>
<td></td>
<td>Discussion of Institute for Health Care Improvement (IHI, 2015) courses on:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Teamwork and Communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Introduction to a Culture of Safety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Communication with Patients after Adverse Events</td>
<td></td>
</tr>
</tbody>
</table>
hygiene majors. First and second year students from the College of Arts and Sciences, typically medical-biology or undeclared students, also seek entry to this course on a space available basis. Faculty teaching sections of this course were from nursing, athletic training and occupational therapy.

The project employed a pre-test/post-test design. The intervention curriculum involved the original three communication lesson plus repeated listening partnerships in pairs or triads for 2-3 minutes each way, incorporated in every class throughout the semester (see Figure 1, following page). The control curriculum was the established communication curriculum (see Table 1). In the intervention sections, 147 students completed pre-test, and 150 completed post-test, surveys during class time. In the control sections, 101 students completed pre-test and 95 completed the post-test surveys, also during class time. Variability in survey response values is attributed to students being late or absent when the survey was administered, as well as students declining to participate in either phase of the study. To determine test-retest reliability, 33 students in a control section completed the survey again after two weeks. Since surveys contained no identifying data, scores were analyzed as aggregate data. Missing data was handled by mean imputation.

Results

Analysis of Variance (ANOVA) measures were used to analyze differences between pre and post survey scores across groups and survey items (see Table 2). Significant differences were noted between pre and post total, survey score means for both the intervention group (80.6 and 86.5 \( p < .001 \)) and the control group (81.0 and 87.5 \( p < .001 \)). No significant difference was noted between pre and post-test scores at 2 weeks (81.0 and 84.6 \( p = \text{NS} \)) for the 33 control group participants. Review of individual items showed 16 out of 25 items were significantly influenced by both curriculums. A significant increase in student rating of their ability to maintain compassion while listening was only noted in the intervention group (pre 3.53 and post 3.72 \( p < .05 \); control pre 3.60 and post 3.75 \( p = \text{NS} \)).

Aggregate data showed 16% of students rated themselves 95% or higher and 16 students gave themselves a perfect score of 100% on total scores. Highest initial scores (means of 3.4 or higher) were noted in the following items:

- listening without interrupting
- allowing for silences
- maintaining appropriate eye contact
- maintaining mental focus when someone is upset
- maintaining confidentiality

Lowest initial scores (means of 3.1 or less) were noted in items which addressed:

- keeping mind free of distractions
- refraining from fidgeting
- clarity when speaking
- conciseness when speaking
- judging when to use touch

Instrumentation

The Froehlich Communication survey (see Table 2, page 7) consists of 25 items on a 4-point Likert-type rating scale representing participants' level of agreement with each statement. The maximum total score is 100. The survey also gathers qualitative data through asking participants to identify communication goals and share additional comments. The content of this survey was generated from many years of interprofessional practice, teaching, continuing education and literature review on effective communication in healthcare. Refinement of this survey and content validity were achieved through a focus group discussion with communication experts from psychology, counseling, social work, nursing, and medical education.
Figure 1. Listening Partnerships Learning Activities

Listening Partnership Exercises

Initial Listening Partnership – 1 minute each way in pairs with the listener saying nothing

- Share a rose and a thorn – What is something going well in your life right now and anything difficult or thorny?
- Why do you want to be a health professional?
- Report back on what it was like to listen without speaking and what it was like to be listened to without interruption. Discuss non-verbal communication.

Ongoing Listening Partnerships – 2-3 minutes each way in pairs or triads

- This time, and in all future listening partnerships, ask questions and respond to your partner who is speaking, but wait for your turn to share your own story. Refrain from giving advice unless your partner asks for advice. Offer eye contact and a caring facial expression.
- Report back to large group after partnerships

Listening Partnership Topics

About Becoming a Health Professional

- Which of the health professions are the best or worst fit for you and why?
- Describe good or bad experiences you have had with health professionals or sick people?
- Describe a time that you had a physical injury or illness and what was most helpful.
- What disability would be the hardest for you to have and why?

About Your Life

- Describe where you grew up and say a little bit about your family.
- What was something good about growing up in your family?
- What are your favorite years of your life?
- What are your favorite hobbies and music?
- Talk about what it is like being a student at this time.
- Talk about any stressors at this time.
- Talk about something you are looking forward to.
- Share anything else on your mind.

About Communication and Teamwork

- What are your strengths and areas for improvement as a communicator?
- Share experiences with either good or bad communication with a health professional.
- What is it like when you speak up in small or large groups?
- Talk about your experiences on teams.
- In situations of conflict, do you tend to be passive, assertive or aggressive? Is there a time you weren’t assertive and wish you had been?

Cultural Awareness

- What is your cultural, religious and ethnic heritage? What are the strengths and challenges of these identities?
- What is great and what is challenging about being male or female?
- In thinking about gender, race, socioeconomic class, race, religion, sexual orientation and disability, discuss relationships you have been in with people different from you—what has gone well and what was or is challenging?
- What has increased your cultural awareness the most?
- Describe a holiday tradition in your family.
- Talk about early memories of racial or socioeconomic class differences?
- How has racism impacted you?
- Discuss a time when you stood up against prejudice?
Ongoing Listening Partnerships – 2-3 minutes each way in pairs or triads

Listening Partnership Exercises

Cultural Awareness
About Communication and Teamwork
About Your Life

Listening Partnership Topics

- This time, and in all future listening partnerships, ask questions and respond to your partner who is speaking, but...
- Why do you want to be a health professional?
- Share a rose and a thorn – What is something going well in your life right now and anything difficult or thorny?
- Discuss a time when you stood up against prejudice?
- How has racism impacted you?
- Talk about early memories of racial or socioeconomic class differences?
- Describe a holiday tradition in your family.
- What is great and what is challenging about being male or female?
- In situations of conflict, do you tend to be passive, assertive or aggressive? Is there a time you weren’t assertive?
- Talk about your experiences on teams.
- What is it like when you speak up in small or large groups?
- Share experiences with either good or bad communication with a health professional.
- Share anything else on your mind.
- Talk about something you are looking forward to.
- Talk about any stressors at this time.
- Talk about what it is like being a student at this time.
- What are your favorite hobbies and music?
- What are your favorite years of your life?
- What was something good about growing up in your family?
- Describe a time that you had a physical injury or illness and what was most helpful.
- Describe good or bad experiences you have had with health professionals or sick people?

Report back to large group after partnerships

- Eye contact and a caring facial expression.
- Wait for your turn to share your own story.
- Refrain from giving advice unless your partner asks for advice.
- Offer feedback on what it was like to listen without speaking and what it was like to be listened to without interruptions.

Report back on what it was like to listen without speaking and what it was like to be listened to without interruptions.

- Ongoing Listening Partnerships you have been in with people different from you – what has gone well and what was or is challenging?

Table 2. Mean Scores on Communication Survey Items

<table>
<thead>
<tr>
<th>Items</th>
<th>Intervention</th>
<th>Control</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test Mean</td>
<td>Post-test Mean</td>
<td>Pre-test Mean</td>
</tr>
<tr>
<td>I can maintain compassion while listening</td>
<td>3.53</td>
<td>3.72</td>
<td>P&lt;0.05</td>
</tr>
<tr>
<td>At all times I can speak up when I don’t understand the language of a client</td>
<td>3.67</td>
<td>3.31</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>When appropriate, I can offer steady eye contact while listening</td>
<td>3.46</td>
<td>3.63</td>
<td>NS</td>
</tr>
<tr>
<td>I can listen without interrupting</td>
<td>3.60</td>
<td>3.63</td>
<td>NS</td>
</tr>
<tr>
<td>I appropriately maintain confidentiality</td>
<td>3.60</td>
<td>3.65</td>
<td>NS</td>
</tr>
<tr>
<td>I can maintain mental focus when listening to someone who is upset</td>
<td>3.76</td>
<td>3.62</td>
<td>NS</td>
</tr>
<tr>
<td>I am clear when I speak</td>
<td>2.93</td>
<td>3.30</td>
<td>NS</td>
</tr>
<tr>
<td>I can use humor effectively</td>
<td>3.37</td>
<td>3.43</td>
<td>NS</td>
</tr>
<tr>
<td>I can allow for silences</td>
<td>3.44</td>
<td>3.53</td>
<td>NS</td>
</tr>
<tr>
<td>I can reflect emotional and verbal content</td>
<td>3.35</td>
<td>3.74</td>
<td>NS</td>
</tr>
<tr>
<td>I am clear when I speak</td>
<td>2.93</td>
<td>3.30</td>
<td>NS</td>
</tr>
<tr>
<td>I can use humor effectively</td>
<td>3.37</td>
<td>3.43</td>
<td>NS</td>
</tr>
<tr>
<td>I can be appropriately assertive in interactions with others</td>
<td>3.18</td>
<td>3.38</td>
<td>NS</td>
</tr>
</tbody>
</table>

1. Items significantly influenced by both curriculums

2. Item only influenced by Listening Partnerships

3. Items not influenced by either curriculum

Mean Scores on Communication Survey Items
- communicating effectively with people from different cultural groups

Refraining from fidgeting had the lowest initial score of 2.54 and 2.51 for the intervention and control groups.

Instrument testing revealed a Cronbach's alpha of $\alpha = .847$.

Discussion

This study sought to examine student perceptions of their communication abilities and to advance the development of the Froehlich Communication Survey. Cronbach's alpha suggests items on the survey have an acceptable measure of internal consistency. Although some instrumentation effect was noted (i.e. scores 2 weeks post-test were somewhat higher than pre-test scores) the communication survey appears to also have adequate test-retest reliability. Several students reported that simply completing the survey began the process of improving their communication skills. This was evidenced by comments such as, “This made me re-evaluate how I talk to people,” and “This survey brought to my attention the communication skills I need to improve on.” Nonetheless, as studies noted in the introduction suggest, practice is necessary to truly improve communication skills.

The authors were surprised, but also pleased, to note that both the established curriculum and the curriculum that involved repeated practice with listening partnerships throughout the semester appeared to have a significant impact on total scores on the communication survey. Given anecdotal reports from occupational therapy students and faculty on the value of listening partnerships in developing communication skills, we expected repeated practice with listening partnerships would have a greater impact on overall scores. Although a few students felt the listening partnerships had a significant impact on their communication skills, i.e. “I've noticed I have stopped interrupting as much and I make more eye contact,” another stated, “I believe since we all chose health professions we are good listeners and communicators. I do not see the need for the communication exercise.” In contrast, one student openly remarked on the initial survey, “I am a very bad listener” and at the conclusion of the semester another stated “I don't know if my skills are better, but when I observe people communicating, I now notice the difference between good and bad communication.”

It was interesting to note that items students rated highest on pre-test scores (listening without interrupting, maintaining eye contact, maintaining mental focus when someone is upset, and allowing for silences) tend to be challenging communication skills. General observation of human interactions would suggest many people do not listen without interrupting or allow for silences, yet almost 70% of students rated themselves a 4 in these areas. This parallels the findings of Slack, Coyle, and Draugalis (2001) who report the phenomenon of research participants overestimating their baseline skill and ability when employing self-report measures. Pollard and colleagues (2005) reinforce this finding as they describe the unusually high baseline communication self-assessments gathered from diverse health discipline students engaged in an interprofessional education curriculum.

Only repeated practice with listening partnerships throughout the course appeared to influence ratings related to maintaining compassion. This is noteworthy as many educators struggle with the question of whether we can really teach compassion and, if so, how to best teach students this important attribute. Lowest initial scores were in the important areas of keeping one’s mind free of distractions, refraining from fidgeting, judging when to use touch, concise communication, and communicating effectively with people from different cultural groups. It is also noteworthy that each of these items were significantly impacted by both curriculums.

These findings led the authors to speculate on several questions. First and foremost, do student perceptions of their communication skills correlate with their actual communication abilities? In occupational therapy courses, practical exams and reflective journals enable faculty to evaluate students’ actual and perceived communication skills more closely. Secondly, is a 4-point rating scale on the survey sensitive enough to measure subtle changes in student perceptions of their communication skills? Would a 10-point rating scale give students the opportunity to more accurately rank their skill level? For example, how many students rated their ability as 4/4 not because they perceived no
need for improvement in a particular communication skill, but because a 3/4 seemed too low? In using a more sensitive scale, would students engaging in repeated practice with listening partnerships have shown more improvement in their communication skills than students with minimal practice? Or, is it possible that by using a more sensitive scale, repeated practice with listening partnerships might initially highlight the challenge to truly communicate well and influence scores on the survey to decline before they improve.

Notably, subjective reports from faculty who implemented repeated practice with listening were very positive. Most appreciated the list of potential topics for students to discuss in listening partnerships, but they also introduced additional topics relevant to particular classes. Most faculty found it useful to vary assigning partners and allowing students to choose listening partners. At the conclusion of the study, it was agreed that all sections of Introduction to Health Care would implement repeated practice with listening partnerships to enhance effective interpersonal communication skills among health professional students.

**Limitations**

Although the content of the communication survey was initially validated by a panel of experts, the survey remains in the development phase. The self-report nature of the communication questionnaire may present concerns with respect to study validity.

Self-report measures depend upon subjects responding objectively and accurately to survey items statements (Trochim & Donnelly, 2007). This limitation could be addressed in future research by employing a mixed-methods design whereby subjects engage in focus groups elaborating on the selection of their communication ranking. It is also possible that student self-ratings improved due to the Hawthorne effect— that just participating in the study positively contributed to changes in their evaluations of their communication skills. An additional limitation is that students were not randomized into intervention and control sections. A final limitation addresses the homogenous nature of the subjects in this study. This single-site research engaged participants who were primarily white and middle class. This limits generalizability of findings.

**Conclusion**

This pilot study sought to establish the test-retest reliability of Froehlich’s communication survey and to compare student perceptions of their verbal and non-verbal communication abilities before and after engagement in an intentionally designed communication curriculum. Both the established curriculum and the curriculum that involved repeated practice with listening partnerships had a significant influence on participants’ self-report of their communication skills as measured by the communication survey. Notably, only repeated practice with listening partnerships increased students’ perceptions of their ability to maintain compassion while listening—a complex and important ability to impart to future health practitioners. In general, faculty found Froehlich’s communication survey and listening partnerships to be valuable teaching tools. Future studies could explore increasing the sensitivity of the communication survey by expanding to a 10 point rating scale. An evaluation of students’ perceptions of their own communication skills and how those correlate to actual communication abilities exhibited on practical exams and in clinical practice could further validate the instrument.

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**References**


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