# Assessing patient-centred communication in teaching: a systematic review of instruments

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**CONTEXT** Patient-centred communication is a key component of patient centredness in medical care. Therefore, adequate education in and assessment of patient-centred communication skills are necessary. In general, feedback on communication skills is most effective when it is provided directly and is systematic. This calls for adequate measurement instruments.

**OBJECTIVES** The aim of this study was to provide a systematic review of existing instruments that measure patient centredness in doctor–patient communication and can be used to provide direct feedback.

**METHODS** A systematic review was conducted using an extensive validated search strategy for measurement instruments in PubMed, EMBASE, PsycINFO and CINAHL. The databases were searched from their inception to 1 July 2016. Articles describing the development or evaluation of the measurement properties of instruments that measure patient centredness (by applying three or more of the six dimensions of a published definition of patient centredness) in doctor–patient communication and that can be used for the provision of direct feedback were included. The methodological quality of measurement properties was evaluated using the COSMIN checklist.

**RESULTS** Thirteen articles describing 14 instruments measuring patient centredness in doctor–patient communication were identified. These studies cover a wide range of settings and patient populations, and vary in the dimensions of patient centredness applied and in methodological quality on aspects of reliability and validity.

**CONCLUSIONS** This review gives a comprehensive overview of all instruments available for the measurement of patient centredness in doctor–patient communication that can be used for the provision of direct feedback and are described in the literature. Despite the widely felt need for valid and reliable instruments for the measurement of patient-centred communication, most of the instruments currently available have not been thoroughly investigated. Therefore, we recommend further research into and enhancement of existing instruments in terms of validity and reliability, along with enhancement of their generalisability, responsiveness and aspects of interpretability in different contexts (real patients, simulated patients, doctors in different specialties, etc.). Comprehensibility and feasibility should also be taken into account.

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## INTRODUCTION

Patient centredness has become a core concept in medical care in reaction to doctor centredness or disease centredness,[1] and is promoted all over the world.[2,3]

The concept is built on the notion of the patient as an important participant in the medical encounter, who should be approached from a biopsychosocial perspective.[4–7] Enid Balint was one of the first to state that patient-centred medicine involves 'understanding the patient as a unique human being', and refers to patients' individual needs and approaches.[8] Many different definitions of the concept of patient centredness have been proposed,[9,10] but one of the most comprehensive definitions was suggested by Stewart et al.[11] It consists of six interconnecting dimensions: (i) exploring both the disease and the illness experience; (ii) understanding the whole person; (iii) finding common ground between the physician and patient; (iv) incorporating prevention and health promotion; (v) enhancing the doctor–patient relationship, and (vi) 'being realistic' about personal limitations and issues such as the availability of time and resources. Later, Mead and Bower[9] narrowed this to five different dimensions that show great overlap with those of Stewart et al.[11]

Patient-centred communication is one of the key components of patient centredness in medical care, represents the most important enabler of patient-centred care[3,12] and ideally encompasses the dimensions cited above. Studies on patient-centred communication show improved patient satisfaction and adherence, as well as improved health outcomes, such as reduced levels of discomfort and worry, and better mental health.[13,14] Fewer diagnostic tests and referrals, indicating increased efficiency of care, are also shown.[14,15] A recent systematic review[16] found positive relationships between patient-centred care and health outcomes, although earlier studies had reported mixed results.[17,18]

As a result of this emphasis on patient-centred health care and communication, the education and assessment of students on these topics are becoming more important. This is further supported by findings showing that problems encountered in communication with physicians represent the second most common issue in patient complaints.[19] For this reason, communication skills training is included in the curricula of large numbers of medical schools around the world, and is supported by competency frameworks and blueprints.[20,21] As communication training enhances the performance of students[22] and physicians,[23,24] it is important that the training effects are systematically measured with reliable instruments.

In general, communication skills are best learned and retained when learners receive feedback on their performance immediately after the consultation with the patient ('direct feedback').[23,25,26] Accordingly, a measurement instrument on patient-centred communication should be valid, reliable and able to provide immediate feedback when used in daily teaching (with simulated patients, as well as in the workplace), without imposing the need to tape, transcribe and code the consultation first.

Over the years, different instruments to measure patient centredness have been proposed.[9,12,27–30] Mead and Bower added two different approaches to the measurement of patient centredness.[9] These instruments are used in different contexts (classroom or workplace situations) by different observers (student or physician self-observation, patients or teachers) using different measurement approaches (observations and assessments of single performances versus assessment based on series of observed performances), have different validity and reliability properties and all have different degrees of responsiveness, interpretability, comprehensibility and feasibility. As a result, it is unclear which instruments should be used in which context.

For this reason, we conducted a systematic review of all available instruments measuring patient centredness in doctor–patient communication, in the classroom and workplace, that can be used for direct feedback. We also assessed their measurement properties.

Our research questions were:

- What are the available instruments for the measurement of patient centredness in doctor–patient communication and the provision of direct feedback (i.e. immediately after the performance)?
- By whom are the measurement instruments intended to be applied (e.g. patients, physicians, psychologists, teachers)?

- Which dimensions of patient centredness do the instruments use?
- What are the psychometric properties of the instruments?

We expect that this systematic review will help to identify the instrument that is most appropriate for use in the reader's specific context to evaluate learners' patient-centred communication skills in the classroom and workplace, and to evaluate the effectiveness of patient-centred communication training programmes.

## METHODS

The systematic review protocol, inclusion criteria and data selection process were designed using the PRISMA (*p*referred *r*eporting *i*tems for *s*ystematic reviews and *m*eta-*a*nalyses) guidelines.[31]

### Search strategy

The PubMed, EMBASE, PsycINFO and CINAHL (Cumulative Index to Nursing and Allied Health Literature) databases were computer searched in their entirety to 1 July 2016. The keywords used were 'patient centredness', 'patient-centred care', 'person centredness', 'person-centred care', 'patient participation', 'participatory medicine', 'physician–patient relations', 'communication' and their linguistic variations. The search was combined with a filter developed to find studies on measurement properties of measurement instruments.[32] Reference lists of all full-text articles included were screened for additional studies.

### Selection criteria

Articles that described the development or evaluation of an instrument that measured patient centredness in doctor–patient communication and could be used in the provision of direct feedback were included. Instruments for use in health care providers other than physicians or medical students were excluded. After consultation with experts in the field, the definition of patient centredness proposed by Stewart et al.[11] was used to rate identified instruments because it is one of the most long-standing and comprehensive definitions. Only instruments that measured communication on three or more dimensions of this definition were included. All languages were considered, but only studies published in English or Dutch were selected for full-text reading. Measurement instruments that required multiple observations or observers, or prior transcription (as explicitly stated in the article) were excluded because these were unsuitable for the provision of direct feedback immediately after the performance.

Two reviewers (MB and ER) independently screened retrieved titles, abstracts and full texts (including those found from references). When inclusion was in doubt, the reviewers reached consensus by discussing an instrument's inclusion with reference to the inclusion criteria. When they failed to reach consensus, they consulted a third reviewer (EvW-B).

### Data extraction

The two reviewers (MB and ER) independently extracted data and assessed measurement properties and methodological quality using a self-developed checklist on study characteristics and the COSMIN (*co*nsensus-based *s*tandards for the selection of health *m*easurement *in*struments) taxonomy and checklist.[33–35]

When the two reviewers disagreed, the third reviewer (EvW-B) was asked to make a final judgement.

The following data were extracted.

1 Description of the instrument: measurement aim; whether it was designed for educational purposes; type of assessment; rater details; numbers of items and subdomains; response options; dimensions measured; context dependency ('Does the instrument take different settings into account?'), and flexibility ('Are students/physicians able to adapt their communication strategy to the needs and wishes of the individual patient? For example: does the instrument take into account that some patients may not want to co-decide on treatment or want to talk elaborately about their illness, and that granting this wish might be patient-centred? Does the instrument have an item that addresses this?').
2 Study population: setting; description and characteristics of patients (illness, age, percentages of each gender); description of students, and description of physicians (by specialty).
3 Measurement properties (described according to the COSMIN taxonomy): (i) reliability (internal consistency, reliability, measurement

 

error); (ii) validity (content validity, structural validity, hypothesis testing, cross-cultural validity, criterion validity); (iii) responsiveness, and (iv) interpretability.

4 Quality assessment: methodological quality was assessed using the COSMIN checklist. This checklist consists of nine items that refer to methodological standards for assessing each measurement property and rating it on a 4-point scale (excellent–good–fair–poor).

## RESULTS

The search strategy identified 9730 potential articles after the removal of duplicates. Titles and abstracts were read and 55 papers were selected for full-text reading. Nine of these, together with a further four identified through the perusal of reference lists, were included in the review. Finally, 13 articles that described 14 measurement instruments were assessed in this review. Reasons for exclusion are summarised in Figure 1.

Table 1 presents an overview of the instruments included. Ten instruments were designed to be used by (simulated) patients, one by either a physician or a patient, and three required observation by a third person ('observer'). Eleven instruments were designed for educational purposes. Most instruments were developed for formative assessment; the Revised Patient-Centred Communication and Interpersonal Skills Scale (RUCIS)[36] and the Interpersonal Skills Rating Scale (IPS)[37] were devised for summative assessment, and the Common Ground instrument (CG)[38] was developed to be used in formative and summative assessment.

The Patient-Centred Observation Form (PCOF) devised by Chesser et al.[39] was the only instrument to address all of Stewart et al.'s[11] dimensions of patient centredness. The Little instrument,[40] the Consultation and Relation Empathy Measure (CARE)[41] and the Patient Feedback Questionnaire on Communication Skills (PFC)[42] covered five of the six dimensions.

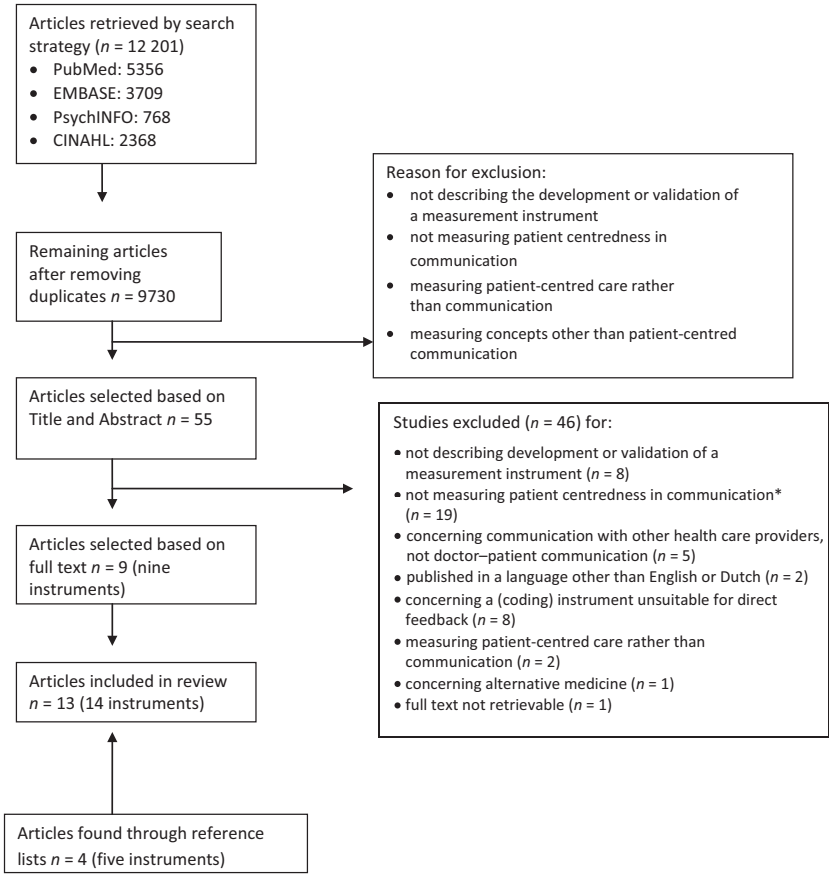


**Figure 1** Overview of articles identified in searches for studies on the development of instruments designed to measure patient-centred communication (to 1 July 2016). *Fewer than three of the dimensions described by Stewart et al.[11]

 

Of the 14 instruments, 13 covered dimensions (i) (exploring both the disease and the illness experience) and (iii) (finding common ground). Twelve covered dimension (v) (enhancing the doctor–patient relationship) and 10 covered dimension (ii) (understanding the whole person). Dimensions (iv) (incorporating prevention and health promotion) and (vi) ('being realistic' about personal limitations and issues such as the availability of time and resources) were covered by, respectively, five and three instruments.

Only the Quality of Communication questionnaire (QoC) developed by Engelberg et al.[43] was context-specific and included questions regarding end-of-life communication. Furthermore, the CARE was the only instrument to be considered flexible because it explicitly stated that 'the exploratory stems to each item are intended to allow flexibility in the "degree" of patient participation, according to the patient's desire for this' (data not shown in Table 1).

The study populations (Table 2) showed great variation in test settings and in the specialties of physician participants. The characteristics of the patient population were described briefly in most studies, but the mean age and gender ratio of the patient population were not stated in over half of the studies. One instrument, the Modified version of the Perceived Involvement in Care Scale (M-PICS) was studied in an all-female population of breast cancer patients.[44] Three studies used simulated patients; in two of these, the simulated patient was also the rater. Three studies gave partial descriptions of the characteristics of participant physicians or medical students (gender, age and years of experience).

The methodological quality of each study is shown in Table 3. The RUCIS scale[36] was tested using item response theory (Rasch model), which made it impossible to evaluate validity and reliability according to the COSMIN checklist. All other instruments had been tested following classical test theory, including for reliability and validity.

Bieber et al.[45] described the systemic bias and social desirability of the Questionnaire on the Quality of Physician–Patient Interaction (QQPPI). Only Lang et al.,[38] using the CG, addressed the issue of the instrument's generalisability. Responsiveness (the validity of a change in score over time) and interpretability (the degree to which qualitative meaning can be attributed to a quantitative score) were not studied.

Table 4 shows the measurement properties of all instruments. There is clearly great variation in aspects of reliability and validity, and in how these were investigated.

## DISCUSSION

After an extensive search, we identified 14 instruments intended to measure patient-centred communication that can be used in the provision of direct feedback on performance in the context of teaching patient-centred communication skills to students or physicians.

Lack of theory and clarity on the concept of patient centredness has raised concerns about which instruments should be used in the assessment of patient-centred communication in individual learning situations.[9,10,28] However, the overview of the instruments presented in this review can help in choosing an appropriate instrument based on its measurement properties.

An important criterion used for selection in this review referred to whether an instrument measured patient centredness in communication, according to Stewart et al.'s definition.[11] A recent study by Zill et al.[3] showed that 'approaching patients as unique persons', 'patient involvement in care', 'patient information', 'clinician–patient communication' and 'patient empowerment' were rated by experts as most important to patient centredness. The dimension 'biopsychosocial perspective' was rated as very relevant, but was not sufficiently clear to the experts. All of these aspects are included by Stewart et al.[11] and were consequently covered in this review because we included only instruments that addressed three or more of these dimensions. This review shows the PCOF[39] to be the only instrument in which all six of Stewart et al.'s[11] dimensions are represented. The other instruments measured patient centredness in various compilations of dimensions, emphasising different aspects of the concept of patient centredness, which may point to the lack of full agreement on what should be considered central or important characteristics. This does not make the teaching of patient centredness less important, but does impede the assessment of its effects.

Another important selection criterion referred to whether an instrument could be used to provide direct feedback (i.e. immediately after the performance). Some instruments, such as the Communication Assessment Tool (CAT), are able to

 

*Table 1 Instruments identified as designed to measure patient centredness in communication for use in medical education*

| Instrument | Year | Original language | Measurement aim | Designed for educational purposes | Purpose of development (type of assessment) | Rater | Items and subdomains, *n* | Response options | Dimensions of patient centredness* |
|---|---|---|---|---|---|---|---|---|---|
| QQPPI | 2010 | German | To measure the quality of the physician–patient interaction from the patient's perspective | Yes, to evaluate training programmes | Formative | Patient | 14 items | 5-point scale (range: 1 [I do not agree] to 5 [I fully agree]) | 1-2-3-5 |
| PCOF | 2013 | English | To measure patient-centred competence in physicians | Yes | Formative | Outside observers | 12 items | 3-point scale | 1-2-3-4-5-6 |
| QoC | 2006 | English | To measure satisfaction with quality of physician's communication about end-of-life care | Yes, to evaluate training programmes | Formative | Patient | 13 items | Range: 0 (very worst) to 10 (very best), did not do this, don't know | 1-2-3-5 |
| RUCIS | 2009 | English | To measure resident communication skills with SP in OSCE | Yes | Summative | SP | 13 items | Each item contains a short description of the aspect of communication under consideration, from lowest to best performance (rubric) | 2-3-5-6 |
| NWVTS –PSC | 1996 | English | To measure patient-centred communication in the consultation | Yes | Formative | Patient | 11 items | 5-point scale (range: 1 [strongly disagree] to 5 [strongly agree]) | 1-4-5-6 |
| CG | 2004 | English | To measure communication skills specified by the Kalamazoo Consensus statements | Yes | Formative and summative | Outside observers | 6 items and rating of global interview performance | For each item specified (range: 1–5 or 1–4) | 1-3-5 |
| Little instrument | 2001 | English | To measure the patient's perception of the doctor's approach | No | Formative | Patient | 5 items | 5-point scale (range: 'very strongly agree' to 'disagree') | 1-2-3-4-5 |
| BPS tool | 2007 | Hebrew | To assess a biopsychosocial consultation | Yes | Formative | Instructors in family medicine | 8 items in 3 subdomains and global rating (item 9) | 0 (minimal) to 100 (maximal) scale | 1-2-3-5 |
| CARE | 2004 | English | To provide a tool to evaluate the quality of consultations in terms of the 'human' aspects of medical care | Yes | Formative | Patient | 10 items | 5-point scale (range: poor–excellent) | 1-2-3-4-5 |
| PFC | 2009 | Dutch | To measure development consultation skills in GPs in training | Yes | Formative | Patient | 16 items | 4-point scale (range: 1 [not at all] to 4 [completely]) | 1-2-3-4-5 |

*Table 1 (Continued)*

| Instrument | Year | Original language | Measurement aim | Designed for educational purposes | Purpose of development (type of assessment) | Rater | Items and subdomains, *n* | Response options | Dimensions of patient centredness* |
|---|---|---|---|---|---|---|---|---|---|
| IPS | 1991 | English | To measure interpersonal competence of students | Yes | Summative | SP | 13 items | 7-point scale (range: 1 [strongly disagree] to 7 [strongly agree]) | 1-3-5 |
| M-PICS | 2006 | English | To measure pain patients' perceptions of patient–health care provider communication during the medical consultation | No | Formative | Patient | 20 items in 4 subdomains | 5-point scale (range: 1 [all the time] to 5 [never]) | 1-2-3 |
| PPPC–9-item | 2004 | English | To measure the patient's and doctor's perceptions of patient-centred communication | Yes | Formative | Patient and doctor | 9 items | 4-point scale (different for each question) | 1-2-3-5 |
| PPPC–14-item | 2004 | English | To measure the patient's perception of patient centredness | No | Formative | Patient | 14 items in 4 subdomains | 4-point scale (different for each question) | 1-2-3 |

* Dimensions of patient centredness as described by Stewart et al.[11]: 1 = exploring the disease and the illness experience; 2 = understanding the whole person; 3 = finding common ground; 4 = incorporating prevention and health promotion; 5 = enhancing the doctor–patient relationship; 5 = 'being realistic' about personal limitations and issues such as the availability of time and resources. BPS = biopsychosocial; CARE = Consultation and Relation Empathy Measure; CG = Common Ground; IPS = Interpersonal Skills Rating Scale; M-PICS = Modified Perceived Involvement in Care Scale; NWVTS–PSC = North Worcestershire Vocational Training Scheme Patient Satisfaction Questionnaire; PCOF = Patient-Centred Observation Form; PFC = Patient Feedback Questionnaire on Communication Skills; PPPC = Patient Perception of Patient Centredness; QoC = Quality of Communication; QQPPI = Questionnaire on the Quality of Physician–Patient Interaction; RUCIS = Revised Patient-Centred Communication and Interpersonal Skills Scale; GP = general practitioner; OSCE = objective structured clinical examination; SP = simulated patient.

measure interpersonal and communication skills, but require the completion of multiple forms per physician to reach a sufficient level of reliability[46] and were therefore not included in this review.

The review warrants a number of observations with regard to the validity and reliability of the instruments. Only the instrument developed by Reinders et al. (PFC)[42] was rated as 'excellent' on all aspects of validity studied (internal consistency, content and structural validity) when evaluated by the COSMIN checklist, indicating methodology of the highest standard, but its reliability had not been studied. In general, further assessment of the validity and reliability of the instruments is recommended. This is important because validity and reliability do not simply represent measurement properties of an instrument, but, rather, depend on the goal (formative, summative) and context (situation) of the assessment. All of the instruments identified were investigated in particular situations for issues of validity and reliability and therefore cannot necessarily be transferred to different contexts with different assessment goals. Hence, the reported reliability and validity outcomes of each instrument should be considered in the specific contexts in which they were applied, in the realisation that the conceptualising of patient centredness in its full breadth impedes attempts to break it down into universally reliable metrics for measurement. At the same time, the explicit measurement of student performance may help deepen understanding of the concept of patient centredness.

In addition, when the results of the different measurement properties are considered, the

 

*Table 2 Descriptions of study populations*

| Study | Instrument | Country | Setting | Doctor | Patient | Age, years, mean ± SD | Male, % |
|---|---|---|---|---|---|---|---|
| Bieber et al.[45] | QQPPI | Germany | Out-patient clinic | Specialty unknown | Rheumatology, pain, general internal medicine, diabetes | 48.82 ± 14.65 | 19% |
| Chesser et al.[39] | PCOF | USA | Family medicine resident centre | Intern family medicine | Diabetes, hypertension, asthma, depression | Not stated | Not stated |
| Engelberg et al.[43] | QoC | USA | In-patient and out-patient hospice service, oxygen delivery company (home) | Specialty unknown | Terminally ill hospice patients and COPD patients | Hospice 70.8 ± 13.38, COPD 67.3 ± 9.47 | Hospice 41%, COPD 72.6% |
| Iramaneerat et al.[36] | RUCIS | USA | Medical school | Internal medicine resident | SP | Not stated | 29% |
| Jenkins & Thomas[50] | NWVTS–PSC | UK | Primary care | GP registrar | Illness not specified | Not stated | Not stated |
| Lang et al.[38] | CG | USA | Medical school | First year medical student and almost juniors | SP | Not stated | Not stated |
| Little et al.[40] | Little-instrument | UK | Primary care | GP | Illness not specified | 73% aged 17–64, 10% 0–16, 18% aged > 64, 67% married, working 57% | 34% |
| Margalit et al.[51] | BPS tool | Israel | Primary care | GP | Illness not specified | Not stated | Not stated |
| Mercer et al.[41] | CARE | UK | Primary care | GP | Illness not specified | Pilot 1: 54 (range: 19–78); pilot 2: 54 (range: 34–74); pilot 3: 45 (range: 22–78) | Pilot 1: 35%; pilot 2: 46%; pilot 3: 50% |
| Reinders et al.[42] | PFC | NL | Primary care training | GP trainee | General: complexity consultations, according to patients: 17.4% high, 48.8% medium, 34.4% low, 49.8% first time consultation | Not stated | Not stated |
| Schnabl et al.[37] | IPS | Canada | Medical school | Year 4 medical students, internal medicine residents, foreign medical graduates | SP | Not stated | Not stated |
| Smith et al.[44] | M-PICS | USA | Hospital-based out-patient clinics | Oncologist | Breast cancer: 50% stage IV, 90% received chemo, 44% radiation | 50.43 | All female |
| Stewart et al.[11] | PPPC–9-item | Can | Not stated | Specialty unknown | Illness not specified | Not stated | Not stated |
| Stewart et al.[11] | PPPC–14-item | Can | Not stated | Specialty unknown | Illness not specified | Not stated | Not stated |

BPS = biopsychosocial; CARE = Consultation and Relation Empathy Measure; CG = Common Ground; IPS = Interpersonal Skills Rating Scale; M-PICS = Modified Perceived Involvement in Care Scale; PCOF = Patient-Centred Observation Form; PFC = Patient Feedback Questionnaire on Communication Skills; PPPC = Patient Perception of Patient Centredness; QoC = Quality of Communication; QQPPI = Questionnaire on the Quality of Physician–Patient Interaction; RUCIS = Revised Patient-Centred Communication and Interpersonal Skills Scale; COPD = chronic obstructive pulmonary disease; GP = general practice; SD = standard deviation; SP = simulated patient.

*Table 3 Methodological quality of each study per measurement instrument and measurement properties (COSMIN checklist)*

| Study | Instrument | Internal consistency | Reliability | Content validity | Structural validity | Cross-cultural validity | Criterion validity | IRT used |
|---|---|---|---|---|---|---|---|---|
| Bieber et al.[45] | QQPPI | Good | Poor | Fair | Good | | | No |
| Chesser et al.[39] | PCOF | | Poor | | | | | No |
| Engelberg et al.[43] | QoC | Fair | | | Fair | | | No |
| Iramaneerat et al.[36] | RUCIS | | | | | | | Yes |
| Jenkins & Thomas[50] | NWVTS–PSC | Poor | | Poor | | | | No |
| Lang et al.[38] | CG | Poor | Good | | Poor | | Poor | No |
| Little et al.[40] | Little instrument | Fair | | | Fair | | | No |
| Margalit et al.[51] | BPS tool | | Poor | Poor | Poor | | | No |
| Mercer et al.[41] | CARE | Poor | | Excellent | | | Poor | No |
| Reinders et al.[42] | PFC | Excellent | | Excellent | Excellent | | | No |
| Schnabl et al.[37] | IPS | Poor | Poor | | Fair | | | No |
| Smith et al.[44] | M-PICS | Fair | | | Fair | Poor | | No |
| Stewart et al.[11] | PPPC–9-item | Poor | | Poor | | | Poor | No |
| Stewart et al.[11] | PPPC–14-item | Poor | | Poor | | | Poor | No |

BPS = biopsychsocial; CARE = Consultation and Relation Empathy Measure; CG = Common Ground; IPS = Interpersonal Skills Rating Scale; M-PICS = Modified Perceived Involvement in Care Scale; PCOF = Patient-Centred Observation Form; PFC = Patient Feedback Questionnaire on Communication Skills; PPPC = Patient Perception of Patient Centredness; QoC = Quality of Communication; QQPPI = Questionnaire on the Quality of Physician–Patient Interaction; RUCIS = Revised Patient-Centred Communication and Interpersonal Skills Scale; IRT = item response theory.

COSMIN rating of each property should be taken into account. For example, reported internal consistency may be satisfactory, but when the methodological quality of the study in question is low (poor COSMIN rating), there is a high risk for biased results.[33]

A third issue concerns cross-cultural validity. Smith et al.[44] were the only group to study, in part, cross-cultural validity by translating the M-PICS. However, the use of a measure in a different country or culture should also encompass cultural adaptation in order to maintain the content validity of the instrument.[47] None of the studies reported on this issue, and therefore it is uncertain how these instruments will perform when they are used across cultures.

Fourthly, responsiveness (the validity of a change in score over time) and interpretability (the degree to which qualitative meaning can be assigned to an instrument's quantitative scores) were not well investigated in the studies identified, which may lead to uncertainty about whether these instruments can be used for assessment over time or whether a change in score has clinical implications.

Furthermore, our review shows that most study populations, whether patients or physicians, were not well described. This leads to uncertainty about the generalisability of the results to another population and whether that specific instrument can be used in another patient group or field of medicine.

Most of the instruments were designed to support the provision of formative feedback. Although this does not limit their use or prevent them from being used summatively, they have not been tested for purposes other than those intended by their developers. In the context of summative feedback (examinations; yes/no verdicts), only a few of the instruments should be considered and the possibility that multiple assessments may be required to support a reliable judgement should be borne in mind.

By no means do the findings described herein imply that the instruments identified should not be used to assess patient-centred communication. However, we would like to point out that the careful use of these instruments is advisable and that their application should be subject to some caveats on aspects of reliability and validity.

 

*Table 4 Measurement properties of instruments designed to measure patient centredness in communication for use in medical education*

| Instrument | Internal consistency | Reliability | Content validity | Structural validity | Factorial | Criterion validity |
|---|---|---|---|---|---|---|
| QQPPI | Cronbach's $\alpha = 0.95$ | Test–retest reliability: Pearson's $r = 0.59$ | ++ (adequate) | PICS-A and SWD: $r = 0.64$ and 0.59 ($n = 147$), QHC and PICS-B: $r = 0.54$ and 0.52 ($n = 147$), PSHC: $r = 0.38$ ($n = 147$) | One factor explained 60.11% of variance | – |
| PCOF | – | Overall inter-rater reliability Cronbach's $\alpha = 0.67$; clinician's inter-rater reliability: 0.45; social scientist's inter-rater reliability: 0.62 | – | – | – | – |
| QoC | Cronbach's $\alpha = 0.50$ | – | – | Convergent validity Spearman's $r = 0.738$ with overall quality of doctor's communication and $r = 0.432$ with overall quality of discussions of end-of-life care (both $p \leq 0.000$) | – | – |
| RUCIS | | | | | | |
| NWVTS–PSC | Cronbach's $\alpha = 0.84$ | – | Association with general satisfaction with the consultation Spearman's $r = 0.61$ (exploring patient understanding), 0.54 (ease of problem sharing), 0.52 (sufficient time in consultation) | – | – | – |
| CG | Pearson's $r = 0.91$ and 0.95 (for raters 1 and 2, respectively) | Intra-rater reliability: rater 1: Pearson's $r = 0.63$ (overall case rating), 0.69 (overall case percentage score); rater 2: Pearson's $r = 0.87$ (overall case rating), 0.78 (overall case percentage score) Inter-rater reliability: global rating overall case: Pearson's $r = 0.85$, checklist percentage score overall case: $r = 0.92$ | – | Construct validity: interobserver variance between Year 3 students intensive and minimal curriculum + ($p < 0.001$); Concurrent validity (expert versus rater): Pearson's $r = 0.84$ (overall performance) | – | Correlation of overall performance between expert and rater: 0.84 |

*Table 4 (Continued)*

| Instrument | Internal consistency | Reliability | Content validity | Structural validity | Factorial | Criterion validity |
|---|---|---|---|---|---|---|
| Little instrument | Cronbach's α = 0.96 (communication and partnership), 0.89 (personal relationship), 0.87 (health promotion), 0.84 (positive and clear approach to the problem), 0.89 (interest in effect on life) | – | – | – | Four factors, explained 93% of variance | – |
| BPS tool | – | Cronbach's α = 0.90 | – | Construct validity: interobserver variance between BPS-oriented physicians and biomed-oriented physicians: range: 23.2–59.3 ($p < 0.0001$) | – | – |
| CARE | Cronbach's α = 0.93 | – | Based on earlier studies on theoretical concept of empathy and compared with BLESS Patient and colleague GP interviews based on grounded theory approach, experts' advice | – | – | Pearson's $r$ = 0.85, $p < 0.001$ with RES; Pearson's $r$ = 0.84, $p < 0.001$ with BLESS |
| PFC | Cronbach's α = 0.89, item–total correlations ranged from 0.45 (question 11) to 0.67 (questions 9 and 13) | – | – | Construct validity: correlation original construct (translated PPPC) and new construct (PFC): 0.97 | One factor explained 55.64% of variance | – |
| IPS | – | Reliability coefficient: medical students 0.72 (range: 0.68–0.76), foreign medical graduates 0.83 (range: 0.68–0.93); internal medicine residents: 0.48 and 0.42 | – | Construct validity: correlation other instrument (patient rating form) and IPS: 0.95 ($p < 0.0001$) | Factor 1 (communication of information and patient participation) explained 62% of variance; factor 2 (empathy and jargon-free communication) explained 10% of variance | – |

 

*Table 4 (Continued)*

| Instrument | Internal consistency | Reliability | Content validity | Structural validity | Factorial | Criterion validity |
|---|---|---|---|---|---|---|
| M-PICS | Cronbach's α = 0.87 (ranges: 0.79–0.89 (English), 0.76–0.86 (Spanish) | – | – | Convergent validity: Pearson's $r = -0.302$, $p < 0.01$ (patient decision making and age); $r = -0.314$, $p < 0.01$ (facilitation and Latina status); $r = 0.363$, $p < 0.001$ (health care provider info and Latina); $r = 0.0376$, $p < 0.001$ (health care provider info and SES) | Factor 1 (health care provider info) explained 32.01%, factor 2 (patient info) explained 16.42%, factor 3 (patient decision making) explained 9.45%, factor 4 (health care provider facilitation) explained 7.32%; total variance explained: 65.2% | – |
| PPPC–9-item | Cronbach's α = 0.80 (patient questionnaire), 0.79 (physician questionnaire) | – | – | – | – | – |
| PPPC–14-item | Cronbach's α = 0.71 | – | – | – | – | Pearson's $r = 0.16$, $p < 0.01$ with MPCC |

BPS = biopsychosocial; CARE = Consultation and Relation Empathy Measure; CG = Common Ground; IPS = Interpersonal Skills Rating Scale; M-PICS = Modified Perceived Involvement in Care Scale; NWVTS–PSC = North Worcestershire Vocational Training Scheme Patient Satisfaction Questionnaire; PCOF = Patient-Centred Observation Form; PFC = Patient Feedback Questionnaire on Communication Skills; PPPC = Patient Perception of Patient Centredness; QoC = Quality of Communication; QQPPI = Questionnaire on the Quality of Physician–Patient Interaction; RUCIS = Revised Patient-Centred Communication and Interpersonal Skills Scale; BLESS = Barret–Lennard Empathy Subscale; MPCC = Measure of Patient-Centred Communication; PICS-A = Perceived Involvement in Care Scale (doctor facilitation scale); PICS-B = Perceived Involvement in Care Scale (patient information scale); PSHC = Patient Satisfaction with Health Care; QHC = Patients' Global Assessment of Quality of Health Care; SES = socio-economic status; SWD = satisfaction with decision.

In addition, the issue of flexibility warrants further consideration as tailoring communication to the needs and preferences of various patients is a principal challenge for clinicians.[48] Instruments designed to assess patient-centred communication should preferably take this 'flexibility' into account by assessing whether students or doctors are able to adapt their communication appropriately to the needs and wishes of each patient. The CARE instrument[41] is the only one identified in this review as taking this aspect into account.

Finally, the context dependency of an instrument should also be considered carefully. Essers et al.[49] showed that by taking contextual factors (doctor-related, patient-related, consultation-related) into account, a more valid assessment of communication performance is achieved. For example, it may seem obvious that in an emergency situation (e.g. when a patient has a heart attack) in which a rapid response is necessary, patient centredness in communication is accomplished in a manner that differs from that used in a consultation about longstanding back pain. Thus, the clinical situation defines not only which of the physician's behaviours are patient centred, but also the importance of patient-centred behaviour in that specific context. In other situations, such as when making a shared decision with the patient is not possible because the patient is comatose, the physician might be expected to acknowledge the wishes of the patient, but this cannot be observed in the consultation. An important finding of this review is that situational flexibility and context sensitivity were not well considered in the instruments reviewed. Only Engelberg et al.,[43] with reference to the QoC,

added questions specifically about end-of-life communication; this instrument, therefore, is considered to be context-specific.

Context specificity is particularly important in (workplace) teaching because the meanings of this context differ between physician-teachers and their students or residents in terms of familiarity with the patient and his or her social situation and medical history, and the participant's personal clinical experience, which leads to differences in performance, as Essers et al.[49] demonstrated. This again underlines the complexity of patient centredness, which may hamper its straightforward measurement and assessment. However, among the objectives of medical education is the aim of providing students with the skills they require to perform patient-centred communication across contexts.

**Strengths and limitations**

This systematic review is strengthened by the authors' performance of an extensive search for instruments designed to be used in medical education and in the clinical workplace, using a broad variety of keywords. It is further supported by the use of a robust scoring method in the process of assessing the validity and reliability of the instruments investigated.

This review also has some limitations. It was limited to articles published in English or Dutch. As a result, useful instruments developed in other languages may have been overlooked. Furthermore, although we used a broad and validated search filter to find studies investigating instruments, their inclusion depended on the keywords allocated by the respective authors and this may also explain why some studies may have been missed.

Comprehensibility (the degree to which the instrument can be understood) and feasibility (the degree to which it can be used easily) are important when choosing an assessment instrument, but we did not focus on these aspects in our review.

## CONCLUSIONS

This review investigated 14 instruments developed for use in the assessment of patient-centred communication. Based on our findings, we believe it is unnecessary to develop a 'new' instrument, but that further research should investigate in depth the reliability and validity of the existing instruments. In addition, generalisability, responsiveness and interpretability in different contexts (real patients, simulated patients, doctors of different specialties), comprehensibility and feasibility should be taken into account and set against the conceptualisation of patient centredness in order to enable engagement with its full complexity.

In the meantime, in the context of choosing an instrument with which to provide feedback on patient-centred communication in the individual learning situation, it is important to choose one that covers the dimensions that are considered to be most important in that specific context. This, in addition to its COSMIN rating, generalisability, responsiveness, comprehensibility and feasibility, should determine the choice of instrument. As the various instruments may be used in different countries and cultural settings, cross-cultural validation of the instruments should be considered a priority.

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