



# Current management of pregnancy-related low back pain: a national cross-sectional survey of UK physiotherapists

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## Abstract

**Background** Pregnancy-related low back pain (LBP) is very common. Evidence from a systematic review supports the use of exercise and acupuncture, although little is known about the care received by women with pregnancy-related back pain in the UK.

**Objective** To describe current acupuncture and standard care management of pregnancy-related LBP by UK physiotherapists.

**Design** Cross-sectional survey of physiotherapists with experience of treating women with pregnancy-related LBP from three professional networks of the Chartered Society of Physiotherapy.

**Methods** In total, 1093 physiotherapists were mailed a questionnaire. The questionnaire captured respondents' demographic and practice setting information, and experience of managing women with pregnancy-related back pain, and investigated the reported management of pregnancy-related LBP using a patient case vignette of a specific, 'typical' case.

**Results** The overall response rate was 58% (629/1093). Four hundred and ninety-nine physiotherapists had experience of treating women with pregnancy-related LBP and were included in the analysis. Most respondents worked wholly or partly in the UK National Health Service (78%). Most respondents reported that they treat patients with pregnancy-related LBP in three to four one-to-one treatment sessions over 3 to 6 weeks. The results show that a range of management strategies are employed for pregnancy-related LBP, and multimodal management is common. The most common reported treatment was home exercises (94%), and 24% of physiotherapists reported that they would use acupuncture with the patient described in the vignette.

**Conclusions** This study provides the first robust data on the management of pregnancy-related LBP by UK physiotherapists. Multimodal management is common, although exercise is the most frequently used treatment for pregnancy-related LBP. Acupuncture is used less often for this patient group.

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**Keywords:** Pregnancy; Low back pain; Physiotherapy; Acupuncture; Survey

## Introduction

Low back pain (LBP), with or without pelvic girdle pain (PGP) (henceforth referred to as 'pregnancy-related LBP'), is very common during pregnancy. Although prevalence estimates vary between studies due to different definitions and diagnostic criteria, LBP is reported to affect between 45% and 75% of women at some stage during their pregnancy [1,2],

with a point prevalence of approximately 34% [2]. Studies have shown that pregnant women with LBP have lower quality of life compared with non-pregnant healthy women [3], and LBP and PGP during pregnancy are common reasons for sick leave, with reports suggesting that 20% to 23% of women take sick leave because of their pain [2,4].

Information about the care that women with pregnancy-related LBP receive is inadequate, and there are no UK-based studies focused on LBP, although women presenting with PGP have reported a lack of knowledge among staff and management is often limited [5]. An Australian study showed that 71% of pregnant women with pregnancy-related LBP reported their problems to their maternity carer [2], but only

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25% of women received any treatment. Pregnancy-related LBP is often accepted as a ‘normal’ discomfort of pregnancy [2,6], with some suggesting that this may be related to health professionals’ lack of knowledge about available treatments and fear of possible harmful effects of treatment on the developing fetus [6]. Women are often advised to self-manage their LBP through postural changes, adaptations in lifting techniques, simple exercises, rest, heat and cold, supportive belts and pillows, massage and relaxation [7], but may also be referred for other treatments, such as physiotherapy-led exercise, manual therapy, acupuncture, massage, transcutaneous electrical nerve stimulation and mobility aids [2,6]. Guidelines for the management of PGP have been produced [8], but do not provide guidance for pregnancy-related LBP or combined LBP and PGP. Similarly, guidelines for the management of patients with LBP are limited to ‘non-specific LBP’, and do not include pregnancy-related LBP [9,10]. A recent systematic review concluded that there is low-quality evidence that exercise reduces pain and disability from back pain alone, and moderate-quality evidence that acupuncture or exercise, tailored to the stage of pregnancy, reduces evening pelvic or lumbo-pelvic pain. Acupuncture has been reported to be more effective than exercise for reducing evening pelvic pain [7]. Despite this, anecdotal reports suggest that acupuncture may not be permitted in some UK physiotherapy services.

As information on the physiotherapeutic management of pregnancy-related LBP is lacking, high-quality data on current UK care for this patient population were needed as part of a developmental programme of work for a pilot trial of acupuncture and standard care for pregnancy-related back pain (the EASE BACK Trial). Therefore, to fill this evidence gap, the aim of this study was to describe current standard care and acupuncture treatment, by UK physiotherapists, for the management of pregnancy-related LBP.

## Methods

### *Design and setting*

A cross-sectional national survey of physiotherapists working in the UK was conducted in June and July 2012. Ethical approval for the study was provided by the NRES Committee North West – Greater Manchester North (Ref. 12/NW/0227). Written consent was not sought from each participant for use of survey data, but consent was assumed if physiotherapists completed and returned the questionnaire.

### *Survey sample and mailing process*

The inclusion criteria for physiotherapists were:

- membership of the Chartered Society of Physiotherapy; and

- experience of treating women with pregnancy-related LBP.

Separate random samples of physiotherapists were obtained from three professional networks of the Chartered Society of Physiotherapy. Whilst the optimal approach to generate representative survey findings is to use a simple random sample of all UK physiotherapists, no comprehensive sampling frame for UK physiotherapists is available at present. As such, three professional networks with interests relevant to LBP, acupuncture and pregnancy were selected, with a total combined membership of approximately 7000 physiotherapists, in order to access a broad range of interest and expertise, and to provide a dataset that was as generalisable as possible about physiotherapeutic care across the UK. The professional networks were chosen to include physiotherapists with a special interest in (a) women’s health [Association of Chartered Physiotherapists in Women’s Health (ASPWH), now known as Pelvic, Obstetric and Gynaecological Physiotherapy], (b) acupuncture [Acupuncture Association of Chartered Physiotherapists (AACP)] and (c) musculoskeletal pain conditions [McKenzie Institute Mechanical Diagnosis and Therapy Practitioners (MIMDTP)]. Random samples of members of the three networks ( $n = 1093$ ) were mailed by the administrators of each network, and two reminder mailings were subsequently sent to non-respondents. It is possible that physiotherapists who belonged to more than one of these professional networks could have received more than one copy of the questionnaire. An initial filter question was used to identify those respondents who had never treated a woman with pregnancy-related LBP, and these respondents were not included in the analysis.

Previous surveys of physiotherapists in the UK indicated a likely response rate of 55% to 60% [11–13], so approximately 600 to 650 overall responses were anticipated from the mailing of 1093 physiotherapists. Based on a sample size formula for a single population proportion, a sample size of 380 to 600 is necessary to produce a two-sided 95% confidence interval estimated to within 4 to 5 percentage points of the true value when the target population proportion is 50% ( $P = 0.5$  is safest as it gives the largest sample size). Therefore, the sample size was deemed adequate to provide descriptive data (proportion) on key survey variables to acceptable precision (<5% margin of error).

### *Survey questionnaire*

A previous national survey questionnaire of physiotherapeutic practice for non-specific LBP (not related to pregnancy) was adapted for use in this study [12]. The questionnaire captured information about respondents’ demographics and clinical practice, and investigated the management of pregnancy-related LBP using a patient case vignette of a specific, ‘typical’ case developed from a real patient example following recommendations from other studies [14–16]. The patient vignette is reproduced in [Box 1](#), and the full questionnaire can be found in the online

**Box 1: Patient vignette included in the questionnaire.**

A 34-year-old woman was referred by her general practitioner with symptoms of intermittent sharp pain at her lower thoracic and lumbar regions, and reports that the symptoms began a few weeks ago. She is 24 weeks pregnant with her first child. She is in good general health, of normal weight for her height, and has never had back pain before.

Her back pain presents as occasional sharp sensations at the lumbar/lower thoracic regions of her spine, and seems to be unrelated to posture or activity. She also has some dull pain in the lower back region, which is more persistent but of lesser intensity than the sharp pain she experiences occasionally. Her symptoms are worse if she maintains a sitting posture for prolonged periods. She is reluctant to use any analgesic medication due to her pregnancy.

Upon examination, there is no exacerbation with movement, nor any directional preferences. She has normal range of movement and is moderately tender on the paraspinal muscles of her lower back. Straight Leg Raise and Slump tests are negative.

supplementary information. Respondents were asked how they would manage the patient described in the vignette, including likely treatment approach, advice offered, and number of treatment sessions provided. Specific questions on the use of acupuncture were also included.

*Statistical analysis*

Descriptive statistics were used to summarise physiotherapists' characteristics, and provide data on current physiotherapeutic practice for women with pregnancy-related LBP, including the use of acupuncture. As treatment provided by UK National Health Service (NHS) and non-NHS physiotherapists has been shown to differ [17], treatment approaches used by survey respondents working within NHS and non-NHS settings were compared using Pearson's Chi-square test. This survey was not designed to test for differences between members of different professional networks. However, as the survey sample was not a simple random sample of all UK physiotherapists, some exploratory comparisons between the professional networks were undertaken to identify any inter-network differences. Similarities in management across these varied professional networks may provide support for the generalisability of the results.

All analyses were performed using Stata Version 12 [18].

Table 1

Demographic and practice characteristics of physiotherapists.

Characteristics (denominator) <sup>a</sup>		
	Mean	SD
Years of experience (456)	21.5	10
	<i>n</i>	%
Female (499)	459	92
Work setting (498)		
Exclusively NHS	201	40
Exclusively non-NHS	159	32
Combination of NHS and non-NHS	138	28
Frequency of treating pregnant women with LBP (499)		
Infrequent (at most once in last 6 months)	173	35
Somewhat frequent (between two and five times in last 6 months)	148	30
Frequent (at least once per month)	70	14
Very frequent (at least once per week)	108	22
Referral source <sup>b</sup> (499)		
Referral from GP	347	70
Referral from midwife	241	48
Self-referral	240	48
Referral from physiotherapist	147	30
Referral from obstetrician	137	28
Other	38	8
Training <sup>b</sup>		
Specific postgraduate training in LBP in general (491)	444	89
Specific postgraduate training in acupuncture (497)	370	75
Specific postgraduate training in women's health (492)	327	66
Specific postgraduate training in LBP in pregnancy (496)	264	53
Use of acupuncture in management of musculoskeletal pain (496)	338	68

NHS, National Health Service; GP, general practitioner; LBP, low back pain; SD, standard deviation.

<sup>a</sup> Denominator varies according to number of valid responses because of varying missing data or non-applicable cases.

<sup>b</sup> Respondents were able to indicate multiple responses.

**Results**

The overall response rate was 58% (629/1093); of the respondents, 499 physiotherapists had some experience of treating women with pregnancy-related LBP, and were included in the analysis. The demographic and practice characteristics of the respondents are presented in Table 1. Most respondents were female and very experienced with a mean of 22 years in practice. Physiotherapists worked in a variety of NHS and non-NHS settings. Women with pregnancy-related LBP were referred from a range of other healthcare practitioners, and self-referral by women themselves was also common. In total, approximately one-third of respondents reported seeing a pregnant woman with LBP at least once per month.

*Standard care management*

Standard care was investigated by asking respondents to indicate the management options that they would use for the patient described in the vignette. Most respondents (88%,

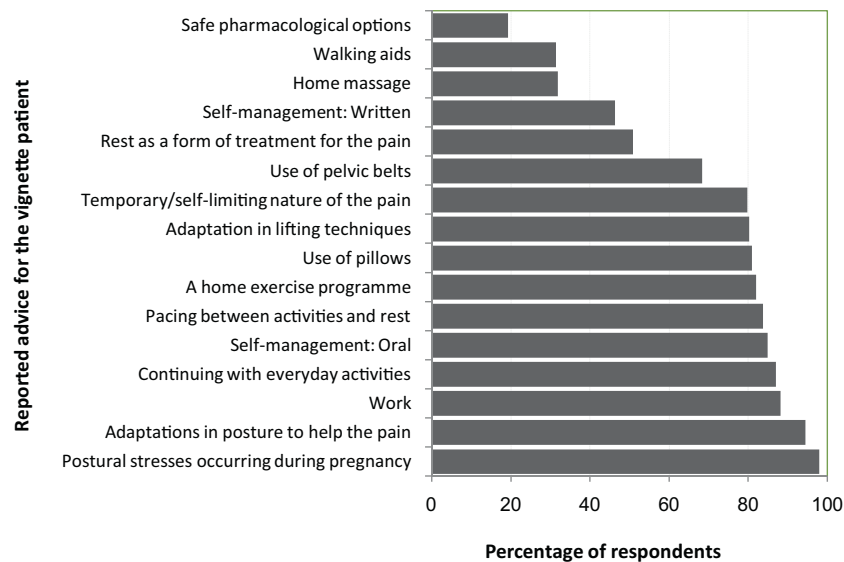


Fig. 1. Reported advice for the patient described in the vignette.

Table 2  
Episode-of-care details for the patient described in the vignette.

Characteristics of care (denominator) <sup>a</sup>	<i>n</i>	%
No. of times patient typically seen (425)		
Once	51	12
Twice	103	24
Three or four times	205	48
Five times or more	66	16
Time period over which patient would typically be treated (414)		
1 to 2 weeks	79	19
3 to 6 weeks	221	53
7 to 10 weeks	70	17
>10 weeks	45	11
Typical episode of care (428)		
Finished after treatment, rereferral required for further treatment	27	6
Left 'open' for duration of pregnancy	258	60
Left 'open' for a defined period after end of treatment	66	15
Other	77	18

<sup>a</sup> Denominator varies according to number of valid responses because of varying missing data or non-applicable cases.

$n = 430$ ) stated that they would be responsible for the care of such a patient, but 12% ( $n = 58$ ) reported that it was not their role and this type of patient would be referred to a women's health specialist physiotherapist. The large majority of respondents (85%,  $n = 364$ ) reported that they would manage this patient in one-to-one treatment sessions, with the remainder managing the patient as part of a group, only using one-to-one sessions for initial assessment or 'if required'. They reported that the patient would typically be seen three to four times over a period of 3 to 6 weeks, although the episode would be left 'open' for the duration of the pregnancy so that a woman could reconsult the physiotherapist if needed until the birth of her baby. Table 2 shows details about the episode of care.

A wide range of advice and treatment options was reported for management of the patient described in the vignette, and

many respondents reported that they would employ multiple treatments and advice (see Figs 1 and 2). Advice on a range of aspects of pregnancy, LBP and activities of daily living was reported by the respondents, and although combinations of care were reported frequently, the large majority of physiotherapists reported the use of exercise approaches to manage women with pregnancy-related LBP (see Fig. 2).

#### Acupuncture management

When asked about the use of acupuncture, 68% (338/469) of physiotherapists reported that they use it in the management of patients with musculoskeletal conditions, including back pain in general, whereas 37% (126/337 responses to this question) of physiotherapists reported that they use it to treat women with pregnancy-related LBP. However, when asked about the treatment that they would provide to the patient described in the vignette, 24% (101/430) reported that they would use acupuncture. The mean number of years of using acupuncture was 11 [standard deviation (SD) 6.2]. The predominant style of acupuncture reported ( $n = 298$  responses) was Western/medical acupuncture (71%, 212/298), and 16% (48/298) and 11% (32/298) of physiotherapists reported the use of traditional Chinese medicine/traditional acupuncture and trigger point/myofascial acupuncture, respectively. Of the 336 respondents completing details about acupuncture training, 38% had completed up to 80 hours of acupuncture training (national minimum requirement for physiotherapists), 53% had completed more than 80 hours but less than 200 hours, and 10% had completed a degree/diploma in acupuncture or equivalent.

If acupuncture was a treatment option selected by respondents for the patient described in the vignette, further details about acupuncture management were sought in the questionnaire. The mean number of acupuncture points used

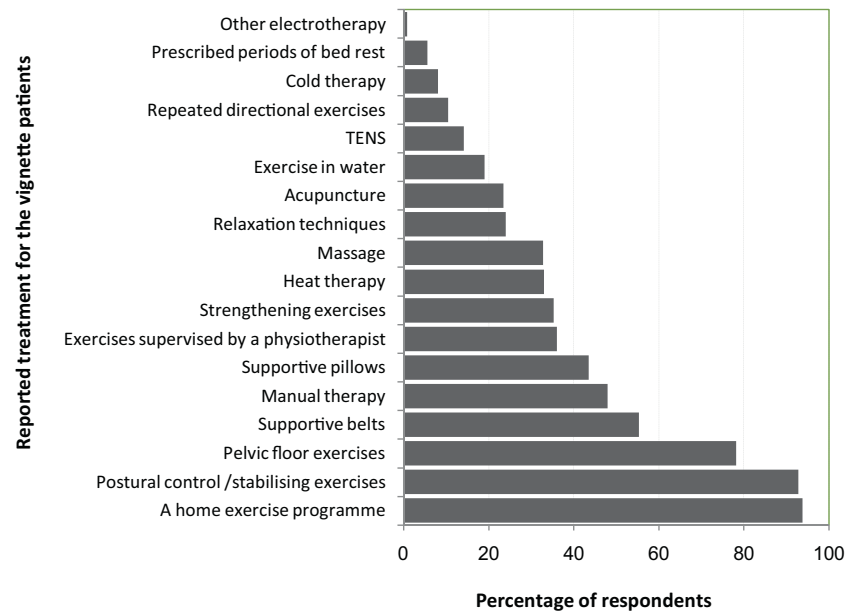


Fig. 2. Reported treatment for the patient described in the vignette.

in a treatment session was 7 (SD 2.6), with the needles being left *in situ* for a mean of 20 minutes (SD 6.0). The needle sensation of DeQi would be elicited by 84% of respondents. There was considerable variation in the selection of acupuncture points for the patient described in the vignette, and the 10 most commonly reported local and distal acupuncture points are summarised in Table A (see online supplementary information). Of the physiotherapists who reported the use of acupuncture in the treatment of pregnant women, 22 (4%) reported that they had observed some minor adverse effects during treatment. Of these, the most common adverse event was feeling lightheaded/dizzy ( $n=8$ ), followed by fainting ( $n=5$ ), mild bruising at needle site ( $n=3$ ), worsening of symptoms ( $n=3$ ), vomiting ( $n=2$ ) and significant pain at needle site ( $n=1$ ). One respondent reported that a patient she had treated with acupuncture miscarried the day after acupuncture treatment, but also reported that the treatment was not thought to have contributed.

There were few differences between respondents working in different practice settings (exclusively NHS or exclusively non-NHS). However, respondents who worked exclusively in NHS settings were more likely to report that they would only see the patient once or twice compared with those who worked in non-NHS settings (52% vs 17%). The proportion of respondents who reported that they would offer the patient any of the 'hands-on' treatment approaches (e.g. massage, manual therapy, acupuncture) was significantly higher amongst those who worked exclusively in non-NHS settings compared with those who worked exclusively in NHS settings (Table 3); for example, of the 33% (101/304) of respondents who would offer massage, 71 (70%) worked exclusively in non-NHS settings compared with 30 (30%) who worked exclusively in NHS settings.

Table 3

Use of 'hands-on' treatment approaches for pregnancy-related low back pain by participants who worked exclusively in either National Health Service (NHS) or non-NHS settings ( $n=304$ ).

Treatment offered	Overall $n$ (%)	NHS $n$ (%)	Non-NHS $n$ (%)	$P$ -value <sup>a</sup>
Manual therapy	134 (44)	53 (33)	81 (57)	<0.001
Acupuncture	69 (23)	23 (14)	46 (32)	<0.001
Massage	101 (33)	30 (19)	71 (50)	<0.001

<sup>a</sup>  $P$ -value based on Chi-squared test for the differences in treatment offered between the physiotherapists working exclusively in NHS vs non-NHS settings.

#### Differences between professional networks

Exercise was the most common treatment reported by respondents from all three networks, and episode-of-care data (number of treatment sessions, length of sessions, length of episode of care) were similar across all three networks. The one area in which reported practice differed markedly between professional networks was in the reported use of acupuncture for the patient described in the vignette; respondents from AACCP were more likely to report the use of acupuncture (44%) compared with respondents from MIMDTP (9%) and ACPWH (6%) [19].

## Discussion

### Main survey findings

The survey findings indicate that a wide range of management strategies are reported by physiotherapists in the UK to treat women with pregnancy-related LBP. As demonstrated by the high proportion of respondents who reported



the use of many treatments or advice (Figs 1 and 2), it appears that multimodal packages of care incorporating combinations of advice and treatment, delivered concurrently, are often employed, although exercise-based approaches are the most common component of care. Postural/stability exercises were reported most often, followed by pelvic floor exercises, strengthening exercises and repeated directional exercises. Western/medical acupuncture is the predominant style of acupuncture used by UK physiotherapists, who use an average of seven acupuncture points per treatment session and aim to elicit the needle sensation of DeQi. The use of a variety of advice and treatment options for the patient described in the vignette is in keeping with previous studies of physiotherapeutic practice in other musculoskeletal conditions, where physiotherapists typically report employing packages of care comprising multiple treatment components [19,20]. Similarly, physiotherapists consider acupuncture as a single component within a package of care, rather than using it in isolation, and several previous studies of acupuncture have shown that it is typically used in combination with other treatment approaches, most often exercise [21].

These findings show that physiotherapists use acupuncture for pregnancy-related LBP less frequently than for musculoskeletal pain conditions in general (37% vs 68%). For the patient described in the vignette, only 24% of respondents reported that they would use acupuncture as part of their management, despite evidence from a systematic review that acupuncture is effective for this patient group. Despite the exclusion of pregnancy-related LBP from the guidelines produced by the National Institute for Health and Clinical Excellence [10], acupuncture has been shown to be effective for LBP and PGP during pregnancy in a small number of trials [22–26], and it has also been shown to be safe [27]. The lower reported use of acupuncture for pregnancy-related LBP seen in this survey may indicate professional uncertainty or lack of confidence in the use of acupuncture in pregnancy, and concerns about safety [28], and could also be influenced by the lack of specific guidelines about acupuncture for pregnancy-related LBP. It is clear that in many services in the UK, women with pregnancy-related LBP are not managed by musculoskeletal physiotherapists but are referred to women's health specialist physiotherapists. In addition, the focus of most acupuncture training courses is on musculoskeletal pain conditions in general, rather than musculoskeletal pain specifically related to pregnancy.

Physiotherapists working exclusively in non-NHS settings, compared with those working exclusively in NHS settings, are more likely to report the use of components of treatment that can be described as therapist-intensive or 'hands-on', such as massage, manual therapy and acupuncture. The training and experience of therapists working in the different settings is likely to be similar, so factors such as the length of time in treatment sessions and patient expectations in private settings, demand for physiotherapy, inadequate staffing levels and pressure to reduce waiting lists in the NHS setting may be key explanations for the survey results [29].

### *Strengths and limitations*

This was a large national survey of physiotherapists based in the UK providing a broad range of responses about the management of pregnancy-related LBP. Non-response bias is a potential problem for all surveys. The response rate in this survey was in line with other postal surveys of the clinical practice of UK physiotherapists, and was sufficient in terms of absolute sample size to meet the aims of the survey. However, it is possible that physiotherapists with a keen interest in pregnancy-related back pain and/or acupuncture may have self-selected to respond to this survey, so it is likely that some non-response bias may exist within the survey estimates. Non-respondents to this survey may differ from respondents in terms of demographic profile, practice setting, training and reported clinical behaviour. As the surveys were administered by the professional networks, the authors have no information about non-respondents, so exploration of non-response bias was not possible.

This study sampled randomly from professional networks to elicit a broad range of views from respondents with a range of clinical interests and experiences. As a result, the management of pregnancy-related LBP described in this survey encompasses the views and experience of physiotherapists from key clinical interest groups likely to be responsible for the management of women with this condition. Membership of these professional networks is voluntary and usually involves payment of an additional membership fee. The clinical practice of physiotherapists who belong to professional networks may differ in important ways from that of physiotherapists who do not belong to professional networks. It is reasonable to presume that physiotherapists who belong to professional networks have a particular interest in the clinical speciality that the network represents, and are therefore more likely to choose exercise or acupuncture as a treatment approach. However, these physiotherapists may also be more aware of best practice as this is a focus of professional network activity.

In comparison with the authors' previous survey, which focused on LBP in general rather than pregnancy-related LBP, and conducted when a simple random sample of all physiotherapists was possible [12], respondents to the current survey had more clinical experience (mean 21.5 vs 15.2 years in practice) and more were female (92% vs 81%). There were fewer respondents who worked exclusively in NHS settings, but this could be due to recent changes in the structure of healthcare provision rather than the sampling strategy. The reported management of members of all three networks was similar, with the exception of the reported use of acupuncture for the patient described in the vignette, where members of AACP reported much greater use of acupuncture than members of MIMDTP or ACPWH. Given that AACP is a professional network of physiotherapists trained and interested in acupuncture, this finding is unsurprising. It does mean that the use of acupuncture for the management of pregnancy-related LBP is lower than the overall estimates reported in

this survey. However, with this exception, the results of this survey are likely to be reasonably generalisable to the wider UK physiotherapy population.

A further consideration is that the management of pregnancy-related LBP described in this survey is 'reported' rather than actual clinical practice. Many previous studies have used similar patient vignettes to elicit clinical practice behaviour [12,15,16,30], and vignettes have been shown to be useful in eliciting information about clinicians' practice behaviour and a more accurate assessment of clinical behaviour than data extracted from case notes [14], although the authors acknowledge the limitation that actual behaviour may differ from reported behaviour.

## Conclusion

This study provides data from a national sample of UK physiotherapists about their reported management of pregnancy-related LBP. A wide range of management options was reported for women with pregnancy-related LBP, predominantly based on exercise treatment approaches and, to a lesser extent, acupuncture. Multimodal care was commonly reported, consisting of various advice and treatment components.

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*Conflict of interest:* None declared.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.physio.2015.02.003>.

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