



The attitudes and beliefs of UK osteopaths towards the management of low back pain: A cross-sectional study

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ABSTRACT

Objectives: To assess the biomedical (BM) and biopsychosocial (BPS) attitudes and beliefs of osteopaths towards the management of low back pain (LBP) and whether this is associated with certain demographic variables.

Methods: A cross-sectional survey of UK osteopaths was undertaken utilising the Pain Attitudes and Beliefs Scale for Physiotherapists (PABS.PT), which assesses practitioners' treatment orientation (BPS or BM) in LBP management. A demographic questionnaire was used to assess the relationship with certain demographic variables.

Results: Responses were analysed from 107 osteopaths. The mean PABS.PT score for the BM scale was 32.41 (SD 6.32) and 31.99 (SD 4.09) for the BPS scale. There was a statistically significant, negative correlation between the scales. Most osteopaths recognised stress as a contributing factor to LBP and believed in the benefits of exercise for LBP but had diverse views regarding the relationships between pain and tissue damage. None of the demographic variables were associated with the PABS.PT scales.

Conclusion: Osteopaths' beliefs may indicate an acceptance of the BPS approach, but some still hold strong BM beliefs about pain, which may influence their clinical decision making. Future studies should investigate the impact of osteopaths' beliefs on their clinical management of LBP.

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Introduction

Low Back Pain (LBP) is the most burdensome disease in the world in terms of number of years lived with a disability [1]. It was identified by UK employers as the second main cause for work absence [2]. LBP is the most common reason for patients to consult osteopaths [3,4]. While most patients with LBP make a full recovery, approximately 28% become chronic sufferers [5]. In the absence of pathology, psychosocial factors are the main predictors for chronicity [6]. These include, patients' negative beliefs regarding the cause of their pain and a reduction of daily activities such as work and exercises. Practitioners' attitudes and beliefs about LBP are likely to be expressed to patients [7], which may influence their illness perception [5], behaviour and subsequent treatment outcomes [8].

Two dominant treatment orientations are described in the literature: biopsychosocial (BPS) and biomedical (BM) [9]. The BM

model emphasises physiological and anatomical factors as the exclusive cause of LBP, whereas the BPS model recognises the contribution of social and psychological dimensions to the development and maintenance of LBP [10]. In the management of LBP, whether acute or chronic, a BM approach may not be the most effective [11,12], as LBP often has little correlation to objective physical findings [13]. In this respect, the BPS approach may be more appropriate as it considers non-mechanical factors [14]. Osteopathic philosophy is congruent with the BPS model as it considers the patient as a whole in the context of their psychological and social environment [15]. However, osteopaths see the central features of osteopathy differently [16] and it is down to the individual practitioner how they employ the osteopathic principles.

It is argued that for osteopathy to provide best patient care, practice should be guided by evidence-based-medicine (EBM) [17–19]. The practice of EBM combines individual clinical expertise, patient's values and the best available clinical evidence from systematic research [20]. The BPS model is an example of the best available evidence for the management of LBP [21]. While BPS views have been identified in a qualitative study investigating the overall professional conceptions of osteopaths [22], there has been

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little research exploring their attitudes and beliefs in relation to LBP [23,24].

Practitioners' beliefs have been identified as one of the five main priorities for future research in LBP [25]. So far, the attitudes and beliefs of osteopaths regarding LBP have only been investigated as part of mixed samples of musculoskeletal practitioners (MPs), which included osteopaths, chiropractors and physiotherapists [23,24,26]. The survey of 465 MP's LBP beliefs by Pincus et al. (2007) [23], suggested that although all MPs accepted the BPS approach, osteopaths' beliefs reflected a more BM approach as they advised patients to limit some daily activities and were less willing to engage in the psychological issues of their patients compared to physiotherapists. However, it might be that their relatively strong BM views were due to 'midlife' osteopaths being over represented in the sample, as Ostelo et al. (2003) [27] showed that a MP age of over 42 years was associated with a more BM approach. Additionally, training that largely focuses on the biomechanics and anatomy of the spine, such as in osteopathic training [28], was associated with an exacerbation of the BM beliefs of physical therapists [29].

Therefore, the aim of this study is to measure the attitudes and beliefs of UK osteopaths regarding LBP and to assess whether demographic variables are associated with their treatment orientation.

Method

Design

A quantitative cross-sectional survey of UK osteopaths was undertaken. Data was collected using a self-completion online questionnaire.

Participants

A convenience sample was used involving UK osteopaths registered with the General Osteopathic Council (GOsC) who had previously consented to being contacted about taking part in research. The only inclusion criterion was registration with the GOsC.

Assuming a total population of 5000 osteopaths in the UK, a 10% margin of error, a 95% confidence interval and a prevalence equal to 0.5 (standard for unknown prevalence): 93 completed questionnaires were required to achieve an adequate sample size to provide a representative sample of the population [30].

Material and instrument

The Pain Attitudes and Beliefs Scale for Physiotherapists (PABS.PT) was used to investigate the attitudes and beliefs of UK osteopaths [27]. This instrument was developed to distinguish between BM and BPS treatment orientations of practitioners in the management of LBP [27]. The PABS.PT has been used with several healthcare practitioner populations, including MPs [31]. Mutsaers et al. (2012) [32] demonstrated acceptable results for its internal consistency, test-retest reliability, construct validity and responsiveness.

The current version of the PABS.PT consists of 19 items (see appendix A), 10 for the BM subscale and 9 for the BPS [31]. All items use a 6-point Likert scale with anchors of 'totally disagree' and 'totally agree'. The score for the PABS.PT BM subscale ranges from 0 to 60 points, and the score for the BPS subscale ranges from 0 to 54. A high score on the BM scale indicates a belief in physiological factors as the exclusive cause for LBP and a high score on the BPS subscale indicates a belief in the influence of psychosocial

dimensions in the development and maintenance of LBP. Recommended thresholds for high or low scores have not yet been reported [33].

Practitioners' age, sex, years in practice, number of patients seen per week, and highest academic qualification were previously associated with PABS.PT scores for physiotherapists and chiropractors [27,34,35]. Therefore, these data were obtained in the current study. Age, years in practice and number of patients per week were indicated using ordinal range bands. Sex and highest qualification provided nominal frequency data.

Procedure

The questionnaire was hosted on the SurveyMonkey (2017) [36] website. Participants were sent an email invitation containing the link to the survey and the Participant Information Sheet as an attachment. It was made clear that participation was completely voluntary. All questionnaire responses were completed anonymously and submission of the questionnaire indicated consent. Instructions to participants explained that the aim of the study was to investigate osteopaths' beliefs about the management of low back pain. It was made clear that the wording *back pain* within the questionnaires did not include pain of pathological origin.

Statistical methods

Descriptive statistics

Raw data were exported from Survey Monkey in an Excel spreadsheet then imported into Statistical Package for the Social Sciences (SPSS version 22). Summed subscale scores for the PABS.PT were calculated according to methods described by the questionnaire developers [27]. No method for dealing with missing data has been published for the PABS.PT, therefore only completed questionnaires were included in the analysis. Summed subscale data were treated as continuous data [37] and tested for normality using skewness, kurtosis, Shapiro-Wilk tests and visual inspection of histograms. Normally distributed continuous data were described using means and standard deviations (SDs), otherwise medians and interquartile ranges (IQRs) were used. However, in some cases, the means were calculated for data that were not normally distributed to allow for comparison with previous studies and between the scores of the BPS and BM subscale. Nominal data were described using frequencies and percentages. Medians and IQRs were used for ordinal data.

To further explore osteopaths' attitudes and beliefs regarding the management of LBP, the author sub-divided individual items of the PABS.PT that directly reflect national LBP guidelines [21] and pain medicine [47] into the following categories: psychosocial barriers to recovery, pain conception and physical activity. These were described using percentages (see Table 3).

Inferential statistics

To test whether the BM and the BPS scores were inversely related, Pearson's product moment correlation was used. Spearman's rank correlations were used to test associations between the PABS.PT subscales and ordinal variables. For nominal data variables, e.g. gender, independent samples t-tests were used with the nominal variable as the independent grouping variable.

Ethics

Ethical approval was granted by the University College of Osteopathy Research Ethics Committee.

Table 1
Descriptive statistics for demographic data.

	n = 107 (Percent)
Gender	
Male	51 (48)
Female	56 (52)
Age	
20–30	2 (1.9)
31–40	23 (21.9)
41–50	35 (33.3)
51–60	28 (26.7)
60+	17 (16.2)
Median	3 (41–50), IQR 1
Number of patients seen per week	
10–20	26 (24.3)
21–30	26 (24.3)
31–40	28 (26.2)
41–50	13 (12.1)
50+	14 (13.1)
Median	3(31–40), IQR 2
Number of years in practice	
0–5	6 (5.6)
6–12	31 (29.0)
12–20	26 (24.3)
20+	44 (41.1)
Median	3 (12–20), IQR 2
Level of education	
Bachelor degree (BOst or BSc)	56 (59.6)
Undergraduate Master's degree (MOst)	9 (9.6)
Postgraduate certificate	1 (1.1)
Postgraduate diploma Postgraduate	13 (13.8)
Master's degree (MSc)	15 (16.0)

Results

Response

The response rate was 8.3% (n = 125) of 1496 osteopaths. 12 had missing values and therefore were excluded from the analysis. 107

Table 2
Means and SD of PABS-PT scores for all participants.

	Mean	SD	CI (95%)	Distribution	Median	IQR
BM Score	32.41	6.32	31.20–33.62	not normal	33.00	7
BPS Score	31.99	4.09	31.21–32.77	normal	32.00	6
Mean score of the BM subscale (10 items)	3.24	0.63	n/a	n/a	n/a	n/a
Mean score of the BPS subscale (9 items)	3.55	0.45	n/a	n/a	n/a	n/a

Table 3
PABS-PT items representing psychosocial barriers to recovery, pain conception and physical activity. The percentages in the table below shows the results for osteopaths' answers to the 6 point Likert type scale.

	Totally disagree	Largely disagree	Disagree to some extent	Agree to some extent	Largely agree	Totally agree
Psychosocial factors in LBP						
Mental stress can cause back pain even in the absence of tissue damage	0.9%	1.9%	2.8%	23.4%	39.3%	31.8%
Learning to cope with stress promotes recovery from back pain	0	0.9%	2.8%	49.5%	34.6%	12.1%
Pain conception						
Pain is a nociceptive stimulus, indicating tissue damage	6.5%	15.0%	25.2%	37.4%	15.0%	0
Back pain indicates the presence of organic injury	10.3%	20.6%	30.8%	35.5%	2.8%	0%
The severity of tissue damage determines the level of pain	27%	29.9%	24.3%	16.8%	0%	1.9%
Increased pain indicates new tissue damage or the spread of existing damage	11.2%	29.0%	38.3%	17.8%	3.7%	0
If patients complain of pain during exercise, I worry that damage is being caused	5.6%	22.4%	27.1%	35.5%	8.4%	0.9%
LBP and physical activity						
A patient suffering from severe pain will benefit from physical exercise	2.8%	9.3%	13.1%	45.8%	22.4%	6.5%
Patients with back pain should preferably practice only pain free movements	2.8%	11.2%	44.9%	25.2%	14.0%	1.9%

had no missing values and were available for the PABS-PT analysis. Demographic data are summarised in Table 1. There were approximately equal numbers of male (48%) and female participants. A third of respondents were between the ages of 41–50 years. Respondents most commonly saw 31 to 40 patients per week (26%) and had clinical experience of over 20 years (41%). The majority held a Bachelors level degree as their highest qualification (59.5%).

The score for the BM subscale was 32.41 (SD 6.32), the mean of the 10 items was 3.24 (SD 0.63), and the median was 33.00 (IQR 7) (Table 2). The score for the BPS subscale was 31.99 (SD 4.09), the mean of the 9 items was 3.55 (SD 0.45) and the median was 32.00 (IQR 6). The BPS scale was normally distributed (p = 0.110) but the BM scale was significantly different to normal (p = 0.010).

A Pearson's Correlation test showed a statistically significant, moderate, negative correlation between BM and BPS scores, $r(105) = -0.42$, $p < 0.0005$, meaning respondents who scored high on the BPS subscale scored low on the BM subscale and vice versa.

Response to items that address activity recommendations, psychosocial barriers to recovery [21] and pain conceptions are presented in Table 3. The majority of participants (71%) largely or totally agreed that mental stress can cause LBP even in the absence of tissue damage. Approximately forty percent of participants (38.3%) agreed to some extent or largely agreed that LBP indicated the presence of organic injury. Almost half of participants (44%) were worried that damage is being caused when patients complain of pain during exercise. Most participants (68.2%) agreed to some extent or largely agreed that a patient who is suffering from severe pain will benefit from physical exercise.

There were no significant Spearman's correlations between PABS-PT subscales and practitioners' age, number of years in practice, number of patients seen per week or level of education ($ps > 0.05$). Independent t-tests assuming equality of variance showed no significant difference between male and female participants on the mean scores of either subscale, $t(105) = -0.36$, $p = 0.7$ (BM), $t(105) = -0.31$, $p = 0.8$.

Table 4
Comparison of Means and SDs of past studies scores.

Study	PABS.PT BM		PABS.PT BPS	
	Mean	SD	Mean	SD
Current study	32.4	6.3	31.9	4.0
Houben et al. (2005) [31] Physical therapists	29.5	7.9	35.6	5.6
Bishop et al. (2008) [7] UK Physiotherapists	31.1	7.2	32.5	4.8
Innes et al. (2015) [35] Australian Chiropractors	34.5	6.3	31.4	4.1

Comparison with previous studies

Table 4 compares the means and SDs of previous studies' scores. One sample t-tests showed that the BM mean score of osteopaths in the current study was significantly higher than Dutch physical therapists [31] ($t(110) = 4.779$, $p < 0.0005$) and UK physiotherapists [7] ($t(110) = 2.097$, $p = 0.038$) but significantly lower than Australian chiropractors [35] ($t(110) = -3.601$, $p < 0.0005$). The BPS mean was significantly lower than Dutch physical therapists [31] ($t(108) = -9.284$, $p < 0.0005$) but not significantly different to UK physiotherapists [7] ($t(108) = -1.310$, $p = 0.193$) or Australian chiropractors [35] ($t(108) = 1.520$, $p = 0.131$).

Discussion

Main findings

This study investigated the attitudes and beliefs of UK osteopaths towards the management of LBP. Analysis of individual items showed that most osteopaths recognised stress as a contributing factor to LBP. This may suggest an acceptance of the BPS approach, which is consistent with the osteopathic philosophy that considers the person as a unit of mind, body and spirit [18,38]. A similar approach was demonstrated in a qualitative investigation of osteopaths' professional views in the UK, where half of the participants emphasised the importance of understanding the patient's pain and physical dysfunction in the context of their daily life and social situation, and supported self-management [16]. Acceptance of the BPS approach was also apparent in an interview study where MPs expressed their concerns regarding emotional and psychological stressors that patients with LBP may encounter in their work environment [39] and in a large survey of 1758 MPs where almost none of the participants supported bed rest for LBP patients [26].

Analysis of individual items also suggested that most osteopaths believed in the benefits of physical exercise for LBP. However, osteopaths had diverse views regarding the relationships between pain and tissue damage. Therefore, it may be that most participants are aware of LBP guidelines to maintain normal activity levels [21] but less aware of modern pain theories [40], which may result in a tendency to use a tissue damage model of pain origination. While most participants (60%) disagreed with the statement that patients should only practice pain free movement in their daily activities (in line with a BPS approach), a large proportion of respondents (40%) agreed to some extent or largely agreed with this statement, despite national and international LBP guidelines encouraging maintenance of normal activity levels [41]. However, patients with endurance-type behaviour who suppress the perception of pain and continue in daily activities despite pain have been identified as a sub-group at risk for chronicity [42]. It has also been argued that such sub-groups are over-represented in private practice [39], the most common setting for osteopathy, which may have affected the results observed in this study.

No demographic variables were significantly associated with the PABS.PT scores, implying that practitioners' age, sex, years in practice, academic qualification and number of patients seen per week is not related to treatment orientation. Practitioners' age and gender in this study were representative of osteopaths nationally [3]. Therefore, it may be that the results of previous studies showing positive associations between the BM orientation and being a male practitioner [34] and over 42 years of age [27] are not applicable to this sample.

Osteopaths' scores on the PABS.PT subscales were within the ranges of previous studies that investigated physiotherapists and chiropractors [7,31,35], suggesting some attitudinal similarities between the professions. Nevertheless, on the BM scale, osteopaths scored significantly higher than UK and Dutch physiotherapists. These results echo previous findings where osteopaths demonstrated stronger BM beliefs compared to physiotherapists; believed that there was an underlying structural cause of LBP [23]; and that work can either cause or exacerbate LBP more often than physiotherapists [24]. These differences may be due to the differences in practice settings. While many physiotherapists work in the NHS, the majority of osteopaths work in private practice [43] and may be less aware of the NICE guidelines which emphasize the BPS management of LBP.

Strengths and limitations

This study used a previously validated measure of practitioners' attitudes and beliefs towards the management of LBP [7,35,44]. This contributes to the internal validity and reliability of the study. In addition, although the response rate was relatively low, it was sufficient to meet the required sample size for the planned analyses. However, the respondents were mostly osteopaths with substantial time in practice and the results cannot be generalised to osteopaths who qualified more recently as they were underrepresented in the study. The BPS model has become more dominant in the last two decades [14] so it may only have recently become part of osteopathic undergraduate education. Had a higher proportion of recent graduates taken part in the study, the results may have reflected stronger BPS views. Thus, a larger study with participants with varying clinical experience may be required to assess if these patterns exist in UK osteopaths.

In this study, the instructions for participants used the term 'low back pain' and did not specify whether practitioners were to consider the management of acute back pain (pain lasting less than three months) or chronic back pain (pain lasting more than three months). Potentially, acute and chronic LBP may require different management strategies, since the underlying recovery processes of acute and chronic pain are likely to be different [45]. Therefore, the lack of specific instructions may have affected the PABS.PT scores in this study. In addition, further investigation of the overall content validity, interpretability and the internal consistency of the BPS subscale may be required [32], particularly in the osteopathic profession, where the PABS.PT has not yet been validated.

Implications

This study may have important implications for the implementation of EBM into clinical practice. Although most osteopaths in this study held beliefs that were aligned with EBM, some viewed pain from a biomedical perspective and believed in the correlation between pain levels and the severity of tissue damage. It is likely that such beliefs are expressed to patients, which may have various negative consequences [7]. For example, osteopaths who emphasize physical factors for causation and maintenance of LBP, may reinforce fear of movement and the perception of serious tissue

damage in the patient (nocebo effect) [48]. This may increase the risk of the pain becoming chronic [46]. It is important for osteopaths to understand that pain may be present without tissue damage and to convey this message to patients, as pain neuroscience education has consistently demonstrated positive outcomes in reducing pain and disability in patients with chronic LBP [49]. Osteopaths should incorporate self-reflection as part of their professional development [15] so they can identify beliefs that contradict EBM and act towards changing them by consulting BPS pain literature and perhaps engaging in appropriate educational courses to improve therapeutic strategies and outcomes [11].

While osteopaths in the UK are autonomous practitioners, there is increasing expectation from both patients and other healthcare practitioners that patient care should be informed by evidence-based guidelines [50]. These are perceived as the link between generating and implementing EBM [51]. Bishop et al. (2008) [7] showed a significant linear association between physiotherapists' adherence to LBP guidelines [52], and the PABS.PT scores. Therefore, it would be useful for future studies to evaluate ideal cut-off points for the PABS.PT to assist interpretation of treatment orientation and correlation with guidelines in osteopaths. Furthermore, future research should investigate the impact of treatment orientations on clinical management of LBP in an osteopathic setting, for example, by studying practitioner-patient interactions in a clinical setting.

Conclusion

This study measured UK osteopaths' attitudes and beliefs towards the management of LBP. The results may indicate an acceptance of the BPS approach. Overall, osteopaths' scores were similar to that of other MPs. Most osteopaths believed in the benefit of maintaining normal activity levels during LBP and that stress could be a contributing factor to LBP. However, the results also suggest that some osteopaths still hold strong BM beliefs about pain that may influence their clinical decision making. Future studies should focus on investigating the impact of osteopaths' beliefs on their clinical management and developing strategies for osteopaths to address beliefs that do not align with an evidence based approach.

Statement of competing interests

The authors have no affiliation with or involvement in an organization or entity with a financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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Ethical approval details

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Appendix D. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ijosm.2018.03.006>.

Appendix A

PABS-PT – 19 items version

Houben RM, Ostelo RW, Vlaeyen JW, Wolters PM, Peters M, Stomp-van den Berg SG. Health care providers' orientations towards common low back pain predict perceived harmfulness of physical activities and recommendations regarding return to normal activity. *European Journal of Pain* 2005a; 9:173–183.

We would like you to indicate the level to which you agree or disagree with each of the following statements. (Please tick one box on each line).

	Totally disagree	Largely disagree	Disagree to some extent	Agree to some extent	Largely agree	Totally agree
1 Mental stress can cause back pain even in the absence of tissue damage						
2 The cause of back pain is unknown						
3 Pain is a nociceptive stimulus, indicating tissue damage						
4 A patient suffering from severe pain will benefit from physical exercise						
5 Functional limitations associated with back pain are the result of psychosocial factors						
6 Patients with back pain should preferably practice only pain free movements						
7 Therapy may have been successful even if pain remains						
8 Back pain indicates the presence of organic injury						
9 If back pain increases in severity, I immediately adjust the intensity of treatment accordingly						
10 If therapy does not result in a reduction in back pain, there is a high risk of severe restrictions in the long term						
11 Pain reduction is a precondition for the restoration of normal functioning						
12 Increased pain indicates new tissue damage or the spread of existing damage						
13 There is no effective treatment to eliminate back pain						
14 Even if the pain has worsened, the intensity of the next treatment can be increased						
15 If patients complain of pain during exercise, I worry that damage is being caused						
16 The severity of tissue damage determines the level of pain						
17 Learning to cope with stress promotes recovery from back pain						
18 Exercises that may be back straining should not be avoided during the treatment						
19 In the long run, patients with back pain have a higher risk of developing spinal impairments						

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