Title: Assessing self-perception in patients with chronic low back pain: Development of a back-specific body-perception questionnaire.

Authors:

Benedict Martin Wand, PhD.[a] (corresponding author)

Monique James, BPhysio(Hons).[b]

Sam Abbaszadeh, MManipPhysio.[c]

Pamela Jane George, MManipPhysio.[a]

Pamela Margaret Formby, MSportPhysio.[a]

Anne Julia Smith, PhD.[d]

Neil Edward O'Connell, PhD.[e]

Author Affiliations:

[a] The School of Physiotherapy, The University of Notre Dame Australia, Fremantle, WA, Australia.

[b] Physiotherapy Department, Tom Price Hospital, Tom Price, WA, Australia.

[c] School of Physiotherapy, Curtin University, Perth, WA, Australia.

[d] Curtin Health Innovation Research Institute, Curtin University, Perth, WA, Australia.

[e] Centre for Research in Rehabilitation, School of Health Sciences and Social Care, Brunel University, Uxbridge, United Kingdom.

Correspondence to:

Dr Benedict M Wand,

School of Physiotherapy,

The University of Notre Dame Australia

19 Mouat Street Fremantle

WA 6959, Australia.

T: +61 8 9433 0203

F: +61 8 9433 0556

E: benedict.wand@nd.edu.au

ABSTRACT

Background: There is considerable interest in the role that disturbance of body-perception may play in long standing pain problems such as chronic low back pain (CLBP), both as a contributor to the clinical condition and as a potential target for treatment. In some chronic pain conditions body-perception has been investigated using self-report questionnaires. There is currently no questionnaire for assessing body-perception in people with CLBP.

Objective: To describe the development of a back-specific body-perception questionnaire and examine the psychometrics of this new scale.

Methods: Based on available evidence a back-specific body-perception questionnaire was developed. Fifty-one people with CLBP and an equal number of healthy controls completed the questionnaire; a subset of the patient population completed the questionnaire again one-week later. Scale-consistency and test-retest reliability were investigated on the patient sample. Validity was investigated by comparing responses between patients and controls as well as exploring the relationship between the questionnaire and important clinical characteristics.

Results: All but one of the patients endorsed items on the questionnaire, which suggests that distorted body-perception may exist in this population. The internal-consistency and test-retest reliability of the scale appear acceptable. The discriminative validity of the questionnaire is supported by the marked differences in the questionnaire responses between patients and healthy controls and the construct validity by the significant association between the questionnaire score and important clinical variables.

Conclusion: Symptoms of body-perception distortion were endorsed by most CLBP patients, while these symptoms are very infrequent amongst healthy controls. Our results suggest the questionnaire has reasonable psychometric properties.

Key words: body image; low back pain; neuronal plasticity; reliability; validity

1. INTRODUCTION

The feelings we have of our own body, termed here body-perception, are disrupted in some persistent pain problems [1-3]. In complex regional pain syndrome (CRPS) type 1, for example, the painful limb feels bigger than it really is [4] and motor imagery of the affected limb is disrupted [5, 6]. Neuroimaging shows reorganisation of cortical areas thought to subserve perception of the painful limb [7] and psychophysical findings consistent with disruption of the mechanisms that underpin body-perception are also apparent. This includes reduced tactile acuity [8], mislocalisation of tactile stimuli [9-11], impaired proprioception [12] and prioritisation of tactile processing away from the affected side, similar to that observed in spatial neglect post-stroke [13]. In addition, there is emerging evidence that therapeutic approaches aimed at normalising body-perception may be effective in the management of CRPS [14-17]. Moreover, it seems that as the condition improves both cortical reorganisation and correlates of body-perception are normalised [18].

People with chronic low back pain (CLBP) display similar characteristics. There is substantial evidence of changes in the brain [19], including findings of potential degeneration [20-24], reorganisation [25-28] and altered neurochemistry [29, 30] in key somatosensory and motor areas. There is also mounting evidence of perceptual dysfunction from psychophysical studies in this population. People with CLBP have reduced lumbar tactile acuity [31, 32] poor graphaesthesia performance over the back [32], difficulties localising tactile stimuli delivered to the back [33], lumbar proprioceptive deficits [34-39], reduced trunk motor-imagery performance [40], spatially defined tactile processing deficits [41] and altered perceived size and awareness of the back [42]. In addition, recent exploratory data suggests that treatment explicitly aimed at improving self-perception may improve the symptoms of CLBP [43].

In CRPS, perception of the painful limb has been investigated using self-report questionnaires [44-46]. We were interested in exploring if CLBP patients also endorsed symptoms consistent with impaired self-perception of the back. To this end a questionnaire, the Fremantle Back Awareness Questionnaire (FreBAQ), was developed. This paper describes the questionnaire development and the results of preliminary psychometric testing.

2. METHODS

2.1. Development of the Fremantle Back Awareness Questionnaire (content validity)

Galer and Jensen [44] developed a five-item questionnaire designed to assess for the presence of 'neglect like' symptoms of the painful limb in patients with CRPS. Although series of univariate was very low, 84% of those who did respond endorsed the presence of at least one 'neglect like' symptom, and 47% responded in a manner consistent with both cognitive and motor 'neglect'. Frettloh et al. [45] modified the original questionnaire from a dichotomous scale to a six-point Likert scale and examined patients with CRPS as well as a cohort of patients with chronic limb pain of other origins. Data were collected from the entire cohort and a similar proportion of CRPS patients endorsed at least one of the 'neglect like' items. In addition, they found a significant relationship between total score and pain intensity for both CRPS and non-CRPS patients. Though the statements used in these questionnaires were based on the clinical experiences of the authors of the original paper [44], several of the items have been validated by subsequent qualitative studies [11, 47].

The initial development of the FreBAQ was based on the Galer and Jensen [44] questionnaire. Item-two '*My painful limb feels as though it is not part of the rest of my body'* item-three *'I need to focus all my attention on my painful limb to make it move the way I want it to'* and item-four *'my painful limb sometimes moves involuntarily, without my control'* from the Galer and Jensen [44] questionnaire were included in the FreBAQ, although they were modified to read 'back', rather than 'painful limb'. A previous qualitative study involving people with CLBP [48] provided support for the inclusion of these three statements. Subjects in this study [48] described feelings of exclusion, alienation and rejection of the painful part of the body. Furthermore, a common theme was one of powerlessness in terms of controlling the back. The back was described as no longer easy to control, requiring more effort to control or was unable to be controlled automatically. The remaining two items from the Galer and Jensen [44] questionnaire were felt not to be pertinent to the lumbar spine so they were not included in the FreBAQ.

Reduced proprioceptive acuity is well established in people with CLBP [34-39]. Specifically, it appears that the ability to detect motion of the lumbar spine is impaired [36, 38] and people with CLBP have a greater repositioning error rate than healthy controls [34, 35, 37, 39], (though see [49, 50]). The statement, '*when performing everyday tasks, I don't know how my back is moving'* was included to capture problems with motion perception and the statement *'when performing everyday task, I am not exactly sure what position my back is in space'* to explore problems with repositioning.

Finally, a study investigating body perception in a small sample of subjects with CLBP found that patients had trouble delineating the full outline of their trunk - some reported that the back felt like it had shrunk and there was a tendency for the perception of midline to be

shifted towards the painful side [42]. The remaining items, '*I can't perceive the exact outline of my back, 'My back feels like it is enlarged (swollen)', My back feels like it has shrunk'* and *'My back feels lopsided (asymmetrical)'* were included to capture these perceptual problems.

When completing the questionnaire, patients were instructed to indicate the degree to which their back felt that way when they were experiencing back pain. A five-point response scale (range: 0 = *'never'* up to 4 = *'always'*) was used to enable quantitative assessment of any reported symptoms, the final score was obtained by summing the responses from each of the nine items such that the total score could range from zero to 36. A draft of the questionnaire was reviewed by an expert in the area and piloted on a small number of patients with CLBP. Minor grammatical changes were made following this process.

2.2. Testing of the Questionnaire

2.2.1. Study Participants

Fifty-one CLBP patients were recruited as part of two experiments exploring the effect of visual-feedback [51] and tactile discrimination training [52] on movement-related back pain. The sample-size was determined by the power calculations for these two experiments. Eligibility criteria can be found elsewhere [51].

Fifty-one healthy volunteers were drawn from University staff, their family and friends. Control subjects were eligible if they were currently LBP free, reported no back pain at all in the last six-months, had not experienced any episode of LBP sufficient to restrict work or leisure within the last two-years, were proficient in written and spoken English and were able to provide written consent. Control subjects were excluded if they were pregnant or less than

six-months post partum or had any significant spinal deformity, uncorrected visual impairment or extant medical condition.

2.2.2. Procedure

The patient population provided basic demographic and clinical data and completed a set of standardized questionnaires. Disability was measured using the Roland Morris Disability Questionnaire [53]. Back pain intensity was measured using a 0-100 visual analogue scale in the visual-feedback study and a 0-10 numerical rating scale (NRS) in the tactile discrimination study, both anchored with the same descriptors. The NRS data was multiplied by 10 to allow us to combine pain intensity data from both cohorts. Pain-related catastrophization was assessed using the Pain Catastrophizing Scale [54], kinesiophobia using the Tampa Scale of Kinesiophobia [55] and depressive symptoms and anxiety using The Hospital Anxiety and Depression Scale (HADS) [56] or the Distress Anxiety Stress Scales (DASS) [57]. To combine depression and anxiety (HADS and DASS) scores from the two studies participants were trichotomized as normal/possible/probable anxiety and normal/possible/probable depression using previously published cut points for the two scales [57, 58]. Additionally, patients completed the FreBAQ.

The reliability of the FreBAQ was assessed on the twenty-six patients participating in the visual-feedback experiment. At the completion of testing, participants were given a take-home copy of the FreBAQ and were asked to fill out and post the questionnaire one-week later. Participants who failed to return the follow-up questionnaire were given a reminder call. Follow-up data from patients who failed to return their questionnaire after three calls was coded as missing.

The control population provided the same demographic information, completed the HADS [56] and the FreBAQ. The instructions used when filling out the FreBAQ read '*please indicate the degree to which your back feels this way today'*. The study protocol received institutional ethical approval, all participants provided informed consent and all procedures conformed to the Declaration of Helsinki.

2.3. Data Analysis

2.3.1. Sample characteristics and questionnaire response

All analyses were undertaken using PASW for Windows version 18 (SPSS, Chicago IL, USA) or Stata/IC 10.1 for Windows (Statacorp LP, College Station TX). The demographic and clinical profile of participants were summarised with means and standard deviations for continuous data and ratios and percentages for categorical data. The FreBAQ was summarised with range, median, mean and standard deviation measures reported for the total score. The frequencies in each response category were also reported for the patient population. Patients were described as having not endorsed an item if they indicated never; all other response categories were regarded as item endorsement.

2.3.2. Internal Consistency

The internal-consistency of the scale was assessed using Cronbach's alpha. In addition, inter-item correlations and item-rest correlations (correlation of each item with the scale total constructed from the remaining items) were calculated.

2.3.3. Validity

Discriminant validity was examined by comparing the total score between patients and healthy controls using the non-parametric Mann-Whitney test. We explored construct validity

by investigating the relationship between FreBAQ total score and elements of the patient profile [59]. A series of univariate correlations was performed examining the relationships between FreBAQ total score and, symptom duration, pain intensity, disability, anxiety, depression, kinesiophobia and pain catastrophization. Plots were inspected for linearity of associations and outlying data-points and Spearman's rho used as an alternative to Pearson's correlation coefficient where appropriate.

2.3.4. Test-retest reliability

The test-retest reliability was determined by correlating the subject's initial total score with their score one week later. Intraclass correlation coefficients (ICC) were calculated for both the level of agreement and degree of correspondence between the two sets of scores [60]. Independent t-tests and Chi-Square tests were performed to determine if there were any significant differences in baseline profile between patients who returned their follow-up questionnaire and those who did not.

3. RESULTS

3.1 Sample characteristics

Table 1 provides a summary of the demographic characteristics and clinical profile of all participants.

3.2 Item endorsement.

Table 2 provides a full description of the frequency of response for each item for the patient group. Fifty of 51 (98%) CLBP patients endorsed some level of distortion in self-perception, with only one subject recording zero for all items. All nine items were endorsed at some level

by patients, though the reported frequency differed across items. Items two, seven and nine were the most strongly endorsed. Over a quarter of CLBP patients indicated that these items were true often or always, with less than 30% indicating their back never felt that way when painful.

In contrast items five and eight were the most weakly endorsed, with over 80% of patients indicating these items were never or rarely true. The skewness of items ranged from a minimum of -0.3 (item-nine) to a maximum of 1.89 (item-eight).

3.3. Internal-Consistency

Cronbach's Alpha for the total scale was 0.777, which is above 0.7, indicating that the scale can be considered internally consistent within our sample, and below 0.9, suggesting that none of the items are redundant [59], though the deletion of item-nine increased alpha by 0.030, suggesting a potential for item-nine to be capturing a slightly different facet of distorted perception than the remaining items. Inter-item correlations ranged from 0.269 to 0.731, and item-rest correlations ranged from 0.119 (item-nine) to 0.616 (item-two).

3.4. Validity

Patients scored significantly higher on the FreBAQ than healthy controls (Mann-Whitney test, $p < 0.001$, median difference = 11). In the patient group, the FreBAQ total score ranged from 0-26, the median score was 11 and the mean 10.8, whilst in the control group the total score ranged from 0-6, the median score was 0 and the mean 0.5.

The correlations between clinical characteristics and the FreBAQ score can be found in Table 3. Duration or LBP ($\rho = 0.357$), Pain intensity ($r = 0.400$), disability ($r = 0.365$) and pain

related catastrophization (r = 0.408) were all significantly correlated with total FreBAQ score, while the trichotomised anxiety (ρ =0.031) and depression scores (ρ =0.149) were not. Kinesiophobia demonstrated borderline non-significance (r = 0.271, *p*= 0.054)

3.5. Test-retest reliability

Of the 26 patients included in the reliability study, seven did not return the second questionnaire. No significant differences between responders and non-responders were found for gender, age, chronicity, pain intensity, disability, depression, pain catastrophization or FreBAQ total score (data not shown). However, six of the seven (85.7%) non-responders reported using opioids, which was a larger proportion than that of the responders (26.3%; Fishers exact test, p=0.021). The mean value of FreBAQ for the 19 patients with repeat measures was 11.2 (sd 5.7) at baseline and 12.9 (sd 6.8) one week later, this difference was not statistically significant (p=0.145). The $ICC_{2,1}$ (i.e. two-way random effect model with single measures) for agreement was 0.652 (95% CI: 0.307-0.848), and for consistency 0.667 (95% CI: 0.317-0.857).

4. DISCUSSION

This paper describes the development and basic psychometric properties of the FreBAQ, a multi-item, self-report questionnaire designed to quantify distorted perception of the back. Based on these preliminary findings, CLBP patients frequently endorse symptoms consistent with impaired self-perception of the back. The test-retest reliability and internal-consistency of the FreBAQ appear acceptable, although further testing on a larger consecutive sample is required to confirm these findings, and the potential for item-nine to be representative of a separate construct needs more consideration. The validity of the questionnaire is supported by

the marked difference in the questionnaire responses between patients and healthy controls as well as the relationships demonstrated between the total score and important clinical variables. The questionnaire was quick and easy to administer and was generally completed with little difficulty, although a number of subjects reported trouble in interpreting question five (‘*when performing everyday task, I am not always sure where my back is in space’*). This feedback has led to modification of the question to now read *‘when performing everyday tasks, I am not sure exactly what position my back is in’*. The current version of the FreBAQ can be found in the Appendix.

Items two, nine and seven were particularly commonly endorsed. Seventy-eight percent of subjects endorsed item-two, ‘*I need to focus all my attention on my back to make it move the way I want it to’,* which Galer and Jensen [44] described as a symptom of motor ‘neglect’. This figure is somewhat higher than the 56% endorsement observed by Galer and Jensen [44] in CRPS patients and the 60.5% found in non-CRPS pain patients [45], but it is similar to data from CRPS patients in the study by Frettloh et al. [45]. Motor deficits are commonly found in patients with CLBP [61, 62]. One consistent feature seems to be decreased activation of local back muscles, [62, 63] and there is some evidence that corticospinal drive to trunk muscles might be reduced [28, 64]. In addition, CLBP patients demonstrate considerable slowness of movement [65, 66]. It is possible that altered self-perception of the back, particularly motor ‘neglect’, contributes to these motor impairments, an idea supported by the close relationship seen between lumbar tactile acuity and lumbar spine motor control tests [31]. While the symptom of motor ‘neglect’ was common, the cognitive ‘neglect’ item, *‘my back feels as though it is not part of the rest of my body’* was endorsed by only 51% of the CLBP population, somewhat lower than the 60% [44] and 63% [45] seen in the CRPS population.

Item-seven, *'my back feels like it is enlarged (swollen)'* was endorsed by 73% of patients. Qualitative research supports the presence of a distorted mental image of the painful of limb in CRPS [47], and empirical data show that CRPS patients perceive the affected limb to be larger than it really is [4]. The limited evidence that is available in the CLBP population suggested that back pain patients might perceive the back to be smaller than it is [42]. In this study two out of six patients remarked, during a body-awareness task, that they felt like their back had shrunk, while it appears that none reported that it felt enlarged. However, in our sample item-eight *'my back feels like it has shrunk'* was the symptom endorsed the least, with only 31% of participants agreeing with this statement and only four subjects indicating their back felt that way when painful often or always. The reasons for this finding are not clear. It may be a reflection of the small sample size in the Moseley [42] study or a feature of the different inclusion criteria. Participants in our study were only included if the referring clinician felt they were suitable for performance of a repeated movement assessment, which may have lead to the exclusion of more distressed or more severely affected subjects. Alternatively, the feeling that the back has shrunk may relate specifically to performance of the task in the Moseley study [42] and may not be readily experienced outside of that task. It seems reasonable to suggest that the high level of endorsement of item-seven may in part be shaped by social conditioning. That is, the idea that painful areas are swollen is a strong social expectation and therefore subjects may agree with this statement because they think this is how their back should be rather than how they actually perceive their back to be.

Item-nine *'my back feels lopsided (asymmetrical)'* was the most consistently endorsed symptom, though this finding should be interpreted with some care as our results suggest that item-nine may be capturing a slightly different facet of distorted perception than the

remaining questions. Eighty-eight percent of subjects agreed with this statement and 47% reported that their back felt like this often or always. This finding is partly consistent with the results of the Moseley [42] study in which four of the six subjects drew the midline of their back as displaced towards the painful side, with the two patients whose pain was bilateral not demonstrating this finding. CRPS patients with unilateral upper-limb pain demonstrate an altered perception of body-midline towards the affected side [67] and a tactile stimulus delivered to the affected side is given less weight by the brain regardless of whether the stimulus is delivered to the affected limb or the unaffected limb crossed-over to the affected side [13]. Furthermore, a similar spatially-defined disruption of tactile processing has also been observed in people with unilateral back pain – when tactile stimuli were delivered to either hand and the hands were held near the back, the stimulus delivered to the hand that was held on the healthy side was given more weighting than stimulus delivered to the hand held on the painful side [41]. Seventy-six percent of the current sample had a dominant side to their pain and all but four reported feeling lopsided. However, 10 of 12 subjects who described their pain as bilateral and equal also reported feeling lopsided. That there are reports of pelvic and lower-limb asymmetries in both pain-free individuals [68-71] and LBP patients [68, 70, 71], suggests that physical discrepancies are unlikely to fully explain the perceptual distortions observed here, although we cannot rule that out. It is possible that reports of feeling lopsided are also influenced by social learning as many common clinical models of LBP involve identifying positional misalignments of the pelvis or vertebrae as causative factors, propagating the idea that something is ‘out of place’ [72]. Such models seem to have little empirical basis (see for example [73]), but their acceptance by patients may reflect a common perceptual effect.

Recent models of pain characterise the pain experience as an emergent property related to the perception that the body is under threat and in need of protection [74]. If this is the case, exploration of patient's beliefs about their body would seem an important issue. Numerous studies have investigated the cognitive perceptions that patients have of their problem, including beliefs about the origin of their symptoms, ways of managing and coping with the problem, the impact of work and activity on their problem, and the likely outcome of their problem [75, 76]. Broadly, it appears that negative beliefs about back pain are associated with worse outcome [76]. The current study is the first to quantify perception of the back itself. The significant correlations we found between the FreBAQ score and disability and pain intensity suggest that distorted self-perception may also be associated with poor outcome, though longitudinal data is needed to further investigate this suggestion.

There are several hypotheses as to why distorted body-perception may negatively impact on clinical outcome. Poor awareness, motor 'neglect' and difficulty controlling the back may lead to abnormal loading of the spine and contribute to the maintenance of peripheral nociceptive input [77]. Peripheral tissue health may also be adversely affected by a distorted body-perception. Experimental disruption of body-awareness can alter tissue temperature [78], and histamine reactivity [79] in healthy volunteers and swelling in people with CRPS [80], suggesting possible top-down disruption of the normal homeostatic control of the body part. Furthermore, altered awareness and neglect-like dysfunction of the painful part may mean that any sensory input from the area, noxious or non-noxious, is perceived as abnormal and threatening thereby enhancing or creating the experience of pain [74]. It has also been argued that movement related pain may arise as a result of incongruence between predicted and actual proprioceptive feedback, by virtue of disrupted body maps [81, 82]. Indeed, there is a growing body of data that supports the idea of a cortical body-matrix that integrates

motor, proprioceptive and homeostatic control with somatotopic and spatial representation of the body and peripersonal space [3]. Experimental data that suggest disrupting perceptual representation of the body can modulate tissue regulation and pain [3, 83] lends weight to this proposal, as does emerging evidence that treatments which aim to normalise self-perception appear to reduce pain and disability in people with a variety of chronic pain conditions [14-16, 43, 84-86]. Clearly, a simple and accurate method with which to evaluate perceptual distortion of the back is timely.

There are some limitations to the current investigation. The sample size is small, which limits its generalisability and precludes a number of important steps in the validation of a new scale, for example factor and/or Rasch analysis. The use of a convenience sample and the exclusion criterion also impact on the generalisability of the findings to the wider CLBP population, particularly as only subjects who were deemed by the referring clinician as suitable for a repeated-movement assessment were included. Furthermore, there are no gold standard measures of body-perception, so the criterion related validity of the scale is currently unknown. Finally, while the control and patient samples are well matched for age and gender and near identical for height and weight, we did not match for level of physical activity and this may impact on the results presented here.

5. CONCLUSION

This paper outlines the development of a questionnaire designed to assess back specific self-perception in people with CLBP. Symptoms of body-perception distortion were endorsed by most CLBP patients, but rarely by healthy controls. Our current results suggest that the questionnaire has sound psychometric properties, however, validation of any new questionnaire is a cumulative process and the findings of this preliminary investigation

should be interpreted cautiously. Further testing of the questionnaire is required on larger and more diverse patient populations and emerging data may require further modification to the current questionnaire.

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TABLE 1. Demographic and clinical information on all participants

	CLBP patients (N=51) Mean (SD) or N(%)	Control participants (N=51) Mean (SD) or N(%)
Demographic information		
Gender (female)	21 (41%)	20 (39%)
Age (years)	41.7(14.0)	38.7 (13.4)
Height (cm)	172.4 (9.5)	175.9 (13.7)
Weight (Kg)	79.7 (14.1)	76.8 (13.7)
Work Status		
At work (or studying)	42 (82%)	51 (100%)
Off work due to LBP	8 (16%)	0 (0%)
Off work other reasons	1(2%)	0 (0%)
Clinical status		
Duration of LBP (years)	8.2 (10.4)	
Pain Area		
Back pain only	27 (53%)	
Back pain and leg pain	24 (47%)	
Taking opioid medication	13 (25%)	
Back Pain Intensity (0-100)	48.2 (17.8)	
Disability (RMDQ[a], 0-24)	10.1 (5.9)	
Catastrophization (PCS[b], 0-52)	17.8 (12.4)	
Kinesiophobia (TSK[c] 17-68)	36.1 (8.2)	
Depression		

Non-case	37 (72.5%)	49 (96%)
Possible	7 (13.7%)	2 (4%)
Probable	7 (13.7%)	0
Anxiety		
Non-case	35 (68.6%)	46 (90.2%)
Possible	7 (13.7%)	4 (7.8%)
Probable	9 (17.6%)	1 (2%)

[a]The Roland Morris Disability Questionnaire

[b]The Pain Catastrophizing Scale

[c]Tampa Scale of Kinesiophobia

TABLE 2. Frequency of responses to each item of the FreBAQ in the patient sample (n=51)

Item	Never N(%)	Rarely N(%)	Occasionally N(%)	Often N(%)	Always N(%)	Median	Mean
1. My back feels as though it is not part of the rest of my body	25 (49.0)	13 (25.5)	10 (19.6)	2 (3.9)	1 (2.0)	1	0.8
2. I need to focus all my attention on my back to make it move the way I want it to	11 (21.6)	11 (21.6)	15 (29.4)	9 (17.7)	5 (9.8)	2	1.7
3. I feel as if my back sometimes	28 (54.9)	11 (21.6)	7 (13.7)	5 (9.8)	0 (0.0)	0	0.8

moves involuntarily, without my control							
4. When performing everyday tasks, I don't know how my back is moving	20 (39.2)	13 (25.5)	10 (19.6)	6 (11.8)	2 (3.9)	1	1.2
5. When performing everyday tasks, I am not always sure where my back is in space	26 (51.0)	15 (29.4)	6 (11.8)	2 (3.9)	2 (3.9)	0	0.8
6. I can't perceive the exact outline of my back	20 (39.2)	15 (29.4)	11 (21.6)	4 (7.8)	1 (2.0)	1	1.0

7. My back feels like it is enlarged (swollen)	14 (27.5)	10 (19.6)	14 (27.5)	11 (21.6)	2 (3.9)	2	1.5
8. My back feels like it has shrunk	35 (68.6)	8 (15.7)	4 (7.8)	2 (3.9)	2 (3.9)	0	0.6
9. My back feels lopsided (asymmetrical)	6 (11.8)	8 (15.7)	13 (25.5)	15 (29.4)	9 (17.7)	2	2.3

TABLE 3. Results of univariate correlations between FreBAQ total score and clinical characteristics in the patient population (N=51)

	Correlation coefficient	p-value
Duration of low back pain	0. 357[b]	**0.010**
Pain intensity	0.400[a]	**0.004**
Disability (RMDQ)	0.366[a]	**0.008**
Catastrophization (PCS)	0.408[a]	**0.003**
Kinesiophobia (TSK)	0.271[a]	0.054
Anxiety	0.031[b]	0.828
Depression	0.149[b]	0.298

[a] Pearson's R, [b] Spearman's rho

APPENDIX.

The Fremantle Back Awareness Questionnaire

Here are some things which other patients have told us about how their back feels to them. Using the following scale, please indicate the degree to which your back feels this way **when you are experiencing back pain**

0 = Never feels like that

1 = Rarely feels like that

2 = Occasionally, or some of the time feels like that

3 = Often, or a moderate amount of time feels like that

4 = Always, or most of the time feels like that

	Never	**Rarely**	**Occasionally**	**Often**	**Always**
1. My back feels as though it is not part of the rest of my body	0	1	2	3	4
2. I need to focus all my attention on my back to make it move the way I want it to	0	1	2	3	4
3. I feel as if my back sometimes moves involuntarily, without my control	0	1	2	3	4
4. When performing everyday tasks, I **don't** know how my back is moving	0	1	2	3	4

5. When performing everyday tasks, I am **not** sure exactly what position my back is in	0	1	2	3	4
6. I **can't** perceive the exact outline of my back	0	1	2	3	4
7. My back feels like it is enlarged (swollen)	0	1	2	3	4
8. My back feels like it has shrunk	0	1	2	3	4
9. My back feels lopsided (asymmetrical)	0	1	2	3	4