
Francesc Medina-Mirapeix PT PhD¹, María Elena del Baño Aledo PT PhD², Jacinto Javier Martínez Payá PT PhD², María Carmen Lillo Tomás PT PhD³, Pilar Escolar Reina PT PhD⁴.

¹ Chairperson & Professor, Department of Physical therapy, University of Murcia, Spain

² Professor, Central Unit of Anatomy, Catholic University San Antonio, Spain

³ Professor, Department of Physical therapy, Miguel Hernandez University of Elche, Spain

⁴ Professor, Department of Physical therapy, University of Murcia, Spain

Correspondence:
María Elena del Baño Aledo. Central Unit of Anatomy, Catholic University San Antonio. Campus de Los Jerónimos s/n. Guadalupe, 30107 (Murcia) Spain. E-mail: mbano@pdi.ucam.edu Telephone: (+34) 968 27 88 00
ABSTRACT

Background: Patient feedback surveys are increasingly seen as a key component of healthcare quality monitoring and improvement. **Objective:** To describe the development and initial psychometric evaluation of a fixed-length questionnaire of Patients’ Experiences undergoing physical therapy treatment in a Post-Acute Outpatients settings (PEPAP-Q). **Design:** An instrument development study with validity and reliability testing. **Methods:** A total of 465 patients from three rehabilitation centres for musculoskeletal conditions completed the questionnaire. A cognitive pretest was applied to the draft version (n=94), and a revised version was tested for test-retest reliability (n=90). Analyses to evaluate variance and non-response rates to items, the factor structure of the questionnaire and the metric properties of multi-item scales were conducted. **Results:** Exploratory factor analyses yielded evidence for a seven-factor structure to the PEPAP-Q, with three factors that may be conceptually viewed as professionals’ attitudes and behaviour (providing information and education, sensitive manners to patients’ changes and emotional support) and four factors conceptually reflecting organizational environment (attendance duration, interruptions during care delivery, waiting times and patient safety). Item scale correlations ranged from 0.70 to 0.93. The percentage of scaling success was 100% for all the scales. Cronbach’s alpha coefficient ranged from 0.70 to 0.87. Intraclass correlation coefficients ranged from 0.57 to 0.80 (median=0.68). **Limitations:** Generalization to other patients is not known. **Conclusion:** The PEPAP-Q is a reliable test-retest and the scales have internal consistency and convergent and discriminant validity. All the scales are distinct and unidimensional.

**Key words:** Quality of Health Care, Physical Therapy Department, Outpatients.
Word Count: 238 (Abstract) and 3874 (Introduction, Methods, Results, Discussion)
INTRODUCTION

Many clinical settings with physical therapy services routinely ask people for feedback about the care that they have received.\textsuperscript{1-3} Such questions have primarily elicited information on satisfaction with services.\textsuperscript{4-7} However, health service research has recently criticized the concept of patient satisfaction because of its inherent sources of bias.\textsuperscript{8,9} It is widely recognised, for example, that patients remain reluctant to express low satisfaction about their care and, as a consequence, patient satisfaction questionnaires provide an optimistic picture of performance.\textsuperscript{10} Patients can even describe high levels of satisfaction at the same time as describing experiences that are suboptimal.\textsuperscript{9}

Concern about the problems with patient satisfaction surveys has led to an emphasis on measuring patients’ experiences rather than satisfaction.\textsuperscript{11} Patient satisfaction and experience are closely linked, but have distinct meanings and ways to be measured. ‘Experience’ is related to things that happened during care and the extent to which people’s needs were met, whereas ‘satisfaction’ is related more to how people feel about those things.\textsuperscript{12} While patient satisfaction questionnaires ask respondents to rate their care using general evaluation categories (e.g., excellent), patient experience questionnaires ask respondents to say whether or not certain processes or events occurred during a particular visit or a care episode.\textsuperscript{13}

A recent review illustrated that a significant number of generic tools have been developed to assess patients’ experiences in primary care and hospital settings.\textsuperscript{12} Some examples are the Picker Patient experience Questionnaire (PPE),\textsuperscript{8} the NHS National Adult Inpatient Survey\textsuperscript{14}, the Patient Experience Questionnaire (PEQ) in primary health care\textsuperscript{15} and the Generic Short Patient Experiences Questionnaire (GS-}
Two of these generic tools have been used to capture the experiences of outpatient attending physical therapy services (GS-PEQ\textsuperscript{16} and PPE\textsuperscript{8}). The GS-PEQ, created by Sjetne et al in 2011,\textsuperscript{16} includes 10 items asking about outcome, clinician services, user involvement, incorrect treatment, information, organization and accessibility. GS-PEQ has been applied to physical therapy services, but it was not specifically designed for this context. This, plus its brevity, means that the questionnaire results are not specific enough for small units within an organization.\textsuperscript{17} The PPE was adapted to capture the experiences of people with specific musculoskeletal disorders (The Picker MSD questionnaire)\textsuperscript{18} and used in clinics with multidisciplinary services. The Picker MSD questionnaire is a 30-item instrument grouped in seven scales that were identified in a previous qualitative study as the aspects that matter to patients with musculoskeletal disorders: accessibility, information, respect, emotional support, coordination, continuity and overall impression. Content validity of these scales was based on qualitative analysis of two focus groups but no additional analysis was carried out to evaluate the dimensionality of each scale.\textsuperscript{18}

Despite the great amount of active research and scientific publications in the field of patients’ experience and satisfaction\textsuperscript{8,14-18} very few context-specific questionnaires measure patient experience in physical therapy services. Some exceptions are the perceived quality questionnaire in primary physical therapy care (PQ-PPC)\textsuperscript{19} and the client-centred rehabilitation questionnaire\textsuperscript{20} (CCRQ) for inpatient care. The PQ-PPC measures 4 dimensions (waiting times, organization, professional competence and information). The CCRQ measures 7 dimensions of client-centred rehabilitation in inpatient units (decision-making, information, outcome evaluation, family involvement, emotional support, physical comfort and continuity) identified based on previous works from the Picker Institute\textsuperscript{8} and the Wascana group\textsuperscript{21}, and focus
groups with clients. These instruments reflect substantial variations in the dimensions of care that matter to patients in different contexts. Some authors have indicated that useful questionnaires should explore patients’ experiences in each specific context, across well-defined domains. Both the PQ-PPC and the CCRQ were developed using the same methodology of Picker MSD and, as consequence the structure and content validity of their scales is supported just by a conceptual approach defined by qualitative analysis of focus groups, while their unidimensionality was not specifically examined. The notion of unidimensionality in measurement theory refers to a condition in which a set of indicators share only one underlying factor. The assessment of unidimensionality has been presented as a top priority in any outcome instruments used in rehabilitation. In fact, when items do not fit a common unidimensional scale, all calculations using a total score, with the exception of statistical correlations with other quantitative criteria (predictive validity), become uninterpretable. Yet, little evidence about the dimensionality of patients’ experience scales is available.

Our research group developed a questionnaire on patients’ experiences in primary care using a qualitative approach to develop the scales. The outpatient setting studied provides physical therapy to people with chronic clinical conditions, but who usually continue working and have a low level of dependency. The next phase of our research, which is the focus of the present paper, examined the use of a psychometric methodology to develop scales for measuring patients’ experiences with physical therapy services in a post-acute, outpatient setting. We selected this context because it remains unexplored by existing patient experience questionnaires. In Spain, there are outpatient settings that solely provide post-acute care to patients after an acute care admission and others that see ambulatory patients also. We selected the
first setting because all the patients are receiving early rehabilitation and are in a dependent situation with problems of pain, mobility and functionality. In this article, therefore, we describe the development and initial psychometric evaluation of a fixed-length questionnaire of Patients’ Experiences undergoing a physical therapy treatment in Post-Acute Outpatients settings (PEPAP-Q). The specific aims of psychometric evaluation are to examine: (1) the variance and non-response rates to items, (2) the factor structure of the questionnaire, (3) the unidimensionality of each scale, (4) test-retest reliability and (5) construct validity.
METHODS

The instrument development was conducted in three phases. In Phase 1, nine domains of patient experiences were identified based on a literature review, focus groups with patients, and review by experts. In Phase 2, several items for each domain were developed and tested for clarity and relevance by conducting cognitive pretesting with rehabilitation patients and physical therapists. In Phase 3, the psychometric properties of the tool were examined using a self-administered survey of patients discharged from three physical therapy facilities. In this paper, we look at item reduction, factor structure and the unidimensionality of scales, test-retest reliability, and construct validity testing.

Phase 1: Domains of patients’ experiences in physical therapy settings

Several models have been proposed to identify what specific aspects of health care are relevant to patients.\textsuperscript{27,28} According to the research evidence, most instruments consider three domains as the highest priority for measuring patient experience: the characteristics of interaction (patient-professional relationship), elements of the organization of the service (waiting times, facilities, security...) and overall assessments (general satisfaction, perceived quality).\textsuperscript{12}

In order to better understand the importance given to experiences of physical therapy from the client’s perspective, nine focus groups were set up with adults involving musculoskeletal disorders who were receiving post-acute physical therapy service in an outpatients setting. A semistructured interview topic guide formed from a literature review was used. Additional questions were included according to themes that started to emerge from the initial focus groups. Data analysis was undertaken using grounded theory.
The results of this qualitative phase are reported elsewhere. In summary, nine domains grouped in the following two areas were identified: professionals’ attitudes and behaviour, and organizational environment. In the professionals’ attitudes and behaviour area, domains focused on: ‘providing information and education’, ‘sensitive manners to patients’ changes’, ‘emotional support’, ‘friendly and respectful communication’ and ‘technical expertise’. In the organizational environment area, domains focused on: ‘attendance duration’, ‘interruptions during care delivery’, ‘waiting times in the sequence of treatment’ and ‘patient safety’.

Phase 2: Development of items

The frequency with which certain processes and events occurred during the course of physical therapy treatment was investigated. For this, several candidate items were written for each domain. The precise wording of items was based on patients’ comments of the qualitative study and modified through a process of discussion and consensus among the members of the study team. The response format used was a 5-point frequency Likert scale. Response options ranged from “never” to “always”. An initial pool of 30 items was generated, distributed among nine domains: ‘information’ (4 items), ‘sensitive’ (3 items), ‘support’ (5 items), ‘friendliness’ (4 items), ‘expertise’ (3 items), ‘attendance duration’ (3 items), ‘interruptions’ (3 items), ‘waiting times’ (3 items) and ‘safety’ (2 items).

The questionnaire was pretested for clarity and adequacy of content with seven professionals (mean care provision experience: 10 years) and patients from the participant settings. A total of 94 patients with musculoskeletal disorders were
randomly selected from those receiving post-acute physical therapy. Both professionals and patients were asked to report on the relevance and understanding of each item.

A question was taken to have poor face validity if less than 80% of either patients or professionals rated the item as being comprehensible and adequate. Thus, items in the technical expertise domain were considered to be unsuitable because many physical therapists thought that patients are not capable of evaluating professional competence. For this reason, the three items of ‘technical expertise’ were removed from the questionnaire.

The instrument finally distributed for evaluation comprised 27 items of patients’ experiences with physical therapy. Two overall quality evaluations, one item about treatment adherence and 4 questions related to patients’ characteristics were also included. Patients’ overall evaluations were assessed using two additional items. The first – referred to as the ‘satisfaction item’ – asked patients to rate their satisfaction with care on a 10-point scale ranging from 1 (minimum) to 10 (maximum). The second – referred to as ‘perceived service quality item’ – asked patients to rate their perceptions of service quality on a 5-point scale (with response categories of poor, fair, good, very good, and excellent). Adherence to prescribed exercise (if applicable) was measured using a frequency-based response scale (never, seldom, often, almost always, and always) adapted from the adherence scale of Sluijs et al.

Phase 3: Pilot study and psychometric testing

In Phase 3 psychometric testing of the questionnaire was carried out by surveying subjects who were receiving post-acute physical therapy in outpatients services from 3
post-acute centers in Barcelona, Madrid and Seville, Spain. During a six-month period, a consecutive sample of eligible patients was identified from the patients’ register and recruited by the attending physiotherapist who assessed the eligibility criteria. The subjects were included if they were more than 18 years old and receiving physical therapy care. They had to speak, read and understand Spanish. Patients were excluded if they presented any cognitive deficit.

The study was approved by the Bioethics Committee of the University of Murcia and an informed consent form was obtained from all participants. The questionnaire was administered during patients’ clinical appointments at the end of the course of the specific episode of physical therapy. The questionnaire and an introductory letter were handled by the attending physical therapist. Patients were asked to place the questionnaire in a box in the administrative area of the center within the following 1-2 days. If necessary, non-respondents received a reminder letter handed to them by the physical therapist after 1 week and another letter 2 weeks later. Patients were assured that the professionals would not be able to identify individual answers. To test-retest reliability a subsample of patients completed the questionnaire a second time within 5 days of their initial response.

Data analysis

Descriptive statistics were calculated to assess the demographic and clinical characteristics of the study participants. We conducted a series of analyses to assess item reduction, the factor structure of the questionnaire and the metric properties of multi-item scales. Finally, the underlying structure of these scales was examined.
Item reduction and instrument structure

Variance and non-response rates to items were evaluated for item reduction. As described elsewhere items with high rates of non-response (≥ 10%) and SD less than 0.60 were removed to avoid items with poor understanding and/or variability.

Exploratory factor analysis (EFA) was performed to identify latent factors that could be responsible for the covariation of the data. Principal component analysis and Varimax rotation were used for the initial extraction of factors. Items with loadings of 0.50 or higher were retained and items with factor loadings higher than 0.40 or more than 1 factor were removed. To examine the stability of this structure, we also performed supplementary EFAs in two subgroups: patients with a high level of satisfaction with care (above the mean) and unsatisfied ones (below the mean). The Kaiser-Meyer-Olkin (KMO) value (preferably > 0.60) and Bartlett’s test of sphericity (preferably significant) were used to assess the sampling adequacy for factorisation.

Multitrait scaling analysis uses a correlation matrix of all items and scales to test the extent to which items converge and diverge from other scales. Scales were scored using a summative method, as described elsewhere. Each item was coded as a dichotomous score, indicating either presence or absence of a problem. A problem is defined as an aspect of healthcare that could, from the patients’ perspective, be improved. Thus, an ‘always’ response was considered an absence of problem in direct items. We assumed that any other response categories could show at least one problematic event during the episode of care. For each respondent, a score for each of the scales of the aforementioned instrument were created. Each scale was scored from 0 (no problem) to 100 (all items coded as a problem). Correlations between each item and its hypothesized scale were calculated and corrected for overlap.
by not including the item in the scale. A correlation of 0.40 or higher was considered satisfactory; items with a correlation of less than 0.40 were removed from further analyses. Scaling success rates were computed for each scale as the percentage of items within a scale which correlated more highly or significantly more highly with their hypothesized scale than with the other scales. An item correlated significantly more highly with its own scale if the correlation between this item and its hypothesized scale was more than two standard errors higher than its correlation with other scales. In addition, we calculated internal consistency reliability for each hypothesized domain using the Cronbach alpha coefficient (considered acceptable if $\alpha$ is greater than 0.7).

Reliability and validity

The reliability of the PEPAP-Q scales was assessed using test-retest methods. Intraclass correlation coefficients (ICC) were calculated for test-retest reliability using a two-way mixed effect, single-rater model (judged excellent if $> 0.75$).

Several construct validation strategies were designed in which we hypothesized various associations and evaluated the extent to which our data corresponded to the hypotheses. Known-groups validity was examined by defining two groups: one subgroup of patients that rated the overall quality item as “very good” or “excellent” and the subgroup that evaluated it worse. We hypothesized that the problem scores in all the scales would be lower in patients with high evaluations of service quality and higher in those with poor quality perception. A Student t-test was used to test for a difference in the mean scale scores between these two groups. Also, the mean scores of the response data to the questionnaire across men and women were compared using a Student t-test for
independent samples. Our hypothesis was that there would be no significant difference
in the mean scores between these two groups.

Convergent validity was tested by calculating correlations between scales and patient
satisfaction, while correlations with the treatment adherence item were used for testing
discriminative validity. A priori hypotheses for these correlations were as follows: (1)
the scales scores would correlate strongly (> 0.30) with patient satisfaction; and (2)
none of the scales scores would correlate significantly with the treatment adherence
item. The Spearman correlation coefficient was used in these analyses. A p-value of less
than 0.05 was considered statistically significant. All analyses were performed using the
SPSS statistical software program (SPSS v.15).

RESULTS

During a six-month period 520 subjects were identified. The data of four participants
were not taken into account because they were not able to understand the instructions
for the questionnaire. Out of 516 patients, 355 patients responded initially and another
110 patients responded after reminders. In total, 465 completed the questionnaire
(90%). A total of 94 patients participated in the test-retest. The demographics of the
participants and the test-retest subsample are shown in Table 1. Of the respondents,
71.3% were male, while the length of in-patient hospital stays ranged from 0 – 30 days
(mean 9 days). The health problems involved surgical recovery from lower back injury
(7.2%), upper limb fracture (30%), lower limb fracture (39.3%), shoulder injury
(12.5%) and knee injury (11%). Respondents and non-respondents were not compared
for assessing non-response bias because of the high response rate (90%).
A first selection of items was made from the descriptive response distribution for each item. The four items of the ‘friendly communication’ scale did not satisfy the cut-off criterion of variance > 0.60, so they were deleted. No additional items were removed because of poor item-scale correlation or factor loadings higher than 0.40 on more than one factor. The definitive version of the questionnaire is reproduced in Appendix A.

**Instrument structure**

A factor analysis restricted to the 23 items of patients’ experiences confirmed a 7-dimensional structure; the 7 factors explained 68.6% of the total variance, the Kaiser statistic was 0.83 and the Bartlett statistic was 5018.03 ($p<0.01$). Table 2 shows the factors and the items that loaded onto them significantly. Furthermore, the same 7-factor structure was obtained in ‘satisfied’ and ‘unsatisfied’ patients (data not shown). The 7 factors explained 70.0% of the total variance in the satisfied group ($n=319$) and 72.5% in the unsatisfied group ($n=138$). The Kaiser and Bartlett statistic were 0.75 and 3134.16 respectively in the satisfied group ($p<0.01$), and 0.79 and 1563.27 in the unsatisfied group ($p<0.01$).

Multitrait scaling analysis generally supported the scaling of items into the hypothesized scales (Table 3). Item scale correlations ranged from 0.70 to 0.93. The percentage of scaling success was 100% for all the scales. Cronbach’s alpha coefficient ranged from 0.70 to 0.87 and exceeded 0.7 for all the scales.
Reliability and validity

Intraclass correlation coefficients ranged from 0.57 to 0.80 (median =0.68). As expected, mean scores between subgroups of patients with a high evaluation of service quality and those with poor quality perceptions differed significantly, except for the ‘patient safety’ scale. The difference in mean scores was found to range from 17.13 to 43.21 points, with lower scores for the first group. As hypothesized, there was no significant difference in the scale scores between men and women’s subgroups.

As hypothesized, all the correlations between scales and patient satisfaction were good. The recommended level of 0.3 was achieved for all scales except for three dimensions: ‘duration of attendance’, ‘waiting times in the sequence of treatment’ and ‘patient safety’. As the three scales had high face validity, important aspects of care and good reliability and known-group validity, we decided to retain them in the final instrument.

As expected, the obtained correlations with the treatment adherence item were lower and not significant for almost all scales, which reinforces convergent validity.

Factor structure of PEPAP-Q scales

The EFA of the scales identified two factors with Eigen values of 2.484 and 1.401, which explained 31.05% and 17.50% of total variance, respectively (Table 5). Correlations for three scales (‘providing information and education’, ‘emotional support’, ‘friendly and respectful communication’) were high on the first factor and low on the second. Conversely, correlations for four other scales (‘attendance duration’, ‘interruptions during care delivery’, ‘waiting times in the sequence of treatment’ and ‘patient safety’) were high on the second factor and low on the first one.
DISCUSSION

This study presents preliminary evidence of the validity and reliability of the subscales of the fixed-length PEPAP questionnaire. Seven scores pertaining to distinct dimensions of patient experience in post-acute, outpatient physical therapy settings can be computed: ‘providing information and education’, ‘sensitive manners to patients’ changes’, ‘emotional support’, ‘attendance duration’, ‘interruptions during care delivery’, ‘waiting times in the sequence of treatment’ and ‘patient safety’. In our sample, all scores had strong item-scale correlations, excellent item scaling success, good internal consistency (Cronbach’s alpha coefficient over 0.7) and acceptable test-retest reliability. The stability of the scales was supported by a stable factorial structure among patients with high evaluations of service quality as well as those with poor quality perceptions.

Cott et al (2006) used a qualitative approach to develop the CCRQ and they found that most of the scales were moderately to strongly intercorrelated, so these scales did not identify unique dimensions of patients’ experiences. Therefore, our approach to developing the PEPAP-Q, based on a combination of qualitative research and multitrait scaling analysis, appears to be more promising than previous approaches used for patients’ experiences questionnaires. Moreover, the PEPAP-Q can be used both to monitor service performance and to inform on quality improvement efforts in post-acute, outpatient physical therapy settings, and can be considered better than generic instruments (e.g., GS-PEQ), which do not reflect what really matters to patients in a specific context.

The initial analysis undertaken in this study to explore the high-order factor structure of 7 dimensions of PEPAP-Q suggests that two major conceptual domains underlie these
dimensions. One factor or domain had high loadings for scales that reflect experiences related to professionals’ attitudes and behaviour. A second domain showed an affinity for scales that reflect aspects of the organizational environment. The findings of other authors and our previous studies support this idea. For example, Cott et al (2006) also identified 7 domains that were important components of client-centered rehabilitation from the client’s perspective and were related to client-physiotherapist interaction and organizational aspects of care such as continuity and physical comfort. Some differences from our instrument in the domains were due to the specific characteristics of inpatient services or primary health care.

Tests of known-groups indicated that these scales initially discriminated on the basis of patients’ perceived quality, which suggests that this instrument is reasonably well suited to the population of these post-acute, outpatient physical therapy settings. Discrimination by sex of the respondent was not observed. Previous studies have found that men and women have different perceptions about specific areas of care, such as ambient condition of the facilities (temperature, cleanliness…), but these differences were not assessed in our study because the questionnaire did not include items about the physical environment of the setting.

In the evaluation of convergent validity, the professional aspect appeared more relevant than organizational aspects in influencing satisfaction and perceived quality. These results are consistent with those of other authors who reported that being treated with respect by health care providers and being involved in treatment decisions are strongly linked to patient satisfaction. In contrast, and as expected, in the evaluation of divergent validity, low and non-significant correlations of PEPAP-Q scales with the adherence to prescribed exercise were observed.
The aim of this study was to develop a context-specific instrument of patients’ experiences in post-acute, outpatient physical therapy settings. We selected this context because it is a service in high demand that remains unexplored by existing patient experience questionnaires developed for rehabilitation services.\textsuperscript{19,20} Moreover, post-acute, outpatient physical therapy settings have several characteristics that differ from other physical therapy services; for instance, patients are in a dependent situation, with important problems of mobility and functionality, so the importance of feeling physically secure is highly considered by them.

\textbf{Study limitations}

Despite what we consider the generally good psychometric properties of this instrument, several limitations should be noted. First, the instrument was developed in Spanish, and the English translation included in this article has not been revalidated. Those interested in using the questionnaire in a non-Spanish translation should conduct a formal adaptation of the instrument that achieves conceptual and semantic equivalence between the original version and the translated version of the questionnaire to assess the usefulness of the cross-cultural adaptation.\textsuperscript{37,38} We recommend following the "guidelines for the process of cross-cultural adaptation of self-report measures".\textsuperscript{39} Second, the instrument is limited to post-acute, outpatient settings and patients with musculoskeletal conditions, so the appropriateness of the proposed instrument to different settings is not known. Nevertheless, evidence in patient satisfaction literature\textsuperscript{40} suggests that there are differences in the management of patients with acute, post-acute or chronic musculoskeletal conditions.
Third, PEPAP-Q does not address technical aspects of care. Nevertheless, we decided to drop these questions because the physical therapists consulted thought that patients’ assessment of technical expertise could be biased by achieved outcomes at the moment of their participation in the survey. Moreover, some authors also argue that patients’ assessments by questionnaires are not reliable for assessing the technical quality of care.

**Implications for practice and research**

The potential applications of this study are numerous. From a strategic standpoint, the performance of each organizational unit across these dimensions can be tracked. From a competitive standpoint, the identified factors can be used to compare rehabilitation services with competitors’ offerings. To identify and resolve problems perceived by patients is very important in health services, due to the deep impact that even a small percentage of them has on service outcomes. The PEPAP-Q allows for analysis at several levels of post-acute, outpatient physical therapy settings. For example, a health manager interested in an overview of the service can use the global measures to determine an overall evaluation, while, if the objective is a deeper analysis of patients’ experiences, each scale score can be used to identify specific aspects of the service to improve.

Although the current results provide good psychometric support to the questionnaire, it is important to recognize the scope of this study and to consider future research directions - for example, to explore possible associations between patients’ experiences and other outcome measurements, such as clinical results, or to explore the relative importance of patients’ experiences in the overall quality measurements. Further
validity testing of the PEPAP-Q must be conducted in order to assess its predictive validity. In our study we measured patients’ satisfaction levels during treatment, so the predictive validity of the questionnaire remains unknown.

In conclusion, The PEPAP-Q was developed, pre-tested and refined as a result of an extensive consultation with patients and professionals. The instrument has strong test-retest reliability and the scales all have internal consistency and convergent and discriminative construct validity. All these properties support the value of the PEPAP-Q for use in quality improvement tasks as well as in research.

Conflicts of interest

There are no conflicts of interest.

Source of funding

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Table 1. Characteristics of patient sample (n=465) and test-retest subsample (n=94)

<table>
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<tr>
<th>VARIABLES</th>
<th>SAMPLE %</th>
<th>SUBSAMPLE %</th>
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<tr>
<td>SEX</td>
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<tr>
<td>Men</td>
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<td>Women</td>
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<td>35.4</td>
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<td>&lt;30 years</td>
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<td>30-45 years</td>
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<td>&gt;45 years</td>
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<td>Non-high school graduate</td>
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<td>Lower extremity</td>
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<td>Trunk</td>
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<tr>
<td>Upper extremity</td>
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<td>35.6</td>
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Table 2. Factor analysis of 23 items of patients’ experiences with physical therapy (n= 465)

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<th>FACTORS</th>
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<tr>
<td><strong>EMOTIONAL SUPPORT</strong></td>
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<td>My therapist is aware of my worries.</td>
<td>0.783</td>
</tr>
<tr>
<td>I get encouragement to address worries</td>
<td>0.752</td>
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<tr>
<td>My therapist is interested in my recovery</td>
<td>0.716</td>
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<tr>
<td>My therapist supervises the exercises</td>
<td>0.705</td>
</tr>
<tr>
<td>I have opportunities to talk about worries/doubts</td>
<td>0.693</td>
</tr>
<tr>
<td><strong>PROVIDING INFORMATION AND EDUCATION</strong></td>
<td></td>
</tr>
<tr>
<td>I am told how to prevent complications</td>
<td>0.358</td>
</tr>
<tr>
<td>I get information about usefulness of the therapies</td>
<td>0.243</td>
</tr>
<tr>
<td>I get information about the prognosis.</td>
<td>0.245</td>
</tr>
<tr>
<td>My therapist answers my questions</td>
<td>0.163</td>
</tr>
<tr>
<td><strong>DURATION OF ATTENDANCE</strong></td>
<td></td>
</tr>
<tr>
<td>My therapist does not monitor the treatment</td>
<td>0.081</td>
</tr>
<tr>
<td>My therapist cannot prevent risk situations</td>
<td>0.016</td>
</tr>
<tr>
<td>My therapist does not spend enough time with me</td>
<td>0.080</td>
</tr>
<tr>
<td><strong>INTERRUPTIONS DURING DELIVERY OF CARE</strong></td>
<td></td>
</tr>
<tr>
<td>My therapist has to attend to other professionals</td>
<td>0.055</td>
</tr>
<tr>
<td>My therapist has to help other patients</td>
<td>0.111</td>
</tr>
<tr>
<td>My therapist has administrative demands</td>
<td>0.050</td>
</tr>
<tr>
<td><strong>WAITING TIMES IN THE SEQUENCE OF TREATMENT</strong></td>
<td></td>
</tr>
<tr>
<td>The treatment tables are occupied</td>
<td>0.103</td>
</tr>
<tr>
<td>Other equipment is occupied</td>
<td>0.111</td>
</tr>
<tr>
<td>Boxes or devices are occupied</td>
<td>0.156</td>
</tr>
<tr>
<td><strong>SENSITIVE MANNERS TO PATIENTS’ CHANGE</strong></td>
<td></td>
</tr>
<tr>
<td>My therapist adapts treatment to pain</td>
<td>0.143</td>
</tr>
<tr>
<td>My therapist adapts treatment to functional status</td>
<td>0.138</td>
</tr>
<tr>
<td>My therapist adapts treatment to changes of mood</td>
<td>0.320</td>
</tr>
<tr>
<td><strong>PATIENT SAFETY</strong></td>
<td></td>
</tr>
<tr>
<td>I experience dangerous situations</td>
<td>-0.036</td>
</tr>
<tr>
<td>I have to ask other patients for help</td>
<td>0.087</td>
</tr>
</tbody>
</table>

Critical value: 7.142 3.333 2.309 1.892 1.748 1.477 1.386
% explanation of variance: 23.81 11.11 7.70 6.31 5.83 4.92 4.62

Kaiser-Meyer-Olkin: 0.828 Bartlett’s test: 5018.027 p<0.01
### Table 3. Summary of results for multitrait scaling analyses and test-retest reliability

<table>
<thead>
<tr>
<th>SCALES</th>
<th>Item-scale correlation range (median)</th>
<th>% scaling success</th>
<th>Cronbach Alpha</th>
<th>ICC (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Support</td>
<td>0.76-0.83 (0.79)</td>
<td>100%</td>
<td>0.84</td>
<td>0.80 (0.72-0.87)</td>
</tr>
<tr>
<td>Sensitive manners to patients changes</td>
<td>0.79-0.86 (0.84)</td>
<td>100%</td>
<td>0.76</td>
<td>0.68 (0.55-0.78)</td>
</tr>
<tr>
<td>Providing Information and Education</td>
<td>0.70-0.88 (0.85)</td>
<td>100%</td>
<td>0.84</td>
<td>0.79 (0.69-0.86)</td>
</tr>
<tr>
<td>Duration of attendance</td>
<td>0.83-0.93 (0.90)</td>
<td>100%</td>
<td>0.87</td>
<td>0.62 (0.47-0.74)</td>
</tr>
<tr>
<td>Interruptions during delivery of care</td>
<td>0.81-0.90 (0.89)</td>
<td>100%</td>
<td>0.84</td>
<td>0.75 (0.64-0.83)</td>
</tr>
<tr>
<td>Waiting times in the sequence of treatment</td>
<td>0.77-0.85 (0.80)</td>
<td>100%</td>
<td>0.81</td>
<td>0.59 (0.43-0.71)</td>
</tr>
<tr>
<td>Patient Safety</td>
<td>0.84-0.92</td>
<td>100%</td>
<td>0.70</td>
<td>0.57 (0.41-0.70)</td>
</tr>
</tbody>
</table>

ICC: Intraclass Correlation Coefficient in test-retest reliability
**Table 4. Construct validity of the scales**

<table>
<thead>
<tr>
<th>SCALES</th>
<th>Mean of problem score differences between groups (p value)</th>
<th>Correlation with overall quality</th>
<th>Correlation with Satisfaction</th>
<th>Correlation with Adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High-Low quality perception</td>
<td>Men-Women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Support</td>
<td>-40.93 (0.001)</td>
<td>-2.31 (0.795)</td>
<td>-0.54*</td>
<td>-0.55*</td>
</tr>
<tr>
<td>Sensitive manners to patients’ changes</td>
<td>-39.20 (0.000)</td>
<td>-4.02 (0.648)</td>
<td>-0.49*</td>
<td>-0.45*</td>
</tr>
<tr>
<td>Providing Information and Education</td>
<td>-38.95 (0.000)</td>
<td>-10.26 (0.196)</td>
<td>-0.38*</td>
<td>-0.45*</td>
</tr>
<tr>
<td>Duration of attendance</td>
<td>-21.53 (0.011)</td>
<td>-6.91 (0.378)</td>
<td>-0.20*</td>
<td>-0.21*</td>
</tr>
<tr>
<td>Interruptions during delivery of care</td>
<td>-43.21 (0.000)</td>
<td>6.69 (0.420)</td>
<td>-0.50*</td>
<td>-0.48*</td>
</tr>
<tr>
<td>Waiting times in the sequence of treatment</td>
<td>-30.46 (0.005)</td>
<td>-8.46 (0.326)</td>
<td>-0.24*</td>
<td>-0.26*</td>
</tr>
<tr>
<td>Patient Safety</td>
<td>-17.13 (0.115)</td>
<td>5.62 (0.328)</td>
<td>-0.22*</td>
<td>-0.22*</td>
</tr>
</tbody>
</table>

* Significant correlation at 0.05
Table 5. Factor analysis of scales (n= 465)

<table>
<thead>
<tr>
<th>SCALES</th>
<th>FACTORS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Emotional Support</td>
<td>0.808</td>
<td>0.197</td>
<td></td>
</tr>
<tr>
<td>Providing Information and Education</td>
<td>0.743</td>
<td>0.093</td>
<td></td>
</tr>
<tr>
<td>Sensitive manners to patients’ changes</td>
<td>0.649</td>
<td>0.236</td>
<td></td>
</tr>
<tr>
<td>Interruptions during delivery of care</td>
<td>0.161</td>
<td>0.719</td>
<td></td>
</tr>
<tr>
<td>Duration of attendance</td>
<td>0.037</td>
<td>0.647</td>
<td></td>
</tr>
<tr>
<td>Waiting times in the sequence of treatment</td>
<td>0.302</td>
<td>0.629</td>
<td></td>
</tr>
<tr>
<td>Patient Safety</td>
<td>-0.101</td>
<td>0.565</td>
<td></td>
</tr>
</tbody>
</table>

Critical value: 2.484 1.401
% explanation of variance: 31.05 17.51

Kaiser-Meyer-Olkin: 0.710  Bartlett’s test: 547.368 p<0.01
Appendix A. Patient Experiences with Post-Acute *outpatients* physical therapy Questionnaire:

Items scoring and subscales.

1. I get information about the prognosis.
2. I get information about the usefulness of the therapies.
3. I am told how to prevent complications during treatment.
4. My therapist gives complete answers to my questions.
5. I get encouragement to address worries.
6. My therapist shows personal interest in my recovery.
7. My therapist is aware of my worries.
8. My therapist supervises my exercise practice.
9. I have opportunities to talk about worries/doubts.
10. My therapist adapts treatment to pain.
11. My therapist adapts treatment to changes of mood.
12. My therapist adapts treatment to changes in functional status.
13. The duration of attention by the physiotherapist is shorter than I expected.
14. Therapist seems to have a very limited time for observing my exercise practice.
15. My therapist doesn’t stay with me to prevent risks during moving or therapies.
16. My treatment is interrupted because my therapist has to help other patients.
17. My treatment is interrupted because my therapist has to attend to other professionals.
18. My treatment is interrupted because my therapist has phone calls/administrative demands.
19. I have to wait during treatment because boxes or devices are occupied.
20. I have to wait during treatment because tables are occupied.
21. I have to wait during treatment because other equipment is occupied.
22. I have to ask other patients for help to prevent risks (e.g. falls).
23. I experience dangerous situations due to the lack of help from professionals.

Items: Item statements are presented in the order in which they appear in the questionnaire. However, the style of the questionnaire is not reproduced here.

Scoring: 5-point Likert scale: 5 = Always; 4 = Very often; 3 = Sometimes; 2 = Rarely; 1 = Never

Reversed scoring on items: 13,14,15,16,17,18,19,20,21,22,23 (5 = 1, 4 = 2, 2 = 4, 1 = 5)

Items in each of the 7 Scales: Information: 1,2,3,4; Sensitive: 5,6,7,8,9; Support: 10,11,12; Attendance duration: 13,14,15; Interruptions: 16,17,18; Waiting times: 19,20,21; Safety: 22,23.