

Acupuncture in practice: mapping the providers, the patients and the settings in a national cross-sectional survey

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ABSTRACT

Background: There is relatively limited knowledge about the practitioners who provide acupuncture treatment within the UK, what conditions patients consult for and the treatment provided.

Objectives: To characterise the conditions treated and by whom, to examine characteristics of the treatment and to explore trends over time.

Method: A cross-sectional survey of the UK acupuncture practitioners was conducted; 800 practitioners were selected by computer-generated randomisation sequences from the four major UK-based professional associations. Data collected on the practitioners included demographic details, association membership, statutorily regulated status, practice setting, style of acupuncture, diagnostic methods and needle response sought. Practitioners recorded details of their 10 most recent patients, including demographic details, primary reason for consulting and lifestyle advice provided.

Results: 330 practitioners responded comprising doctors (29%) physiotherapists (29%), nurses (15%) and independent acupuncturists (27%); 62% were women with median age of 48 years. The majority (68%) practiced in independent settings and 42% practiced within the National Health Service. Patients most commonly consulted for low back, neck, shoulder and knee pain, as well as headaches and migraine. Treatment for infertility by independent acupuncturists was found to have increased fivefold in 10 years.

Conclusion: Acupuncture provides a substantial contribution to the healthcare of the UK, with an estimated 4 million sessions provided annually. The primary complaints for which patients consult reflect the growing evidence base on acupuncture for these conditions. These data provide a basis for decision-making regarding policy and practice.

INTRODUCTION

There is increasing evidence that acupuncture is an effective treatment for several chronic pain conditions^{1–4} and relatively safe.^{5–7} The benefits of pain relief and the experience of relaxation following acupuncture appear to outweigh the perceived risks

ARTICLE SUMMARY

Article focus

- This survey provides an up-to-date overview on the current state of provision of acupuncture in the UK, including information on diagnostic practices and lifestyle advice provided to patients.

Key messages

- An estimated 4 million acupuncture sessions were provided in 2009 in the UK with approximately two-thirds of this provision outside the National Health Service.
- Most practitioners in the four major professional associations have backgrounds as doctors, physiotherapists, nurses and independent acupuncturists.
- Consultation rates were highest for musculoskeletal conditions, commonly back, shoulder, neck and knee pain, and neurological conditions, primarily headache and migraine.

Strengths and limitations

- Robust survey methods were used to limit selection bias; practitioners who provided our data were selected through a randomisation process.
- There is a potential risk of response bias; however, comparisons to earlier reports suggest that our results are reasonably representative of the UK and the USA populations.
- The findings are consistent with the current evidence base on clinical efficacy and cost-effectiveness of acupuncture.

of adverse reactions to treatments for most patients.⁸ NICE guidelines recommend acupuncture as an effective treatment for the early management of low back pain,⁸ and there is some evidence that general practitioners are in favour of acupuncture being more available in primary care.⁹ The funding for acupuncture clinics in general practice has been difficult,¹⁰ and provision of acupuncture in primary care is patchy,¹¹ which has led to many patients turning to independent practitioners for treatment.^{12 13}

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Overall, we have insufficient knowledge about the practitioners who provide acupuncture treatment, what conditions patients most commonly consult for, the characteristics of the treatment provided and how the conditions treated have changed over time. This study aims to investigate the current state of acupuncture practice in the UK. Our objectives in this study were to survey the major professional associations in order to characterise the practitioners, the conditions that are most commonly treated and some characteristics of the treatment process.

METHODS

Design and participants

During April and May 2009, a random sample of 200 practitioners of acupuncture registered with each of the four major UK-based acupuncture practitioner associations were invited to participate in a cross-sectional postal survey; 800 practitioners were approached in total. The calculations of sample size were based on a margin of error of 10% and assumed a response rate of 33%. Based on these estimates, a target sample size of 200 practitioners from each association was calculated to provide a minimum response of 68 practitioners from each association. The four organisations were Acupuncture Association of Chartered Physiotherapists (AACP), British Acupuncture Council (BAcC), British Academy of Western Medical Acupuncture (BAWMA) and British Medical Acupuncture Society (BMAS). The AACP (n=5600) is a clinical interest group of the Chartered Society of Physiotherapy with membership requiring a minimum of 80 h of training. The BAcC (n=2538) is the leading self-regulatory body for independent acupuncturists in the UK. Membership is provided to graduates of courses based on 3 years full-time study or equivalent, with most courses awarding a bachelor's degree BSc (Hons). Most members of BAWMA (n=302) are nurses or other healthcare professionals, and they have received approximately 100 h of training delivered over eight weekends leading to an Academy Licentiate Certificate. Practising members of BMAS (n=2385) are primarily doctors with a minimum of two weekends training and may also be accredited on completion of 100 h of training, and the provision of a series of case histories. Although a very small number of practitioners have multiple memberships for reader accessibility, we will characterise these four groups, respectively, as physiotherapists, independent acupuncturists, nurses and doctors. A senior member from each of the four associations agreed to act as a lead collaborator and provided the required information on behalf of their organisation (see Acknowledgements). Members practising outside the UK were excluded, as were those collaborating in the conduct of the study and those BAcC members who had opted not to participate in research projects. Ethical approval for this study was obtained from the Research Governance Committee, Department of Health Sciences at the University of York.

Randomisation process

The BAcC and BAWMA organisations provided complete lists of their UK membership with postal addresses for randomisation. Randomisation was conducted independently using a computer-generated randomisation sequence; the numbers generated were then used to select 200 members from each professional body. The AACP and BMAS each provided pre-randomised lists with postal addresses of 200 practitioners ready for use.

Data collection

In a two-page questionnaire, practitioners of acupuncture were asked their age, gender, professional organisation and to which statutorily regulated bodies they belonged, their years in practice, style(s) of acupuncture used, the settings in which they practice (whether National Health Service (NHS), independent or not for profit) and the number of treatments given in an average week. Practitioners recorded information relating to the theoretical knowledge base that informed their practice,¹⁴ including style of acupuncture, types of response elicited when needling and methods used to support diagnosis. The data requested were selected to allow for comparisons to be made with previous cross-sectional surveys.^{5 12 15 16}

Practitioners were asked to record details of their 10 most recent consecutive patients. Information requested included each patient's age and gender, primary complaint or reason for the consultation and whether the practitioner provided lifestyle advice: either advice relevant to their conventional medical diagnosis or to their traditional acupuncture diagnosis. Where more than one complaint was recorded, the first listed was coded as the primary reason. Completed questionnaires were returned by post. Reminders were sent to non-respondents 4 weeks later.

Data analysis

The mapping process comprised a descriptive analysis of who provided treatment and in what setting, aspects of how the treatment was provided and the primary reasons for their patient's consultation. Where appropriate, proportions, ORs and 95% CIs were used to present differential usage of practitioner services and trends over time. All usable questionnaires were included in the data set, and missing data are reported in [table 1](#). Primary complaints/reasons for the consultation were categorised using the International Classification of Primary Care (ICPC).¹⁷ An additional category of 'general well-being' enabled us to compare our findings with those from earlier surveys of independent acupuncturists in 1988 and 2002.^{13 18} To simplify the presentation of age and gender differences in consulting patterns, patients were grouped into four age groups for analysis based on bands used by the Office of National Statistics¹⁹ and combined to form four groups: young people = younger than 24 years, mature adults=25–44 years, middle age adults=45–64 years and older people=65 years and

Table 1 Demographic and practice characteristics of practitioners providing acupuncture in the four UK-based organisations (2009) (n=330)

Questions asked	Physiotherapists (AACP) n = 95/200 Female = 73% Median age = 41 years IQR1 = 31, IQR3 = 50 Age range = 25–67 years	Independent (BAcC) n = 96/200 Female = 63% Median age = 49.5 years IQR1 = 42, IQR3 = 57 Age range = 24–74 years	Nurses (BAWMA) n = 50/200 Female = 65% Median age = 53.5 years IQR1 = 49, IQR3 = 60 Age range = 28–71 years	Doctors (BMAS) n = 89/200 Female = 44% Median age = 48 years IQR1 = 42, IQR3 = 56 Age range = 26–67 years	Total n = 330/800 (41%) Female = 62% Median age = 48 years IQR1 = 39, IQR3 = 55 Age range = 24–74 years
Are you a member of a statutorily regulated healthcare profession? Please tick ONE option (n = respondents)					
Medical doctor	5	3	5	68	81 (25%)
Physiotherapist	89	1	0	6	96 (29%)
Nurse	1	8	42	3	54 (16%)
Other	0	5	2	12	19 (6%)
None	0	79	1	0	80 (24%)
How long have you been using acupuncture as part of your scope of treatment? Median number of years (first and third IQR)					
6 (IQR1=4, IQR3=11)		11 (IQR1=5, IQR3=19)	8 (IQR1=5, IQR3=14)	7 (IQR1=3, IQR3=12)	8 (IQR1=4, IQR3=14)
In an average week, how many treatments do you give? Median (first and third IQR)					
4 (IQR1=2, IQR3=10)		15 (IQR1=9, IQR3=25)	5 (IQR1=1, IQR3=12)	4 (IQR1=2, IQR3=8)	6 (IQR1=2, IQR3=16)
In which of these settings, do you practice as an acupuncturist? Please tick ALL that apply to you (n = respondents)					
NHS primary setting	40	8	7	57	112 (34%)
NHS secondary setting	13	2	7	6	28 (8%)
Independent or private clinic	62	92	34	36	224 (68%)
Not for profit or charity	7	15	10	9	41 (12%)
Missing	0	1	3	0	4 (1%)
How would you describe the style of acupuncture that you practice? Please tick ALL that apply to you (n = respondents)					
Five Element	5	51	1	4	61 (18%)
Japanese	0	9	0	0	9 (3%)
Traditional Chinese medicine	36	86	5	9	136 (41%)
Western medical acupuncture	86	8	46	80	220 (67%)
Other	0	6	0	1	7 (2%)
Missing	1	0	1	3	5 (2%)
Do you aim to elicit any of the following responses when you needle? Please tick ALL that apply to you (n = respondents)					
De qi	87	85	14	50	236 (72%)
Twitch	37	18	11	33	99 (30%)
Other	2	15	6	9	32 (10%)
None	2	4	6	9	21 (7%)
Missing	4	3	21	14	42 (13%)
Do you use any of the diagnostic techniques to support your diagnosis and/or treatment? Please tick ALL that apply to you (n = respondents)					
Pulse diagnosis	5	95	3	2	105 (32%)
Tongue diagnosis	9	88	4	3	104 (32%)
Palpation	70	80	12	53	209 (63%)
None	5	0	8	16	29 (9%)
Missing	17	1	28	20	66 (20%)

AACP, Acupuncture Association of Chartered Physiotherapists; BAcC, British Acupuncture Council; BAWMA, British Academy of Western Medical Acupuncture; BMAS, British Medical Acupuncture Society; NHS, National Health Service.

older. Data management and analysis was conducted using the Statistical Package for the Social Sciences (SPSS, V.17).

RESULTS

Practitioner participation rates

Of the 800 questionnaires posted out, 330 (41%) usable questionnaires were returned; seven more were incomplete and unusable (table 1). Reminders or requests for complete information were sent to 226 practitioners. Response rates among physiotherapists, independent acupuncturists and doctors ranged between 45% and 48%, and 25% of nurses responded.

Practitioner characteristics

Overall, respondents had a mean age of 47 years (SD=11), 62% were women (table 1). Within the sample, 250 (76%) were members of the statutorily regulated bodies: the BMAS comprised 84% doctors, AACP 94% physiotherapists, BAWMA 82% nurses and the BACC comprised 82% without statutory regulation. Overlapping membership was minimal (n=8, 2.4%).

Years in practice and numbers treated

The number of years in acupuncture practice ranged from several months to 30 years (median=8 years, IQR1=4, IQR3=14). The number of acupuncture treatments provided weekly was diverse, ranging from 0 to 80 treatments (median of six treatments, IQR1=2, IQR3=16) per week. The independent acupuncturists were markedly different from practitioners of the other UK-based organisations in that they had a median of 11 years experience (IQR1=5, IQR3=19) and provided a median of 15 acupuncture treatments per week (IQR1=9, IQR3=25). The annual number of treatments per week multiplied by the organisation size leads to an estimate of 3.8 million treatments provided per year in the UK. This comprises approximately 2 million treatments from independent acupuncturists, 1.2 million treatments from physiotherapists, 0.5 million from doctors and 0.1 million from nurses.

Practice setting

A total of 42% of practitioners reported working within the NHS, 68% reported working from an independent/private clinic and 12% reported working in a not-for-profit setting. The overlap in the proportions is accounted for by 16% of physiotherapists and 15% of doctors reported working in the NHS and in independent/private clinics.

Style of acupuncture

Western medical acupuncture is reported as the most widely used style (67%) followed by traditional Chinese medicine (41%) and the Five Element Style (18%). Use of Japanese acupuncture and other styles was minimal (5%). Multiple methods of acupuncture were used by 26% of respondents. Clear differences between styles of

practice are evident between organisations. Approximately 90% of physiotherapists, nurses and doctors primarily use Western medical acupuncture compared to 8% of independent acupuncturists. In contrast, most independent acupuncturists (90%) and over one-third of physiotherapists (38%) practice traditional Chinese medicine.

Diagnostic and treatment techniques

The majority of practitioners reported seeking a de qi response (72%) or twitch response (30%). Using a combination of de qi and twitch response was reported by 24% of practitioners, and a minority (7%) reported that no response was sought. Palpation was the most commonly reported diagnostic technique (63%) followed by tongue diagnoses (32%) and pulse diagnosis (32%). The use of techniques differed across organisations: independent acupuncturists (99%) reported regular use of a combination of tongue, pulse and palpation diagnosis compared to 6%–15% of the other practitioners. In contrast, the majority of physiotherapists (67%) and doctors (56%) reported palpation only as their diagnostic technique. Furthermore, 16% of nurses (n=8) and 18% of doctors (n=16) reported never using any of these diagnostic techniques.

Patient demographic data

The practitioners reported on 2599 patients (mean per practitioner=8.78, SD=2.8) (table 2). Patients were more likely to be women (OR=2.8 (95% CI 1.6 to 5.1)), although the age range of 9–94 years was equivalent in both genders (mean=49 years, SD=16.5). As might be expected, this sample of 2599 contained 14% fewer young people (n=144) than the national population of England in 2009 and 10% more mature adults (n=991) and 10% more middle-aged people (n=970) and 8% more older people (n=494) (online appendix 1).¹⁹

Primary complaint/reason for consultation: broad categories

Reasons for consultation were dominated by musculoskeletal complaints (59%), with the remaining nine top 10 broad categories forming a further 41% of all consultations. The residual 2% (n=52) of the patients were distributed across the remaining 12 categories within the ICPC coding system.

Primary complaint/reason for consultation: specific conditions

Back pain with or without radiating pain (19%) was the most common reason for consulting across all four professional associations, followed by neck pain, shoulder pain and knee pain each accounting for around 7%. Within the lower ranked specific complaints, differences in the pattern of consultation emerged reflecting the professional background of the practitioner. Physiotherapists, nurses and doctors treated a range of other musculoskeletal problems, including sprains and strains, hip, leg and foot symptoms but not exclusively. Consultations for headache or migraine

Table 2 Top 10 broad categories and top 10 specific conditions from practitioners providing patient data from the four UK professional organisations (2009) (n=2599)

	Physiotherapists (AACP) n = 754 patients Female = 57% Median age = 46 years IQR1 = 35, IQR3 = 59	Independent (BAcC) n = 946 patients Female = 72.4% Median age = 45 years IQR1 = 35, IQR3 = 58	Nurses (BAWMA) n = 392 patients Female = 66.8% Median age = 47 years IQR1 = 39, IQR3 = 64	Medical Doctors (BMAS) n = 572 patients Female = 62.8% Median age = 51 years IQR1 = 38, IQR3 = 65	Total n = 2599 patients Female = 66% Median age = 49 years IQR1 = 35, IQR3 = 59 Age range 9–94 years
	n (%)	n (%)	n (%)	n (%)	n (%)
Broad categories					
Musculoskeletal	619 (82)	304 (32)	213 (54)	408 (71)	1544 (59)
Neurological	57 (8)	75 (8)	37 (9)	54 (9)	223 (9)
Psychological	15 (2)	121 (13)	35 (9)	15 (3)	186 (7)
Obstetrics	1 (0)	120 (13)	16 (4)	10 (2)	147 (6)
General	14 (2)	67 (7)	16 (4)	24 (4)	121 (5)
Gynaecological	11 (1)	57 (6)	9 (2)	1 (0)	78 (3)
Digestive	8 (1)	49 (5)	11 (3)	8 (1)	76 (3)
Respiratory	10 (1)	35 (4)	18 (5)	11 (2)	74 (3)
Skin	2 (0)	23 (2)	11 (3)	4 (1)	40 (2)
Circulatory	6 (1)	20 (2)	0 (0)	0 (0)	26 (1)
Other categories within the top 10 of individual professional bodies	Male genital: 4 (1)			Urology: 3 (1)	7 (0.2)
Top 10 total	743 (99)	871 (94)	366 (94)	535 (94)	2522 (97.5)
Specific conditions					
Back pain	182 (24)	116 (12)	83 (21)	119 (15)	500 (19)
Shoulder pain	61 (8)	34 (4)	25 (6)	76 (4)	196 (8)
Neck/cervical pain	74 (10)	26 (3)	25 (6)	66 (4)	191 (7)
Knee osteoarthritis/pain	61 (8)	20 (2)	35 (9)	59 (6)	175 (7)
Headache/migraine	35 (5)	40 (4)	28 (7)	19 (5)	122 (5)
Infertility	0 (0)	88 (9)	13 (3)	6 (2)	107 (4)
Elbow	38 (5)	6 (1)	4 (1)	36 (1)	84 (3)
Other osteoarthritis	8 (1)	30 (3)	15 (4)	12 (3)	65 (3)
Anxiety	5 (1)	38 (4)	13 (3)	4 (2)	60 (2)
Stress	2 (0)	37 (4)	6 (2)	3 (1)	48 (2)
Other categories within the top 10 of individual professional bodies	Sprains: 30 (4) Hip symptoms: 18 (2) Leg/foot symptoms: 16 (2)	Depression: 22 (2)	Tobacco abuse: 10 (3)	Myalgia: 8 (1) Medical/surgical complications: 7 (1)	111 (4)

AACP, Acupuncture Association of Chartered Physiotherapists; BAcC, British Acupuncture Council; BAWMA, British Academy of Western Medical Acupuncture; BMAS, British Medical Acupuncture Society.

(5%) are linked to the prominence of neurological complaints as the second most common within the ranking of the top 10 broad categories. Anxiety, stress and depression were the three most prevalent psychological complaints and more commonly treated by independent acupuncturists, as were treatments for infertility.

Who goes for treatment by age and gender

Men were twice more likely to consult for a musculoskeletal complaint than women (OR=2.0 (95% CI 1.76 to 2.48)); specifically, younger, adult and middle-aged men (9–64 years) were twice as likely to consult with back pain than younger, adult and middle-aged women (OR=2.2 (95% CI 1.8 to 2.8)) (table 3). This gender difference in consultation for back pain is not apparent in older patients. As expected, middle-aged and older people were nearly three times more likely to consult with knee problems than were younger adults (OR=2.8 (95% CI 2.0 to 4.1)). The majority of patients presenting with neurological problems were mature adults (25–44 years) (80%) and were nearly twice as likely to be women (OR=1.9 (95% CI 1.37 to 2.6)).

Lifestyle advice offered to patients

Overall 78% of all patients were offered lifestyle advice relevant to a conventional medical diagnosis, primarily for musculoskeletal (87%), neurological (76%) and general conditions (61%) (table 4). In contrast, lifestyle

advice relevant to an acupuncture diagnosis was offered to 56% of all patients but more commonly for psychological (84%), obstetric (83%) and gynaecological (76%) conditions, and digestive (81%) and skin complaints (73%). As might be expected, doctors, physiotherapists and nurses provided a greater proportion (83%–95%) of lifestyle advice relevant to conventional medical diagnoses than did independent acupuncturists (54%). Lifestyle advice relevant to an acupuncture diagnosis was more frequently provided by independent acupuncturists (85%) compared to physiotherapists (26%), nurses (41%) or doctors (53%).

Changes to reasons for consultation over time

We compared the most prevalent broad categories from within the ICPC that were reported by independent acupuncturists in this survey, to similar surveys in 2002¹³ and 1988,¹⁸ (table 5). Results indicated significant decline in the proportion of patients consulting independent acupuncturists for musculoskeletal conditions from 47% in 1988 to 34% in 2009 (OR=1.8 (95% CI 1.4 to 2.2)).

In contrast, there has been a significant upward trend in the proportion of consultations for infertility from 2.5% in 2002 to 13% in 2009 (OR=5.7 (95% CI 4.5 to 7.24)); the proportions of people who presented with either neurological or psychological conditions have remained relatively stable over time. Finally, patients in 2009 (0.4%) were 12 times less likely to consult for

Table 3 Patients with the most common musculoskeletal conditions by age and gender, n=1544/2599 patients (59%)

	9–24 years (n=64) n (%)	25–44 years (n=336) n (%)	45–64 years (n=320) n (%)	65+ years (n=184) n (%)	Total men (n=904) n (%)
Males					
Back	20 (31)	99 (29)	81 (25)	46 (25)	246 (27)
Shoulder	3 (5)	21 (6)	34 (11)	17 (9)	75 (8)
Knee	2 (3)	19 (6)	26 (8)	25 (14)	72 (8)
Neck	1 (2)	19 (6)	24 (8)	14 (8)	58 (6)
Other musculoskeletal	25 (49)	79 (24)	54 (15)	29 (16)	187 (27)
Total number of men with a musculoskeletal complaint	51 (80)	237 (71)	219 (68)	131 (71)	638 (71)
Non-musculoskeletal conditions	13 (20)	99 (29)	101 (32)	53 (29)	266 (29)
Total men	64 (100)	336 (100)	320 (100)	184 (100)	904 (100)
	9–24 years (n=80) n (%)	25–44 years (n=655) n (%)	45–64 years (n=650) n (%)	65+ years (n=310) n (%)	Total women (n=1695) n (%)
Females					
Back	17 (21)	88 (13)	99 (15)	74 (24)	278 (16)
Shoulder	4 (5)	23 (4)	64 (10)	24 (8)	115 (7)
Knee	2 (3)	16 (2)	42 (6)	43 (14)	103 (6)
Neck	4 (5)	51 (8)	50 (8)	28 (9)	133 (8)
Other musculoskeletal	12 (15)	80 (12)	113 (17)	72 (43)	277 (16)
Total number of women with a musculoskeletal complaint	39 (49)	258 (39)	368 (57)	169 (55)	906 (53)
Non-musculoskeletal conditions	41 (51)	397 (61)	282 (43)	141 (45)	789 (47)
Total women	80 (100)	655 (100)	650 (100)	310 (100)	1695 (100)

Table 4 The number of patients offered lifestyle advice relevant to a conventional medical diagnosis compared to lifestyle advice relevant to an acupuncture diagnosis

Broad categories	Life style advice relevant to a conventional medical diagnosis n (%)	Lifestyle advice relevant to an acupuncture diagnosis n (%)
Musculoskeletal	1332 (87)	642 (43)
Neurological	168 (76)	129 (61)
Psychological	120 (65)	153 (84)
Family planning	93 (64)	120 (83)
General	70 (61)	75 (67)
Gynaecological	44 (57)	56 (76)
Digestive	49 (66)	57 (81)
Respiratory	52 (71)	51 (72)
Skin	22 (55)	31 (78)
Circulatory	21 (81)	18 (69)
Other categories	53 (66)	67 (80)
Total	2024 (79)	1399 (56)

general well-being than those in 2002 (4.8%) (OR=12.04 (95% CI 0.47 to 307.03)).

DISCUSSION

Principal findings

Each of the four professional associations surveyed has members primarily drawn from one of the following groups: doctors, physiotherapists, nurses and independent acupuncturists. The latter group has three times as

many patients consulting per week, due to acupuncture being their primary modality as opposed to an adjunct to conventional medical care. From the average number of treatments reported each week, we extrapolate that practitioners from the four organisations in the UK in 2009 provided 3.8 million treatments per year. We also found that more acupuncture is provided in independent/private clinics than in NHS settings, whether primary or secondary care. The styles of acupuncture

Table 5 Comparison of the broad categories of complaints of people seeking acupuncture care from three surveys of independent acupuncturists (members of the British Acupuncture Council)

ICPC categories		Survey data from 2009 (N=946) n (%)	Survey data from 2002 ¹³ (N=9408) n (%)	Survey data from 1988 ^{18 19} (N=518) n (%)
A	General	59 (6)	852 (9)	31 (6)
	General well-being*	8 (0.8)	446 (5)	19 (4)
B	Blood	2 (0.2)	31 (0.3)	2 (0.4)
D	Digestive	49 (5)	434 (5)	20 (4)
F	Eye	2 (0.2)	34 (0.4)	3 (0.6)
H	Ear	8 (0.8)	72 (0.8)	5 (1)
K	Circulatory	20 (2)	335 (4)	7 (1)
L	Musculoskeletal	304 (34)	3560 (38)	241 (47)
N	Neurological	75 (8)	763 (8)	37 (7)
P	Psychological	123 (13)	1047 (11)	61 (12)
R	Respiratory	35 (4)	533 (6)	33 (7)
S	Skin	23 (3)	264 (3)	12 (2)
T	Endocrine, metabolic and nutritional	14 (1)	125 (1)	11 (2)
U	Urology	6 (0.6)	93 (1)	6 (1)
W	Family planning	120 (13)	232 (2)	1 (0.2)
X	Gynaecology	57 (6)	481 (5)	16 (3)
Y	Male genital system	7 (0.8)	20 (0.2)	2 (0.4)
Z	Social problem	3 (0.3)	18 (0.2)	2 (0.4)
	Other	11 (1.0)	—	—
	Total	926 (100)	9340 (99)	509 (98)
	Missing	0	68 (1)	9 (2)
	Grand total	926 (100)	9408 (100)	518 (100)

*General well-being is a subgroup of category A 'General'.

used clearly reflect the professional backgrounds of the practitioners, though with some overlap, especially among physiotherapists who more commonly provide treatment based on both Western medical acupuncture and traditional Chinese medicine. Overlaps in practice also occur in the type of needle response in patients that is sought, with a higher proportion of physiotherapists and doctors aiming to elicit a de qi response, which is associated with traditional Chinese medicine, than a twitch response associated with Western medical acupuncture. Across the four associations, patients are consulting most commonly for two types of conditions: musculoskeletal problems and headaches. Younger people predominantly consult for back pain and headaches, whereas older people are proportionately more likely to consult for knee pain.

Strengths and weaknesses of the study

This survey provides an up-to-date overview on the current state of provision of acupuncture in the UK. Robust survey methods were used to limit selection bias; practitioners who provided our data were selected through a randomisation process from four professional organisations. We anticipated a response rate of around 30% based on previous surveys, which we achieved with three out of four professional associations. We accept that there remains the potential for a response bias as those who use acupuncture infrequently may be less likely to complete the survey, and there may be physiotherapists, doctors and nurses who are trained to use acupuncture and practice it regularly but do not belong to any of these associations. However, the similarities in the patients' primary reasons for the clinical encounter in our results compared to earlier reports^{10 12 13 16 20 21} suggest that our results are reasonably representative of the UK and the USA populations. We did not gather information on the patients' pathway to treatment; therefore, we cannot assess if this has changed in recent years.

Comparisons with other studies

A previous survey²² estimated the total number of acupuncture treatments per year to be approximately 3 million, of which 2 million were within private practice and 1 million within the NHS. While overall numbers of treatments have increased to an estimated 3.8 million, in our survey, the proportion of overall availability of acupuncture within the NHS and independent practice remains relatively unchanged. Our survey is novel in seeking information on diagnostic practices and lifestyle advice provided to patients. Individualised lifestyle advice can be an integral part of an acupuncture treatment^{23 24} to help patients assume responsibility for their own health and may be a key factor in any long-term benefits of treatment. Our study indicates that lifestyle advice relevant to a conventional medical diagnosis is offered routinely to patients across age, gender and condition. Over half of all practitioners offered lifestyle advice relevant to a traditional acupuncture diagnosis,

suggesting a growing assimilation of traditional acupuncture principles into Western style practice.

The direct comparisons made to previous studies on the primary complaints and reasons for consulting among patients of independent acupuncturists in 1988 and 2002¹³ indicate a fivefold increase among independent acupuncturists in the consultation rates for female infertility over the past decade. This result is consistent with a 2008 patient survey²⁵ and a 2010 report,²⁶ the latter providing evidence that a minority of practitioners have become specialists in infertility treatment in recent years. The increase parallels the growing evidence that acupuncture given with embryo transfer improves rates of pregnancy and live birth among women undergoing in vitro fertilisation.²⁷

Implications for clinicians and policymakers

Our study shows that there is a substantial provision of acupuncture to meet patients' healthcare needs with approximately two-thirds of this provision outside the NHS. The common conditions are remarkably congruent with those that general practitioners acknowledge they are not fully effective in treating, primarily musculoskeletal conditions and chronic pain.²⁸

We have found that the provision of acupuncture within NHS services has remained relatively static. This may change as NICE guideline,²⁹ published in the same year as this survey (2009), recommends NHS provision of acupuncture for back pain. Our findings that the overall provision of acupuncture in the NHS is patchy are consistent with previous research.^{11 22} This has implications for service provision; we would suggest that where good evidence of clinical efficacy and cost-effectiveness is apparent, that acupuncture should become more widely available through referral from primary care.

Future research

We have provided evidence of patients commonly seeking treatment for a range of conditions. However, for many of these, there remains insufficient evidence of whether acupuncture is beneficial or not, and if beneficial, whether it is cost-effective. This 'evidence gap'²⁸ provides a major challenge to the research community to develop the evidence base further. If the motivation is to reduce the current inequality of access, as the majority of acupuncture is paid for out-of-pocket, research is needed to provide the types of evidence that help NICE make recommendations on whether or not acupuncture should be offered as a treatment option in primary care.

We have provided an important insight into the routine provision of lifestyle advice within an acupuncture consultation, whether practised according to Western or traditional Chinese principles. There are two research proposals that emerge from our study. First, we suggest that a better understanding of the role of lifestyle advice is needed, and the extent to which that advice is taken up by patients, and the impact it has as

a contribution to any putative overall benefit. Second, we noted that a considerable portion of the lifestyle advice was acupuncture specific. In the context that active components of an acupuncture treatment are considered to include both the acupuncture needling and the acupuncture-specific lifestyle advice, we propose exploratory research to address the feasibility of designing randomised controlled trials that control for non-specific effects.

CONCLUSIONS

From this survey, we estimate that almost 4 million acupuncture treatments were provided in the UK in 2009 by the practitioners of the major acupuncture associations. Approximately one-third of these treatments were provided within the NHS. The consultation rates were highest for musculoskeletal conditions, commonly back, shoulder, neck and knee pain, and neurological conditions, primarily headache and migraine. These findings are consistent with the current evidence base on clinical efficacy and cost-effectiveness of acupuncture.

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Competing interests None.

Ethics approval The study was approved by Research Governance Committee, Department of Health Sciences at the University of York.

Contributors All authors contributed extensively to this paper and commented on the manuscript at all stages. AKH cleaned, analysed and interpreted the data and wrote the main paper. SC designed the questionnaire, collected and managed the data and reviewed the draft paper. MK supervised the study design, advised on statistical analysis, interpreted the data and reviewed the draft paper. As part of an NIHR Career Scientist Award (PAS/03/07/CSA/008), HM conceived and supervised the study, interpreted the data and revised the main paper. All authors approved the final version.

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Data sharing statement There are no additional unpublished data from this research.

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STROBE Statement—checklist of items that should be included in reports of observational studies
YOU MUST NOTE THE PAGE NUMBER WHERE EACH ITEM IS REPORTED INSIDE
THE BRACKETS []. IF NOT APPLICABLE WRITE N/A

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract [Within the title page 1 and method section of the abstract page 2] (b) Provide in the abstract an informative and balanced summary of what was done and what was found [See results section of abstract page 2]
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported [page 1]
Objectives	3	State specific objectives, including any prespecified hypotheses [pages 2 -3]
Methods		
Study design	4	Present key elements of study design early in the paper [Methods page 4]
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection [pages 4-6]
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up [] <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls [] <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants [page 4] (b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed [] <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case []
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable [page 4]
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group [page 4]
Bias	9	Describe any efforts to address potential sources of bias [page 5]
Study size	10	Explain how the study size was arrived at [page 4]
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why [pages 5-6]
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding [page 5-6] (b) Describe any methods used to examine subgroups and interactions [page 6] (c) Explain how missing data were addressed [N/A] (d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed [] <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed [] <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy [N/A] (e) Describe any sensitivity analyses [N/A]

Continued on next page

Results

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed [pages 7;table 1] (b) Give reasons for non-participation at each stage [N/A] (c) Consider use of a flow diagram [N/A information in table 1]
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders [page 6-8 and table 1] (b) Indicate number of participants with missing data for each variable of interest [table 1] (c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount) []
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time [] <i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure [] <i>Cross-sectional study</i> —Report numbers of outcome events or summary measures [N/A]
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included [N/A] (b) Report category boundaries when continuous variables were categorized [N/A] (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period [N/A]
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses [Pages 9-13; tables 2,3,4,5]

Discussion

Key results	18	Summarise key results with reference to study objectives [page 14]
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias [page 14]
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence [page 15-17]
Generalisability	21	Discuss the generalisability (external validity) of the study results [pages 9 and 14]

Other information

Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based [Within acknowledgements]
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*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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