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Patient-centred communication is associated with positive therapeutic alliance: a systematic review

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Question: During the patient-therapist encounter, which communication factors correlate with constructs of therapeutic alliance? **Design:** Systematic review. **Participants:** Clinicians and patients in primary, secondary or tertiary care settings. **Measures:** Studies had to investigate the association between communication factors (interaction styles, verbal factors or non-verbal factors) and constructs of the therapeutic alliance (collaboration, affective bond, agreement, trust, or empathy), measured during encounters between health practitioners and patients. **Results:** Among the twelve studies that met the inclusion criteria, 67 communication factors were identified (36 interaction styles, 17 verbal factors and 14 non-verbal factors). The constructs of therapeutic alliance in the included studies were rapport, trust, communicative success and agreement. Interaction styles that showed positive large correlations with therapeutic alliance were those factors that help clinicians to engage more with patients by listening to what they have to say, asking questions and showing sensitivity to their emotional concerns. Studies of verbal and non-verbal factors were scarce and inconclusive. **Conclusions:** The limited evidence suggests patient-centred interaction styles related to the provision of emotional support and allowing patient involvement in the consultation process enhance the therapeutic alliance. Clinicians can use this evidence to adjust their interactions with patients to include communication strategies that strengthen the therapeutic alliance. **[Pinto RZ, Ferreira ML, Oliveira VC, Franco MR, Adams R, Maher CG, Ferreira PH (2012) Patient-centred communication is associated with positive therapeutic alliance: a systematic review. *Journal of Physiotherapy* 58: 77–87]**

Key words: Communication, Systematic review, Professional-patient relations, Behavior

Introduction

Interest in the therapeutic alliance between clinician and patient began in the fields of medical care (Stewart 1995) and psychotherapy (Hovarth and Symonds 1991, Martin et al 2000). The therapeutic alliance, also referred to in the literature as the working alliance, therapeutic bond, or helping alliance, is a general construct that usually includes in its theoretical definition the collaborative nature, the affective bond, and the goal and task agreement between patients and clinicians (Martin et al 2000). Other constructs, such as trust (Hall et al 2002) and empathy (Mercer et al 2004), may overlap with this definition and are also used to assess the quality of the alliance. More recently, this concept has been considered in the field of physical rehabilitation, including physiotherapy settings (Hall et al 2010). The evidence has shown that a good therapeutic alliance can positively influence treatment outcomes such as improvement in symptoms and health status and satisfaction with care (Hall et al 2010). A good example comes from musculoskeletal rehabilitation. Patients undergoing physiotherapy for chronic low back pain with a strong therapeutic alliance showed an increase as high as four points on a 0–10 scale of global perceived effect compared to those with a weak therapeutic alliance (Ferreira et al 2009).

In the field of physiotherapy, the nature of most interventions is usually long-term. Hence, patients' adherence to long-term treatment regimens is vital to achieve effective clinical practice (WHO 2003). More broadly, it has been recognised that lack of adherence to long-term therapies results in poor clinical outcomes and unnecessarily high costs of health care (WHO 2003). The rationale is that a good therapeutic alliance may help patients to adhere or engage more fully with their rehabilitation (Fuertes et al 2007). Importantly, the quality of the alliance between clinicians and patients is in part determined by how clinicians and patients communicate.

Effective communication is considered to be an essential skill that clinicians need to master in clinical practice to improve quality and efficiency of care (Mauksch et al 2008). In order to promote effective communication, it is important that the clinician and patient co-operate and co-ordinate their communication (Street et al 2007).

What is already known on this topic: The therapeutic alliance refers to collaboration between the clinician and patient, their affective bond, and agreement on treatment goals. A strong therapeutic alliance positively influences treatment outcomes such as improvement in symptoms and health status, and satisfaction with care.

What this study adds: When a clinician's interaction style facilitates the participation of the patient in the consultation – such as listening to what patients have to say and asking them questions with a focus on emotional issues – the therapeutic alliance is strengthened.

It is known that communication does not rely only on what is said but also on the manner or style in which it is expressed, incorporating interplay between verbal and non-verbal factors (Roberts and Bucksey 2007). Therefore, when studying how the exchange of messages occurs in a practitioner-patient encounter, the key communication factors that should be investigated are interaction styles (eg, being gentle, information giving, and emotional support), verbal behaviours (eg, greetings, open-ended, and encouraging questions) and non-verbal behaviours (eg, facial expressions and gestures).

Communication skills enhancing the alliance can be taught to clinicians, with training improving the quality of communication and enabling clarification of patients' concerns in consultations (Lewin et al 2009, McGilton et al 2009, Moore et al 2009). However, there is currently a lack of awareness of the range of communication factors that should be present during a consultation in order to build a positive therapeutic alliance. We were therefore interested in investigating which interaction styles, verbal and non-verbal communication factors employed by clinicians during consultations are associated with any underlying constructs of therapeutic alliance, such as collaboration, affective bond, agreement, trust, or empathy.

The specific research question for this study was:

> Which communication factors correlate with constructs of therapeutic alliance?

Method

Identification and selection of studies

A sensitive search of seven online databases (Medline, PsycInfo, EMBASE, CINAHL, AMED, LILACS, and the Cochrane Central Register of Controlled Trials) from earliest record to May 2011 was performed to identify relevant articles. Keywords and text words for the database searches focused on terms related to communication factors and clinician-patient interactions. Detailed search strategies are described in Appendix 1 on the eAddenda. Citation tracking was performed by manually screening reference lists of reviews and relevant papers about constructs of therapeutic alliance. Papers were not excluded on the basis of the language of publication. Two reviewers (RZP and VCO) screened all relevant titles and abstracts and selected 69 potentially relevant papers. Both reviewers independently evaluated the full reports for eligibility. Disagreements were resolved by discussion.

Studies were included if they met specific eligibility criteria regarding settings, participants, therapeutic alliance constructs, coding procedures, and communication factors.

Study design: To be included, studies had to investigate the association between communication factors (interaction styles, verbal factors, or non-verbal factors) and constructs of the therapeutic alliance (collaboration, affective bond, agreement, trust, or empathy), measured during encounters between health practitioners and patients.

Settings: To be included, studies had to investigate any encounter between patients and clinicians in primary, secondary, or tertiary care settings.

Participants: Studies investigating interactions between qualified clinicians and real patients were included. Studies including students as practitioners and standardised or virtual patients were excluded. However, studies including a mixed sample of real and standardised patients were eligible if data were presented separately. Interactions in highly specific clinical scenarios such as those with patients with mental illness and deaf or mute patients were excluded as these interactions have features that may not allow generalisation to wider settings.

Communication factors: There was no restriction on the type of communication factors included in this review. These factors were categorised as belonging to one of three groups: interaction style, verbal factors, or non-verbal factors. Interaction style was defined as a communication factor that exhibits aspects of both verbal and non-verbal factors simultaneously. Therefore, interaction style could incorporate features such as affective connection (friendly or personable distance), orientation (problem-focused or patient-focused), scope of information (biomedical and psychosocial), openness to patient, sharing of control, and negotiation of options (Flocke et al 2002). Verbal factors include greetings, facilitation, checking, open-ended, and encouraging questions. Non-verbal factors include posture, facial expression, and body orientation.

Therapeutic alliance constructs: To be included studies had to have assessed any construct of therapeutic alliance (for example, collaboration, affective bond, agreement, trust, or empathy). There are several ways to assess communication factors. The coding procedures could include direct observation, 'interaction analysis systems' (audiotapes and videotapes), and specific questionnaires. In addition, the judges responsible for coding the therapists' or patients' verbal and non-verbal communication skills during the observed encounters, videotapes, or audiotapes could be patients (for coding therapists), therapists (for coding patients), or neutral observers (for coding therapists and patients). Any communication coding procedures were accepted in this review.

Assessment of characteristics of studies

To assess the quality of the eligible studies, we used a checklist consisting of seven criteria. These criteria have been recommended by the authors of a recent systematic review of quality assessment tools for observational studies (Sanderson et al 2007) and by the STROBE Statement (von Elm et al 2007). For each included study, two reviewers (RZP and MRF) independently assessed the methodological quality. Disagreements were resolved by discussion.

Data analysis

For each included study, one reviewer (RZP) independently extracted each study's characteristics, coding procedures, communication factors, and outcome measures.

To allow comparison across studies, communication factors were initially grouped by two reviewers (RZP and VCO) into interaction styles, and verbal or non-verbal factors. Disagreements were resolved by discussion. Interaction styles, verbal and non-verbal factors were then categorised according to the Verona medical interview classification system (Del Piccolo et al 2002). This classification system was designed to assess general efficacy of clinicians' interview performance considering the main functions of

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the interview (Bird and Cohen-Cole 1990). According to this classification system, clinicians' responses during the encounter can be categorised as: *information gathering* (ie, closed and open questions used by clinicians), *patient facilitating* (ie, clinicians using facilitators, transitions, and conversation), *patient involving* (ie, clinicians asking for information and checking for clarification), *patient supporting* (ie, responses of clinicians supporting, agreeing, or reassuring), and *patient education* (ie, clinicians giving information and instruction about illness management). When factors shared similarities with another category, categories were combined. The same reviewers were also responsible for classifying the interaction styles, verbal and non-verbal factors into the subcategories described above. If there were disagreements regarding the best subcategory for a specific communication factor, reviewers reached a consensus together.

If available, sample size, *p* values, and frequency or measures of association between each communication factor and outcomes were also extracted. We did not restrict the data extraction to any specific type of measure of association.

We expected *a priori* to find studies that reported correlation coefficients, such as Pearson and Spearman, as measures of association. Hence, when possible, 95% CIs for these measures were calculated and presented in forest plots. In this case, the magnitude of association was interpreted according to the following criteria: little or no relationship (from 0.00 to 0.25), fair relationship (from 0.25 to 0.50), moderate to good relationship (from 0.50 to 0.75), and good to excellent relationship (above 0.75) (Portney and Watkins 2000). We aimed to pool correlation coefficients when studies were homogenous. When pooling was not possible due to the heterogeneity of measures of communication factors and constructs of therapeutic alliance, communication factors were tabulated and descriptive analyses conducted.

Results

Flow of studies through the review

After removing duplicates, a total of 3063 titles was identified with the electronic searches. Of these, 69 were selected as potentially eligible on the basis of their title/abstract and were retrieved as full articles. Following examination of the full text, 12 papers were included (Figure 1).

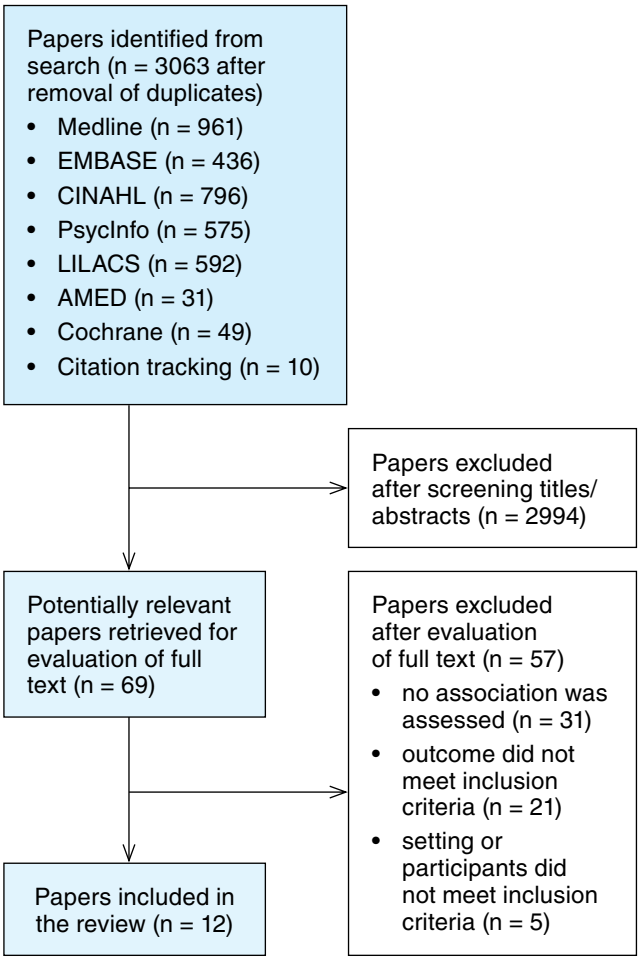

Figure 1. Flow of studies through the review.

Description of studies

All included studies provided cross-sectional observational data collected after or during the medical encounter. One study (Thom 2001) also included a longitudinal analysis one month and six months after the first encounter but only data related to the first encounter were included in this review to allow comparison with other included studies. Another study conducted a cross-sectional analysis with all patients from a randomised clinical trial using baseline measurements (Ommen et al 2008).

Quality: A detailed description of the methodological quality of all included studies is presented in Table 1. Briefly, most of the studies stated explicitly that patients were selected as consecutive or random cases. Coders were blinded in only one study (Harrigan et al 1985). Eight of 12 studies reported details of assessment methods including reliability measures.

Study characteristics: The study settings included general practices (Carter et al 1982, Fiscella et al 2004, Harrigan et al 1985, Keating et al 2002, Tarrant et al 2003, Thom 2001), hospital outpatient clinics (Perry 1975), and within tertiary hospital outpatients (Berrios-Rivera et al 2006, Garcia-Gonzalez et al 2009, Keating et al 2004, Takayama and Yamazaki 2004) and inpatients (Ommen et al 2008).

Participants: Patients interacted with physicians in six studies (Carter et al 1982, Fiscella et al 2004, Harrigan et al 1985, Keating et al 2002, Tarrant et al 2003, Thom 2001), with specialist physicians in five studies (Berrios-Rivera et al 2006, Garcia-Gonzalez et al 2009, Keating et al 2004, Ommen et al 2008, Takayama and Yamazaki 2004), and with physiotherapists in one study (Perry 1975). Only four studies reported the health conditions of the patients, which included rheumatic diseases (Berrios-Rivera et al 2006, Garcia-Gonzalez et al 2009), breast cancer (Takayama and Yamazaki 2004), and severely injured patients (Ommen et al 2008).

Communication factors: Among the 12 included studies we identified 36 interaction styles in nine studies, 17 verbal factors in five studies, and 14 non-verbal factors in three studies. Interaction styles, verbal and non-verbal factors found in each study were categorised according to the Verona medical interview classification system and grouped with other similar factors. The instruments used to code communication factors included: audiotapes (Carter et al

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Table 1. Methodological quality of included studies (n = 12) rated using criteria developed from Sanderson et al 2007 and Strobe Guidelines 2007.

Study	Representative sample	Defined sample	Rating and blinding		Follow-up rate > 85%	Methods of assessment	Outcome data reported	Statistical adjustment
			Communication factors	Outcome				
Perry et al 1975	✓	✓	Observer	Observer	✓	×	✓	×
Carter et al 1982	✓	✓	Observer	Patient/Clinician	×	✓	×	×
Harrigan et al 1985	×	×	Blinded observer	Different observer	×	✓	✓	×
Thom et al 2001	✓	✓	Patient	Patient	×	×	×	×
Keating et al 2002	✓	✓	Patient	Patient	×	✓	✓	✓
Tarrant et al 2003	✓	✓	Patient	Patient	×	×	×	✓
Keating et al 2004	✓	✓	Patient	Patient	✓	×	✓	✓
Fiscella et al 2004	✓	✓	Observer	Patient	✓	✓	×	✓
Takayama and Yamazaki 2004	×	✓	Observer	Patient	×	✓	✓	✓
Berrios-Rivera et al 2006	×	✓	Patient	Patient	✓	✓	✓	✓
Ommen et al 2008	✓	✓	Patient	Patient	×	✓	✓	✓
Garcia-Gonzalez et al 2009	×	✓	Patient	Patient	✓	✓	✓	×

Control for bias

- Representative sample: participants were selected as consecutive or random cases
- Defined sample: description of participant source and inclusion and exclusion criteria
- Blinded outcome assessment: assessor was unaware of prognostic factors at the time of outcome assessment
- Follow-up > 85%: outcome data were available for at least 85% of participants at one follow-up point

Appropriate measurement of variables

- Methods of assessment: data and details of assessment methods
- Outcome data reported: reporting of outcome data at follow up

Control for confounding

- Statistical adjustment: multivariate analysis conducted with adjustment for potentially confounding factors

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1982, Fiscella et al 2004, Takayama and Yamazaki 2004), videotapes (Harrigan et al 1985), real-time observation (Perry 1975), and questionnaires (Berrios-Rivera et al 2006, Garcia-Gonzalez et al 2009, Keating et al 2004, Keating et al 2002, Ommen et al 2008, Tarrant et al 2003, Thom 2001). The coders were patients in seven studies (Berrios-Rivera et al 2006, Garcia-Gonzalez et al 2009, Keating et al 2004, Keating et al 2002, Ommen et al 2008, Tarrant et al 2003, Thom 2001), and neutral observers in five studies (Carter et al 1982, Fiscella et al 2004, Harrigan et al 1985, Perry 1975, Takayama and Yamazaki 2004). Further details about study characteristics are summarised in Table 2.

***Therapeutic alliance constructs*:** The constructs of therapeutic alliance included in the analysis were trust (Berrios-Rivera et al 2006, Fiscella et al 2004, Garcia-Gonzalez et al 2009, Keating et al 2004, Keating et al 2002, Ommen et al 2008, Thom 2001), agreement (Carter et al 1982), communicative success (Takayama and Yamazaki 2004), and rapport (Harrigan et al 1985, Perry 1975). Measure of association used in each study varied considerably including correlation coefficients (Pearson, Spearman and Point-biserial), relative risks, odds ratio, and parameters from multivariate analysis (parameter estimates and r-square). For those communication factors with correlation r, the magnitude of association was reported in forest plots (Figures 2 and 3). Pooling was possible for only two interaction styles (Figure 2). All communication factors found, including measures of association and whether the factor was statistically significant ($p < 0.05$) or not, are described in Appendices 2, 3 and 4 (available on the eAddenda.) For rating constructs of therapeutic alliance, in the majority of included studies (n = 9) patients rated the outcomes (Berrios-Rivera et al 2006, Fiscella et al 2004, Garcia-Gonzalez et al 2009, Harrigan et al 1985, Keating et al 2004, Keating et al 2002, Ommen et al 2008, Takayama and Yamazaki 2004, Tarrant et al 2003, Thom 2001), two studies used neutral observers (Harrigan et al 1985, Perry 1975), and one study considered the concordance between patients and practitioner ratings (Carter et al 1982). Further details about study characteristics are summarised in Table 2.

Correlation between communication and therapeutic alliance

Interaction styles: Of the 36 interaction styles, 20 were categorised as both patient facilitating and patient involving, seven as patient supporting, and nine as patient education. Importantly, all factors categorised as patient supporting and most of the ones categorised as patient facilitating and patient involving showed large positive associations with therapeutic alliance. Pooling was possible for the interaction styles under the category patient education. Shared decision-making showed little or no association (pooled correlation r = 0.17, 95% CI 0.05 to 0.27) with therapeutic alliance. Giving information showed a fair association (pooled correlation r = 0.33, 95% CI 0.24 to 0.42). Among the two studies (Keating et al 2004, Keating et al 2002) that used odds ratio and relative risk to measure the association of interaction styles with therapeutic alliance, results are inconclusive because statistically significant factors in one study were non-significant in another (see Appendix 2 on the eAddenda). For those interaction styles reporting correlation coefficients, apart from three factors from the same study (Garcia-Gonzalez et al 2009) all other interaction styles showed large positive correlations ($r \geq 0.5$) with constructs of therapeutic alliance (Figure 2 and Appendix 2). The most positively correlated clinician interaction styles included being comforting and caring, being communicative, and asking patients questions (patient-centred behaviour).

Verbal factors: Seventeen verbal factors were included in this review. Of these, two were categorised as information gathering, seven were categorised as patient involving, one as patient facilitating, one as patient supporting, and six as patient education. For those studies using parameters from multivariate analyses, exploring patients' disease and illness experience was a verbal factor positively and significantly associated with therapeutic alliance, whereas advice and giving directions were significantly but negatively associated (Appendix 3). Among those verbal factors for which correlation coefficients were reported, only three factors (discussing options/asking patient's opinions, encouraging questions/answering clearly, and explaining what the patient needs to know) showed large positive associations with therapeutic alliance (Figure 3).

Non-verbal factors: Only three of the included studies reported on non-verbal factors. A total of 14 non-verbal factors were identified and all of them were categorised as both *patient facilitating* and *patient involving*. One study (Perry 1975) reported frequency of non-verbal factors during a consultation and two other studies (Harrigan et al 1985, Thom 2001) reported correlation coefficients as a measure of association between non-verbal factors and therapeutic alliance. Eye contact was the most frequent non-verbal factor expressed by clinicians (Appendix 4). Data from studies reporting correlation coefficients were inconsistent (Figure 3), showing a negative correlation in one study (Harrigan et al 1985) and positive correlation in another (Thom 2001). Other non-verbal factors for which a correlation coefficient was reported, such as body orientation (45° or 90° towards the patients), asymmetrical arm postures, and crossed legs, showed a large negative correlation with constructs of therapeutic alliance (Figure 3).

Discussion

The findings of this study suggest that interaction styles, specifically those categorised as *patient facilitating*, *patient involving* and *patient supporting*, are associated with constructs of therapeutic alliance as measured by communicative success, agreement, trust, and rapport. Because meta-analysis was not possible for the majority of the communication factors, we are unable to provide a more precise estimate of the magnitude of this association. Regarding verbal and non-verbal factors, the lack of factors associated with therapeutic alliance as well as the few studies focusing on these factors prevented any definitive conclusion about the strength and direction of association.

The interaction styles identified in this review are communication factors that help clinicians to engage better with patients by listening more to what they have to say, asking questions and showing sensitivity to their emotional concerns. Adopting these interaction styles may allow clinicians to involve patients more with the consultation as well as to facilitate their participation. As the current view is that clinicians can learn to adapt and improve their communication skills (Lewin et al 2009, McGilton et al 2009, Moore et al 2009), it would make sense to cover elements associated with a good therapeutic alliance in specific communication classes.

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Table 2. Summary of included studies (n = 12).

Study	Design	Patients	Clinicians	Communication factors	Coder	Coding procedure	Analysis	Therapeutic alliance	
								Constructs	Rater
Berrios-Rivera et al 2006	CS	Outpatients with SLE or rheumatoid arthritis from tertiary hospitals n = 102 Age (yr) = 49 (SD 15)	Specialist physicians (rheumatologists)	Interaction style	Patient	Questionnaire completed in the clinic (n = 87) or by telephone (n = 15)	Correlation	Trust	Patient
Carter et al 1982	CS	Patients from general practice n = 101 (98 male) Age (yr) = 60	Physician n = 13	Interaction style and verbal factors	Observer (2 trained observers)	Audiotapes (101 interactions)	Stepwise multiple regression	Agreement (proportion of doctor-recognised problems also identified by the patient)	Clinician and patient
Fiscella et al 2004	CS	Patients from general practices n = 4746 (2955 female) Age = not stated	Physician n = 100 (77 male) Age = 45 yrs	Verbal factors	Observer (2 trained observers)	Audiotapes during physicians encounter with 5 standardised patients	Linear regression analyses	Trust	Patient
Garcia-Gonzalez et al 2009	CS	Outpatients with SLE, rheumatoid arthritis or rheumatic disease from tertiary hospital n = 198 Age (yr) = 48 (SD 13)	Specialist physicians (rheumatologists)	Interaction style	Patient	Questionnaire completed in the clinic (n = 198)	Correlation	Trust	Patient
Harrigan et al 1985	CS	Patients from general practice n = not stated Age = not stated	Physicians (residents) n = 9 Age (yr) = 26 to 32	Non-verbal factors	Observer (2 psychology graduate students)	Videotapes (36 interactions)	Correlation	Rapport	Different observer (10 female psychiatric nurses)
Keating et al 2002	CS	Patients (insured by a national health insurer) from general practice n = 2052 (1416 female) Age (yr) = 46 (SD 12)	Physician n = 100 (79 male)	Interaction style	Patient	Questionnaire completed by telephone (n = 2052)	Multivariable analysis	Trust	Patient

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Table 2. Summary of included studies (n = 12) contd.

Study	Design	Patients	Clinicians	Communication factors	Coder	Coding procedure	Analysis	Therapeutic alliance	
								Constructs	Rater
Keating et al 2004	CS	Patients (who were scheduled for a new visit with a specialist) from a tertiary hospital n = 417 (316 female) Age (yr) = 50	Specialist physician (cardiologists, neurologists, nephrologists, gastroenterologists or rheumatologists) n = 92	Interaction style	Patient	Questionnaire completed by telephone (n = 417)	Multivariable analysis	Trust	Patient
Ommen et al 2008	CS from a RCT	Severely injured inpatients from tertiary hospitals n = 71 Age (yr) = 36 (SD 12)	Specialist physician	Interaction style	Patient	Questionnaire completed in the clinic (n = 71)	Correlation	Trust	Patient
Perry et al 1975	CS	Outpatients from a university hospital n = 21 (11 male) Age = not stated	Physiotherapist n = 10 (all female)	Non-verbal factors	Observer (3 physiotherapists)	Real-time observation (21 interactions)	Frequency of nonverbal behaviours charted with rapport	Rapport	Observer
Takayama & Yamazaki 2004	CS	Outpatients (with breast cancer) from a tertiary hospital n = 86 Age (yr) = 55 (SD 11)	Specialist physician (oncologist) n = 5 (all male) Age (yr) = 49 (range 42–70)	Interaction style and verbal factors	Observer (2 trained observers)	Audiotapes and questionnaires (86 interactions)	Correlation	Communicative success	Patient
Tarrant et al 2003	CS	Patients from general practices n = 1078 Age (yr) = 45 (SD 17)	Physician	Interaction style	Patient	Questionnaire completed in the clinic (n = 1078)	Correlation	Trust	Patient
Thom et al 2001	CS and L	Patients from general practice at index visit n = 414 (257 female) Age (yr) = 47	Physician n = 20 (17 male) Age (yr) = 47 (range 34–73)	Interaction style, verbal and non-verbal factors	Patient	Questionnaire completed in the clinic (n = 414)	Correlation	Trust	Patient

CS = Cross sectional study, L = Longitudinal study, RCT = randomised controlled trial, SLE = systemic lupus erythematosus.

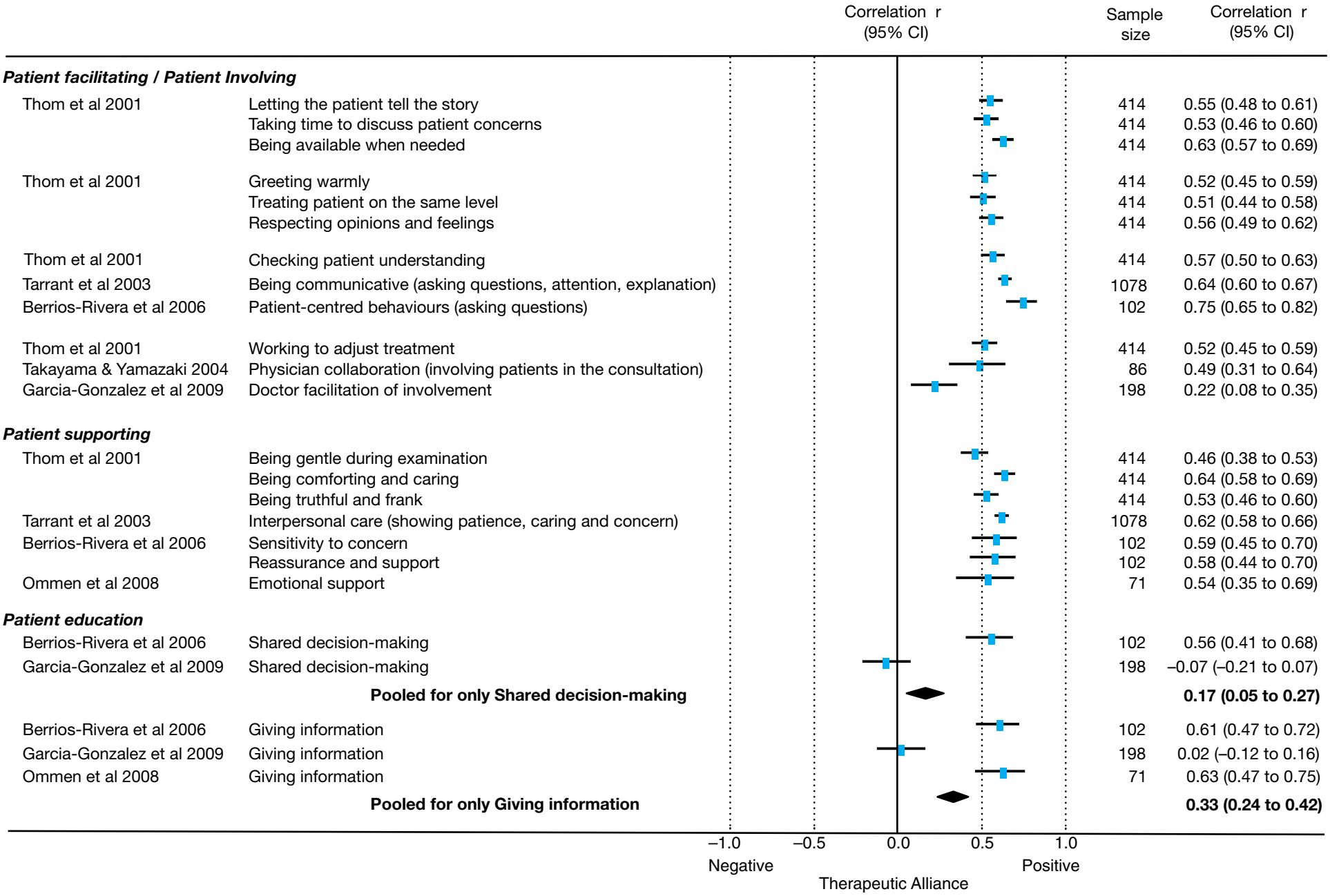

Figure 2. Correlation coefficients and 95% CI for the association between practitioners' interaction styles and therapeutic alliance.

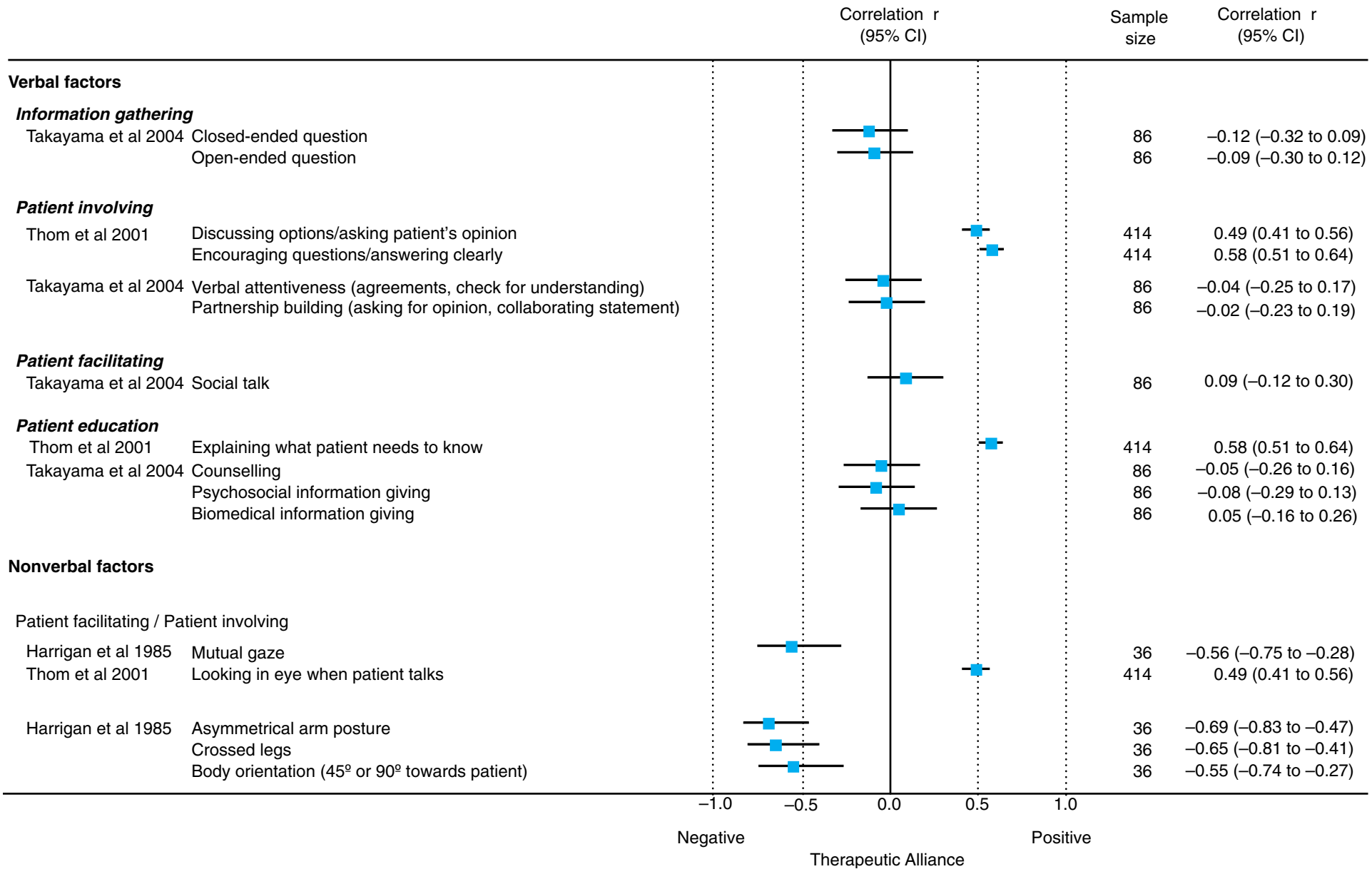

Figure 3. Correlation coefficients and 95% CI for the association between practitioners' verbal and nonverbal behaviors and therapeutic alliance.

From a theoretical perspective the communication factors found to be associated with therapeutic alliance could be considered factors that share common elements with the concept of 'patient-centred care' as well as with self-determination theory. For instance, the patient-centred care approach involves, in essence, the following dimensions: a biopsychosocial perspective understanding the individual's experience of illness, sharing power and responsibility, developing a relationship based on care, sensitivity and empathy, and self-awareness and attention to emotional cues (Mead and Bower 2000). Thus, the factors identified in this review are more related to the provision of emotional support than to the shared decision-making approach. Another perspective is self-determination theory, which posits a natural tendency toward psychological growth, physical health, and social wellness that is supported by satisfaction of the basic psychological needs for autonomy, competence, and relatedness (Ryan and Deci 2000a, Ryan and Deci 2000b). The associated communication factors have similarities with the sense of relatedness as these factors promote optimal motivation to those patients with psychological needs to feel connected with, or to experience genuine care and concern from, and trust in the clinicians. However, we found a lack of studies of communication factors that clinicians could adopt to promote the patient's sense of autonomy (ie, the perception of being in the position to make their own decisions regarding the treatment) and competence (ie, the experience of feeling able to achieve a desired outcome). Futures studies are needed to investigate whether communication factors related to autonomy and competence or shared-decision making would be useful to strengthen the therapeutic alliance between clinicians and patients.

A further finding of this review was that studies investigating the association of verbal and non-verbal factors with constructs of therapeutic alliance were relatively scarce in the literature. The limited evidence showed that verbal factors likely to build a positive therapeutic alliance are those factors categorised as *patient involving*. Regarding non-verbal factors, some of those identified in this review – specifically, those related to body postures such as asymmetrical arm posture, crossed legs, and body orientation away from the patient – should not be employed by clinicians due to their negative association with therapeutic alliance. Although intuitively eye contact seems favourable to therapeutic alliance, the available data showed contradictory results in two studies. We expect that more informative data regarding verbal and non-verbal factors would come from studies investigating both factors simultaneously, and from studies using a common protocol to collect data in different cultural and clinical settings.

The inclusion of studies from some settings was limited. For instance, only one included study investigated the interaction of patients with a physiotherapist. However, the settings investigated involved clinicians and patients from primary care and tertiary hospital facilities where patients' needs are likely to be similar to the ones seeking treatment in physiotherapy settings. Hence, we believe that the communication factors identified in this review are transferable to the field of rehabilitation and could be used, in the interim, by physiotherapists to adjust their interactions with patients.

It is clear from this review that there is a lack of consensus about how communication factors should be measured and, consequently what instrument to use. As different studies used their own questionnaires or system to collect the information and to code behaviour, grouping factors and comparisons among them is difficult to conduct. We suggest that future studies should be conducted with standardised instruments, and, if so, the Verona medical interview classification (Del Piccolo et al 2002) is a good example of an instrument able to capture the interplay of both verbal and nonverbal factors. The variety of settings and population included in this review can also be considered as a limitation of this study. The therapeutic alliance might rely on different aspects depending on patients and the settings. Other aspects such as symptom duration (chronic versus acute) and type of encounter (first versus follow-up visits) are relevant features that may need to be considered when investigating communication factors that are associated with therapeutic alliance.

In conclusion, the current evidence suggests that styles that facilitate the involvement and participation of patients in the consultation are associated with a positive therapeutic alliance. Specifically, patient-centred care strategies – such as listening to what patients have to say and asking them questions with a focus on emotional issues – might be used by clinicians to strengthen the therapeutic alliance with patients. This review also revealed a paucity of evidence related to clinicians' verbal and non-verbal factors associated with therapeutic alliance. Further investigation is needed in this area to determine if patients' communication factors can influence the therapeutic alliance. We would expect that future studies would evaluate intervention regimens which incorporate these identifiable factors and their impact on clinical outcomes. ■

eAddenda: Appendix 1, 2, 3, and 4 available at jop.physiotherapy.asn.au

Competing interests: None declared.

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