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## Validation of a Standardized Patient Checklist for Patient-Centered Communication: The G-PACER

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### Abstract

This study sought to validate the Georgetown PATient-CEnteredness Rating Scale (G-PACER) standardized patient (SP) checklist as a measure of patient-centered communication in patient-provider interactions. Patient centeredness is associated with improved doctor-patient communication and better health outcomes. Simulated medical encounters using SPs are an important way to teach and evaluate provider communication skills, yet validated SP scales that focus on patient-centered communication are limited. Two versions of an SP checklist of provider interaction behaviors, the G-PACER, were developed as part of a training designed to improve relationships between providers and patients who have experienced trauma. Concurrent validity of the G-PACER was assessed with Roter Interaction Analysis System (RIAS) summary scores, particularly the patient-centeredness summary score. Item-total correlations were conducted to determine which items should be retained for future versions of the scale. Scores on the G-PACER were significantly correlated with the RIAS Patient-Centeredness score. Correlation analysis also revealed significant associations between G-PACER Total Score and RIAS Global Affect Ratings. The twelve-item version of the G-PACER performed at a commensurate level with the longer version; thus, its use is recommended in future research. This study represents an important step in the development of reliable, valid, and efficient tools to add to those available for evaluating patient-provider interactions from the SP perspective.

### Introduction

Patient-centered communication refers to a focus on the whole patient, engaging patients in their care, and delivering care that is responsive to patients' needs, concerns, preferences,

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#### Conflict of Interest Statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

and values [1,2]. Patient centeredness has been associated with improved doctor-patient communication and patient satisfaction with health care [3], adherence to doctors' recommendations [4], and improved health outcomes [1, 5–7]. Medical guidelines such as the Kalamazoo Consensus Statement have identified patient-centered practices, such as understanding the patient's perspective, using language the patient can understand, and jointly working with patients to make decisions on healthcare, as paramount to effective medical communication [8]. Thus, teaching patient-focused communication skills in undergraduate and graduate medical education programs is key [8,9]. Indeed, communication skills have increasingly been the focus of interventions for health professionals in training [5].

Simulated medical encounters using standardized patients (SPs) are an important way to teach and evaluate medical students' communication skills [10–13]. Encounters with SPs have also been used to evaluate the standards of quality in clinical settings [14–16] and to assess the effectiveness of interventions in a research context [17–19].

The Roter Interaction Analysis System (RIAS) [20], is a widely used and extensively validated assessment of doctor-patient communication. It is used to record medical encounters between providers and patients to rate multiple aspects of communication, and it has been used in studies of provider-SP interactions [19, 21]. The RIAS has demonstrated predictive validity and concurrent validity across several studies [21] and has been used for the evaluation of several types of communication training programs in healthcare settings [21]. Trained raters code units of medical encounters using a set of predetermined mutually exclusive and exhaustive categories of communication behaviors [20]. For instance, task-focused behaviors include biomedical data gathering (e.g. doctor asking biomedical questions) whereas psychosocial behaviors focus on other psychosocial and emotional aspects, such as showing empathy and rapport or asking psychosocial questions. The system also includes more general affect ratings. While audio/video rating systems such as the RIAS are excellent methods of evaluating provider-patient interactions for patient-centeredness, the training required for their use can be both time consuming and expensive, suggesting that an effective alternative/supplement would be valuable. These systems may also miss some aspects of communication not captured in the predetermined categories [21, 22], and scoring from audio may miss non-verbal behaviors.

The use of checklists completed by SPs is a common practice in the medical arena and can constitute a time and cost-efficient way to evaluate doctors' communication skills in medical encounters [23]. However, despite this increased reliance on SP evaluations of provider-patient interactions, as well as heightened emphasis of patient-centered communication in the clinical setting, a recent review of medical communication measures by Schirmer and colleagues identified only four SP-level measures of provider communication [24]. These checklists have been developed to capture global ratings (e.g. satisfaction with the session) as well as specific behaviors that tap into various dimensions of patient-doctor communication (e.g. rapport, counseling) [25–28]. For example, the Arizona Clinical Interview Rating Scale, a widely used instrument assessing patient-provider interactions that has demonstrated reliability and validity [29], was not specifically designed to evaluate whether interactions reflect patient-centeredness. Though each of these measures include

items designed to capture aspects of patient-centered communication, there is still a need for validated SP measures that focus specifically on patient-centered communication [24].

Furthermore, while there are studies examining psychometric properties of SP checklists [30–32], few studies to our knowledge have used a well-validated interaction rating system like the RIAS to study the concurrent validity of their SP scale. An exception is a study by Price and colleagues [33], who developed a 30-item SP scale to rate medical students' communication following a six-week course in clinical skills. Further development and validation of SP checklists through comparison with alternate measures of communication is needed.

The goal of this paper was to examine the psychometric properties of a newly developed SP scale, the Georgetown Patient-Centeredness Rating Scale (G-PACER) in the context of a research study to train primary care providers about trauma and its impact, and to teach communication with trauma survivors [18]. The primary outcome measures for this study were RIAS ratings of the interactions between SPs and trained or untrained providers. Actual patient ratings of interactions with their providers were also collected [19]. Both outcome perspectives showed improved skills. The G-PACER was developed to capture a third perspective, that of the SP interacting with the study providers. RIAS ratings provided an independent anchor to evaluate the G-PACER. Though the G-PACER is a rating scale and not a checklist, the term checklist tends to refer to a category of scales capturing behaviors during an interaction and will be used throughout this manuscript.

## Methods

### Participants and Procedures

Details from the study procedures, the intervention description, and main outcomes have been reported elsewhere [18, 19]. Briefly, patients and providers were recruited from four primary care sites serving mostly low-income patients, many on Medicaid or without insurance. The four sites (two residencies, two community programs) were randomized by site into two conditions (immediate or delayed training). Thirty primary care providers (PCPs), including residents and community providers, received a 6-hour training (TI-Med) designed to improve relationships between doctors and their patients who may have experienced trauma. The TI-Med curriculum focuses on understanding that traumatic events may overwhelm an individual, viewing the experience of trauma as subjective, manifested in part by a person's inability to stay in the present, integrate feelings, and make sense of an experience. It focuses on maximizing the understanding and healing power of interactions between trauma survivors and providers so that other activities like asking about trauma or symptoms, or making mental health referrals, can be done in the most trauma-informed way possible. The training process includes experiential exercises and discussions to help PCPs recognize the universality of first and second-hand trauma exposure, including their own. Specific content includes how trauma affects people's lives and common impacts of traumatic events on body and brain, and includes background material on aspects of child development and attachment, explained in more depth in an accompanying manual. As participants learn and master each section of the content, they are asked to reframe and revise their responses to a primary case study. The course emphasizes the role of self-

awareness and self-care in mitigating the impact of vicarious trauma on the provider. Support staff are invited to each training.

### Standardized Patient Cases and Visit Procedure

Three SP cases were developed by the research team to include the patient's social and medical history in some detail. The research team developed the cases with expert input from the SP trainer, Ms. Wendy Lakshman, and Dr. Debra Roter from John's Hopkins University, who developed the RIAS and does research with SPs. In order to reduce potential variability associated with gender in this small study, all SP actors and all cases were women. The cases represented patients whose chief complaint was a common physical symptom such as back pain, but each had been exposed to a different type of trauma. The first SP case represented an Army veteran who had been raped while in the military. The second case/patient suffered from trauma and guilt over a car accident in which her friend was killed. The patient in the final SP case had experienced earlier physical and verbal abuse from her girlfriend. SPs were female actors who routinely served as SPs in regional medical schools. SP training comprised two to three sessions, in a group or individually as needed for scheduling. These training sessions included SPs and a FM resident (not a study participant). The SPs made many run-throughs of the cases with the SP trainer and study investigators. Once the cases were introduced and discussed, SPs and the SP trainer had a chance to ask questions and make suggestions." For the SP actors, each patient case included a detailed one-page summary of the case, plus a past medical history, family medical history, social history, and a review of current symptoms. In the development stage, the SPs evaluated the G-PACER scale and gave feedback before the on the face validity of the items. SPs were also provided with a script of initial responses to possible questions the provider would ask. SPs were instructed to disclose the trauma only if the provider asked in a sensitive manner. As part of the case construction, door notes for the PCPs were also created, including a summary of the case, vital signs, medical history, and social history.

Each of the 30 PCPs participated in a total of three audiotaped medical encounters with SPs (pre-post-follow-up for the immediately-trained group; pre-pre-post for the delayed group). For purposes of this report, only the one pre-training SP visit was used to examine psychometric characteristics of the checklist, thus removing any impact the training would have on comparisons across measures.

During the research session, providers had up to 15 minutes to conduct a medical visit/ encounter. SPs filled out the G-PACER after the visit. SPs and cases were systematically assigned to PCPs so that no PCP would see the same actor or experience the same "case" in their 3 visits. PCPs knew that these were SP visits and were asked to conduct the visits as if they were authentic encounters with patients [34]. Each PCP reviewed a "door note" before the "visit" and was instructed to take a focused medical history and treat/counsel the patient, but not to conduct a physical examination. They were given 15 minutes to complete the encounter and a reminder knock was provided at 10 minutes.

## IRB Approval

This study received IRB approval from Georgetown University, Howard University, Providence Hospital, and the Johns Hopkins School of Public Health.

## Outcomes

**G-PACER**—The original G-PACER consisted of 23 Likert-type items and was designed using the guidance of design guidelines focusing on checklist development [35, 36]. Twenty items captured doctor's specific behaviors (e.g. "the doctor uses respectful forms of address," "the doctor negotiates the agenda for the visit," "the doctor conveys interest in your experience") on a five-point Likert-scale (not done, poor, acceptable, very good, outstanding). Three global items were not used in the analysis. Items were adapted from a preexisting scale used at Georgetown University Medical Center to evaluate medical students during patient encounters. Two items were incorporated to capture the specific mental health focus content of the training (i.e. "the doctor asks about your mental health," "the doctor responds to your mental/emotional state") (see Appendix). Possible scores on the G-PACER range from 20 to 100, with higher scores indicating more patient-centered communication.

**RIAS**—An analysis of the visits between PCPs and standardized patients (SPs) was conducted using the Roter Interactional Analysis System by the Roter lab, as noted. Of particular interest to this study, a patient-centeredness summary score comprised the frequency of psychosocial composite codes (e.g. rapport building, psychosocial patient education and counseling) divided by the number of biomedical composite codes (e.g. biomedical data gathering, biomedical education and counseling). Higher scores represent higher patient centeredness [20]. RIAS ratings also include global affect (e.g. anger, anxiety, sympathy). In this study, we focused on the Patient-Centeredness score, and the global affect ratings reflective of patient-centered communication (interest, warmth, engagement, sympathy, and interactivity).

## Data Analysis

All quantitative analyses were conducted using SPSS data analysis software, version 22 for Windows [37]. First, we ran descriptive analyses of demographic information and instrument data. Interclass coefficients were conducted on the G-PACER in order to assess the internal consistency of the scale.

Next, we calculated a total score for the G-PACER using the first 20 (PCP behavior) items. Missing responses were replaced using linear interpolation techniques. While it is possible that subscales exist within the G-PACER, we were not able to assess this aspect due to the number of participants. In order to assess the validity of the G-PACER, we compared responses on the G-PACER to those from the established RIAS measure. We conducted Pearson product-moment correlations between total score on the G-PACER and RIAS summary scores (Global Affect and Doctor Behavior), with all data drawn from pre-training visits.

In order to make the checklist more user friendly and to ensure its content focused on patient centered items, we developed a shorter version of the instrument that would be easier to use in a busy clinical, educational, or research setting [36, 38]. To determine which items best demonstrated patient-centeredness, we computed correlations of the 20 PCP behavior items with the total score. We then chose items that correlated over .700 with the total score and had patient-centered content. This process yielded 12 items to include in the final proposed version of the scale. The high inter-correlations among the items did not justify breaking the scale into subscales and there was a limited number of participants, preventing exploratory factor analysis, so there is only one total score. These items are reproduced in the Appendix.

## Results

### Descriptive Analysis

Sixty-three percent of the 30 PCPs in the study were female, and 63% reported being either married or living with a partner. Forty-three percent were White, 20% were Asian, and 17% were Black. Ten percent of PCPs reported being Hispanic or Latino. Half were residents, and four PCPs (13% of the sample) worked at their clinic in a volunteer capacity.

Pre-training total scores on the G-PACER had a mean of 68.17 (of a possible 100) with a standard deviation of 17.09. Internal consistency was high ( $\alpha=.950$ ) for the full scale of the G-PACER. Split-half reliability analysis for the G-PACER yielded a Guttman Coefficient of .919, reflecting high reliability. On the shortened scale, SP responses yielded a mean score of 41.02 (of a possible 60) with a standard deviation of 11.89. The twelve-item shortened scale yielded an internal consistency of .954, comparable to that of the full scale. In order to further evaluate the reliability of the truncated scale, split-half reliability was conducted, yielding a Guttman Split-Half Coefficient of .913, also commensurate with that of the longer version of the scale.

### Concurrent Validity of G-PACER

Total G-PACER score was significantly correlated with the RIAS Patient-Centeredness score ( $r=.58, p<.001$ ). Correlation analysis also revealed significant associations between G-PACER Total Score and RIAS Global Affect Ratings of provider's interest ( $r=.43, p<.01$ ), warmth ( $r=.54, p<.001$ ), engagement ( $r=.46, p<.01$ ), sympathy ( $r=.58, p<.001$ ), and interactivity ( $r=.43, p<.05$ ) levels. Total G-PACER correlations with RIAS Patient-Centeredness and Global Affect Ratings can be found in Table 1.

On the twelve-item version, the total score was significantly correlated with the RIAS patient-centeredness score ( $r=.60, p<.001$ ). In addition, the new G-PACER total score correlated significantly with several of the RIAS global affect ratings, including interest ( $r=.44, p<.05$ ), warmth ( $r=.59, p<.001$ ), engagement ( $r=.48, p<.01$ ), sympathy ( $r=.62, p<.001$ ), and interactivity ( $r=.45, p<.05$ ). All bivariate relationships between the shortened G-Pacer and RIAS scores were comparable or slightly better than those with the longer version



## Discussion

Despite the longstanding and widespread use of standardized patient checklists in clinical settings, few previous studies have attempted to create an SP checklist specifically evaluating patient-centeredness. Furthermore, we are familiar with only one other study [33] that has investigated an SP checklist's convergent validity with a widely-validated measure of patient-provider interactions such as the RIAS. Further research is therefore warranted [24, 39–40], and this study represents a preliminary effort to investigate the G-PACER as a useful and appropriate SP checklist measure. All bivariate relationships between the shortened G-PACER and RIAS scales were either consistent with or higher than those between the longer scale and RIAS measures. Ultimately, the updated version of the scale appears to be psychometrically equivalent to the original version, while simultaneously more focused and concise, so we would recommend its use at this stage, although it is important to note that we did not use the short version alone in this study.

The findings of this study support prior suggestions that SPs can serve a valuable role in the evaluation of patient-provider interactions [24, 39]. Responses on the original G-PACER and the 12-item version had excellent internal consistency, indicating that these items go together well. Furthermore, the strong correlations G-PACER total scores had with the RIAS patient-centeredness score supports SPs' abilities to recognize and report on core tenets of patient-centered interactions. Further, the global affect scores with which G-PACER total scores were significantly associated are specifically those traits that describe patient-centeredness (i.e. engagement, warmth, interest, sympathy, interactivity).

Given the preliminary nature of this work, several limitations are noted. First, the small sample size ( $N = 30$  PCPs) limited the scope of statistical validation tools that could be implemented in this sample. For instance, due to sample size and design restrictions, we were unable to conduct a confirmatory factor analysis of the G-PACER or to conduct evaluation of inter-rater reliability across SP evaluators. Further evaluation of the G-PACER should ensure study designs and power commensurate with the requirements of these robust psychometric analyses. Also, because of the high inter-correlations among the items, it was not clear that we were measuring more than one overall construct. This contributed to our decision to shorten the instrument into one scale with only a total score.

The role of mental health in the concept of patient-centeredness is somewhat unclear in the literature. All of our cases were individuals presenting with physical health problems, but all had trauma histories that were associated with mental health symptoms. The item "asks about your mental health" had one of the lowest correlations with the total score, and thus it was left out of the final 12-item version of the scale. On the other hand, the item "responds to your mental/emotional state" had the highest correlation with the total score and was retained. Clearly, patient centeredness includes the concept of responsiveness to mental state whether the patient is presenting with mental health issues or not [2]. This may indicate that for the patient to perceive the interaction as patient-centered, asking specifically about mental health in any given visit is not necessary, while attention to emotional needs are. Given the strong associations between trauma and health [41], and between psychiatric disorders and health [42], the best way to incorporate awareness of mental health issues into

patient-centered behavior warrants further exploration. Investigators studying mental health-themed visits may want to add other questions to better elucidate how mental and emotional health issues fit with the concept of patient-centeredness. Furthermore, future investigation using the G-PACER may wish to replace the present response options with behavioral anchors, thus enabling the SP to increase the objectivity of their reference points in response.

Additionally, all SP cases were female and approximately the same age, in order to limit gender and age effects and reduce variability. However, this also limits the generalizability of our findings. Future investigations of the G-PACER or other SP patient-centeredness checklists should include both female and male SP cases, as well as cases representing a broader age range. Future investigations should also evaluate SP checklists' psychometric properties in a context-specific manner, ensuring their validity and reliability for a variety of cases and health settings. The G-PACER was not designed with the Kalamazoo Consensus Statement [8] as a guiding model of development, though specific components of its recommendations are reflected in the G-PACER's items. It is possible, therefore, that aspects essential to patient-centered communication may not be sufficiently reflected in the items.

Despite these limitations, we believe that both the G-PACER and the shortened version of the G-PACER show promise as evaluation tools for patient-centeredness in patient-provider interactions. Furthermore, this study represents an important potential addition to the availability of reliable, valid tools for evaluating patient-provider interactions from the SP perspective. Another strength of this study was that the diverse participant providers were drawn from community medical settings, primarily serving a diverse, low income patient population. As more valid and reliable checklists are accessible, they may serve not only as a useful complement to audio/video analysis measures like the RIAS, but also as a potential cost-effective alternative measure of patient-provider interactions.

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## References

1. Griffin SJ, Kinmonth AL, Veltman MW, Gillard S, Grant J, Stewart M. Effect on health-related outcomes of interventions to alter the interaction between patients and practitioners: A systematic review of trials. *Ann Fam Med*. 2004; 2(6):595–608. [PubMed: 15576546]
2. Institute of Medicine (US). Committee on Quality of Health Care in America. Crossing the quality chasm: A new health system for the 21st century. National Academy Press; 2001.
3. Wanzer MB, Booth-Butterfield M, Gruber K. Perceptions of health care providers' communication: Relationships between patient-centered communication and satisfaction. *Health Commun*. 2004; 16(3):363–383. [PubMed: 15265756]
4. Haskard Zolnieriek KB, DiMatteo MR. Physician communication and patient adherence to treatment: A meta-analysis. *Med Care*. 2009; 47(8):826–34. [PubMed: 19584762]
5. Dwamena F, Holmes-Rovner M, Gaulden CM, Jorgenson S, Sadigh G, Sikorskii A, Lewin S, Smith RC, Coffey J, Olomu A, Beasley M. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database of Systematic Reviews* 2012. (12) Art. No.: CD003267.



6. Street RL Jr, Makoul G, Arora NK, Epstein RM. How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns*. 2009; 74:295–301. [PubMed: 19150199]
7. Kaplan SH, Greenfield S, Ware JE Jr. Assessing the effects of physician-patient interactions on the outcomes of chronic disease. *Med Care*. 1989; 27:S110–27. [PubMed: 2646486]
8. AAMC. Recommendations for clinical skills curricula for undergraduate medical education. Washington, DC: Association of American Medical Colleges; 2008.
9. Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: A review with suggestions for implementation. *Med Teach*. 2013; 35(5):395–403. [PubMed: 23444891]
10. Stillman PL, Swanson DB, Smee S, Stillman AE, Ebert TH, Emmel VS, et al. Assessing clinical skills of residents with standardized patients. *Ann Intern Med*. 1986; 105(5):762–71. [PubMed: 3767153]
11. Stillman P, Swanson D, Regan MB, Philbin MM, Nelson V, Ebert T, et al. Assessment of clinical skills of residents utilizing standardized patients: a follow-up study and recommendations for application. *Ann Intern Med*. 1991; 114(5):393–401. [PubMed: 1992883]
12. Adamo G. Simulated and standardized patients in OSCEs: achievements and challenges 1992–2003. *Med Teach*. 2003; 25(3):262–70. [PubMed: 12881047]
13. May W, Park JH, Lee JP. A ten-year review of the literature on the use of standardized patients in teaching and learning: 1996–2005. *Med Teach*. 2009; 31(6):487–92. [PubMed: 19811163]
14. Glassman PA, Luck J, O’Gara EM, Peabody JW. Using standardized patients to measure quality: evidence from the literature and a prospective study. *Joint Commission Journal on Quality and Patient Safety*. 2000; 26(11):644–53.
15. Zabar S, Hanley K, Stevens D, Murphy J, Burgess A, Kalet A, et al. Unannounced standardized patients: A promising method of assessing patient-centered care in your health care system. *BMC Health Services Research*. 2014; 14(1):157. [PubMed: 24708683]
16. Das J, Holla A, Das V, Mohanan M, Tabak D, Chan B. In urban and rural India, a standardized patient study showed low levels of provider training and huge quality gaps. *Health Aff*. 2012; 31(12):2774–84.
17. Bays AM, Engelberg RA, Back AL, Ford DW, Downey L, Shannon SE, et al. Interprofessional communication skills training for serious illness: Evaluation of a small-group, simulated patient intervention. *J Palliat Med*. 2014; 17(2):159–66. [PubMed: 24180700]
18. Green BL, Saunders PA, Power E, Dass-Brailsford P, Mete M, Giller E, et al. Trauma-Informed Medical Care: A CME communication training for primary care providers. *Fam Med*. 2015; 47:7–14. [PubMed: 25646872]
19. Green BL, Saunders PA, Power E, Dass-Brailsford P, Bhat Schelbert P, Giller E, Wissow L, Hurtado-de-Mendoza A, Mete M. Trauma-Informed Medical Care: Patient response to a primary care provider communication training. *Journal of Loss and Trauma*. 2016; 21(2):147–159. [PubMed: 27721673]
20. Roter DL, Larson S, Shinitzky H, Chernoff R, Serwint JR, Adamo G, et al. Use of an innovative video feedback technique to enhance communication skills training. *Med Educ*. 2004; 38:145–57. [PubMed: 14871385]
21. Roter D, Larson S. The Roter interaction analysis system (RIAS): Utility and flexibility for analysis of medical interactions. *Patient Educ Couns*. 2002; 46:243–51. [PubMed: 11932123]
22. Chou WY, Han P, Pilsner A, Coa K, Greenberg L, Blatt B. Interdisciplinary research on patient-provider communication: A cross-method comparison. *Commun Med*. 2011; 8:29–40. [PubMed: 22616354]
23. Weiner SJ, Schwartz A, Cyrus K, Binns-Calvey A, Weaver FM, Sharma G, et al. Unannounced standardized patient assessment of the Roter Interaction Analysis System: The challenge of measuring patient-centered communication. *J Gen Intern Med*. 2013; 28(2):254–60. [PubMed: 22990681]
24. Schirmer JM, Mauksch L, Lang F, Marvel M, Zoppi K, Epstein R, ... Pryzbylski M. Assessing communication competence: A review of current tools. *Fam Med*. 2005; 37(3):184–192. [PubMed: 15739134]

25. Whelan GP, Boulet JR, McKinley DW, Norcini JJ, van Zanten M, Hambleton RK, et al. Scoring standardized patient examinations: Lessons learned from the development and administration of the ECFMG Clinical Skills Assessment (CSA®). *Med Teach*. 2005; 27:200–6. [PubMed: 16011942]
26. Epstein RM, Franks P, Fiscella K, et al. Measuring patient-centered communication in patient–physician consultations: Theoretical and practical issues. *Soc Sci Med*. 2005; 61(7):1516–1528. [PubMed: 16005784]
27. Safran DG, Kosinski M, Tarlov AR, et al. The primary care assessment survey: Tests of data quality and measurement performance. *Med Care*. 1998; 36(5):728–739. [PubMed: 9596063]
28. Stewart M, Brown JB, Donner A, et al. The impact of patient-centered care on outcomes. *J Fam Pract*. 2000; 49(9):796–804. [PubMed: 11032203]
29. Stillman PL, Brown DR, Redfield DL, Sabers DL. Construct validation of the Arizona clinical interview rating scale. *Educational and Psychological Measurement*. 1977; 37:1031–8.
30. Cohen DS, Colliver JA, Marcy MS, Fried ED, Swartz MH. Psychometric properties of a standardized-patient checklist and rating-scale form used to assess interpersonal and communication skills. *Academic Medicine*. 1996; 71(1):S87–9. [PubMed: 8546794]
31. Reznick RK, Blackmore D, Dauphinee WD, Rothman AI, Smee S. Large-scale high-stakes testing with an OSCE: Report from the medical council of Canada. *Academic Medicine*. 1996; 71(1):S19–21.
32. Regehr G, MacRae H, Reznick RK, Szalay D. Comparing the psychometric properties of checklists and global rating scales for assessing performance on an OSCE-format examination. *Academic Medicine*. 1998; 73(9):993–997. [PubMed: 9759104]
33. Price EG, Windish DM, Magaziner J, Cooper LA. Assessing validity of standardized patient ratings of medical students' communication behavior using the Roter interaction analysis system. *Patient Educ Couns*. 2008; 70:3–9. [PubMed: 18037602]
34. Weiner SJ, Schwartz A, Cyrus K, et al. Unannounced standardized patient assessment of the Roter Interaction Analysis System: The challenge of measuring patient-centered communication. *Journal of General Internal Medicine*. 2013; 28(2):254–260. [PubMed: 22990681]
35. Hales B, Terblanche M, Fowler R, Sibbald W. Development of medical checklists for improved quality of patient care. *International Journal for Quality in Health Care*. 2007; 20(1):22–30. [PubMed: 18073269]
36. Stufflebeam DL. Guidelines for developing evaluation checklists: The checklists development checklist (CDC). Vol. 16. Kalamazoo, MI: The Evaluation Center; 2000. 2008
37. IBM Corp. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp; Released 2013.
38. Boulet JR, van Zanten M, de Champlain A, Hawkins RE, Peitzman SJ. Checklist content on a standardized patient assessment: An ex post facto review. *Adv Health Sci Educ Theory Pract*. 2008; 13:59–69. [PubMed: 16871427]
39. Gorter S, Rethans JJ, Scherpbier A, van der Heijde D, Houben H, van der Vleuten C, et al. Developing case-specific checklists for standardized-patient-based assessments in internal medicine: A review of the literature. *Acad Med*. 2000; 75:1130–7. [PubMed: 11078676]
40. Glassman PA, Luck J, O'Gara EM, Peabody JW. Using standardized patients to measure quality: Evidence from the literature and a prospective study. *Joint Commission Journal on Quality and Patient Safety*. 2000; 26(11):644–653.
41. Schnurr PP, Green BL. Trauma and health: Physical health consequences of exposure to extreme stress. American Psychological Association; 2004.
42. Goodell S, Druss BG, Walker ER, Mat M. Mental disorders and medical comorbidity. Robert Wood Johnson Foundation; 2011. 2

## Appendix A. G-PACER-12 Item-Total Correlations

Item	Item-Total Correlation
1. Used an unhurried manner, allowing time to respond.	.732***
2. Obtained information regarding your perception of the problem.	.774***
3. Legitimated your concerns.	.793***
4. Used verbal and non-verbal cues to show connection.	.874***
5. Allowed for silence.	.806***
6. Asked for your preferences in treatment plan.	.793***
7. Responded to your mental/emotional state.	.911***
8. Offered clear information about what to expect during visit and after.	.885***
9. Offered choices whenever possible about visit.	.883***
10. Listened carefully to your needs, questions, and concerns	.877***
11. Gave information that empowered you	.777***
12. Conveyed optimism about health and life style outcomes.	.804***

Note: Respondents were provided with the stem "For the following items, please check the box that best describes how well you thought that the provider...." Each item was scored on a five-point Likert scale with the following choices: Not Done (1), Poor (2), Acceptable (3), Very Good (4), Outstanding (5).

**Table 1**

Correlations between G-PACER and Doctor's Global Affect Ratings at Pre-Training

RIAS Global Affect Ratings	G-PACER Total Score	12-Item G-PACER
Patient-Centeredness	.582 ***	.601 ***
Anger	-.217	-.270
Anxiety	-.300	-.318
Dominance	-.087	-.102
Interest	.432 *	.443 *
Warmth	.537 ***	.589 ***
Engagement	.456 **	.480 **
Sympathy	.575 ***	.616 ***
Hurriedness	-.092	-.100
Respect	.313	.341
Interactivity	.431 *	.446 *

Note:

\*\*\* indicates correlation is significant at  $p < .001$ ,\*\* indicates correlation is significant at  $p < .01$ , and\* indicates correlation is significant at  $p < .05$