Acupuncture in Physiotherapy

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Acupuncture in Physiotherapy is printed twice a year for the membership of AACP. It aims to provide information for members that is correct at the time of going to press. Articles for inclusion should be submitted to the clinical editor at the address below or by email. All articles are reviewed by the clinical editor, and while every effort is made to ensure validity, views given by contributors are not necessarily those of the Association, which thus accepts no responsibility.

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The Association
The British association for the practice of Western research-based acupuncture in physiotherapy, AACP is a professional network affiliated with the Chartered Society of Physiotherapy. It is a member-led organization, and with around 6500 subscribers, the largest professional body for acupuncture in the UK. We represent our members with lawmakers, the public, the National Health Service and private health insurers. The organization facilitates and evaluates postgraduate education. The development of professional awareness and clinical skills in acupuncture are founded on research-based evidence and the audit of clinical outcomes.

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- Avoid the need to pay for a licence to practice acupuncture in the Inner London Boroughs

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Acupuncture in Physiotherapy

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Editorial

Welcome to the Winter issue of *Acupuncture in Physiotherapy*. This might have arrived a little sooner than expected, but we are working hard to get our issues back on schedule from now on!

As ever, we include a varied selection of original research, opinion, case reports, news and reviews which we will hope will interest and inspire you.

Dr Chee-Wee Tan provides a timely research paper; a feasibility study describing a service evaluation of acupuncture provision by a primary care physiotherapy musculoskeletal clinic (pp. 9–19). The study draws some interesting conclusions and makes some useful recommendations.

This issue also includes the final two features in our series of Meridian Masterclasses. Mike Chapman addresses the Pericardium meridian (pp. 21–28) and Richard O'Hara writes about the Liver meridian (pp. 29–33). We have now covered the 12 basic meridians and, using additional material on the Extraordinary meridians, we plan to publish an exclusive AACP guide to the acupuncture meridians next year.

We have quite a collection of case reports for this issue. Johnny Wilson has shared a case study from the world of professional football (pp. 59–64), detailing a successful treatment for Low Back Pain (LBP). Its effectiveness will come as no surprise to any of our readers, but we do need to continue to reassure NICE!

Jayne Coleman has provided a well-reasoned study discussing the treatment of tendinopathies in general and, in particular, Distal Biceps tendon injury (pp. 51–57). This is a realistic assessment of what is, undeniably, a single case. However, the careful analysis of the application of acupuncture and the detailed discussion make it a very good basis for further work.

We have some more unusual case studies in this issue, including treatment of an over-active bladder by Daniela Long (pp. 65–69), a Boccia athlete with Athetoid CP and an increase in spasticity, treated by David Murphy (pp. 79–85), and Justine Foster (pp. 43–50) details the treatment

of a post-stroke hemiparesis (much to my satisfaction). Please, let's have more case reports on neurology patients, acupuncture really can help.

Further valuable work has been done by Mounira Mansoorali on LBP (pp. 87–92) and Marianna Osborne on De Quervain's Disease (pp. 71–78).

Finally, some news from our friend David Mayor with regard to an interesting new mood measure (pp. 35–41), which you will find in the research tools section of the journal.

In the news pages we include information on a survey asking how patients respond to acupuncture, which David is inviting members to complete before the end of February. We hope that you will take the time to do so; to this end the AACP was happy to offer David and his colleague a small grant to help with expenses.

Do look out for the revised AACP Safe Practice Guide (sent separately.) This is an excellent summary of safety issues and well worth keeping close to hand in clinic.

Dr Val Hopwood
Clinical Editor

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Chairman's report

Welcome to the Winter 2017 edition of the AACP journal *Acupuncture in Physiotherapy*.

This year, so far, we have seen two very successful one day conferences. The first, the Annual Conference held in May in Coventry, and the second being a conference in September in Bristol. As outlined in previous journal reports our aim was to reach out to members across the UK and create a learning, networking and CPD opportunity for those who may not have attended an AACP conference in a while. The feedback the AACP office has received so far from delegates certainly supports the idea of conferences across the UK being of benefit. In a direct response to recent feedback and comments from members attending the Bristol conference, it will be a format the AACP may continue to explore. Of note following the recent Bristol conference was the overwhelmingly positive response to all the speakers including Sinead McCarthy discussing the use of acupuncture in men's health, Dr Val Hopwood's presentation of an overview of acupuncture in the UK from a political and historical perspective, as well as the always dynamic Professor Tianjun Wang's presentation and his innovative approach to scalp acupuncture.

As ever the AACP is busy looking at ways to best support our membership and as mentioned previously I would encourage members to take a look at the new website which features the AACP online shop. The shop offers members exclusive deals on a wide variety of products. As a not-for-profit organisation, the AACP can offer a huge discount on needles and other clinical supplies to members, creating another valuable membership benefit. The online shop also offers a guaranteed price match promise against all like-for-like items.

Recent developments that may be of interest to members and their colleagues, who are yet to train in acupuncture, include the updated Foundation in Western Acupuncture for Physiotherapists course which now includes 30 Masters (M) level credits. Following an extended development process started some years ago, this new version of the AACP foundation course offers delegates the first step towards an MSc in Acupuncture. This collaboration between the AACP and Glyndwr University, Wrexham, has been developed to give members the opportunity to study advanced level modules with the view to enhance their clinical practice and understanding of acupuncture and achieve an MSc in Acupuncture. Teaching is via a blended learning format which includes practical taught sessions as well as online and virtual learning environment activities hosted by Glyndwr University. There will be the opportunity to study the classical concepts and application of traditional acupuncture, as well as advanced clinical practice embedded in Western medical acupuncture. These advanced modules can be studied as individual CPD or combined to work towards the attainment of an MSc. Completion of the requisite (200) hours of advanced training would also permit members to achieve advanced status within the AACP with the potential to work towards becoming a tutor if so desired. A PGC in education would also be accessible by members via the AACP and Glyndwr collaboration. The first two M level credit foundation courses are scheduled for April and September 2018 at the AACP headquarters at Sefton House, Peterborough. Soon to follow these foundation courses will be the release of the advanced level modules which are designed for existing members. AACP members can undertake the upcoming advanced modules and develop their own CPD pathway towards advanced level status and an MSc in Acupuncture to enhance and expand their understanding and scope of practice. Please feel free to contact Claire Buckingham (claire@aacp.uk.com), AACP training and education coordinator, who will be happy to discuss the M level foundation course with you, how

you can attend or how you can organise a course or an event at your clinic or venue.

Also of note to mention is the departure of Chris Ireland from the AACP office. Chris has held the position of AACP clinical adviser since 2014 and has now relocated to NHS Orkney where he is working as an MSK Advanced Physiotherapy Practitioner. I am sure you will join us in wishing him all the best with his future endeavours. Chris has been a valued asset to the AACP and its members over the last 3 years and has directly supported numerous members with their clinical queries. In his absence, business will however continue as usual at the AACP, and you can still receive support with your acupuncture queries whether they are related to individual treatments or to commissioning issues. Those interested in perhaps taking up the role of Clinical Adviser should contact AACP CEO Caspar Van Dongen (CEO@aacp.uk.com) directly to discuss the position in more detail.

As ever I shall sign off by letting you know that there are always a number of ongoing projects in development that the AACP team are diligently working on to bring members the best experience possible. If, however, you feel there are issues the AACP needs to be addressing or you have any ideas on how you would like to see the AACP develop, then please feel free to get in touch with the office or me directly (chair@aacp.uk.com). As ever, I look forward to catching up with you at an AACP event somewhere soon.

Jonathan Hobbs
AACP Chairman

Chief Executive Officer's report

Acupuncture-physiotherapy and the rationing of elective joint-replacement surgery

Over the last 6 months or so, there has been a significant increase in reports about restrictions to eligibility for joint replacement surgery. High volume procedures like hip and knee replacements are the subject of intense scrutiny by an NHS under unprecedented financial pressure.

About one-third of Clinical Commissioning Groups (CCGs) now impose restrictions on being referred for elective surgery to overweight or obese patients, whilst 12 per cent also ask patients to stop smoking before they can access such procedures (The Royal College of Surgeons 2016). These restrictions increase waiting times for many patients and are having a large impact on people with musculoskeletal conditions such as osteoarthritis. The latter is responsible for over 92 per cent of hip replacements and 96 per cent of knee replacement procedures (National Joint Registry 2017).

The Arthritis and Musculoskeletal Alliance (2017) reported in July 2017:

> *"From 2014 to 2016 the number of CCGs that have a Body Mass Index (BMI) threshold for accessing joint replacement surgery has more than trebled. A report by the Association of British Healthcare Industries (ABHI, 2016) shows that of the 141 out of 209 CCGs which have published guidelines on hip and knee replacements, 69 per cent have a BMI threshold. Eight have a BMI threshold of only 25 and 20 have a BMI threshold of 30."*

Rationing access

Patients have been struggling for some time to get access to treatment. Between 2012 and 2014, the number of people with osteoarthritis who reported that they had a joint replacement fell from 25 to 20 per cent (Arthritis Care 2014). This decline is not the result of increases in alternative treatments to cope with their problem. To the contrary; in the same period fewer people reported use of other treatments and therapies. This suggests that people with osteoarthritis found it increasingly difficult to access the help they need from UK health services.

Pain is one of the most common symptoms of musculoskeletal conditions and a delay in surgery may result in patients living with daily pain, compromising their wellbeing and quality of life. For people with severe osteoarthritis, joint replacement surgery is often very effective at reducing pain and restoring independence. Delays to treatment can lead to worse outcomes for patients (Hajat *et al.* 2002).

A role for acupuncture

Whilst we can debate whether this rationing situation will get better or worse, the fact is that it causes thousands of patients to be in more pain for longer. The Department of Health itself (2012) outlines that patients have the right to start consultant-led non-emergency treatment within a maximum of 18 weeks of a GP referral; and that the NHS must take all reasonable steps to offer a range of alternatives. At present, in our experience, this doesn't seem to be happening.

From an AACP perspective it is evident that in these cases there can be a clear role for acupuncture-physiotherapists in an NHS setting and in private practice to alleviate pain for many at very low cost, whilst they remain in a growing queue for their long-awaited surgery.

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FEASIBILITY STUDY

Service evaluation of acupuncture provision by a primary care physiotherapy musculoskeletal clinic

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Abstract

This study was conducted to ascertain the feasibility of conducting a wider-scale evaluation of acupuncture services provided by physiotherapy services within a Scottish region. Two secondary aims of this study were a) to evaluate acupuncture as part of a physiotherapy treatment package; and b) to establish the key outcome measures used by services.

Anonymised patient data was extracted from clinical notes. The inclusion criteria were patients: a) admitted to the physiotherapy clinic, b) treated with acupuncture as the sole treatment or as an adjunct to other interventions, and c) treated for musculoskeletal conditions.

Fifty-one patients were included. 80.8% of patients received one or more treatment interventions in addition to acupuncture. Patients received a median of 4.5 (range: 1.0–11.0) treatment sessions over a median duration of 6.5 (range: 1.0–75.0) weeks. The median number of needles used per session was eight (range: 4–18). No adverse events were reported. The main outcome measures used were pain numerical rating scale (at first consultation) and categorical reports of pain status (at discharge). 82.7% of patients reported improvement in their pain status. Recommended improvements for a wider service evaluation include: a) a consistent and standardised recording of pain outcome measures for pre- and post- treatment assessment, b) inclusion of a quality of life measure (EQ-5D) to facilitate cost-effectiveness evaluations, c) recording of pain medication dosages, and d) detailed recording of acupuncture parameters.

It is feasible to conduct a wider evaluation of services incorporating recommended improvements and appropriate clinician training and engagement.

Keywords: acupuncture, musculoskeletal, National Health Service, physiotherapy, service evaluation.

Introduction

Acupuncture in the United Kingdom

Acupuncture for treating musculoskeletal conditions has gained increasing popularity and usage amongst western healthcare professionals, including physiotherapists. A survey of United Kingdom (UK) acupuncture practitioners showed that out of 330 survey respondents, 29% of acupuncture practitioners were physiotherapists (Hopton *et al.* 2012). Physiotherapists formed the largest professional grouping represented in the survey. This highlights the importance of the role and influence which physiotherapists have in the development of contemporary acupuncture practice.

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The provision of acupuncture treatment has historically been predominantly within the private sector. Acupuncture's availability and popularity mean that access via the National Health Service (NHS) is increasing (Bishop *et al.* 2011; Bishop *et al.* 2012; Savigny *et al.* 2009). The NHS is now the predominant pathway through which patients access acupuncture in the UK, accounting for 80–90% of the population with the remainder opting for private practice (Bishop *et al.* 2011). Under the current political climate, the NHS in the UK is under increasing pressure to cut costs while maintaining and improving the service it provides. Consequently, austerity measures will have an impact on the amount and type of interventions and treatments offered (Roberts *et al.* 2012). Therefore, the funding considerations for service and treatment provision include not only the effectiveness, but also the cost-effectiveness of services.

For example, a study evaluated the cost-effectiveness of acupuncture for knee pain compared to total knee replacement (White *et al.* 2012). The NHS tariff cost for undergoing a single uncomplicated total knee replacement (TKR) was £5456. In comparison, the cost for providing knee acupuncture for all 90 patients during the first year of this study was £16 440 or £183 per patient. If the mean life span of 20 years for a knee arthroplasty was factored into the costs, acupuncture treatment still incurs a lower cost for a year-on-year comparison. For chronic headache, a pragmatic randomized controlled study found that acupuncture reduced patients' headache severity, frequency, GP visits and medication usage (Vickers *et al.* 2004). Patients' quality of life was improved as a consequence. Although the use of acupuncture added a slight increase in treatment costs, further analysis of cost-effectiveness demonstrated that this was justified by the increase in quality-adjusted life years. The cost-effectiveness of acupuncture compared favourably to other recommended pharmacological treatments (Wonderling *et al.* 2004).

Context of feasibility study

The justification for acupuncture provision within services should therefore focus on the drivers of service funding. In particular, emphasis should be placed on the effectiveness and cost effectiveness of acupuncture treatment. Although local clinics may not possess the resources for a large randomized controlled trial or a health technology assessment study, there are other methodologies that may be employed for collecting similar data. Service evaluation is one approach which may be adapted for the local clinical context. For example, the data may be extracted from past clinical encounters retrospectively or collected from new patients prospectively. The service evaluation should be robustly designed with appropriate planning for the clinical question to be answered and the outcome measures to be extracted or collected. Yet, the approach is always pragmatic. The data collected should always feed back to the quality improvement and provision of the service for patients' benefit (The Health Foundation 2015).

Our regional physiotherapy acupuncture network established the need for a region-wide service evaluation of acupuncture treatment provided by NHS clinics. The driver for this need was partly due to treatment rationalization within the regional health board. Before embarking on a full scale service evaluation of all clinics that provided acupuncture, the network agreed that a feasibility study was required to investigate the optimal method of extracting information from patient records. The university representative for the network was tasked with the design, planning and execution of the service evaluation. All members of the network commented on and agreed to the service evaluation protocol. The local physiotherapy service manager of the pilot clinic agreed to the project and provided administrative support.

Aims

Firstly, in focusing on a local clinic, this study seeks to ascertain the feasibility of conducting a wider scale audit of acupuncture usage and effectiveness within the primary care service region. The specific criteria for this feasibility study will focus on a) the availability of necessary infrastructure for the identification of patients for study inclusion, b) the ease of anonymizing patient data during data collection, c) the availability and integrity of the outcome

measure data to be extracted from the patient notes, d) an estimated proportion of patients treated with acupuncture, and e) the time needed for retrieving and data extraction from patient notes. This will facilitate our knowledge about current clinical data being recorded, its limitations and missing data.

Secondly, the pilot service evaluation aims to find out the extent to which acupuncture is used as part of a treatment package. It will also highlight the patient demographics of people receiving acupuncture as a treatment for their musculoskeletal condition. This information can be used in future service evaluations to predict whether any specific patient or treatment characteristic may facilitate the improvement of overall rehabilitation efforts.

Methods

Study Design

This study utilises secondary data to explore and analyze the service usage patterns and outcomes following acupuncture treatment for musculoskeletal (MSK) conditions within the physiotherapy service by NHS Lothian. Only one primary care physiotherapy clinic located within the network was used for the study. This clinic was located within a medical centre. It was resourced by two senior (Band 6) physiotherapists. Only one of the physiotherapists practised acupuncture at the clinic.

Treatment approach by physiotherapist

The physiotherapist was an Acupuncture Association of Chartered Physiotherapist trained practitioner with 10 years of acupuncture experience. A Western acupuncture approach was predominantly used for choice of acupuncture points. Acupuncture was only used for pain relief, if indicated. Other rehabilitation goals were achieved through physiotherapeutic techniques, such as exercise therapy and manual therapy.

Ethical considerations

This feasibility study was approved by the NHS Lothian Quality Improvement Team and Queen Margaret University Research Ethics Committee to extract anonymized, non-identifiable patient data for analyses. All non-identifiable patient data was encrypted and stored securely within the university servers. All NHS Lothian and Queen Margaret University data protection and management regulations were implemented.

Selection criteria

The inclusion criteria for this study were: a) patients admitted to the identified primary care physiotherapy clinic, b) patients treated with acupuncture as the sole treatment or as an adjunct to other physiotherapy interventions, c) patients treated at the clinic for musculoskeletal conditions. The only exclusion criterion was patients treated at the physiotherapy clinic for non-musculoskeletal conditions (for example, post-stroke rehabilitation).

The short time frame of 1 year for the study was chosen for two reasons. Firstly, the goal was to rapidly sample patient dataset in order to assess the feasibility of a larger scale service evaluation. The second reason was to find out if the pre-determined data to be collected was available within the clinical notes. If the data was available, its integrity was examined. This would help to identify any future procedural modifications for the recording of patient information.

Sampling procedure

Patient information was sourced from only one physiotherapy clinic. This site was chosen to be representative of other similar MSK physiotherapy clinics located within the regional primary care setting.

The Physiotherapy Service Manager compiled a list of patients that received acupuncture treatment at the selected physiotherapy clinic, using the regional electronic patient records management system. The search attribute was set to identify patients based on the inclusion and exclusion criteria for this project. The patient list was then used to retrieve patients' clinical notes. Once the clinical notes were retrieved, researcher pre-determined, non-identifiable patient information was extracted and recorded into a password-protected, encrypted university laptop. All patients were anonymized through assigning study identification numbers. No patient identifiable data was extracted.

Clinical information extracted

The researcher pre-determined, non-identifiable patient information extracted from the clinical notes included: a) general non-identifiable patient data (for example age and gender), b) patient characteristics (conditions and co-morbidities referred, symptom duration and condition recurrence frequency), c) details of treatment (including duration, number of treatment sessions, treatment session frequency, number of needles used, acupuncture points used and depth and type of stimulation used), d) other physiotherapy treatments received by patients, e) adverse events during/following treatment, f) outcome measures used to evaluate patient progress and g) pain medication and dosage taken by patients.

Data analysis

The current service evaluation is a feasibility study to assess and explore the value of the collected variables and to analyze for the presence of usage patterns and relationships between patient characteristics, treatment characteristics and collected outcome measures. Therefore data analysis mainly involved the use of descriptive statistics. Inferential statistical analysis was performed to compare differences between subgroups within the patient sample, where appropriate. All clinical conditions were categorised into five groups based on the primary source of symptoms recorded: a) upper limb, b) lower limb, c) neck, d) upper back and e) lower back.

Prior to descriptive and inferential statistical analyses, all data was checked for errors and cleaned. Comparisons were two-tailed and an alpha level of 0.05 was set for all statistical analyses to determine statistical significance unless otherwise stated.

Results

Identification and extraction of patient information

The use of the regional electronic patient records management system for compiling the patient list was labour and time-efficient. The manual retrieval of patients' clinical notes using this list was straightforward, partly because the notes were stored within the same building as the clinic. If the clinical notes for discharged patients were stored at another site, the retrieval process may require some pre-planning. The total time for extraction of information from the 51 sets of clinical notes took approximately 8 hours (mean = 9.2 min per set).

Participant information

Out of the total number of patients (n = 220) screened, 51 patients (23.2%) met the inclusion criteria. Table 1 shows a summary of the patient characteristics and symptom presentations. Further treatment-related information is presented in Table 2. Of the 51 patients that received acupuncture treatment, the proportion of men-to-women was approximately equal. The mean age of men was statistically significantly lower than the women (men: 47.8 years, SD = 14.7 years; women: 55.7 years, SD = 11.4 years) ($t(50) = 2.18$, $p = 0.03$). Thirty-one patients (59.6%) were employed in full or part-time work. The remaining 21 patients (40.4%) that were treated were unemployed, this number included students and retirees.

Of the five groups for primary source of symptoms, the 'lower back' is the area where patients most frequently complain of their symptoms (31.4%). The neck (27.5%) and upper limb (25.5%) followed in relative order

Table 1. Information about patients (n = 51)

Characteristics	Number of patients (%)
Gender	
Men/Women	24/27
Employment	
Employed/Unemployed/Retired/Student	31/14/4/2
Side of Symptom	
Left/Right/Both	19/13/19
Bodily region responsible for symptoms	
Upper limb	13 (25.5)
Lower limb	6 (11.8)
Neck	14 (27.5)
Upper back	2 (3.9)
Lower back	16 (31.4)
Frequency of Treatment	
Fortnightly	21 (40.4)
Twice per week	1 (1.9)
Weekly	29 (55.8)
Completed acupuncture treatment course	
Yes/No	40/11

as the leading bodily regions responsible for symptoms. Frequency of acupuncture treatment was mostly offered on a weekly (55.8%) or fortnightly (40.4%) basis (see Table 1). The patients received a median of 4.5 treatment sessions (see Table 2). The median treatment duration for the patients was 6.5 weeks (see Table 2). An exception was one patient who received treatments twice per week. This patient was discharged after only 1 week of treatment. 40 patients (76.9%) completed the whole course of treatment and 12 patients (23.1%) did not complete their treatment. No specific reasons were noted within the clinical notes for treatment incompletion. This is most likely due to patients not returning for follow-up appointments.

Treatment characteristics and acupuncture parameters

The majority of patients (80.8%) were provided with one or more treatment interventions in addition to acupuncture (see Fig. 1).

The male patients' median symptom duration (before referral to physiotherapy) was 3 months, similar to the duration for female patients (see Table 2). All acupuncture treatments lasted 20 min for every session with no adverse effects reported. A median of eight acupuncture needles were used for patients per session.

The acupuncture treatment parameters were broken down using the patients' primary source of symptoms (see Table 3). With the exception of the upper back region, patients with both acute (51.9%) and chronic conditions (48.1%) were seen at the clinic and treated with acupuncture. Chronic conditions were defined as symptoms lasting longer than 12 weeks.

Although the maximum treatment duration for the lower limb and lower back conditions appeared much higher than the other regions, this apparent higher duration was contributed by one outlier for the lower limb group and two outliers for the lower back groups (see Table 3). When the outliers were removed, the maximum treatment duration for the lower limb and lower back regions were lowered to 9 and 14 weeks respectively. The remaining acupuncture treatment parameters were similar between

Table 2. Parameters of acupuncture treatment

	All (n = 51) *Med*(min-max)	Women (n = 27) *Med*(min-max)	Men (n = 24) *Med*(min-max)	P*
Age, Mean(SD), years	52.0(13.7)	55.6(11.6)	47.8(15.0)	0.04
Symptom duration (months)	3(1–240)	3(1–240)	3(1–240)	0.47
Number of needles used per session	8(4–18)	7(4–16)	8(4–18)	0.14
Number of treatment sessions	4.5(1.0–11.0)	5(1–11)	4(1–10)	0.78
Rehabilitation duration (weeks)	6.5(1.0–75.0)	6(1–75)	8(1–60)	0.63
Number of treatment type received (excluding acupuncture)	1.0(0–4)	1(0–4)	1(0–3)	0.94

The median, minimum and maximum values of variables have reported, except for age. There were no statistically significant differences for the variables between men and women, except for age.
*Comparisons between men and women were performed using the Mann-Whitney test except for age where the independent t-test was used.

Table 3. Parameters of acupuncture treatment based on primary source of symptoms

	Upper limb (n = 13)	Lower limb (n = 6)	Neck (n = 14)	Lower back (n = 16)	*Upper back (n = 2)
Age, Mean(SD), years	56.2(12.8)	48.3(19.0)	47.2(14.5)	53.4(10.7)	43 & 49
Symptom duration (months)	3(1–10)	1(1–12)	6(1–180)	3(1–240)	1 & 2
Number of needles used per session	7(4–10)	7(5–12)	8(4–12)	9(5–18)	7 & 12
Number of treatment sessions	5(1–8)	4(2–6)	4(1–11)	6(1–9)	6 & 10
Rehabilitation duration (weeks)	5(1–13)	5(2–75)	8(1–21)	7(1–60)	7 & 12
Number of treatment type received (excluding acupuncture)	1(0–2)	1(0–3)	2(0–3)	1(0–4)	1 for both cases

The median, minimum and maximum values of variables have reported, except for age. *There were only two patients in the upper back group. Therefore, the actual values for the variables for these two patients have been reported.

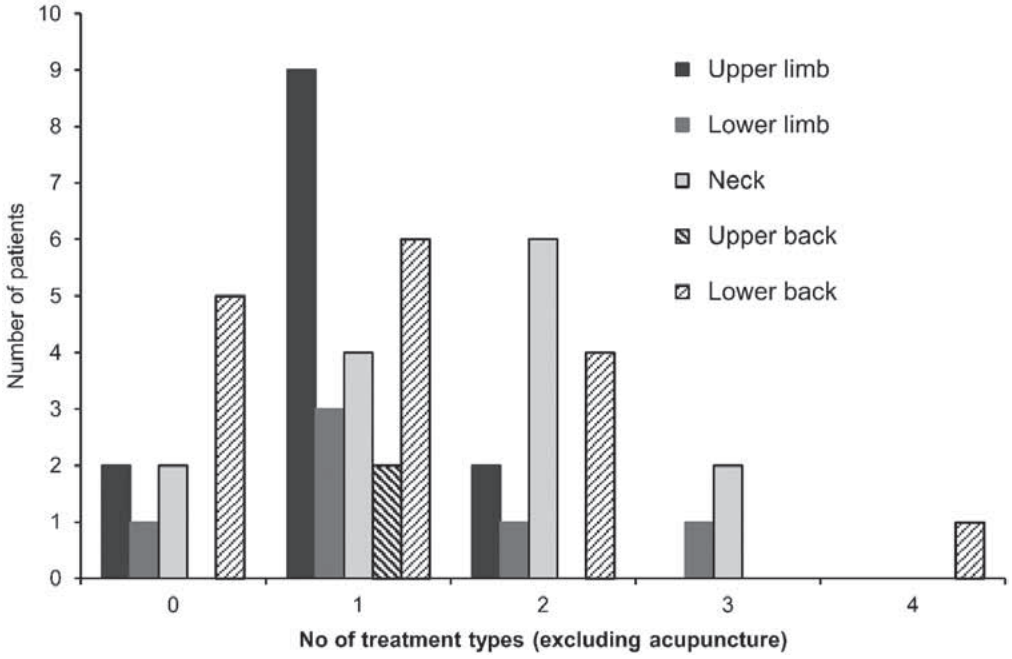

Figure 1. The number of treatment types, in addition to acupuncture that were administered for patients. The majority of patients (80.8%) received a combination of treatments.

different bodily regions as the primary source of symptoms.

Fig. 1 shows the breakdown of the number of other treatment types received by patients according to their primary source of symptoms. 10 patients received only acupuncture as treatment for their symptoms. Most patients received at least one other type of treatment in addition to acupuncture. Exercise therapy was the most common treatment received (38 patients). This is followed by manual therapy (11 patients), electrophysical modalities (six patients), advice and education (five patients) and others (three patients).

In addition to acupuncture and other treatments, 36 (69.2%) of the patients had concurrent pharmacological interventions to manage their pain. Most of the patients were taking non-opioids (18 patients). Eleven patients took a combination of non-opioids and weak opioids, or a compound of the two medication types (e.g. co-codamol). The other pain medications consumed were weak opioids only (four patients), strong opioids only (one patient), tricyclic antidepressants (one patient), and a combination of non-opioids and tricyclic depressants (one patient). No further details about the frequency and dosage of these medications were recorded.

Change in pain status

Although all patients had their baseline pain intensity recorded using numerical rating scales, only categorical changes in reported pain status were recorded at the final clinic appointment. Based on the categorical reports of pain status at discharge, responses were grouped into three categories: a) decreased pain, b) no change and c) increased pain.

Forty-three patients (82.7%) reported improvements in their pain status. Eight patients (15.4%) reported no change in their pain intensity and one patient (1.9%) did not have this information in their clinical notes. No patient reported worsening of their pain status.

Discussion

This pilot service evaluation found that acupuncture is usually used in conjunction with other treatment techniques within a primary care musculoskeletal physiotherapy outpatient clinic. The main treatment goal for acupuncture usage is pain relief. Acupuncture was used for painful conditions that spanned all main regions of the body. The median duration since onset of symptoms before patients sought physiotherapy input was 3 months. The median number of needles used for each treatment session was eight. The

median number of treatment sessions was 4.5. A large proportion of patients reported an improvement in their pain status after treatment.

Patient characteristics

Our patient population consisted of a large proportion with lower and upper back symptoms (35.3%), neck symptoms (27.5%) and upper limb symptoms (25.5%). The region with the lowest proportion of complaints was the upper back (3.9%) and lower limb (11.8%). A UK survey of physiotherapists reported that the most common regions of complaint treated with acupuncture were the back (24%), lower limb (16%), upper limb (13%) and neck (10%) (Hopton *et al.* 2012). In another earlier study, the upper and lower back were the commonest regions treated with acupuncture (Kerr *et al.* 2001).

The continued prevalence and growth in the incidence of chronic non-specific low back pain is an ongoing concern (Cheshire *et al.* 2013). It has been estimated that low back pain costs roughly £12.5 billion to the UK economy (Cheshire *et al.* 2013). In addition, the number of working days lost due to back pain alone stood at 4.9 million (Trades Union Congress 2005) and 8.8 million working days were lost in 2015/16 due to musculoskeletal disorders (Health & Safety Executive 2016).

In our study, there was an equal proportion of patients in terms of gender. However, the men treated at the clinic were statistically significantly younger than the women (men: mean age = 47.8 years, women: mean age = 55.6 years). In a survey (Hopton *et al.* 2012), the median age of the men and women were similar, between the age range of 45 to 64 years. Therefore, based on age category, our study was similar to Hopton *et al.* in terms of age.

Treatment characteristics

The median treatment duration for patients was 6.5 weeks. This is inclusive of all treatment types in addition to the acupuncture that the patients received. Based on some patients' clinical notes, once adequate pain relief had been achieved, acupuncture treatment was usually stopped whilst the other treatments continued to be administered.

For low back pain, our service evaluation reported a median of six treatment sessions and duration of 7 weeks. This also falls within the recommended treatment frequency and duration by a previous NICE guideline for the treatment of low back pain (National Institute for Health and Clinical Excellence 2009). An interpretation for the shorter acupuncture treatment frequency and duration observed within our study is that most patients achieved adequate pain relief before the NICE recommended treatment period. The latest NICE guideline for treatment of low back pain has changed its recommendation for acupuncture not to be offered (NICE 2016). The data collection for this feasibility was conducted before the publication of the latest NICE guideline.

Our recorded median number of acupuncture sessions and treatment duration for neck pain are four sessions and 8 weeks respectively. This is considered a relatively short course of treatment. Although there are currently no recommended treatment frequency and duration for neck pain, evidence suggests that acupuncture can be effective for relief of neck pain compared to no treatment or sham treatments (Binder 2008; Hurwitz *et al.* 2009).

Our service evaluation found that acupuncture treatment sessions for all patients lasted for 20 min in each visit. This is similar to the clinical practice of other NHS-based physiotherapists using acupuncture (Dale 1997). Dale (Dale 1997) surveyed clinicians using acupuncture across several acupuncture professional bodies. The most common length of time for follow-up treatments was 16–30 min. This length of time pattern is strongly represented for NHS-based clinicians. This pattern is most likely due to constraints on service provision within the NHS.

No serious adverse reaction was observed during the course of acupuncture treatment throughout the participating patient population and this is consistent with other studies (Molsberger *et al.* 2010). Acupuncture is generally a safe treatment modality when administered by a trained health professional (White *et al.* 2001).

Multimodal rehabilitation

A large proportion of patients in our service evaluation improved after treatment. Only eight (15.4%) patients reported no change in their pain status. This high proportion of treatment success may be due to the individualization and multimodal nature of the treatments provided and the specific circumstances of the patient.

Our service evaluation found that use of multimodal rehabilitation can result in effective pain relief. However, evidence for the effectiveness of multimodal rehabilitation in combination with acupuncture is mixed within the research literature. Acupuncture is effective for shoulder pain (Vas *et al.* 2008), chronic daily headache (Persson *et al.* 2015) and chronic low back pain (Leibing *et al.* 2002) when used as an adjunct with conventional physiotherapy techniques. However, a randomized controlled trial on knee osteoarthritis found no statistically and clinically significant improvements in pain for acupuncture when used in addition to exercise and advice when compared to advice and exercise only (Foster *et al.* 2007).

Study limitations and recommendations

One aim of this study was to assess the feasibility of conducting a service evaluation of acupuncture usage and effectiveness for physiotherapy services within the primary care service region. Some patient outcome measure recording practices may require enhancement for the proposed service evaluation to be of value to both clinicians and service commissioners. These enhancements are outlined below.

Whenever possible, the pre- and post-treatment outcome measure for pain intensity should be recorded using a numerical rating scale instead of a categorical global improvement scale. Although it is still possible to determine and analyze the data using the categorical pain status change, information about the magnitude of pain intensity change is lost. This also means that the magnitude of treatment effect (effect size) cannot be determined. It can be argued that recording categorical pain status change is sufficient since patient reported improvement is reflective of the perceived change. If patients report an improvement, it is likely that an equivalent minimum clinically important change of 1.1–1.3 point was achieved for the VAS pain scale and two points for the Numerical Rating Scale (NRS) (Hawker *et al.* 2011). However, this approach does not allow the clinician to set gradated treatment goals for patients with more persistent conditions. On a related point, the clinician should also use the same pre- and post-treatment outcome measures for assessing symptom improvement. For service evaluation purposes, a few key standardized and easy to administer outcome measures should be agreed by clinicians or the clinical leadership for implementation. This standardization of outcome measures should be approached with quality improvement colleagues to ensure the barriers to implementation are addressed (Duncan and Murray 2012).

An important and useful aspect of a service evaluation is the determination of cost-effectiveness. Previous research has found acupuncture to reduce disability, improve pain intensity, decrease time off work and reduce medication consumption (Gould *et al.* 1999; Vas *et al.* 2012). Nevertheless, the cost-effectiveness and financial impact of these benefits has not been quantified. In order for the cost-effectiveness calculation to be included into a service evaluation, additional information on the costs of treatments and a quality of life measure need to be included in the key standardized outcome measures. A commonly used quality of life measure for economic evaluations of services is the EQ-5D, which is easily administered and widely used (EuroQol; Richardson and Manca 2004). The costs and quality of life measure can then be used to calculate a summary measure such as the quality-adjusted life year (QALY) (Whitehead and Ali 2010).

The dosage of pain medication consumed by patients should also be recorded for service evaluations. Although physiotherapists frequently record pain medications used by patients, it is less common for the exact dosages to be recorded. From an individual patient perspective, pain medication dosage can be used to track symptom improvements. For example, a person with no reported VAS scores improvements over a 4-week period may have a reduction

in their consumed pain medication dosage. This may be interpreted as clinical improvement with the added benefit of decreasing risks of adverse effects associated with long term use of certain pain medications (Deyo *et al.* 2015).

Other potential pieces of information that can be recorded are the acupuncture needling sensation (De Qi), needle depth and stimulation type used during treatment. Our data collection template did include these acupuncture parameters. However, there was no routine recording of this information within the clinical notes. It has been suggested, from a neurophysiological perspective, that the patient's sensory experience of needling may be associated with treatment outcome (White *et al.* 2008). However, the evidence is mixed for the relationship between De Qi and treatment efficacy (Enblom *et al.* 2012; White *et al.* 2010). Furthermore, there is currently no consensus on the measurement and recording of De Qi during acupuncture treatment (Yang *et al.* 2013). This raises the question of the usefulness of collected De Qi information for assessing clinician and service effectiveness. This point is especially pertinent for the time pressured clinician in a busy service. If De Qi information is indeed useful within the context of the service, then the chosen instrument for recording De Qi should have the following characteristics: a) brief to administer and, b) quick and easy to calculate the instrument final score. Based on these two criteria, there are two potential candidates for recording De Qi: the Southampton Needle Sensation Questionnaire (White *et al.* 2008) and the Kou Questionnaire (Kou *et al.* 2007).

One potential crucial barrier is the clinicians' engagement with the new processes for recording outcome measures. This barrier was not evaluated in our study because the main focus was on the integrity of the available clinical data. However, we acknowledge that clinician engagement is pivotal to the success of service evaluation projects. This feasibility study has highlighted some improvements to be implemented for the recording of acupuncture treatment in clinical practice. Consequently, this will be a priority issue that needs to be addressed in order for future service evaluations and audits to maximize their potential benefits. We acknowledge that it may contribute to greater time pressure on physiotherapists. It has been identified that when routine collection of outcome measures is perceived as disruptive to normal work routines and the correct infrastructure is not in place before data collection starts, this can pose a significant barrier to successful service evaluation (Boyce *et al.* 2014; Swinkels *et al.* 2011). This barrier can be resolved by having a co-ordinator throughout the implementation process, and introduction of clinician training before implementation (Antunes *et al.* 2014). Clinician training helps promote clinician ownership of the new processes, and facilitates correct use of the new outcome measures (Antunes *et al.* 2014; Swinkels *et al.* 2011).

Conclusion

This feasibility study evaluated multimodal rehabilitation in conjunction with acupuncture for treatment of musculoskeletal conditions. The main symptom treated with acupuncture was pain. Areas of current practice that have been identified for further improvement include: a) consistent and standardized recording of outcome measures for pain, b) inclusion of a quality of life measure, for e.g. EQ-5D to facilitate cost-effectiveness evaluations, c) dosage of pain medications, and d) more detailed acupuncture parameters. Overall, it is only feasible to conduct a wider-scale evaluation of acupuncture usage within the regional physiotherapy services with the inclusion of the recommended improvements. However, this should be implemented with appropriate clinician training and engagement.

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References

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