How is touch communicated in the context of manual therapy? A literature review.

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Contents

List of abbreviations

FtP	Fitness to Practise
GOsC	General Osteopathic Council
GCC	General Chiropractic Council
HCP	Health Care Practitioner
IPA	Interpretative Phenomenological Analysis
NCOR	National Centre for Osteopathic Research
OEI	Osteopathic Education Institution
OPS	Osteopathic Practice Standards
PSA	Professional Standards Authority

How is touch communicated in the context of manual therapy? A literature review

Background:

The General Osteopathic Council (GOsC) and the General Chiropractic Council (GCC) have statutory duties to 'develop and regulate' the respective professions of osteopathy and chiropractic. They have specific statutory objectives as follows:

- 'The over-arching objective of the General Council in exercising its functions is the protection of the public.'
- 'The pursuit by the General Council of its over-arching objective involves the pursuit of the following objectives—
    a. to protect, promote and maintain the health, safety and wellbeing of the public
    b. to promote and maintain public confidence in the profession of osteopathy
    c. to promote and maintain proper professional standards and conduct for members of that profession.

The GOsC and GCC have a range of functions in order to meet these statutory objectives.

The aim of this literature review is to inform the aforementioned councils of the current, published information that considers the essential aspects of professional person-centred care relating specifically to communication and miscommunication. It was designed to establish what information was currently available, and when synthesised, how it may inform the development of policy change, guidance documentation and educative curriculum. Consequently, the aforementioned developments will enable significant benefits through effective and positive communication and reduction of any negative impact during professional clinical encounters.

Methods: Following a steering process, appropriate search terms were established, and four bibliographic databases were searched. Inclusion and exclusion criteria were used and PICO[1] criteria applied. Two independent reviewers screened all abstracts and full text papers for suitability. Disagreements were resolved through deliberation. Extraction of qualitative data was performed and synthesised into a contextual narrative relating to the primary and secondary research questions.

Results: Findings were synthesised from thirty-eight peer reviewed research articles. Twenty-six of the identified articles were qualitative, eight quantitative and four were of mixed methods. Although providing useful discursive and descriptive information, the studies do not fully identify with the research questions of this literature review.

[1] PICO means P – 'patient, population or problem; I – 'intervention, prognostic factor or exposure'; C – 'comparison or intervention (if appropriate); O – 'outcome you would like to measure or achieve'. See for example, researchguides.uic.edu/c.php?g=252338&p=3954402.

Conclusion: The findings of the study are drawn from various areas of professional and healthcare practice, much of which sits outside of osteopathy and chiropractic. This offers limited information to answer the research questions.

Summary of key findings

There is a paucity of direct and indirect literature that is available to contribute to the full knowledge of how communication is given and received in manual therapies.

In terms of clear definitions regarding how osteopathy and chiropractic practice relate to the wellbeing of the human condition, more and better research is needed to inform the complexity of how this relationship should be effectively managed. There appears to be a tacit acceptance of the complexity of the processes that are involved, but a paucity of evidence to support the epistemological development of this fundamental concern.

The peripheral and transferable literature that has been extracted may offer a platform to develop the necessary pedagogical curricula that would result in engagement of the relevant health care professionals (HCP). This would be integrated into the existing undergraduate programmes and also be developed into appropriate continuing professional development (CPD) provision. The potentially enhanced communication skills will necessarily seek to improve the positive experience of clinical encounters for patients and thereby reduce the potential negative consequences of poor communication.

Introduction

Osteopaths and chiropractors are holistic, patient-centred (Maizes, et al., 2009; Williams, 2007) HCPs who assess and treat patients within a biopsychosocial model of illness, underpinned by guiding principles (Orrock, 2016; Kasiri-Martino, et al., 2016; Tyreman, 2013; Stark, 2013; Paulus, 2013) and professional values (Tyreman, 2008). Osteopaths and chiropractors are statutorily registered primary HCPs. Both professions have been practised since the 1870s and are established systems of manual diagnosis and treatment for a range of musculoskeletal and non-musculoskeletal clinical conditions (McGlone, et al., 2017). Dignity and privacy are fundamental tenets of patient care and are widely acknowledged within the literature (Webster & Byan, 2009; Kidd et al., 2011; Johnson et al., 2015; Matiti, 2015) and are rated consistently high by patients across a range of socio-demographic variables (World Health Organisation, 2016; Valentine et al., 2008).

Concerns raised about osteopaths centre on communication, including dignity, modesty, and also on the transgressing of professional boundaries and sexual impropriety, a proportion of which feature in fitness to practise proceedings (Carnes, 2015; GOsC, 2015; NCOR, 2016). There are similar findings for chiropractors with almost 50% of allegations involving issues around maintaining professional boundaries, privacy and dignity (CGG, 2015). Unprofessional behaviour by members of the osteopathic and chiropractic profession has also been the subject of media reporting in recent years (Telegraph Reporters, 2017; Tran, 2017). Understanding these issues is a significant practice issue for the profession.

This current study aims to establish how the extant literature can contribute towards the understanding of how touch is communicated in the context of manual therapy. Furthermore, it aims to determine whether the literature informs any potential implications for regulation and policy development.

The first research question**:** How is touch communicated and received by both patient and HCP, in the context of touch-based therapies?

The second research question: How does the literature inform the potential implications for the regulator, educational and professional bodies and other groups and for HCPs?

Working methods

Methods for systematic reviews are well developed for quantitative research. Although this is not a systematic review, the principles of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA, 2017) process were modified and adopted to report the flow of selection of appropriate published work. Applying these processes to qualitative research may enable greater opportunities to include people's perspectives and experiences which can then be used to inform policy change and promotion of health (Harden et al, 2004).

As a part of the initial steering process, an information technologist was consulted regarding search terminology. The comprehensive literature search was conducted through Medline, PsycINFO, CINAHL and the Cochrane Library. For each search conducted, a record of the date, the database and search terms used, along with the number of hits were recorded. The details of the individual references selected were

recorded in a clear format using the APA 6th referencing system. This allows them to be viewed by others to ensure transparency of the findings.

As this comprehensive literature review was completed in a restricted and short time frame, there were limits set. The Inclusion criteria required the literature to be available in English, published in peer reviewed journals, and published during or after 2007. The exclusion criteria eliminated published abstracts without full text, dissertations or theses. Once the inclusion and exclusion criteria were applied, the subsequently reduced number of hits were recorded. Finally the PICO elements were applied and the final record of hits was made. PICO elements were considered to inform the search and to address the primary research question (Cooke, Smith & Booth, 2012; Methley et al., 2014). The PICO elements were:

Population – Osteopath, Chiropractor, other manual therapists and patients receiving manual therapies. This was also expanded to psychology and psychotherapy.

Intervention/exposure – Clinical practice

Comparator – Ethical and regulatory literature indicating; good practice, consent, patient satisfaction, sexual relations and professionalism.

Outcome – Complaints, satisfaction and professional policy and practice knowledge or debate.

Screening for eligibility – Following all initial searching, the titles and abstracts were screened independently by both researchers. After agreement to refer the included abstracts for full text review, the resultant retrieval was performed and reviewed by the same two researchers for additional independent screening. The researchers engaged in a dialogical and deliberative process to resolve any conflicts around article identification, screening and eligibility. The appropriately selected articles were then abstracted for analysis.

Thematic synthesis was used during information extraction which was predetermined by the research questions.

Extracting the evidence – The analysis involved extracting relevant data from both the quantitative and qualitative evidences. All information was critically interpreted with contextual reporting in a narrative summary. The narrative summary was organised by the thematic requirements of the research questions. There was also a critique of the meta data in relation to the authors, country, health or educative context along with relevant information on any participant data.

Critical appraisal and synthesis of the evidence – The Critical Appraisal Skills Programme (CASP, 2017) tool for appraising the literature was applied to the extracted evidence. The researchers provide a critical narrative on reliability, validity and potential projection to wider populations. The synthesis of the evidence describes five key aspects:

i. the volume and characteristics of the overall evidence base
ii. what the evidence base indicates in relation to the research questions
iii. the implications of the findings for policy and/or practice
iv. identification of key gaps in the literature
v. suggestions for further research.

Results

Volume and Characteristics of overall evidence base

There were 711361 gross results returned through the initial searching across the four databases. After applying the inclusion and exclusion criteria and the PICO elements, this was reduced to 59 key articles for consideration of the abstracts. The PRISMA flow diagram below illustrates that this was subsequently reduced to 56 articles for consideration at full text and eventually this was reduced to 38 for final inclusion for evidence synthesis. Appendices 1-4 illustrate the details of the overall volume and filtration of the selected articles. Table 1: The PRISMA flow

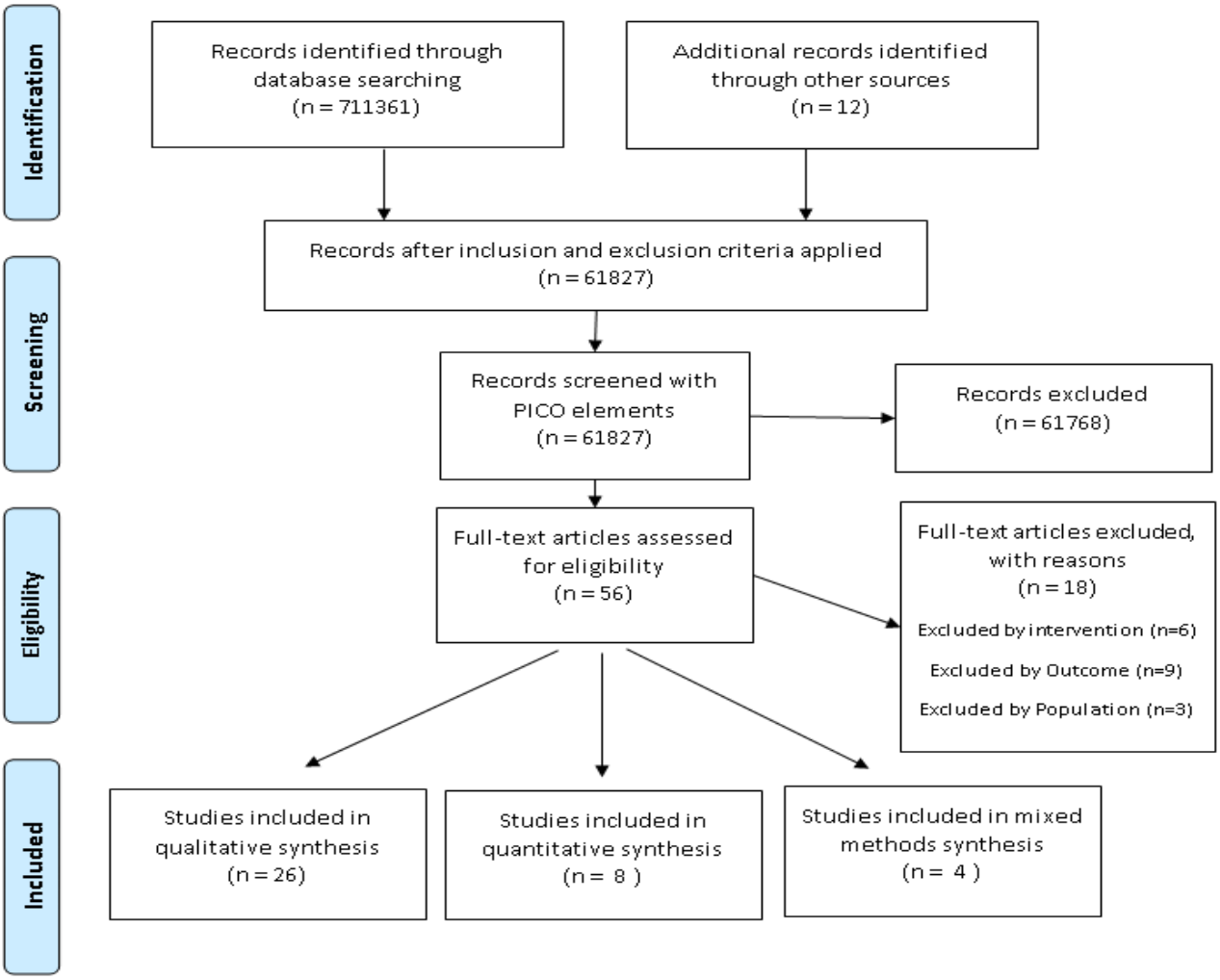

Table 2 below shows the articles that were included for final evidence synthesis. The table illustrates the country of origin, the professional setting of the study and the key subject matter that was being reported.

Table 2 - Articles included for the final analysis

n	1st Author	Year	Country	Professional Setting	Key subject area context
1	Abbey	2008	UK	Osteopathy	Education and clnical competence
2	Barnett	2014	USA	Psychotherapy	Sexual and professional boundaries
3	Bates	2011	USA	Gynecology and obstetrics	Physical examination and dignity and anxiety
4	Belgrave	2009	USA	Music Therapy	Touch
5	Carnes	2016	UK	Osteopathy	Complaints
6	Consedine	2016	Aus	Osteopathy	Touch
7	Cooper	2008	Aus	Physiotherapy	Sexual and professional boundaries
8	Cross	2015	UK	Osteopathy	Patient expectations
9	Cushing	2015	UK	General Medicine	Communication and education
10	Delany	2010	Aus	Physiotherapy	Ethics and Education
11	Deveugele	2015	Belgium	Healthcare	Communication and education
12	Goldstein	2016	Israel	Psychology	Touch, Empathy and Pain
13	Hancock	2015	UK	Sociology	Touch and Phenomenology of perception
14	Hiller	2015	Aus	Physiotherapy	Communication
15	Johnson	2016	NZ	Physiotherapy	Patient perspectives on dignity
16	Jones	2014	UK	Psychology	Touch
17	Leach	2013	UK	Osteopathy	Patient expectations
18	Martin	2011	UK	Psychotherapy	Therapists experiences of sexual attraction
19	Moore	2017	Aus	Osteopathy	Clinical Education
20	McGlone	2017	UK	Osteopathy	Touch in manual therapies
21	McNulty	2013	UK	Psychotherapy	Therapists experiences of sexual attraction
22	Morris	2014	USA	Occupational Therapy	Touch
23	Orrock	2016	Aus	Osteopathy	Patient experiences
24	Parry	2009	UK	Physiotherapy	Communication and education
25	Popa	2010	Netherlands	Dance and Movement Therapy	Touch
26	Roberts	2007	UK	Physiotherapy	Communication
27	Schiff	2010	Israel	Complimentary Therapies	Touch boundaries
28	Sommer	2016	Switzerland	General Medicine	Education and skills assessment
29	Sommerfeld	2008	Austria	Osteopathy	Education
30	Soundy	2013	UK	Physiotherapy	Sexual and professional boundaries
31	Strutt	2008	UK	Osteopathy	Patient perceptions and satisfaction
32	Tyreman	2013	UK	Osteopathy	Principles of Osteopathy
33	Walker	2017	UK	Behavioural Sciences	Neurological Mediators and touch
34	Walker	2017	UK	Behavioural Sciences	Neurological Mediators and touch
35	Wallace	2008	UK	Osteopathy	Education
36	Westmoreland	2007	UK	Osteopathy	Patient views of GP as Osteopath
37	Williams	2007	UK	Osteopathy	Optimitsing the psychological benefits
38	Winterbottom	2015	Canada	Chiropractic	Consent

Out of 711361 titles identified that contained the search words only thirty-eight articles were thought to bear relevance to the research questions of this study. Eight of these articles had quantitative methods and twenty-six were qualitative. Four used a mixed methods approach.

Quantitative

Of the eight quantitative articles, only two were related to osteopathy or chiropractic. The results of a retrospective correlational study showed a weak correlation between final clinical exams and clinical tutor reports. It found a narrowing focus of clinical competence with emphasis on cognitive criteria at the expense of attitudinal domains (Abbey, 2008). The second study surveyed patients via a questionnaire from a random sample of 800 UK osteopaths (32.4% of the profession). From the 11200 distributed questionnaires, 1701 were returned completed (a 15.2% response rate). The results from this study found that osteopathic care is complex, but that 90% of the participants expected osteopaths to identify the problem with their hands. It also found that listening, respect and information giving ranked highest in positive regard with the met expectations (outcome measures) (Leach et al., 2013).

Three of the quantitative articles were from physiotherapy. Cooper and Jenkins (2008) reported variable responses to issues around sexual attraction or dating of patients along with confusion of the complaints process (as a response to the 14 closed questions in the questionnaire). This was a repeatable design in Australian physiotherapy and had a 42% (939) participant response rate.

Johnson et al., (2016) reported findings from a custom designed questionnaire (31 participants) which was generated via a focus group (t participants). The findings include the need for good listening, paraphrasing, explaining and reassuring the patient about privacy, dignity and pain. The findings also suggest the physical environment is an important manifestation of dignity. Although the methods were mostly robust and repeatable, the exclusion criteria were not justified and it was only performed in one school of physiotherapy in New Zealand.

Soundy et al., (2013) reported that current attitudes to sexual professional boundaries have eroded and incidences are likely to increase. It concludes that evidence of inappropriate sexual behaviour demands more training in the UK for undergraduate and postgraduate physiotherapists. The results were formed by descriptive statistics to a questionnaire which had been previously used and remained unmodified. There were fifty-one undergraduate and seventeen post graduate participants, but all the data was derived from one session in a lecture in one school (one cohort of students who may share experiential bias).

One of the quantitative articles was an observational experimental study using a specifically designed interaction assessment tool (Morris et al., 2014). Thirty three occupational therapists in Florida USA were recruited to the study. There was no information about the permissions to access or reasoning behind the recruitment strategy. The findings suggest that expressive touch may positively benefit the patient and the therapeutic process as a whole. A lack of expressive touch raised questions about whether the rapport or connectedness between therapist and patient had reached its full potential. Morris et al., (2014) found that female HCPs use expressive (communicative, affective, caring or healing) touch more than males and males use procedural (instrumental, diagnostic, examinatory) touch more than females. There was no discussion about any negative concerns that may be considered when using expressive touch.

Qualitative

Of the twenty-six qualitative articles, eleven were from osteopathy or chiropractic. Six of these articles were discursive from the extant literature and five were empirical studies, using thematic analysis (three) or phenomenological analysis (two). The key messages that were concluded from these eleven articles relate to the importance of touch as an integral component of therapy (McGlone et al., 2017; Tyreman, 2013; Westmoreland et al., 2007; Williams, 2007) and suggest that education requires further development to optimise a positive outcome for the use of touch. Osteopathic principles involve touch and movement in ways that were not recognised at the inception of osteopathy in the way it is now understood (Tyreman, 2013). Touch is said to communicate; hope, respect, trust, care and attention along with personal attitude and competence which in turn improves patient satisfaction and other healthcare outcomes (Strutt et al., 2008). Responding to antagonistic paradigms (sets of values) and their divergent claims is a challenge for a profession's identity and social recognition and a responsibility, which to a great extent, is left in the hands of the educators (Sommerfield, 2008; Cushing, 2015). Important issues for patients relate to privacy and dignity and being empowered achieving an empathetic therapeutic relationship (Strutt et al., 2008). With notable exceptions, few osteopaths are engaging with the broader academic community in thinking about touch and embodiment (Tyreman, 2013). Tyreman (2013) highlights a core issue with respect to values being fundamental and implicit in this profession, but identifying differences between espoused and practised values might be perceived as criticism.

The fifteen non-osteopathic or chiropractic articles were from other health and professional fields, namely psychotherapy (three) physiotherapy (three) general medicine (two) gynaecology, psychology, sociology, behavioural sciences, healthcare, complementary therapies and dance and movement therapy. The conclusions from these articles may have some significant implications for the GOsC and the GCC although they can only be considered as contributory to further research, due to the tenuous links to osteopathy and chiropractic practice. For a summary of all the papers with the contribution in the context of this review, please see Table 2 and Appendix 4.

Some key messages from the non-osteopathic and chiropractic articles are:

- Not managing boundaries can harm patients and there is a clear message for policy development to support this (Barnett, 2014).
- Collaboration with the patient can improve comfort of physical touch therapy (Bates, 2011).
- The education organisation profoundly influences the development of the student HCP (Cushing, 2015). The application of theory to practice needs to be developed in order to narrow the gap between the knowledge of ethical theory and its application in practice (Sommer, 2016; Delany, 2010). Communication skills training is not integrated well enough into the curriculum (Deveugele; 2015).
- Improved models of undergraduate education and CPD courses are needed on how touch communicates competence and care (Hiller et al., 2015). This is necessary in the current climate of evidence-based healthcare where communication, like other aspects of therapeutic intervention, should be purposeful and founded on theoretical paradigms and empirical studies along with practitioner experience (Hiller et al., 2015).

- Minor boundary crossing is viewed as a precursor of more serious transgressions (Martin et al., 2011). The start of some patient-HCP relationships may have developed from the professional competence and identity of the therapist with a 'hero' position (McNulty et al., 2013). Touch can promote a sense of inclusion and acceptance, support, uncover emotions and memories and stimulate imagination and sensuality (Popa & Best, 2010). This is supported by the social touch hypothesis which posits that a system of nerves has evolved in mammals to signal the interactions which form and maintain social bonds (Walker et al., 2017).

Mixed Methods

Of the four mixed methods articles two reported on osteopathy and two on psychology and physiotherapy respectfully. One of the papers relates to UK Alexander Technique and drew the data from six interviewees (analysed with IPA) and 111 surveys (analysed with descriptive statistics). The study acknowledged that touch is a complex phenomenon and a powerful experience which can improve well-being and the therapeutic relationship (Jones & Glover, 2014).

One of the osteopathy studies found emerging themes that identify the importance of the therapeutic relationship and communication which offers trust and hope which impacts on outcome measures (Orrock, 2016). This was taken from the lived experiences of 11 participants in Australia. One of the articles reported from one geographical primary care trust (PCT) in the UK NHS where 21 patient interactions were observed and seven physiotherapists were interviewed. Although the method of analysis, which developed the emergent themes were poorly reported, the conclusions are consistent with other studies by suggesting that communication is extremely important, but underexplored dimension of the patient therapist relationship (Roberts & Bucksey, 2007). The two osteopathy studies related to the importance of the therapeutic relationship and the need for improved clinical education (Orrock, 2016; Moore & Field, 2017). Enhancing clinical education in private practice settings can be achieved if an accreditation system were to be developed (Moore & Field, 2017). Moore and Field (2017) promote the use of a Personal Learning Plan in clinical education which may empower the HCP through developing their sense of agency, which is an important component of preparation for professionalism.

The literature search undertaken for the current study found limited published research that enhances the understanding of communication in relation to touch and professional boundaries within osteopathy and chiropractic therapies. However, a broader examination of the literature revealed some exposure of the subject in physiotherapy, education, clinical psychology, psychotherapy, nursing, occupational therapy, neuroscience, sociology and music and dance therapy. This literature has been considered and utilised to help elucidate the complexity that exists in the negotiation of the boundaries of physical intimacy, proximity and propriety that characterises the embodied experiences of the therapeutic encounter between the patient and HCP.

There appears to be a paucity of research targeting the exploration of the experience and understanding of osteopaths and chiropractors involvement in boundary violations. However, research relating to physiotherapy were found which investigated perceptions of sexual professional boundaries and urgently calls for further research to investigate how inappropriate sexual behaviour develops, who the perpetrators are and to understand more about the situation and context of such behaviours (Soundy et al., 2013; Consedine, 2016). From related research in osteopathy, there appears to be an ambiguity between intentional sexual impropriety of a predatory nature and/versus poor communication, leading to misinterpretation of touch as inappropriate (Carnes, 2015; Stone, 2016).

Evidence synthesis

What the evidence base indicates in relation to the research questions

The questions are:

The first research question: How is touch communicated and received by both patient and HCP, in the context of touch-based therapies?

The second research question: How does the literature inform the potential implications for the regulator, educational and professional bodies and other groups and for Health Care Practitioner's?

Three main categories (and themes within them) emerged from the included articles.

1. touch and professional boundaries
2. communication and education
3. practice and regulation.

This section discusses the implications of the findings in the context of current practice and future policy development.

1. Touch and Professional Boundaries
   There is a discordance between touch and the spoken word (Jones & Glover, 2014). Jones and Glover's (2014) study explored the psychological processes underlying touch in Alexander Technique and highlighted the inability of their interviewees to adequately describe in words their experiences of touch. Touch lacks verbal discourses in UK's Anglo-Saxon mostly 'low-touch' culture. Existing discourses are counterproductive, appearing simplistic and dichotomous, that is, either very positive (healing, appropriate) or very negative (sexualised, inappropriate) (Morris et al., 2014; Jones & Glover, 2014).

   Touch is the osteopaths' primary treatment modality. It is axiomatic that touch is essential in osteopathic diagnosis, treatment and in the development of the therapeutic relationship (McGlone et al., 2017; Consedine et al., 2016; Patterson, 2012). The skin is the largest organ in the body, and richly endowed with nerve endings that perceive and interpret temperature, pressure, movement and proprioception (McGlone et al., 2017; Walker et al., 2017a, Walker et al., 2017b; Goldstein et al., 2016). There is a long history in complementary and alternative medicine (CAM) that recognises the therapeutic effects of touch (Terry et al., 2012; Lanaro et al., 2016; Franke et al., 2015). This is supported more recently by contemporary evidence-based research, providing a neurobiological basis for the pleasure and analgesic effect of touch, as well as touch having a vital role in the formation and maintenance of social bonds and thus psychological wellbeing (Walker et al., 2017a, Walker et al., 2017b; Goldstein et al., 2016).

   The multi-faceted nature of touch makes it a complex phenomenon to research, however it is incumbent upon the professions of osteopathy and chiropractic to understand this phenomenon as they seek to provide best practice. Historically, researchers have focussed on the procedural, diagnostic or examinatory component of touch, that is palpation, and how best to teach it (Browning, 2013;

Esteves et al., 2013; Nasciemento et al., 2016). There is a distinction between ‘procedural’ and ‘expressive’ (communicative, affective, caring or healing) touch, with frequently acknowledged significant behavioural and psychological benefits of expressive touch, such as increased rapport, and improved perception of patients self-esteem, well-being, self-actualisation, belief in responsibility and social processes: factors contributing to an overall improvement in the patients perception of their quality of life (Morris et al., 2014; Roberts & Bucksey, 2007). Physical contact with the human body holds a high potential for the conveying of spiritual meaning. More philosophical attention and research ought to consider the psychological, phenomenological and spiritual significance of touch, such as theories of embodiment (Morris et al., 2014; Williams, 2007).

Touch has been described as the most fundamental of all senses (McGlone et al., 2017) and is the first sense to develop in utero, at seven weeks of gestation: from inter-uterine experiences, and throughout life, sensory input (touch) is directly related to emotional and cognitive development. Touch conveys significant intimacy, empathy and care (Goldstein et al., 2016) to the patient, which has been described as powerfully reminiscent of and intrinsically linked to early life parent-infant deep and enduring emotional bond, that is, attachment (McGlone et al., 2017; Jones & Glover, 2014; Popa & Best, 2010). Touch in adulthood can become imbued with sexual connotations and innuendo, eliciting connotations also of power, aggression, and criminality (Popa & Best, 2010). There are, therefore, potential dangers inherent in the giving and receiving of touch within the therapeutic encounter as it is apparent that there are both negative and positive consequences of touch (Schiff et al., 2011; Goldstein et al., 2016; Martin et al., 2011; McNulty et al., 2011; Hancock et al., 2015; Consedine et al., 2016; Walker et al., 2017a; Walker et al., 2017b).

The therapeutic relationship is guided by a set of boundaries that clarify and define appropriate behaviours and expectations: boundaries are rules of the professional relationship that set it apart from other relationships. The provision of boundaries helps to promote a safe and trusting environment. Boundaries can be avoided, crossed, or violated. A boundary crossing involves the transgression of the boundary, but is not considered to be inappropriate, unwelcomed or harmful. A boundary violation involves the transgression of the boundary in a manner that is considered to hold a significant potential for exploitation or harm and violates accepted professional standards (Barnett, 2014).

Working within the patient-centred biopsychosocial model can lead to situations in which there is tendency towards the expression and sharing of emotional experiences within the therapeutic encounter. Intimacy, appropriately expressed in context and content is essential to the patient-HCP interaction with chiropractic (Consedine et al., 2016), however, patient and HCP enter a relationship that involves an unusual degree of openness and intimacy that is conducted one-to-one in private (Martin et al., 2011). This can lead to the typical power distribution between HCP and patient being subverted, which increases HCP vulnerability (Levine, 2010). Findings from studies aiming to understand patient-HCP sexual boundary violations reveal a common pattern of a gradual process and shift in boundaries, starting with HCP generating a sense of equivalent status between themselves and the patient, commonly by the disclosure of personal, non-clinically appropriate information (Martin et al., 2011; McNulty et al., 2013). This is often due to difficulties in their own lives, for

example, low self-esteem, and feelings of neediness and vulnerability due to poor personal and professional relationships (Martin et al., 2011; McNulty et al., 2013). Underlying causes are naivety, problems with professional competence and character issues (Barnett, 2014). It is acknowledged that HCPs are poor at self-assessing competence, overestimating capabilities and underestimating levels of distress and impairment (Johnson et al., 2012). Demographic characteristics of offenders indicate that they are often male, older, and more experienced, working in isolated private practices (Martin et al., 2011; McNulty et al., 2013). These findings are consistent with recent findings reporting on the profile of osteopaths who have presented at fitness to practise (FtP) hearings (Carnes, 2017; Mars, 2016).

Attitudes towards inappropriate sexual behaviours erodes with clinical experience (Soundy et al., 2013). A potential reason that males are more likely to transgress than females (Cooper & Jenkins, 2008) may be associated to a widely held socio-cultural norm that the capacity to foster intimacy remains a predominantly female disposition and, in relation to male sexuality and bodies (within the context of massage therapy), men are perceived as essentially predatory (Hancock et al., 2015). Within society, men's embodied performances of work are often associated with violence, masculinity, and intimidation, whereas women's bodies tend to be thought of in terms of care, nurturance, and intimacy (McDowell, 2009). Patients' preference for female compared to male HCPs, along with their attitude towards touch, also suggests that societal constructs of touch are not gender neutral (Jones & Glover, 2014; Morris et al., 2014). Male HCPs negotiations of these assumptions reveal that self-management tactics lean towards upholding hegemonic masculinity and heteronormativity, such as deploying professional identifications and using boundary-setting devices or techniques to mark out their professional distance. This includes wearing professional attire and creating professional clinic/practice environments (Jones & Glover, 2014; Hancock et al., 2015). These finding have direct implications for osteopathic practice as more than half of osteopaths normally practise alone (KPMG, 2011). It may therefore be apposite for the professional and regulatory bodies to consider a strategy for maintaining appropriate education or CPD programmes for experienced HCPs. One possible solution proposed by Moore and Field (2017) is the training and accreditation of private HCP-educators to fulfil clinical supervisory roles, a scheme similar to that operated in psychotherapy (McNulty et al., 2013; Martin et al., 2011).

There is evidence that feelings of sexual attraction arise from both sides of the HCP-patient boundary, confirming that this is a complex subject area and that sexual attraction exists, generally, within healthcare settings (McNulty et al., 2013). One study showed that 74% of male and 41% of female physiotherapists in Australia reported being sexually attracted to a patient during their clinical practice (Cooper et al., 2008). Also, 90% of qualified physiotherapists experience patient-initiated sexual behaviour (Soundy et al., 2013; Cooper et al., 2008; Cooper & Jenkins, 2008). There is little agreement in the literature about the characteristics of the HCP which are specifically predictive of professional boundary crossings (McNulty et al., 2013), however with respect to repeat offenders, previous sexual involvement with a patient, in relation to physiotherapy, is thought to be the greatest risk to suggest further sexual relations (Soundy et al., 2013).

In order to guide professional boundaries with effective regulation and codes of practice, it is essential that the manual therapy professions in the UK gain greater insight into these issues and understanding of the current attitudes and behaviours of HCPs on this subject. Sexual boundary violations could be explored in terms of their prevalence in anonymous surveys, using correlational methodologies to highlight risk factors using descriptive approaches to generate offender typologies (McNulty et al., 2013).

Personal strategies intended to minimise the risk of boundary transgressions include the practice of self-awareness, active use of supervision and the discussion of boundary issues with colleagues (McNulty et al., 2013; Barnett, 2014). Table 3 below offers a summary of preventative steps advised to physiotherapists (Soundy et al., 2013).

Table 3
Consideration of sexually related communication; e.g., avoidance of sexual humour, awareness of sexual comments from a patient or sexually orientated behaviour.
The HCP should be aware or acknowledge sexual feelings towards the patient and understand that prolonged treatment may deepen such feelings.
The HCP may need to examine their communication with a patient. For instance, direct verbal communication may include compliments about appearance, social invitations, or questions about a HCPs personal life. Non-verbal communication may include, actions outside of clinical treatment such as undressing without request, the use of close physical proximity during communication and non-clinical touch.
Flirting or dating a patient should be avoided whist treatment is ongoing.
Having support staff, chaperones or family members within a room or within listening distance will help prevent boundary transgressions.
Where a problem is identified by the HCP such as direct communication (e.g., a patient expresses a sexual desire) the HCP should be non-judgemental in their response, but explain the boundaries to the professional relationship. The HCP would need to consider if a withdrawal from the situation is required.

2. Communication and Education

It is well established that effective patient-centred communication is fundamental to healthcare practice (Deveugele, 2015; Delany et al., 2010; Cushing, 2015). Patient-centred communication is the process required to achieve patient-centred care, correlating with the biopsychosocial model of healthcare practised by HCPs. Patient-centred communication is particularly important for osteopaths and chiropractors because of their reliance on active patient involvement and the generation of trust, motivation and partnership to achieve common care goals. Communication in private physiotherapy practice has been considered as being predominantly HCP-centred, but the subtle use of touch and casual conversation implicitly communicates competence and care which is representative of patient-centred communication (Hiller et al., 2015).

Communication is both verbal and non-verbal: the highest proportion of non-verbal behaviour exhibited by physical therapists is represented by touch (54%), followed by eye gaze (32%), whereas for patients the most frequent non-verbal behaviour is eye gaze (84%) (Roberts & Bucksey, 2007). Communication, generally, has been widely studied within the fields of medicine, nursing, psychology, psychotherapy, and social science, with as much as 80% of patients' complaints arising from poor communication (Roberts & Bucksey, 2007). Moreover, communication assumes a special importance when things go awry; in a study of 227 medico legal complaints it was reported that an "explanation and apology" was the most frequently cited action after the incident that might have prevented litigation (Roberts & Bucksey, 2007). This may have implications for the regulators, emphasising the importance of clear guidance relating to HCPs complaints procedure and the role and appropriateness of fitness to practise proceedings (McGivern, 2015).

Data relating to concerns and complaints raised against osteopaths between 2013-2016 highlights that concerns about conduct centred on issues of communication being inappropriate or ineffective and more specifically consent (Carnes, 2016). The issue of consent is a challenge, but nevertheless it may be necessary to impose regulatory obligations to develop skills and/or improved inclination for communication in order to fulfil the obligation to pause and engage in the discussion which the law requires (Ballard, 2015).

The rhetoric and policy surrounding consent has evolved significantly in the past few decades, more recently in the case of Montgomery (Appellant) v Lanarkshire Health Board (Respondent) (Scotland) (2015).

Person centred care in decision making now considers consent to be about patients and HCPs making decisions together, rather than the medic 'seeking patient consent', which requires the HCP to be satisfied that they have informed and knowledgeable consent from a patient, or other valid authority, before undertaking any examination or investigation, providing treatment, or involving patients in teaching and research (General Medical Council, 2008). It may be feared that more stringent disclosure requirements would risk overwhelming patients with information, causing distress or leading them to make poor decisions, and that the patient consultation time would be taken up with lengthy explanations, creating a drain on available resources (Chan et al., 2017). Hence why communication has been described as the most important aspect and an essential requirement of practice that, if mastered, underpins any successful patient encounter (Roberts & Bucksey, 2007). This would then lead to a 'bone fide' consent being achieved. This follows directly from the change in law established by the case of Montgomery. Rather than being a matter for clinical judgment to be assessed by professional medical opinion, a service user should be told whatever they want to know, not what the doctor thinks they should be told (Chan, 2017).

A predominance of concerns and complaints against osteopaths related to patient-HCP communication, which may also underlie issues relating to clinical care, managing patient expectations and consent (Carnes, 2016). Chiropractic patients perceive informed consent as an on-going process rather than a static event (Winterbottom et al., 2015). Patient autonomy, which incorporates

consent, should involve the use of information and decision sharing as its foundation and HCPs must be able to understand individual patients, their motivations and their concerns (Vernon et al., 2015). For understanding to be present, an empathic model of delivery that encourages effective patient dialogue will be engendered and facilitated by good communication, genuine relationships and good ethical practice (Vernon et al., 2015).

Continuing professional development (CPD) requirements may need to be more stringent and targeted to focus on the range of activities to facilitate best practice around these concerns and they will become compulsory (Carnes, 2016).

Education and training about boundaries in osteopathic educational institutes is a broad activity (Stone, 2017). There is a disconnect between research (theory) and practice. Students need to be aware and understand the 'why' not just the 'what' of communication training so they are more engaged with, value, and reflect on effective interpersonal clinical communication (Deveugele, 2015; Delany et al., 2010).

Clinical tutors perform an important role in providing examples of best practice and professional conduct to students (Cushing, 2015). Educational theories support this assertion, such as Situated Learning, Community of Practice Theory and Social Development Theory (Moore & Field, 2017). Communication and ethical issue debriefs by clinical tutors, following interactions students have just observed or experienced (making explicit the implicit process of communication) are highly valued and should be promoted (Cushing, 2015).

Basic skills in communication should be taught early in students' education in order that their ethical skills development can be internalised before entering clinic (Deveugele, 2015) as well as provided when students have already had some contact with patients (Parry & Brown, 2009).

Students should reflect on stories or case studies (or vignettes) reflectively and critically in a shared learning environment: a model which has the potential to clarify more nuanced, ambiguous and uncertain ethical issues in professional practice (Carnes, 2016; Delany, 2010; Martin et al., 2011). Benefits could be derived from making attendance at communication sessions compulsory. Teaching of communication should be based as far as possible on existing empirical knowledge (utilising authentic experiences) and should predominantly include experiential feedback and practical observational assessment and perhaps peer review, rather than lectures or written assessments (Carnes, 2016; Cushing, 2015; Parry & Brown, 2009).

Due to demographic and practical issues that the osteopathic and chiropractic educational institutions may face with respect to clinical placements, there may be an advantage to consider innovation in virtual learning environments. There is the potential to increase the use of video recordings, online education applications such as webinars, and DVD production. The increased incorporation of multi-media technology has recently been explored in nursing where it has been shown to improve reflection, analysis and education (Tuohy et al., 2015). The feasibility of evaluating patient-HCP interactions in chiropractic clinical trials using video-recordings has been demonstrated (Salsbury et al., 2014). Similar

research in the field of physical therapy show that it is possible for the prevalence and content of verbal and non-verbal communication to be reliably studied via video analysis with validated outcome measures and tools, such as the Medical Communications Behaviour System (Roberts & Bucksey, 2007).

There are potential benefits of pre-professional student education in private clinics (Moore & Field, 2017). Therefore, students may benefit from carrying out clinical placements with registered HCPs working in the private sector. These activities could contribute to an enhancement of professional community generally and student engagement particularly, by assisting in their transition to professional practice: encouraging adherence of values and the behaviour expected of them (Moore & Field, 2017).

It is well established that the first few minutes of the healthcare consultation is pivotal to the overall success of the interaction and ongoing relationship (Consedine et al., 2016). Similarly, within the field of nursing, the importance of the initial interaction has been recognised as where rapport and standards are established (Roberts & Bucksey, 2007). As a means of improving healthcare communication, it is therefore proposed that specific guidance ought to be provided to HCPs to enhance the initial clinical interaction. An example of achieving rapport at the initial interaction is by making ‘small talk’ when first greeting the patient, accompanied by a handshake, good eye contact and a smile. It is acknowledged in the literature that this eases anxiety and fosters rapport and trust, minimising complaints and improving treatment outcomes (Consedine et al., 2016; Roberts & Bucksey, 2007).

3. Practice and Regulation

Concerns in 2016 about clinical care and the way treatment is delivered represent 94% of the concerns made about clinical care: the majority (40%) of which were due to 'Treatment causes new or increased pain or injury' (Carnes, 2016). Concerns raised in 2016 about osteopaths’ clinical conduct centre on communication: ‘Failure to communicate effectively’ (18%) and ‘Communicating inappropriately’ (18%). Combined they represent 36% of all the complaints about conduct (Carnes, 2015; 2016). The number of concerns and complaints made about ‘Sexual impropriety’ and ‘Failure to protect the patient’s dignity/modesty’ (12) were less in 2016, but this reflects the increased number made in 2015 (25). Therefore, continued vigilance and research is required in this area (Carnes, 2016). For patients, sexual contact with HCPs has been associated with long-term negative psychological impact and significant and enduring harm (Council for Healthcare Regulatory Excellence, 2008). Negative effects can be: (a) dependency on the professional as well as confusion and dissociation, (b) the experience of post-traumatic stress disorder, anger, guilt, and self-blame and (c) if the patient has been sexually abused, an exacerbation of symptoms (Halter et al., 2007). Because of this, it is important that HCPs are made aware of the considerable and long-term effects boundary crossing can have on a patient. Relational regulation is a key component of compliance with standards: when osteopaths understand the ‘why’ not just the ‘what’ of standards they are more likely to comply (McGivern, 2015). The GOsC has recently enhanced guidance around professional boundaries: to include more information about emotional and physical boundaries as well as sexual boundaries (Stone, 2017).

The nature of these complaints may correlate with the prevalence of touch as an essential component of osteopathic and chiropractic practice. Patients' expect and favour the manual 'hands on' nature of treatment (Westmoreland et al., 2007) and 89.5% of patients' expect that an osteopath may identify their complaint with touch (Leach et al., 2013; Cross et al., 2013). In this paradox of patient expectations and apparent lack of effective communication, further exploration and safeguarding for all needs to be achieved. Perhaps some learning could be achieved from the more obvious areas of practice that require explicit skills in communication. There is growing evidence of effectiveness of osteopathic treatment for urinary (Franke et al., 2013), digestive (Belvaux et al., 2016) and gynaecological clinical conditions (Goyal et al., 2017) suggesting osteopaths commonly treat these areas of the body and have reason to do so. In a study exploring pelvic examination by medical doctors, Bates et al., (2011) suggest that patients who seem particularly uncomfortable should be asked about a history of prior trauma and be given models of the relevant anatomy and even web-based images in an attempt to educate and thereby empower the patient (Bates et al., 2011). There are a significant number of reported cases of child sexual abuse victims in the UK, as many as one in twenty (Radford et al., 2011). The unexpected nature of touch within manual therapy could later trigger anxiety, dissociation and insomnia for those individuals (Lee et al., 2007; Soundy et al., 2013; Halter et al., 2007). This could influence the perceived degree of appropriateness of touch or lead onto expressed violations of professional boundaries; as past personal experience of relationships in the form of sexual abuse as a child, has been cited in the literature as a factor as to why these violations occur (McNulty et al., 2013; Morris et al., 2014).

With respect to patient modesty, physiotherapy research has found clearly defined preferred draping/clothing options. For the upper body males preferred a bare back (no draping), whilst females preferred a gown; for the lower body, a key finding was that the majority of respondent (regardless of gender) preferred sports shorts (Johnson et al., 2016). These findings could have implications for practice and offer possible advice or specific guidance or could be considered within practice standards.

The codes of practice for movement and dance therapy in the UK, Australia and USA omit any acknowledgement of the positive power of therapeutic touch, but instead focus solely on negative aspects (Popa & Best, 2010). This is also demonstrated in the development of ethical rules in complementary and alternative medicine (Schiff et al., 2010). This suggests a potential consideration for the regulator and educational bodies to improve positive supportive literature in this area for manual therapies generally and the osteopathic and chiropractic professions particularly (Stone, 2017; Popa & Best, 2010).

Study strengths and limitations

Although this literature review was able to draw pertinent information from external disciplines, there remains a difficulty in trying to define an experience of one healthcare profession within the confines of another. This creates a challenge for specific clinical applications to be made for osteopathy and chiropractic.

Another limitation is the lack of correlation between the quantitative data related to the numbers of complaints that arise within the GOsC and GCC with a broad description of the nature of the complaints. The findings of this review highlight various sources of ethical concerns across the literature that may or may not relate to the specific nuances of osteopathy and chiropractic.

Several studies recommend strategies to combat boundary crossings, such as providing chaperones, printed explanations and written consent. The regulators of the osteopathic and chiropractic professions have already undertaken developments in this area, such as updating practice standards and establishing compulsory triennial CPD to update knowledge and skills in communication and consent. Examples of good teaching practice in the area of communication, consent and touch have already been developed (Stone, 2017).

The inter-rater reliability for the agreement and concordance of articles to be included was performed in a short period of time. The time frame permitted reading the articles only once at each stage of the methodological process. This may have resulted in the loss of data. Agreement was found between the two researchers after the dialogical process was followed. A third researcher had been employed to read and give opinion where necessary if the resolution had not been found.

Identification of key gaps in the literature

The findings of this study are drawn from various areas of professional and healthcare practice, but mostly outside of osteopathy and chiropractic. There is a paucity of direct and indirect literature that is available to contribute to the full knowledge of how communication is given and received in manual therapies, in relation to touch. Considering the clear definitions of how osteopathy and chiropractic practice relate to the wellbeing of the human condition, there needs to be better research available to inform the complexity of how this relationship is effectively managed. There appears to be a tacit acceptance of the complex processes that are involved, but poor evidence to support the epistemological development of this fundamental concern.

Implications for further research, and UK policy and practice

To further understand the implications of touch in manual therapies, research into opinions and experiences of patients being touched by their HCP needs to be built upon, particularly in the UK where very little such literature exists. It appears apposite for the suggested research to focus particularly on the manual therapy professions, such as osteopathy and chiropractic. It may be of benefit to research the perceptions of anyone who has been involved in cross boundary complaints to explore about the pattern of events and its significance, and the way in which they account for and justify their behaviour. This research has potential value for sensitising practitioners to the issues as a preventative strategy.

Use of video-recordings could be used in future research to explore the HCP-patient relationship. The mapping of entire consultations may help the analysis of patterns and types of communication, gaining appropriate and prudent consent and wider issues such as gender and culture. This may be directly usable as a pre-registration teaching technique which builds upon the reflective experiences of the student HCP and subsequently improve communication skills and positive patient outcomes. This would also serve to reduce negative impacts for patients, the profession and public confidence it the regulatory process.

Suggestions for further exploration

- Generate empirical studies to understand how touch is communicated and received by patient and HCPs in the context of osteopathy and chiropractic practice. Mixed-methods design could be employed to generate data further illuminating the experiential issues considered by this literature review.
- Review how communication and touch is taught and assessed in OEIs. Consider if a standard of proficiency can reflect a ‘gold standard’ model based on best available pedagogical evidence.
- Develop new innovative teaching which is based on effective pedagogy to facilitate reflective learning at both undergraduate and post-graduate training.
- Design online/IT-based information products/courses providing education and assessment. The newly developed multi-media applications could be integrated into compulsory CPD for practitioners.
- Commission resources to optimise the professional appearance of both the HCP and the clinical space which may help to further define patient - HCP boundaries.
- Create strategic resources to help HCPs manage therapeutic situations in which they experience sexual attraction towards a patient or experience patient-initiated sexual behaviour.
- Training and commissioning of private-practice tutelage to create stronger links between education and the current workforce.
- To make an analysis of the patterns, events and significance/consequences of boundary crossing. Explore how those involved in boundary crossing account for and justify their behaviour. The results of this exploration may be fed into a prevent strategy.

Table 4 Implications and recommendations drawn out of the literature		
Problem identified	**Concept to consider**	**Recommendation**
Sexual attraction leading to relationship and boundary violation.	Effective regulation and codes of practice based on current attitudes and behaviours of HCPs	Explore patient and practitioner experiences to inform policy towards regulation. This may also result in improved learning resources through CPD and/or Undergraduate curriculum development.
Miscommunication during touch in manual therapy.	Responsibility to acknowledge a potential concern	Guidance towards recognition with subsequent action. This may include explanation and apology.
Miscommunication related to Consent	Effective annual updates on consent as a regulatory obligation	Develop an educative tool that effectively improves the understanding of consent (perhaps built into CPD provision)
Patient expectations as a cause for complaint	Managing patient expectations ought to be achieved through appropriate consent, but can be considered separately.	CPD activities should be developed to enhance patient expectations and outcomes.
Patient expectations and enhancing the interaction	The first few minutes of the healthcare consultation is where the rapport and standards are established and is pivotal to the overall success of the interaction and ongoing relationship.	This is to be recognised and highlighted in appropriate guidance and learning resources.
Patient expectations and avoidance of miscommunication	Patients expect the therapist to touch them, but this doesn't necessarily help them to understand why and how much touch is expected and any levels of discomfort to be expected. To improve positive supportive literature.	In this paradox of patient expectations and apparent lack of effective communication, further exploration and safeguarding for all needs to be achieved. Perhaps some learning could be achieved from the more obvious areas of practice that require explicit skills in communication (e.g. gynaecology). Patients who seem particularly uncomfortable should be asked about a history of prior trauma and be given models of the relevant anatomy and even web-based images in an attempt to educate and thereby empower the patient. Patient education tools could be developed as a resource to offer patients prior to consultations. This could be through the development of an app or other such tools e.g. web site.
Pre-registration and post registered engagement.	Private practice placements to improve fitness to practise in the targeted field of employment.	Development of a network of pre-registration placements in the private sector. These activities could contribute to an enhancement of professional community generally and student engagement particularly, by assisting in their transition to professional practice: encouraging adherence of values and the behaviour expected of them.

Conclusion

The results of this study highlight the limited amount of research available in relation to the question of how touch is communicated and received by patients and HCPs, in the context of touch-based therapies. Although providing useful discursive and descriptive information the studies do not fully identify with the research questions.

From the limited research and the challenge of extrapolating some of the data from outside of osteopathy and chiropractic professions, there are a number of issues that can be considered by the osteopathic and chiropractic professions. These considerations may help bridge the gaps in the literature, nationally and internationally, relating to the positive and negative influence of touch and communication in these two healthcare professions. Future analyses are to focus on education of communication and boundaries: the teaching methods and effectiveness and at what stage of the curriculum they should be introduced (Stone, 2017). It will be necessary to ensure that these educative developments are integrated into CPD provision with clear expectations for a practitioner's ongoing reflective practice. Good verbal communication is considered to be of the highest importance by patients and is patients preferred method of communication: it is the paramount mode by which the HCP shares information and receives consent (Daniels & Vogel, 2012).

Patient consent continues to be an area of practice that needs improvement. There is a need for promotion of patient-centred care and clear, effective patient-HCP communication along with improvement for education related to communicating with patients professionally about the treatment they receive and why (Carnes, 2016; 2015). HCPs, associates and employers need to encourage and allow for long enough consultations in order to comply with the law on consent and to achieve a person-centred decision-making approach (Ballard, 2015; Edozien, 2015). This will permit the concept of the 'prudent patient' being informed and in control of their decision making. This results in a '*Bona fide'* consent, which is derived from dialogue established from a collaborative relationship, rather than *'contrived'* consent, which is more akin to presenting a list of options for the patient to select from (Edozien, 2015).

Further research is needed to bring these issues in the context of osteopathy and chiropractic professions.

The second research question established that the extant literature can inform several potential implications for the regulator, educational and professional bodies and other groups. A number of key findings, as illustrated in comments above, include the need to provide additional guidance and learning resources. The learning resource will require integration for both the undergraduate curriculum and the postgraduate CPD provision. The piloting and evaluation of training programmes intended to improve communication and reduce the occurrence of professional boundary violations between HCP and patient is a clear priority, with a particular focus upon the contribution of supervision (McNulty, et al., 2013). A framework of educational and regulatory interventions will help ensure that the general public remain confident that both professions can be trusted with self-regulation, and the protection of the public can be upheld.

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Conflict of interest

The authors declare no conflicts of interest.

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List of appendices

Appendix 1 – total search results from each database with inclusion and exclusion criteria and the PICO elements applied.

Appendix 2 – articles to be considered for referral to full text screening following the independent screening of the abstract.

Appendix 3 – articles to be considered for full inclusion following the independent screening of the full text article.

Appendix 4 – key articles included for the final analysis including the methods used and a summary of the contribution contextualised for this review.

Data base search results

TOTAL SEARCH RESULTS				
	Gross Hits	IE criteria	PICO elements	
CINAHL	673577	55839	31	
MEDLINE	35489	4669	17	
PsycINFO	2220	1319	11	
Cochrane	75	0	0	
Total	711361	61827	59	
Total for abstract screening			59	

Abstract screening

Abstract screening for eligibility to full text					
	selected for consideration from searches	included during independent screening	disagreement following deliberation	agreed inclusions following deliberation	agreed exclusions following deliberation
Reviewer 1	59	50	0		
Reviewer 2	59	56	0		
Agreed Inclusion and exclusion from abstract screening				56	3
Total	59		0	56	3
referred to 3rd independent reviewer	0				
Final number of articles included for full text review		0	0	56	3

Full text screening

Full texts screening for eligibility					
	selected for consideration from searches	included during independent screening	disagreement following deliberation	agreed inclusions following deliberation	agreed exclusions following deliberation
Reviewer 1	56	36	0		
Reviewer 2	56	40	0		
Agreed Inclusion and exclusion from full text screening				38	18
Total			0	38	18
Referred to 3rd independent reviewer	0				
Final number of articles included for full text review		0	0	38	18

Key articles included for analysis

n	1st Author	Year	Quant	Qual	Mixed	Conclusion/Contribution to the context of this review	Methods used
1	Abbey	2008	✓			Their results show a weak correlation between final clinical exams and clinical tutor reports, but possibly show a narrowing focus of clinical competence with emphasis on cognitive criteria at the expense of attitudinal domains	Correlational study, retrospective
2	Barnett	2014		✓		Not managing boundaries can harm clients.	Discussion from extant literature
3	Bates	2011		✓		Collaboration with the patient can improve comfort of a physical touch therapy. This paper raises some important concepts that are important and otherwise rarely considered in the literature for Osteopathy and Chiropractic, but no direct link with manual therapy practice.	Evidence review and guidance development
4	Belgrave	2009	✓			Expressive touch has an interpersonal effect on clients and professionals.	Within subject design observational experiment
5	Carnes	2016		✓		A review of complaints raised against osteopaths - more needs to be done to inform practitioners about communication, consent and advertising concerns.	Comprehensive review of the meta data relating to complaints made about osteopaths.
6	Consedine	2016		✓		Touch is an important feature of patient-practitioner interaction. It communicates, care and attention along with personal attitude and competence. This in turn improves patient satisfaction and other healthcare outcomes.	Semi-structured interviews. Phenomenologically analysed.
7	Cooper	2008	✓			Variable responses to sexual attraction or dating of patients along wit confusion of the complaints process indicates the need for education in this area.	Questionnaire with 14 closed questions.
8	Cross	2015		✓		5 themes emerged and gave a conceptual framework explaining the complexity of the patent practitioner relationship. Patient expectations are so complex, that it is hard for them to articulate. Recommendation for phenomenological studies to be carried out to gain a better understanding of the lived experience.	Thematic analysis of Focus groups and individual interviews.
9	Cushing	2015		✓		The student entering medical school undergoes a socialisation process that profoundly shapes their development as a professional.	Discussion from extant literature
10	Delany	2010		✓		Emerging literature in health care suggests gaps between knowledge of ethical theory and its implementation in practice. There needs to be a more applied approach of ethical practice.	Discussion from extant literature
11	Deveugele	2015		✓		For communication skills training a coherent framework is lacking, time limited, not integrated into the curriculum and it is scarcely contextualised. It was suggested that; 1: research and education go hand in hand; 2: students and HCP need a tool kit of skills; 3: reflection on communication action is necessary.	Discussion from extant literature
12	Goldstein	2016	✓			Touch and empathy can reduce pain perception.	Experiment. 28 item validated questionnaire. Psychophysical tests measuring pain stimulation under 3 conditions.
13	Hancock	2015		✓		Negotiating propriety and proximity was a constant process for the participants of the study. This was due to the complex combinat9ion of the physically, sexually and or emotionally intimate nature of their work, social perceptions of their work and themselves as workers.	Interviews and phenomenology of perception Merleau-Ponty's philosophical approach.
14	Hiller	2015		✓		Subtle use of touch and casual conversation implicitly communicates competence and care, which is representative of a patient centred model. Physiotherapists may benefit from further education to achieve patient centred communication.	Ethnography - observation (N=52) Interviews with thematic analysis (N=9).
15	Johnson	2016	✓			Findings include the need for good listening, paraphrasing, explaining and reassuring the patient about privacy, dignity and pain. The findings suggest the physical environment is an important manifestation of dignity.	Focus group (N=10) to a custom designed questionnaire. 31 final participants.
16	Jones	2014			✓	Touch is a complex phenomenon and a powerful experience which can improve well-being and the therapeutic relationship. Touch was seen as a nurturing experience influencing interpersonal and intra-personal relational processes.	6 interviewees = IPA 111 Surveys with 28 7 point Likert scale questions analysed with descriptive statistics.
17	Leach	2013	✓			Listening, respect and information giving ranked highest in positive regard with the met expectations. 90% of the participants expected osteopaths to identify the problem with their hands. Osteopathic care is complex.	Survey. Patient questionnaires. The outcome measures were met or unmet expectations.
18	Martin	2011		✓		Agreement of boundaries at the extremes was evident but there remained variability about fantasy filtration and touch. Minor boundary crossing were viewed a potential precursors of more serious transgressions and as opportunities for understanding the clients difficulties. (none of the participants had committed or permitted action from any attraction they had experienced).	Grounded Theory. In-depth Qualitative interviews.
19	Moore	2017			✓	Enhancing clinical education in private practice settings can be achieved if an accreditation system were to be developed. The Personal Learning Plan used in clinical education may empower the student through developing their sense of agency. Agency is an important component of preparation for professionalism.	Interviews and surveys were analysed by the researcher. Descriptive statistics were derived from the quantitative aspects in the questionnaire (N=8).

20	McGlone	2017		✓		Touch is a beneficial therapeutic intervention offering a fundamental role which is well documented as positively impacting on health and well being. This may be argued that osteopathic manipulation treatment can putatively reduce cytokine release and therefore create a cascade that modulate the inflammatory and ANS mechanisms.	Discussion from extant literature
21	McNulty	2013		✓		Two themes emerged. 1 - Once the patient was not seen as retaining patient status, then a relationship would be possible. 2 - The start of the relationship seemed to re-confirm the professional competence and identity of the therapist: the 'hero' position. Some reflections in existing literature of a pattern on non-sexual boundary violations preceding the sexual relationship, fitting with a 'slippery slope' model (Simon 95).	IPA of semi-structured interviews.
22	Morris	2014	✓			The use of expressive touch may positively benefit the client and the therapeutic process as a whole. A lack of expressive touch raises questions about whether the rapport or connectedness between therapist an client has reached its full potential. Female practitioners use expressive touch more than males and males use instrumental touch more than females.	Observational experimental study. OT interaction assessment tool was developed for the methods.
23	Orrock	2018			✓	Emerging themes in the literature identify the importance of the therapeutic relationship and communication along with the development of trust and hope which have an impact on outcome measures and the incidence of treatment after effects.	Survey. Descriptive statistics were generated. Interviews. Semi-structured interviews from a purposive sample were analysed with a phenomenological method.
24	Parry	2009		✓		Teaching communication skills is complex and demanding and a challenge to assess. Less than half of the respondents in this study explicitly refer to the provision of opportunities to practice, develop and demonstrate communication skills. Curriculum designers and educators should ensure training in communication skills is experiential with patients and assessed by observation (to ensure theory to practice is achieved).	Qualitative survey and questionnaire.
25	Papa	2010		✓		Touch can; promote a sense of inclusion and acceptance, support, relationship, uncover emotions and memories, stimulate imagination, test reality, experience sensuality and can also lead to sexual discomfort, invasion and being overpowered. There are gaps in the literature and governance.	Discussion from one trainee's experience.
26	Roberts	2007			✓	Communication is an extremely important but underexplored dimension of the patient-therapist relationship.	Quantitative - Observation of communication (N=21 patient sessions). Qualitatively - semi-structured interviews (N=7 Physiotherapists)
27	Schiff	2010		✓		Ethical rules for touch boundaries are formulated to provide a safe therapeutic environment for practitioners and patients. There is a vital need for training therapists in the ethics of touch.	Modified Delphi
28	Sommer	2018		✓		Appropriate teaching of complex skills like communication and patient centeredness may help to bridge the gap between theory and practice.	Action Research
29	Sommerfeld	2008		✓		Responsibility for a professions identity is in the hands of the educators.	Foucaultian discourse analysis and Derridaian deconstructional discussion of the literature.
30	Soundy	2013	✓			Current attitudes to sexual professional boundaries have eroded and incidences are likely to increase. Evidence of inappropriate sexual behaviour demands more training in the UK for undergraduate and post graduate physiotherapists.	Descriptive statistics via a questionnaire.
31	Strutt	2008		✓		4 main themes emerged: hope, communication, respect and trust. Important issues were undressing, privacy and gender. Patient satisfaction depends on being empowered, gaining control of ones life and achieving an empathetic therapeutic relationship.	Grounded Theory and IPA.
32	Tyreman	2013		✓		Osteopathic principles involve touch. Psychological and emotional implication of touch and movement were not recognised at the inception of osteopathy, not least in the way we understand it now, the emotional effects of touch (and lack of it). With notable exceptions, few osteopaths are engaging with the broader academic community in thinking about touch and embodiment. Values are fundamental and implicit in this profession but i9dentifying differences between espoused and practised values might be perceived as criticism.	Discussion of the extant literature.
33	Walker	2017		✓		The social touch hypothesis posits that a system of nerves has evolved in mammals to signal the interactions which form and maintains social bonds. If targeting C-tactile afferent fibres it may inhibit responses to painful stimuli, carry a positive affective value and at the same time reduce physiological arousal.	Discussion of the extant literature.
34	Walker	2017	✓			Seen touch produces the same subjective and affective responses as felt touch and demonstrates that humans have a preference for C-Tactile optimal caressing touch.	Descriptive statistics generated from an experiment using online software package to observe conditions and report via a Likert scale.
35	Wallace	2008		✓		Learning in the clinical environment allows the tutors to provide a role model for professional thinking, behaviour and attitudes (which includes communication skills and professionalism).	Discussion of the extant literature.
36	Westmoreland	2007		✓		Having trust in the therapist is important. Osteopathy has psychological as well as physiological effects, such as reassurance and improved understanding.	Thematic analysis of semi-structured interviews.
37	Williams	2007		✓		As holistic health care practitioners, osteopaths assess patents in terms of a bio psychosocial model of illness, which all have to be addressed to promote healing. The caring effect of the therapist can contribute to the psychological benefits of osteopathy.	No method was offered but reference was made to a systematic review of RCTs which appear to have informed this commentary.
38	Winterbottom	2015		✓		Chiropractic patients perceived informed consent as a process involving communication with health care practitioners and that it is possible to educate patients about risks whilst satisfying legal requirements.	Thematic analysis of semi-structured interviews.