**Using the Consultation-Based Reassurance Questionnaire to assess** **reassurance skills among physiotherapy students: reliability and responsiveness**

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**Abstract**

***Background:*** There is a robust body of evidence suggesting that communication skills during consultations are associated with patient satisfaction and adherence. Training practitioners to improve communication and reassurance delivery is therefore desirable. The Consultation-Based Reassurance Questionnaire (CRQ) for people presenting with back pain has not been tested as a tool to examine the reliability and responsiveness of communication training for practitioners. ***Objective:*** To translate and examine the reliability of the CRQ and to explore its ability to detect change (responsiveness) before and after a single session of training in communication skills. ***Methods:*** Thirty-five simulated consultations were recorded. 36 second-year physiotherapy students took part, either as a simulated patient or a simulated physiotherapist. All videotape simulations were rated independently by two trained observers, using the CRQ. ***Results:*** Correlations indicate that the two raters were significantly and highly correlated (r =0.9, 95% CI 0.797 – 0.951). The responsiveness statistics were in the moderate range for the total CRQ score, with moderate responsiveness range for data-gathering and relationship-building, and acceptable responsiveness for generic and cognitive reassurance. ***Conclusion*:** The CRQ Scale shows good reliability and acceptable levels of responsiveness to detect change before and after training in communication skills in physiotherapy students. The scale requires testing in real-life settings to establish better responsiveness.

**Keywords:** Communication skills; Physiotherapists; Reassurance; Reliability; Responsiveness; Consultation-Based Reassurance Questionnaire.

**Introduction**

There is a robust body of evidence suggesting that communication skills during consultations are important, as they are associated with patient satisfaction and adherence (Lonsdale et al, 2017), and possible impact on clinical outcomes, such as pain, function, mood and health care utilization (Pincus & McCracken, 2013). Within the process of communication, providing effective reassurance to patients with problems for which organic explanations are not always clear, such as low back pain (LBP), is especially important, and difficult to do. A systematic review of such consultations in primary care found that cognitive reassurance, typified by provision of clear information about prognosis and treatment options, improved patient outcomes, while generic (a type of affective) reassurance, in which practitioners focused purely on empathic and positive messages without concrete information, (such as ‘trust me, I’ve seen this before’) at best-improved satisfaction, but was associated with reduced function, worse symptoms and higher health care utilization at follow up (Pincus & McCracken, 2013).

A questionnaire that measures patients’ perceptions of consultation-based reassurance (CRQ) for people with LBP has been developed and tested in primary care in the UK (Holt & Pincus, 2016). Items for this questionnaire were generated from qualitative interviews with patients, supplemented by published literature on physician-patient communication, and sent to patients who recently consulted their general practitioners for LBP in 43 General Practice surgeries. Rasch modeling, using two samples from the same population of recent LBP consultations, was used to develop and test the questionnaire. The first set of data was used (n = 157, follow-up n = 84) for exploratory analysis and the second (n = 162, follow-up n = 74) for confirmatory testing. Validity was examined against patient satisfaction and enablement measures, and participants completed the questionnaire again one-week later. The questionnaire consists of four subscales, each with three items: data-gathering, relationship-building, generic reassurance, and cognitive reassurance. All subscales showed good validity within the Rasch models (around 0.8), and good reliability based on person- and item-separations and test-retest reliability (see Holt & Pincus, 2016 for details). All four subscales were significantly positively correlated with satisfaction and enablement for both samples.

A prospective cohort of 142 patients with LBP consulting general practitioners found that for patients who had higher psychological risk, evidenced by endorsing items asking about depression, anxiety, catastrophizing and fear-avoidance, providing more generic reassurance was associated with worse depression three months later (Holt et al, 2018). A qualitative study in patients with chronic LBP attending a consultation with orthopedic surgeons and extended-scope physiotherapists supports the distinction into the four domains of the model presented in the questionnaire as sub-scales. It also found that reassurance was poor and that the negative impact of poor communication during consultations on the patient's mood and motivation was considerable (Braeuninger‐Weimer et al, 2019).

Training practitioners to improve communication and reassurance is therefore desirable. However, studies have faced several methodological problems: The first concerns measurement of communication skills in general and reassurance specifically. There are several tools in existence, ranging from video analysis (Fukkink et al, 2011; Roter et al, 2004) to surveys of patients post-consultation (Ha & Longnecker, 2010; Traeger et al, 2015). However, few are based on theoretically-driven models, some require considerable time for reliable coding, and many show ceiling effects (Lonsdale et al, 2017). The CRQ has not been tested as a tool to examine the utility of training. Reliability in this context and sensitivity to change are not known. The objectives of this study were to translate and examine the reliability of the CRQ, and to explore the CRQs ability to detect change (responsiveness) before and after a single session training in communication skills. We include a test of responsiveness because it informs on the suitability of the CRQ use as an outcome both in trials and in training audits (Pengel et al, 2004; Wright & Young, 1997).

***Objectives:***

1. To translate the Consultation-based Reassurance Questionnaire (CRQ) by investigating its psychometric properties among Hebrew-speaking Israelis.
2. To examine the reliability of the CRQ in reference to two independent observer scores.
3. To explore the CRQs ability to detect change (responsiveness) before and after a single session training in communication skills in physiotherapy students.

**Methods**

***Study* *design***

This was an evaluation of measurement properties, with a before-after design, of simulated consultations. Between measures, participants (physiotherapy students) received a training session of 90 minutes. In the simulations, physiotherapy students were asked to either simulate a patient, with a short description of the case; or simulate practitioners. We examined simulated consultations twice with each participant, pre- and post-training. Pre-observation by the two independents observers, the questions were completed by two people (simulated patient and simulated practitioner), each providing two scores (before and after training). The two students completed the questionnaire immediately post-session, based on their impressions of the simulated consultation they had just taken part in. This was done both to allow them to reflect on the communication that took place, and also, for the project to establish that there was some perceived change pre-post training- which was needed for us to assess the responsiveness of the questionnaire.

In addition, the video recording of each simulation was also scored by two independent observers. The independent observers scored all before and after training simulations.

The two independent observers were final year physiotherapy students. This project consisted of their final project on communication skills and the CRQ. They were couched by the author (NBA) who in turn was couched by the developer of the CRQ (TP). Inductive coaching consisted of first independently using the questionnaires with ten videotaped simulations, and then discussing these with the trainer. The CRQ scores were completed independently and then tested for reliability. A sample of scores from each observer (n=3) was then reviewed by the CRQ developer to examine inconsistencies. In recognition of the absence of a gold standard to score communication skills, we (as researchers before us) rely on consensus against expert opinion in this project.

The independent observers also analyzed the 18 pre-training simulations after two months again, to allow test-retest analysis. We selected two months to ensure that recall was minimized. The study stages are presented in Figure 1.

**Figure 1**: Flow chart of study stages

90-minute training session

17 physiotherapy students simulating physiotherapists

18 videotape of simulated consultations were recorded before training

(Used for Test re-test within independent observers after a 2-month period)

17 videotape of simulated consultations were recorded after training

Sum of 35 videotape of simulated consultations

(35 recording videotape of simulated consultations used for the reliability of the CRQ by two independent observers)

17 physiotherapy students simulating patients

18 physiotherapy students simulating physiotherapists

18 physiotherapy students simulating patients

36 second-year physiotherapy students

physiotherapy students

***Participants***

Thirty-six, year two, physiotherapy students took part in the study as part of a course ‘The principles of physical training and health promotion’. The specific training received by these students was a 90-minute training in communication skills, with an emphasis on reflective listening, open questioning, and summation, based around the principles of motivational interviewing (O’Halloran et al, 2014), and including information on providing cognitive reassurance (Pincus et al, 2013). The training was in the form of a didactic lecture.

The simulated consultations were recorded in a dedicated room with mounted cameras and microphones. Each student took part as a simulated patient or simulated physiotherapist and was given a script (as patients) to follow (Appendix 1). The Scripts used in the simulation was a patient with low back pain, who did not regularly engage with any physical activity. The consultation aimed to try and change the behavior of the patient by changing lifestyle.

***Measures***

The CRQ consists of 12 items, which divide into four sub-scales (3 items in each). The sub-scales are entitled: Data gathering (eliciting concerns and information from patients), relationship building (listening skills and building rapport), generic reassurance (providing explicit statements that are positive, but without provision of information, such as ‘trust me, I have seen it before’ or ‘you don’t need to worry’) and cognitive reassurance (concrete information about likely etiology, prognosis, and management). The CRQ has a 7-point Likert scale response mode, and it has been tested and validated in consultations for LBP with general practitioners (Holt et al, 2018; Holt & Pincus, 2016).

***Research procedure***

*Translation procedure*

The translation was done in collaboration with the developer of the CRQ. The CRQ was forward and backward translated, between English and Hebrew by two independent people for each translation, following the recommendations for best practice in translation of questionnaires (Beaton et al, 2000; *WHO | Process of translation and adaptation of instruments*, n.d.). All four translators were fluent in English and Hebrew. The original translators (English to Hebrew) spoke English fluently and had Hebrew as their mother tongue. Only one of them was aware of the concepts behind the questionnaire. Discrepancies were resolved through mutual discussion. The second stage translators (Hebrew to English), had English as their mother tongue, were fluent in Hebrew and were unaware of the concepts behind the questionnaire. The expert committee consisted of one physiotherapist specializing in musculoskeletal treatment, another physiotherapist specializing in research on back pain and communication skills and one psychologist specializing in research in psychological aspects and communication skills in pain populations, with extensive experience of questionnaire development, testing, and translation. After comparing the content of the original and backward translated version, the observed differences were discussed, and a pre-final Hebrew language version was developed. The final product was then discussed with ten people with chronic low back pain, who commented on the burden, ease of understanding, comprehensiveness, readability of the translated version and validity in representing consultations. No difficulties in comprehension were noted at this stage and a final version was produced.

Ethical approval was given by Ariel University (number AU-NBA-20180411). Each participant received an information sheet, was given time to ask questions, and signed a consent form prior to taking part in the study.

***Data analysis***Data analysis was performed using SPSS V.25 software.  Intraclass correlation coefficient (ICC) analyses with 95% confidence intervals (CI) were performed, to assess the inter-rater and intra-rater reliability of the total scale and each sub-scale of the CRQ. First, an inter-rater ICC was computed between two independent observers, for the total score and each subscale, on 35 recorded simulations. A two-way random effect, absolute agreement model, was used for this analysis (Koo & Li, 2016). The results are presented in Table 1. For intra-rater reliability, after two months, we also used ICC analysis with 95% CI, on the total score and each sub-scale of the CRQ between times 1 and 2, on 18 recorded simulations (Table 2). A two-way mixed effect test-retest absolute agreement ICC was used (Koo & Li, 2016).  ICC values interpreted as follows: poor < 0.40, fair 0.40-0.59, good 0.60-0.74, and excellent 0.75-1.00 (Cicchetti, 1994).

To demonstrate consensus that a significant change occurred before and after the training session, we used a t-test on the mean of the total questionnaire, both for observers and for physiotherapy students simulating patients and practitioners (Table 3). Responsiveness was then tested, using total score and each subscale’s responsiveness statistic and effect size (Wright & Young, 1997). These results are presented in Table 4.

**Results**

Thirty-six, second-year physiotherapy students took part in the trial, both as a simulated patient and as a simulated physiotherapist, mean age 25.9±3.4 and 20 (55%) were females.

***Reliability testing***

35 recordings of simulated consultations were used for reliability testing of the CRQ by two independent observers. The reliability was good, with a co-efficient above 0.825 for all sub-scales of the questionnaire (see Table 1). In addition, the reliability within observers rating the same recorded simulations after two months (n=18 videotape) was also all above 0.79. (see Table 2).

**Table 1:** ICC analysis with 95 % confidence intervals (CI) for the reliability of the Consultation Reassurance Questionnaire by two independent observers, on 35 recorded simulations

|  |  |  |
| --- | --- | --- |
| CRQ scores |  | Two independent observers  N = 35 recorded simulations |
| Total score |  | 0.902 (0.797 – 0.951) |
| Sub-scale |  |  |
| 1. Data gathering |  | 0.928 (0.857-0.964) |
| 1. Relationship building |  | 0.867 (0.734-0.933) |
| 1. Generic reassurance |  | 0.985 (0.971-0.993) |
| 1. Cognitive reassurance |  | 0.825 (0.653-0.912) |

**Table 2:** Test re-test within observers after a 2-month period using ICC and 95% CI, on 18 recorded simulations

|  |  |  |
| --- | --- | --- |
| CRQ scores | Observer 1  N = 18 simulations | Observer 2  N = 18 simulations |
| Total score | 0.985 (0.961 – 0.994) | 0.928 (0.805 – 0.973) |
| Sub-scale |  |  |
| 1. Data gathering | 0.979 (0.943-0.992) | 0.967 (0.913-0.988) |
| 1. Relationship building | 0.986 (0.963-0.995) | 0.967 (0.912-0.988) |
| 1. Generic reassurance | 0.984 (0.957-0.994) | 0.994 (0.984-0.998) |
| 1. Cognitive reassurance | 0.905 (0.747-0.965) | 0.790 (0.439-0.922) |

***Responsiveness***

We tested the overall perception of consultation-based reassurance before and after the training intervention for the physiotherapy students, the simulated patients, and each of the independent observers. The tests indicated a small, but significant increase in reassurance behaviors observed by each of these (see Table 3).

**Table 3**: Observed change in total Reassurance before and after training

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| N = 17 |  | Mean  score | Mean Difference | 95% CI | P |
| \*Simulated patients | Before | 54.7±9.4 | 5.00 | 1.1 – 8.8 | 0.015 |
| After | 59.7±7.2 |
| Physiotherapy  students | Before | 49.0±11.2 | 5.05 | 2.2 – 7.8 | 0.001 |
| After | 54.1±8.9 |
| Observer 1 | Before | 40.6±7.7 | 6.94 | 2.7 – 11.1 | 0.003 |
| After | 47.5±5.5 |
| Observer 2 | Before | 42.8±5.2 | 5.47 | 1.7 – 9.09 | 0.006 |
| After | 48.2±5.6 |

\*Simulated patients were also Physiotherapy students who simulated low back pain patients

Responsiveness was then tested, using total score and each subscale’s responsiveness statistic and effect size (Wright & Young, 1997). These results are presented in Table 4. We found that although the independent observers and the physiotherapists simulating patients and practitioners perceived a significant change after treatment, the responsiveness statistics were in the moderate range for the total CRQ score. Responsiveness statistics for each subscale indicated a moderate range for data-gathering and relationship-building and acceptable for generic and cognitive reassurance.

**Table 4:** The responsiveness of the total and each subscale’s score of the Consultation Reassurance Questionnaire; responsiveness statistic and effect size

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CRQ scores | | Responsiveness statistic  mean change | | Effect size  Change  SDPre | |
| Total score | | 0.464 | | 0.92 | |
| Sub-scale | |  | |  | |
| 1. Data gathering | | 0.427 | | 0.85 | |
| 2. Relationship building | | 0.524 | | 0.62 | |
| 3. Generic reassurance | | 0.246 | | 0.56 | |
| 4. Cognitive reassurance | | 0.171 | | 0.25 | |

**Discussion**

The results from this study demonstrate that the CRQ can be reliably translated into Hebrew, and it performs well in test-retest and inter assessor consistency. Responsiveness to change showed acceptable levels for the total score of the CRQ. In the two sub-categories of the questionnaire (Data gathering and relationship building) the responsiveness was moderate, but only acceptable responsiveness to detect a change in Generic and Cognitive Reassurance.

Though the aim of the study was not to demonstrate the effectiveness of training, it required that we demonstrate a change in order to test responsiveness. This was demonstrated, in that reassurance behaviors increased overall, and this increase was observed by the physiotherapist students simulating patients and practitioners, and by the independent observers. That the increase was small is not surprising, as a single short (90 minutes) training session was not expected to produce large changes in behaviors. In addition, we note that training in this study was in part a didactic lecture, and there is evidence to suggest that communication skills are better learned through experiential learning (Nojima et al, 2017; Skinner et al, 2016), although we note that students also carried out simulated consultations. Of importance, this small change may simply be the result of a learning (practice) effect, rather than the result of the communication skills training session. Of note, the significant change before/after testing should not be considered an indication of effectiveness in the absence of a full randomized controlled design.

While the study provides promising evidence for the use of the CRQ in Hebrew, it includes several limitations: The CRQ was designed to assess patient, but not practitioners’ perceptions of consultations. While it would be useful to compare the perceptions of practitioners and patients in real settings using the same domains and items, there is no theoretical or empirical evidence to suggest that the questionnaire would be valid, comprehensive or reliable in practitioner populations, as it was developed and tested in patients. However, the findings from the current study provide promising evidence that it might be useful in practitioner populations too.

We used a simulated environment. While using simulated patients for training is common, and considered useful, there is insufficient evidence to support the practice (Kaplonyi et al, 2017). A systematic review of 60 studies that utilized simulated patients for training in communication skills concluded that there is limited evidence for translation to patient outcomes and no indication of economic benefit for this type of training over other methods (Kaplonyi et al, 2017). While most studies reported statistically significant third-party ratings of improved communication skills post-training, only two inconclusive studies followed up with measures of patient outcomes. It is possible that responsiveness would perform better in real settings, especially if the training was more substantial and produced a stronger change in behavior. Related to this point, this research needs to be replicated outside of teaching environments and using experienced practitioners if the questionnaire is to be tested for utility as an outcome measure in trials.

Finally, the CRQ is a promising new tool, but the evidence for its use remains scarce at this time, and there is currently insufficient published data to explore psychometric properties between different samples. Of importance, future research should use timelines that allow the capture of patient outcomes.

**Conclusions**

The Consultation-Based Reassurance Questionnaire shows good reliability when used to assess physiotherapy students’ simulated consultations. The ability of the questionnaire to detect change before and after a short training session in communication skills was only adequate for the total score and two of the four sub-scales. This may be the result of the context (student simulating consultations) or the training modality (time limitations and didactic learning) and the questionnaire should be assessed in larger, real-life settings.

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**References**

Beaton DE, Bombardier C, Guillemin F, & Ferraz MB. 2000 Guidelines for the process of cross-cultural adaptation of self-report measures. Spine 25: 3186–3191.

Braeuninger‐Weimer K, Anjarwalla N, & Pincus T. (n.d.). 2019 Discharged and dismissed: A qualitative study with back pain patients discharged without treatment from orthopaedic consultations. European Journal of Pain 23: 1464-1474.

Cicchetti DV. 1994 Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psychological Assessment, *6*: 284–290.

Fukkink, RG, Trienekens N, & Kramer LJC. 2011 Video Feedback in Education and Training: Putting Learning in the Picture. Educational Psychology Review 23: 45–63.

Ha JF, & Longnecker N. 2010 Doctor-Patient Communication: A Review. The Ochsner Journal 10: 38–43.

Holt N, Mansell G, Hill JC, & Pincus T. 2018 Testing a Model of Consultation-based Reassurance and Back Pain Outcomes With Psychological Risk as Moderator: A Prospective Cohort Study. The Clinical Journal of Pain 34: 339–348.

Holt N, & Pincus T. 2016 Developing and testing a measure of consultation-based reassurance for people with low back pain in primary care: A cross-sectional study. BMC Musculoskeletal Disorders, 17: 277.

Kaplonyi J, Bowles KA, Nestel D, Kiegaldie D, Maloney S, Haines T, & Williams C. 2017 Understanding the impact of simulated patients on health care learners’ communication skills: A systematic review. Medical Education 51: 1209–1219.

Koo TK, & Li MY. 2016 A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. Journal of Chiropractic Medicine 15: 155–163.

Lonsdale C, Hall AM, Murray A, Williams GC, McDonough SM, Ntoumanis N, Owen K, Schwarzer R, Parker P, Kolt GS, & Hurley DA. 2017 Communication Skills Training for Practitioners to Increase Patient Adherence to Home-Based Rehabilitation for Chronic Low Back Pain: Results of a Cluster Randomized Controlled Trial. Archives of Physical Medicine and Rehabilitation 98: 1732-1743.e7.

Mastellos N, Gunn LH, Felix LM, Car J, & Majeed A. 2014 Transtheoretical model stages of change for dietary and physical exercise modification in weight loss management for overweight and obese adults. The Cochrane Database of Systematic Reviews 2: CD008066.

Nojima A, Ravia J, & Hongu N. 2017 Communication Skills Development through Experiential Learning in Nutritional Sciences. The FASEB Journal, 31(1\_supplement): 975.6.

O’Halloran PD, Blackstock F, Shields N, Holland A, Iles R, Kingsley M, Bernhardt J, Lannin N, Morris ME, & Taylor NF. 2014 Motivational interviewing to increase physical activity in people with chronic health conditions: A systematic review and meta-analysis. Clinical Rehabilitation 28: 1159–1171.

Pengel LHM, Refshauge KM, & Maher CG. 2004 Responsiveness of pain, disability, and physical impairment outcomes in patients with low back pain. Spine 29: 879–883.

Pincus T, Holt N, Vogel S, Underwood M, Savage R, Walsh DA, & Taylor SJC. 2013 Cognitive and affective reassurance and patient outcomes in primary care: A systematic review. Pain 154: 2407–2416.

Pincus T, & McCracken LM. 2013 Psychological factors and treatment opportunities in low back pain. Best Practice & Research. Clinical Rheumatology 27: 625–635.

Roter DL, Larson S, Shinitzky H, Chernoff R, Serwint JR, Adamo G, & Wissow L. 2004 Use of an innovative video feedback technique to enhance communication skills training. Medical Education 38: 145–157.

Skinner KL, Hyde SJ, McPherson KBA, & Simpson MD. 2016 Improving Students’ Interpersonal Skills through Experiential Small Group Learning. Journal of Learning Design 9: 21–36.

Traeger AC, Hübscher M, Henschke N, Moseley GL, Lee H, & McAuley JH. 2015 Effect of Primary Care-Based Education on Reassurance in Patients With Acute Low Back Pain: Systematic Review and Meta-analysis. JAMA Internal Medicine 175: 733–743.

*WHO | Process of translation and adaptation of instruments*. (n.d.). WHO. Retrieved 2019.

Wright JG, & Young NL. 1997 A comparison of different indices of responsiveness. Journal of Clinical Epidemiology 50: 239–246.