



The perceptions and experiences of osteopathic treatment among cancer patients in palliative care: a qualitative study

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Abstract

Purpose This research aimed to explore the perceptions and experiences of cancer patients receiving osteopathic treatment as a complementary therapy when it is used in addition to conventional treatment for cancer pain.

Methods This qualitative study employed semi structured interviews of cancer patients in a palliative care unit in Lyon, France, who received treatment from an osteopath alongside their conventional cancer treatment. We analysed data using grounded theory and qualitative methods.

Results We interviewed 16 patients. The themes identified through the analysis included a low awareness of osteopathy among the population and an accompanying high level of misconceptions. The benefits of osteopathy were described as more than just the manual treatments with participants valuing osteopathy as a holistic, meditative, and non-pharmaceutical approach. Participants also described the osteopathic treatments as assisting with a range of cancer-related health complaints such as pain, fatigue, and sleep problems. Offering osteopathic treatment at an accessible location at low or no cost were identified by participants as enablers to the continued use of osteopathy.

Conclusions The findings of this study provides preliminary data which suggests, when delivered alongside existing medical care, osteopathy may have health benefits for patients with complex conditions such as cancer.

Keywords Palliative care · Osteopathy · Cancer pain · Symptom control · Qualitative study

Introduction

Complementary medicine (CM) is a term encompassing a broad and varied field of health care practices, paradigms

and products which are defined as CM by their general exclusion from conventional medical practice and education [1]. CM is used by individuals with complex and serious health conditions, with reported rates of use as high as 87% among patients with cancer [2]. Current research suggests that while the rates of complementary medicine use by cancer patients in France are lower than this, they are nonetheless substantive [3, 4]. CM users are reported to experience the clinical consultation as empowering and patient-centred [5]. Researchers have described this attribute in a number of CM professions including as a feature of consultations with practitioners providing primarily manual treatments such as acupuncture and myotherapy [6]. CM users are not the only patient subpopulation that views patient-centred care as an important feature of a clinical consultation [7] and for this reason the value of patient-centred care has been explored, and found to be important, in other groups including cancer patients [8].

Osteopathy is a system of traditional and complementary medicine acknowledged by the World Health Organisation which primarily employs manual techniques [9, 10] but may

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also include other elements such as diet and lifestyle advice within the treatment plan [11]. Osteopathic practice focuses on finding and treating mobility restrictions that may affect the human body [12, 13]. This holistic approach to diagnosis and treatment has meant that emerging clinical evidence suggests osteopathic treatment may not only benefit conditions such as back pain [14] but may also improve less obvious health problems such as digestive complaints [15].

Osteopathy is practised in many countries throughout the world. Most commonly, osteopathy is practised as a manual therapy and professional training primarily centres on osteopathic manipulative techniques as a cornerstone of effective treatment [9]. One significant exception to this is in the USA where completion of osteopathic vocational training results in a licence to practice medicine as an osteopathic physician in line with medical doctors [9]. In France, the professional advancement of osteopathy has developed recently; a ministerial memorandum from the French government now acknowledges this CM as a distinct health profession and defines the actions osteopaths can perform [16, 17] as well as the required training standards for osteopathy in France [18].

The majority of research examining the health effects of osteopathy focuses on lower back pain or cervicalgia [14]. However, research which explores the effects of osteopathy on cancer-related symptoms is scarce. The diversity of symptoms experienced by cancer patients, and the tendency for some symptoms to occur in clusters [19], may indicate a holistic approach to diagnosis and treatment may benefit patients with advanced cancer. A 2012 study examines the effectiveness of osteopathic treatment on the quality of life of patients undergoing chemotherapy, in particular on the reduction of nausea, vomiting, tiredness, and pain [20]. This kind of study focuses mainly on the secondary effects of cancer-specific treatments without consideration of the effect osteopathy has on cancer-related pain and other symptoms experienced by patients in the palliative phase of their illness, despite calls for research into the patient experience of osteopathic treatment [21].

As such, this study provides, to the authors' knowledge, the first study examining the experience of cancer palliative care patients receiving osteopathic treatment for the management of cancer-related symptoms.

Methodology

Setting

For more than 7 years an osteopath has been working in our palliative care unit (PCU) and in both palliative care mobile teams (PCMT) as a member of the multidisciplinary team. The patients referred to the osteopath by the palliative care physicians present with cancer-related pain and pain related

to cancer treatment such as surgery or radiotherapy. The osteopath may also be requested to assist patients with other symptoms such as constipation or dyspnea. As this approach is provided in addition to the medical approach, it is not considered as an alternative medicine but as a complementary medicine associated with conventional care.

Participants

This study employed a purposive sampling method. Patients of the PCU were invited to participate in the study if they were in the advanced stage of illness with cancer pain and had a grade of < 2 on the Eastern Cooperative Oncology Group Performance Status (PS) scale [22]. Patients who were not able to communicate (not able to participate in an interview) and patients whose cancer has been cured or were considered to be in remission were not included in the study. Patients identified as at risk of fracture from an osteopathic treatment were also not invited to participate in the study.

Enrolment method

The study was proposed to every patient meeting the criteria, whether he/she came to the PCU or was seen by the PCMT. Once the informed consent form was signed, the patient was included in the study. Once their clinical data were collected and their symptoms assessed, all the enrolled patients had one osteopathic session per week for 2 weeks. After these sessions, a psychologist researcher interviewed them (between day 11 and day 14).

Data collection

We employed a qualitative prospective study design using semi-structured interviews. Two female mid-age psychologists (CS and CD) with skills in palliative care and qualitative research conducted the semi-structured interviews. The interview questions were geared toward eliciting open-ended responses to acquire information about the patient's thoughts and feelings about osteopathic treatment. In our study, we conducted two preliminary interviews to test the quality of the questions we planned to use with the participants. The specific questions that were used during the interview are attached to this manuscript. All interviews were audio-recorded and then fully transcribed. The name and personal information of participants were removed from transcripts, and code numbers were assigned.

Analysis

We used a grounded theory approach [23–25] in analysing the transcripts and applied a thematic analysis to the data to extrapolate results. We used a grounded theory approach

[25–27] in analysing the transcripts and applied a thematic analysis to the data to extrapolate results. Grounded theory is a popular qualitative research technique that allows theory to emerge inductively from data. The first step is open coding, which consists of multiple reviews of the transcripts to identify and categorise data. Four authors (MF, CS, CT, CD) performed this first step independently. The second step is dividing the interview into ‘units of meaning’ to highlight; in the third step, the underlying meaning of what the participant wanted to express. We then completed this open coding (i.e. analysis of each interview independently) using axial coding to connect the interviews. During this last step, all elements were categorised into major themes. An author (MF) performed the translations of the reported quotations.

Sample size determination

In qualitative research, data collection ends when none of the analysts recognises new or unique themes. This approach is known as data saturation.

Presenting results

Quotes from the participants are indented to support our conclusions. Minimal editing was done to preserve authenticity. We used ellipses (...) to indicate that part of the quote was truncated and irrelevant information was deleted from a quote.

Ethics

The ethics committee approved our study. All participants gave written informed consent before their inclusion in the study. The present article respects the consolidated criteria for reporting qualitative research (COREQ) guidelines (Tong et al. 2007).

Results

Forty-four patients were screened: 23 patients did not meet the inclusion criteria and one patient did not want to take part in the study. Twenty patients were included to obtain 16 interviews: 4 did not attend the interview meeting (one forgot, two were too tired, and one was too unwell).

In our study, data saturation was reached after transcripts from 16 semi-structured qualitative interviews had been coded. Recruitment of the 16 consecutive study participants took 8 months (April 2014 to November 2014). Each interview lasted between 45 min and 1 h. Characteristics of participants are outlined in Table 1.

We identified a number of themes regarding how the participants perceived osteopathy. These included low awareness and high misconceptions of osteopathy among participants,

osteopathic treatment as more than just manipulation, the benefits of osteopathy for cancer-related health complaints, and enablers to continued use of osteopathy.

Low awareness and high misconceptions of osteopathy

In several interviews, patients reported that they were not aware of osteopathy before involvement in the study. They were surprised by its ‘soft’ approach. In particular, patients who did not know about osteopathy before reported holding preconceptions that the osteopath may manipulate their body using sudden movements. These preconceptions contributed to participants feeling concerned that they may be injured by the treatment as they perceived their body to be weakened by their illness.

In the beginning a little, because I was afraid there might be some manipulation... And then I realized it had nothing to do with that. It wasn't at all a ‘I twist you on one side and then I twist you on the other side’ kind of thing. It is always very gentle... There are no manipulations actually... so there are no risks at all. -Interview 2/line 22–27

They reported feeling afraid about the “bone cracking” sound, and also expressed the concern that the osteopathy treatment might be risky. Participants indicated that these preconceptions were not sustained after their treatment. Furthermore, the gentle treatment approach, particularly in contrast to the participants’ expectations of the osteopathic treatment, remained the most common expression emerging from the interviews.

Some patients reported they did not know that the osteopath could make a diagnosis, and that they were surprised by how many sites of pain or discomfort were identified by the osteopath during the whole body examination. The accuracy of the diagnosis surprised them:

He looked for the spots where it aches, and without knowing, even if I had manipulated my own body I wouldn't have thought I had such pains.-Interview 6/line 63–34

In addition to identifying sites of discomfort, the analysis of the interviews also revealed that the patients were reassured by the fact that the osteopath was able to determine and name the cause of their pain. The osteopath's ability to clearly explain his diagnosis and support the participants' understanding of their health also often appeared as a positive point:

First of all, it is the approach he has of pain, so he makes pain less dramatic, he explains it. [...] He explains it to

Table 1 Participants characteristics (*N* = 16)

Characteristics		<i>N</i> (%)
Age (SD)*		56.25 (15)
Gender	Male	9 (56.25)
Performance status (PS)	0	3 (18.75)
	1	2 (12.5)
	2	11 (68.50)
Cancers	Breast	4 (25)
	Lung	3 (18.75)
	Blood	3 (18.75)
	Prostate/urologic	3 (18.75)
	Head and neck	2 (12.5)
	Melanoma	1 (6.25)
Average opioid doses (SD) MEED		93.75 mg (184.28)

SD standard deviation, *MEED* morphine milligramme equivalent day

me, we talk about it, and eventually it makes it all less dramatic. -Interview 1 line 42/43

More than just a manual therapy

For the interviewed, there was a perception of that the osteopath had ‘healing hands’. This view was supported, in the participant’s words, by the time the osteopath spends palpating the participant’s body during diagnosis and treatment. The contact between the osteopath’s hands and the participant’s body was perceived to have a therapeutic effect not only because of the techniques used but also through a healing action of the hands themselves.

As I see it, his hands are extremely powerful -Interview 3 line 61

Some patients say they abandon themselves entirely to the hands of the therapist during the time of the session. The treatment is experienced almost like a meditation session.

When he takes care of me, I don’t think, so it is like a meditation, I try to open my eyes, so it is really a very quiet moment, during which he is not brutal, it is very gentle, so you could almost fall asleep. -Interview 14 line 81/83

Osteopathy was often reported by participants as a positive experience in part because it was described as a non-pharmaceutical approach and the interviewed patients already take a significant amount of medication every day:

The fact that it is natural, that it is not medication as you say, I already have a lot of medication. And it stays simple, I don’t know, how can I put it, it stays natural,

there are no medicines at all... ..And as I say, it cannot hurt me more than what I already have, it can only relieve me. -Interview 2 line 40/42

They also perceived it as a holistic therapy in which the patient is taken care of globally. The osteopath asks them about their medical history and the after-effects of their treatments, as they can be relevant for the treatment of the patients’ current ailments:

It is good for the body as a whole, and I think it is good because you are not taken only for a part of your body. -Interview 16 line 88/90

Participants also described the fact that the osteopath was explaining the causes of their pain and what the osteopathic treatment was going to achieve as having a positive effect on their overall experience.

To relief the pain...no one knows from where it is coming from....It clear that he (the osteopath), he find out putting his hand in the right place...he said for me it is this muscle -Interview 7 line 87/89

Furthermore, many of the interviewed patients expressed feeling reassured by the frame of the intervention of this study and by the fact that this treatment is proposed by a palliative medicine physician. They understand that the osteopath is part of the palliative care team and that he understands the severity of his patients’ illness.

Benefits to cancer-related health complaints

In all the interviews, patients reported experiencing an improvement in their cancer-related pain and other symptoms either immediately after the osteopathic sessions or after a

delayed period. Among the beneficial effects of the sessions was an effect on pain, the symptom for which they had been referred to the osteopath.

So just after the sessions, the day after or two days later, I am very tired, but it is true that I don't feel as much pain as I did before...now I can get up every day, I even ran yesterday, it hadn't happen to me in a long time. - Interview 14 line 31/34

Some patients reported that the beneficial effects lasted for days or weeks depending on the interviewed.

Yes it lasts, I don't remember for how long, but it lasted some time. If it was in the beginning of the week then it lasted up to the end of the week, 5 or 6 days. -Interview 15 line 68/70

Whereas the symptom that justified the osteopathic treatment was addressed, according to the interviews the effects were wider than only pain management. The interviewed patients felt a global improvement, although this was sometimes difficult for the participants to define. Most frequently, the patients felt their situation improved as they felt a 'relief of tensions'.

Those moments are always not magical but precious, when you feel the tension going away, and this is where I say you feel an improvement, an immediate well-being, because you feel some things are letting go, they are going back to normal. -Interview 16 line 65/68

However, the word 'tension' was used with both a physical and a nervous meaning:

Yes, it relaxed me a lot. There even were sessions during which I almost fell asleep. So it is very nice...very relaxing. - Interview 14 line 81/83

Patients reported a feeling of tiredness after a session, which allows them to regain a particular type of dynamism:

He recharges my batteries, and I am good to go (...) Sometimes I come and I am a wreck, I am exhausted, and I leave the session tired, but the day after I take a good nap and I am ready to go. No, it is really good.- Interview 2 line 83/85

During the interviews, it was hard to dissociate the effect on tiredness and the effect on sleep, as the two are often linked as well with the pain improvement:

Every time I get out of the osteopath's, I sleep, I don't know why...The night after the session I don't think

about taking pills or anything. But as it hurts me less now, my nights are automatically less disturbed - Interview 3 line 23/24

Some patients reported an effect on others symptoms as constipation, fatigue or blood circulation with an improvement of their oedema.

Enablers to continued use of osteopathy

If the osteopathic treatment is seen as a positive one, the fact that the treatments are not refunded by the health insurances may be a barrier. As such, it was beneficial that the sessions were provided at the hospital at no cost to the patient:

It is very well, we are lucky we are being taken care of at the hospital, and let's be honest, people don't go to the osteopath because a session is very expensive, and I think people don't go to the osteopath because we don't all have 40-50 euros to invest in an osteopathy session. - Interview 10 line 99/102

Discussion

This study identifies some novel findings which add new insights to the practice and research of osteopathy. Firstly, the positive health benefits reported by participants, extended beyond cancer-related pain to include other health complaints. Some of the symptoms reported to improve from the osteopathic treatments, such as insomnia, may be linked to the global phenomena of pain and highlight the symptom clusters common in cancer [19]; however, other conditions such as oedema have been shown to improve following osteopathic treatment in individuals with an acute injury [28]. Approximately two-thirds of patients with advanced care experience pain, and more than one-third grade their pain as moderate or severe [29]. There are many barriers to effective cancer pain management including poor patient adherence to analgesic prescription due to concerns about side effects [30]. As osteopathic principles emphasise treating the body as a whole, an effect on the viscera has been observed including improvements to the digestive process [15] following osteopathic treatments. This finding could be further explored, particularly in patients receiving opioids who present with problematic constipation [31].

Secondly, our study identified that individuals receiving treatment by an osteopath experience a holistic system of care that extends beyond manipulation. Osteopathy is described by international bodies as employing a holistic approach to diagnosis and treatment [9, 10]. Osteopaths may spend up to 1 h with a new patient and employ a range of treatments including

not only manual therapy techniques but also diet and lifestyle advice, patient education, hydrotherapy, and relaxation techniques [11]. The time the therapist spends with the patient is described in our study as beneficial; the patient can share their experience of pain and the osteopath educate the patient about the planned treatment. This feature of the patient-practitioner relationship is typical within complementary medicine and supports a patient-centred clinical experience [5]. Current evidence suggests multidisciplinary interventions from interprofessional teams [30] which align with the current patient-centred paradigm are needed to manage cancer-related pain effectively [8]. The fact that participants in this study reported positive experiences from osteopathic treatment and expressed a preference for osteopathy as a non-pharmaceutical pain management option warrants further researcher attention.

The study also indicates that there may not only be a lack of awareness about osteopathy among the population but also misconceptions about the nature and characteristics of osteopathic care. Existing research does suggest that familiarity with treatment type is a factor which influences individual's choice of provider for pain treatment [32]. The perception of the osteopath 'cracking bones' relates to a different type of manual practice and a lack of information about the various approaches across manual therapy professions [33]. Thus, the osteopathic profession needs to work more proactively in some regions to promote awareness of their philosophy and approach to practice. Osteopathic professional organisations may need to explore this further if they are to support the sustainability of the practitioners they represent.

In this study, the osteopath is practising as part of a coordinated and integrated care team and participants identified this model as a positive characteristic of their care experience. This approach has been reported elsewhere as a successful model for other integration of complementary healthcare approaches into an existing health care team [34]. Moreover, participants in our study did not have to travel or pay for the sessions. Complementary medicine is commonly perceived as a health care option valued only by individuals from higher socioeconomic backgrounds. However, there is a growing body of evidence which suggests that when complementary medicine is made available to underserved communities as part of their current medical care, it is well received [35, 36]. This previous research is supported by the positive reports of low cost and ease of access reported in our study.

Our study has some limitations. This study was a monocentric study, in a palliative department working for 7 years with a registered osteopath who has completed a 6-year osteopathic degree. One bias was that only one osteopath, with specialised training, was in the unit and administered the intervention. The results may have been different in another culture or setting, or with various practitioners, resulting in the limited transferability of our results. However, the value of

this research is in the rich, contextualised data afforded by the qualitative design which may be a useful foundation to inform future survey and clinical research in larger samples and other settings [37, 38]. The qualitative nature of the study can also be seen as a limitation as it relates to the health benefits reported in this study and as such, the findings should not be interpreted as definitive clinical outcomes. Overall, however, qualitative research has been recognised as a valuable design when exploring palliative care populations [39, 40] and is a valuable method for gaining insights and understanding of participants' experiences within a natural setting [37]. More research is necessary to confirm our findings and to determine the best indication for the osteopathic treatment in palliative medicine.

Conclusions

In light of the absence of clinical research exploring the effectiveness of osteopathic treatments for patients in palliative care, this study contributes new insights. In an era of patient-centred care and in a subpopulation with such specific needs such as palliative care, any possible treatment which has the potential to improve the patient's quality of life is worthy of researcher attention. The findings of this study also provides preliminary data which suggests that osteopathy may have health benefits beyond conditions such as low back pain. Further research is undoubtedly needed to confirm these patient experiences through robust clinical studies which focus on safety and efficacy.

Compliance with ethical standards

The ethics committee approved our study. All participants gave written informed consent before their inclusion in the study. The present article respects the consolidated criteria for reporting qualitative research (COREQ) guidelines (Tong et al. 2007).

Conflict of interest The authors have no conflicts of interest to declare. All raw data is held by the research and deidentified data can be made available upon request.

References

1. Adams J (2007) Introduction. In: Adams J (ed) *Researching complementary and alternative medicine*. Routledge, Oxon, pp xiii–xix
2. Judson PL, Abdallah R, Xiong Y, Ebbert J, Lancaster JM (2017) Complementary and alternative medicine use in individuals presenting for care at a comprehensive cancer center. *Integr Cancer Ther* 16(1):96–103
3. Simon L, Prebay D, Beretz A, Bagot JL, Lobstein A, Rubinstein I, Schraub S (2007) Médecines complémentaires et alternatives suivies par les patients cancéreux en France. *Bull Cancer* 94(5): 483–488

4. Bontoux D, Couturier D, Menkès C-J (2013) THÉRAPIES COMPLÉMENTAIRES-acupuncture, hypnose, ostéopathie, tai-chi-leur place parmi les ressources de soins. *Bull Acad Natl Med* 3:717–757
5. Foley H, Steel A (2017) Patient perceptions of clinical care in complementary medicine: a systematic review of the consultation experience. *Patient Educ Couns* 100(2):212–223
6. Foley H, Steel A (2017) Patient perceptions of patient-centred care, empathy and empowerment in complementary medicine clinical practice: a cross-sectional study. *Adv Integr Med* 4:22–30
7. Pelzang R (2010) Time to learn: understanding patient-centred care. *Br J Nurs* 19(14):912–917
8. Kvåle K, Bondevik M (2008) What is important for patient centred care? A qualitative study about the perceptions of patients with cancer. *Scand J Caring Sci* 22(4):582–589
9. Osteopathic International Alliance (2016) Osteopathy and osteopathic medicine: a global view of practice, patients, education and the contribution to healthcare delivery. Osteopathic International Alliance, Chicago
10. World Health Organization (2010) Benchmarks for training in Osteopathy. In: *Traditional Medicine* (ed) Geneva. <http://apps.who.int/medicinedocs/en/d/Js17555en/>
11. Orrock P (2009) Profile of members of the Australian osteopathic Association: part 1—the practitioners. *Int J Osteopath Med* 12(1):14–24
12. Howell J (1999) The paradox of osteopathy. *N Engl J Med* 341(19):1465–1468
13. Hamonet C (2003) Andrew Taylor still and the birth of osteopathy (Baldwin, Kansas, USA, 1855). *Joint Bone Spine* 70(1):80–84
14. Steel A, Sundberg T, Reid R, Ward L, Bishop FL, Leach M, Cramer H, Wardle J, Adams J (2017) Osteopathic manipulative treatment: a systematic review and critical appraisal of comparative effectiveness and health economics research. *Musculoskeletal Science and Practice* 27:165–175
15. Attali TV, Bouchoucha M, Benamouzig R (2013) Treatment of refractory irritable bowel syndrome with visceral osteopathy: short-term and long-term results of a randomized trial. *J Dig Dis* 14(12):654–661
16. de Villepin D (2007) Décret n°2007–435 relatif aux actes et aux conditions d'exercice de l'ostéopathie. Paris
17. French Government (2002) Loi no. 2002-303 du 4 mars 2002-Article 75. Paris
18. French Government (2015) JO du 9/07/2015 no. 0157. Paris
19. Kirkova J, Walsh D, Aktas A et al (2010) Cancer symptom clusters: old concept but new data. *Am J Hosp Palliat Med* 27(4):282–288
20. Favier N, Guinet A, Nageleisen M, Ceccaldi B, Pujade-Lauraine É, LeFoll C, Soudain-Pineau M, Turlin C, Stubbe L (2006) Évaluation de l'efficacité d'un traitement ostéopathique sur les effets secondaires et la qualité de vie de patients sous chimiothérapie Essai clinique multicentrique randomisé. *Nursing* 10:247–242
21. Steel A, Blaich R, Sundberg T, Adams J (2017) The role of osteopathy in clinical care: broadening the evidence-base. *Int J Osteopath Med* 24:32–36
22. Oken MM, Creech RH, Tormey DC, Horton J, Davis TE, McFadden ET, Carbone PP (1982) Toxicity and response criteria of the eastern cooperative oncology group. *Am J Clin Oncol* 5(6):649–656
23. Strauss AL, Corbin J (1990) Basics of qualitative research: grounded theory procedure and techniques. Sage, London
24. Birks M, Mills J (2015) Grounded theory: a practical guide. Sage, Thousand Oaks
25. Charmaz K (2014) Constructing grounded theory. Sage, Thousand Oaks
26. Strauss A, Corbin JM (1990) Basics of qualitative research: grounded theory procedures and techniques. Sage, Thousand Oaks
27. Ralph N, Birks M, Chapman Y (2015) The methodological dynamism of grounded theory. *Int J Qual Methods* 14(4):1609406915611576
28. Eisenhart AW, Gaeta TJ, Yens DP (2003) Osteopathic manipulative treatment in the emergency department for patients with acute ankle injuries. *J Am Osteopath Assoc* 103(9):417–422
29. Van den Beuken-van Everdingen M, De Rijke J, Kessels A et al (2007) Prevalence of pain in patients with cancer: a systematic review of the past 40 years. *Ann Oncol* 18(9):1437–1449
30. Kwon JH (2014) Overcoming barriers in cancer pain management. *J Clin Oncol* 32(16):1727–1733
31. Bell TJ, Panchal SJ, Miaskowski C, Bolge SC, Milanova T, Williamson R (2009) The prevalence, severity, and impact of opioid-induced bowel dysfunction: results of a US and European patient survey (PROBE 1). *Pain Med* 10(1):35–42
32. Kirby ER, Broom AF, Adams J, Sibbritt DW, Refshauge KM (2014) A qualitative study of influences on older women's practitioner choices for back pain care. *BMC Health Serv Res* 14(1):131
33. Dosquet DP, Blanchard N, Couvineau N et al (2006) Étude documentaire sur les professions d'ostéopathe et de chiropracteur en Europe. Belgique, Royaume Uni, Suède, Suisse
34. Templeman K, Robinson A (2011) Integrative medicine models in contemporary primary health care. *Complement Ther Med* 19(2):84–92
35. Gardiner P, Dresner D, Barnett KG, Sadikova E, Saper R (2014) Medical group visits: a feasibility study to manage patients with chronic pain in an underserved urban clinic. *Glob Adv Health Med* 3(4):20–26
36. Dresner D, Gergen Barnett K, Resnick K et al (2016) Listening to their words: a qualitative analysis of integrative medicine group visits in an urban underserved medical setting. *Pain Med* 17(6):1183–1191
37. Pope C, Mays N (2013) Qualitative research in health care. Blackwell Publishing, Massachusetts
38. Creswell JW, Clark VLP (2007) Designing and conducting mixed methods research. Sage, Thousand Oaks
39. O'Connor M, Payne S (2006) Discourse analysis: examining the potential for research in palliative care. *Palliat Med* 20(8):829–834
40. Chesebro JW, Borisoff DJ (2007) What makes qualitative research qualitative? *Qual Res Rep Commun* 8(1):3–14