

# Properties of the Picker Patient Experience questionnaire in a randomized controlled trial of long versus short form survey instruments

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## Abstract

**Background** The purpose of this study was to compare the performance of the 15-item Picker Patient Experience questionnaire (PPE-15) when embedded in a short form instrument as compared with a longer form measure.

**Methods** A postal questionnaire survey of patients recently discharged from two hospital trusts was carried out. Patients were randomized to receive the PPE-15 in either a four-page or a 12-page survey instrument.

**Results** A total of 1445 questionnaires were mailed to patients in either four- or 12-page formats. A total of 949 (65.67 per cent) forms were returned. No difference in response rate was found between the two versions of the questionnaire. Item completion and psychometric properties of the PPE-15 were not found to differ significantly between the two arms of the trial.

**Conclusion** In this survey the length of questionnaire in which the PPE-15 was embedded had no impact in terms of response rate or data quality. Consequently, the results suggest that length of questionnaire, up to the 108 items included in the 12-page survey, is unlikely to adversely affect results on the PPE-15.

**Keywords:** patient experience, Picker Patient Experience questionnaire, PPE-15, questionnaire length

## Introduction

Patient reports are central to the evaluation of medical care, both in terms of outcomes of treatment and also in terms of experiences of the quality of care. Traditionally there was a substantial imbalance of control between those who provided care and those who received it, with those at the receiving end largely unable to comment upon the services they experienced. However, respect for the needs and concerns of patients is a central feature of a high-quality and humane health care system,<sup>1</sup> and there is increasing interest in eliciting feedback from patients to highlight aspects of care that need improvement and to monitor performance and quality of care. Indeed, governments and regulatory authorities in some countries now require hospitals to undertake surveys of patients' views of services.

In England the Department of Health has launched a pro-

gramme of national surveys in which every NHS Trust is required to partake; patients are contacted once a year and asked about their experiences of aspects of the treatment they received.<sup>2</sup> Indicators of patients' experience are included in a set of national performance indicators, results of patient surveys must be reported in an annual Patients' Prospectus, and Trusts are expected to show that they have absorbed and acted on the results.

Manifestly, a crucial aspect in the reporting of patient experiences is the quality of the questionnaires used to elicit this information, and patient satisfaction measures have not always had a good reputation within health services research.<sup>3–7</sup> In large part they have been criticized for lacking a conceptual basis,<sup>8</sup> and for nearly always gaining the same results – namely, that patients appear satisfied with the care they receive.<sup>9</sup> Consequently, an alternative approach has grown up in which survey instruments have been developed that attempt to elicit patients' *experiences* of discrete aspects of health care, and that have been found to provide a more comprehensive and meaningful account than measures of satisfaction.<sup>10</sup> This type of questionnaire can provide results that can be easily interpreted and acted upon. Building on extensive qualitative research to determine which aspects of care are important to patients, the Picker Institute developed standardized instruments to measure the quality of care and has developed a core set of 15 questions, known collectively as the Picker Patient Experience questionnaire (PPE-15), which are used in all surveys of in-patients. This paper reports on the psychometric properties of the PPE-15.

As noted above, all Trusts in England must undertake surveys

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of their in-patients, and to this end the Picker survey instruments have been chosen for use in these surveys. Although Trusts must undertake a survey of patient experiences they can select from a number of options as to which questionnaire they use: although some are more comprehensive than others, all include the PPE-15. Staff members of trusts, such as managers and clinicians, sometimes express concerns that longer instruments will produce either fewer responses or data of inferior quality. Indeed, a recent systematic review seemed to support such a view, indicating that shorter questionnaires gain substantially higher response rates than longer instruments. However, the review was not restricted to patient surveys, with two-fifths of the surveys included being undertaken for marketing or business purposes.<sup>11</sup> Within the United Kingdom, Picker Institute surveys of patient experiences have generally gained similar response rates, irrespective of the patient group and length of questionnaire. The trial reported here rigorously tests this claim: the purpose of the study was to compare responses on the PPE-15 in a 12-page questionnaire with that gained from a four-page version. The data come from a randomized controlled trial of four-page versus 12-page versions of the patient questionnaires.

## Methods and materials

The PPE-15 is a 15-item measure that was developed on the basis of large-scale surveys in five countries (the United Kingdom, Germany, Sweden, Switzerland and the USA).<sup>12</sup> Data from the instrument can be presented as separate scores although the primary purpose was to sum the data to provide an overall index. Each item is coded up for statistical analysis as a dichotomous 'problem score', indicating the presence or absence of a problem. A problem is defined as an aspect of health care that could, in the eyes of the patient, be improved upon. An example of questions in the instrument, and how they are coded as problem scores, appears in the Figure. The items are then summed and the total scored on the metric of zero (no problems) to 100 (most problems, as measured on the instrument). The procedure for scoring the PPE-15 has been explained in full elsewhere.<sup>12</sup>

The PPE-15 was mailed out in four- and 12-page versions of the in-patient survey questionnaires. The four-page questionnaire contained the PPE-15 nested within 31 questions covering demographics, health status and other aspects of patient experience. The 12-page questionnaire contained the PPE-15 nested within 108 questions; i.e. almost three and a half times as many items as appear on the four-page version. The four- and 12-page questionnaires were randomly allocated in a patient group, aged 16 and above, composed of recently discharged patients from two English inner city NHS Trusts. Reminders were sent out after 2 weeks if no reply had been received; a second questionnaire was sent after a further 2 weeks if questionnaires remained unreturned.

## Sample size

The sample size required to detect a difference of 10 per cent in response rate (60–70 per cent) at 85 per cent power (one-sided comparison,  $p < 0.05$ ) between the two arms of the trial is approximately 330 people per group.<sup>13</sup>

When you had important questions to ask a doctor, did you get answers you could understand?

- 1  Yes, always  
 2  Yes, sometimes  
 3  No  
 4  I had no need to ask

Sometimes in hospital one doctor or nurse will say one thing and another will say something quite different. Did this happen to you?

- 1  Yes, often  
 2  Yes, sometimes  
 3  No

Did doctors talk in front of you as if you weren't there?

- 1  Yes, often  
 2  Yes, sometimes  
 3  No

Did you want to be more involved in decisions made about your care and treatment?

- 1  Yes, often  
 2  Yes, sometimes  
 3  No

**Figure** Examples of questions from Picker PPE-15 survey showing derivation of problem scores. Black boxes indicate responses coded as a 'problem'.

## Analyses

Response rates for the two questionnaires were compared. Completeness of PPE-15 data for the two versions of the questionnaire was assessed. Chi-squared tests were undertaken to determine if differences between the two arms are significant: significance was achieved if  $p < 0.05$ . Comparison of PPE-15 data was assessed for both arms of the trial in terms of descriptive statistics, and 95 per cent confidence intervals.

Internal reliability of the PPE-15 was assessed: high levels of internal reliability provide greater confidence that a scale is both measuring a meaningful underlying unitary concept and is doing so accurately, thereby permitting comparison between treatment groups. This is an essential test for a measure to pass. It was assessed here by the alpha statistic<sup>14</sup> with a score of 0.7 or higher being regarded as good.<sup>15</sup> Similarly, it has been argued that items should correlate with the total index score at approximately 0.4 or above,<sup>16</sup> and consequently item–total correlations, corrected for overlap, are also presented.

## Results

Questionnaires were mailed to 1445 patients in either four- or 12-page format. A total of 949 (65.7 per cent) forms were returned. The mean age of respondents was 59.26 years (SD 19.1,

$n = 935$ ); 14 (1.5 per cent) patients did not answer the question requesting their date of birth. Four hundred and fifty-two (47.3 per cent) of the respondents were male and 474 (49.6 per cent) female; 29 (3.0 per cent) did not answer the question relating to their sex.

### Completeness of data

Table 1 reports the response rates for the two lengths of questionnaire. No statistically significant difference in response rates was found between the two arms of the trial ( $\chi^2 = 2.58$ ,  $df = 1$ ). Table 1 also reports completion rates of the PPE-15 by questionnaire length. PPE-15 scores could be calculated for 81.2 per cent and 78.5 per cent of patients who responded to the four- and 12-page questionnaires respectively. This is in keeping with previously published data. Once again, no statistically significant difference in completion rates was found between the four- and 12-page versions ( $\chi^2 = 1.01$ ,  $df = 1$ ).

### Comparison of scores on the PPE-15 by number of pages in the questionnaire

Descriptive statistics for the PPE-15 are reported in Table 2. There were no statistically significant differences on the PPE-15 Index score between the four- and 12-page questionnaires. The 95 per cent confidence intervals on the PPE-15 between the four- and 12-page questionnaires overlapped.

### Internal reliability and item-total correlation

High levels of internal reliability provide greater confidence that a scale is both measuring a meaningful underlying unitary concept and doing so accurately, thereby permitting comparison between treatment groups. The PPE-15 gained alpha values of 0.89 and 0.87 for the four- and 12-page questionnaires respectively. The values are substantially above those recommended as acceptable.<sup>14</sup> Item-total correlations were above the recommended level for all items in the PPE-15 in both survey instruments (see Table 3).

### Conclusions

It is essential to monitor patient experiences of their hospital care.<sup>17</sup> The PPE-15 represents a core set of issues that can form the basis of such evaluation. It must be stressed that the PPE-15 measures only aspects of the delivery of medical and health care; issues such as food, cleanliness, parking and access to care may be used to supplement this instrument.

Previous research on the impact of length of questionnaire in health surveys has been inconclusive. A review of patient satisfaction surveys found that response rates were unaffected by questionnaire length.<sup>18</sup> However, a study of health status in a mailed survey of general practice patients showed considerable differences in response rates between groups completing longer and shorter questionnaires.<sup>19</sup> In the latter instance, however, the extra questions in the longer measures were similar to other questions in the survey and instrument, and the possibility cannot be

**Table 1** Response rates for the two version of the questionnaire used in the survey, and per cent completing all items on the PPE-15

	4 page	12 page
Total eligible	721	724
Total returned	488	461
% of total eligible	67.7	63.7
Number completing PPE-15	396	362
% of total returned	81.2	78.5

**Table 2** Descriptive statistics for the PPE-15, by length of questionnaire in which it was embedded

	4 page	12 page
PPE-15	$n = 397$	$n = 362$
Mean	42.41	40.57
SD	(29.93)	(28.23)
95% CI	39.5–45.4	37.7–43.5

CI, confidence interval.

**Table 3** Corrected item-total correlations for the PPE-15

Item content	4-page	12-page
1. Did doctors answer questions?	0.61	0.56
2. Did nurses answer questions?	0.59	0.52
3. Did staff say different things?	0.53	0.50
4. Did doctors discuss fears?	0.63	0.60
5. Did doctors talk as if you weren't there?	0.43	0.42
6. Did you want to be more involved?	0.47	0.52
7. Were you treated with respect and dignity?	0.57	0.59
8. Did nurses discuss fears?	0.57	0.57
9. Did you find someone to talk to about concerns?	0.62	0.57
10. Did staff do enough to control pain?	0.53	0.50
11. Did your family have opportunity to talk to doctor?	0.54	0.46
12. Were your family given information to help you recover?	0.59	0.49
13. Were medicines explained?	0.54	0.47
14. Were you told about side effects of medicines?	0.50	0.54
15. Were you told about danger signals?	0.48	0.37

ruled out that patients simply gave up completing the instrument because of repetition. This hypothesis may be borne out by the fact that there was no difference between long and short questionnaires sent to patients with motor neurone disease, in which the questions added to the shorter form were quite distinct.<sup>20</sup> Indeed, although there is a common assumption that longer ques-

tionnaires will lead to both poorer quality data (in terms of number of questionnaires returned) and, within those returned, more missing data, this has rarely been borne out in empirical investigations.<sup>21</sup> The evidence presented here suggests that length of questionnaire does not appear to lead to a reduction in response rate, nor does it have an effect on the quality of the data gained in terms of percentage of items completed in an instrument, internal consistency and item-total correlations for the PPE-15. Of course, it is not possible to extrapolate these findings to questionnaires longer than the 12 page measure, nor are they necessarily appropriate to other instruments or populations.

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## Appendix: PPE-15 questions and response categories

### The PPE-15

1. When you had important questions to ask a doctor, did you get answers that you could understand?  
*Yes, always/Yes, sometimes/No/I had no need to ask*
2. When you had important questions to ask a nurse, did you get answers that you could understand?  
*Yes, always/Yes, sometimes/No/I had no need to ask*
3. Sometimes in a hospital, one doctor or nurse will say one thing and another will say something quite different. Did this happen to you?  
*Yes, often/Yes, sometimes/No*
4. If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?  
*Yes, completely/Yes, to some extent/No/I didn't have any anxieties or fears*
5. Did doctors talk in front of you as if you weren't there?  
*Yes, often/Yes, sometimes/No*
6. Did you want to be more involved in decisions made about your care and treatment?  
*Yes, definitely/Yes, to some extent/No*
7. Overall, did you feel you were treated with respect and dignity while you were in hospital?  
*Yes, always/Yes, sometimes/No*
8. If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?  
*Yes, completely/Yes, to some extent/No/I didn't have any anxieties or fears*
9. Did you find someone on the hospital staff to talk to about your concerns?  
*Yes, definitely/Yes, to some extent/No/I had no concerns*

10. Were you ever in pain?

*Yes/No*

If yes ...

Do you think the hospital staff did everything they could to help control your pain?

*Yes, definitely/Yes, to some extent/No*

11. If your family or someone else close to you wanted to talk to a doctor, did they have enough opportunity to do so?

*Yes, definitely/Yes, to some extent/No/No family or friends were involved/My family didn't want or need information/I didn't want my family or friends to talk to a doctor*

12. Did the doctors or nurses give your family or someone close to you all the information they needed to help you recover?

*Yes, definitely/Yes, to some extent/No/No family or friends were involved/My family or friends didn't want or need information*

13. Did a member of staff explain the purpose of the medicines you were to take at home in a way you could understand?

*Yes, completely/Yes, to some extent/No/I didn't need an explanation/I had no medicines – go to question 15*

14. Did a member of staff tell you about medication side effects to watch for when you went home?

*Yes, completely/Yes, to some extent/No/I didn't need an explanation*

15. Did someone tell you about danger signals regarding your illness or treatment to watch for after you went home?

*Yes, completely/Yes, to some extent/No*