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Professional identity in osteopathy: A scoping review of peer-reviewed primary osteopathic research

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1. Introduction

Research into professional identity (PI) and its development is abundant in healthcare modalities such as medicine [1–6], nursing [7–9], pharmacy [10,11], occupational therapy [12,13] and physiotherapy [14,15]. Across professions, PI has shown positive association with motivation and retention [16], resilience [17], professional engagement and commitment [18], well-being and effectiveness [19]. In addition, PI has been shown to act as a "sense-making device … governing our choices and decision-making" [20]. Cruess and Cruess [21] propose that interest into professional identity represents a series of shifts in healthcare education. Historically, it was assumed that professionalism, namely values, behaviours and relationships which underpin trust in health professionals, would be "automatically acquired" through observation of role models and mentors. However, shifts in educational thinking have seen growing recognition that "professionalism" should be explicit in curricula and, most lately, that professional identity development (PID) is the "real objective" of teaching professionalism [21].

Facilitating PI development appears to confer multiple individual and profession-wide benefits, although it is difficult to generalise from conclusions partly due to the variety of PI definitions. In her concept analysis, Fitzgerald [22] analysed definitions across healthcare research and concluded that PI is characterised by actions and behaviours, knowledge and skills, values, beliefs and ethics, context and socialisation, and group and personal identity. Clarkson and Thomson's [23] description of osteopathic PI (OPI) - "the construction of a person's experience, qualities, beliefs and values that define their professional role" - aligns with elements of Fitzgerald's definition. Similarly, Thomson et al. [24] describe OPI in terms of osteopaths' perceptions of osteopathy within healthcare and their self-perceptions in professional contexts, aligning with Fitzgerald's "group and personal identity". Finally, whilst not a definition *per se*, Cotton [25] proposes that professional cohesion relies on answers to questions about individual attributes - "Where do I come from? What do I believe in? What should I do?" - but also individuals' positions within the wider osteopathic community - "Who are my brothers and sisters? Can I trust them? Are they like me?" Again, these reflect Fitzgerald's definition and provide another means of exploring OPI, through individual and collective professional self-perceptions of who we are and, simultaneously, who we are not.

Cotton's questions allow description of both *[my]self* as individual, and *[our]selves* within the osteopathic community. Whilst *myself* implies personal uniqueness, *ourselves* recognises intra-professional similarities and, at the same time, inter-professional differences. These reflect perspectives from which PI has traditionally been explored. From a sociological standpoint, PI has been typified as *doing* [26], involving fulfilling role requirements and adhering to professional standards and societal expectations. Psychological perspectives characterise PI as *being* [26], requiring internalisation of personal values such as empathy, integrity and respect. Whilst less tangible, these affect how we perceive ourselves and, through our behaviours in the public domain, present our identity to the outside world.

Together, *doing* and *being* offer means by which individuals self-identify as members of a profession, through personal styles of thinking which motivate behaviour within accepted collective norms. Identity has been described as "a way of being in the world" [27] and, by inference, OPI could be defined as a way of being within the osteopathic world, evolving through ongoing "legitimate peripheral participation" [28] and relationships in osteopathic "communities of practice" [27]. Hence, OPI may be deeply personal, but also is "situated" in time and place, helped or hindered by educational and workplace culture [28–30].

Hatem & Halpin [31] equate PI formation and *becoming*, describing this as the developmental process whereby one moves from "doing the tasks of … to embodying the identity of …". Indeed, Clarkson and Thomson's [23] description of OPI as "*the construction* [emphasis added] of a person's [attributes] …" acknowledges that OPI is inherently developmental, but this appears to conflict with other definitions of PI as "stable and enduring" [32]. In the field of personal identity, Erikson

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[19], asserts that it is precisely the stable components of our personality (our "ego-identity") that enable us to reconcile contradictions and effect personal transformation. Hence, "continuity with change" [33] is possible in that our past influences our openness to new ideas, providing opportunities or constraints for our present and future, creating "cycles of shaping and reshaping [of] personal and professional identities" [34].

As the primary setting for *becoming*, educational institutions perhaps have the greatest influence on PI. Jarvis-Selinger et al. suggest that educators should nurture qualities that society expects in would-be professionals so that they can develop "from junior levels of *doing* to senior levels of *being*" [1]. Indeed, there has been growing emphasis in initial healthcare training [1,35,36] on *being/becoming* (an ontological perspective), in addition to *knowing and doing* (an epistemological perspective) [33]. This acknowledges that existing beliefs and assumptions [37] underlie learning through conscious or unconscious responses to experiences and, in turn, are reinterpreted as part of the process [38]. *Becoming* a professional, or PI development [31], might thus be visualised as an iterative process of *who I am* and *what I know and do*, mediated by reflective and reflexive thinking.

Within osteopathy, however, little is published about OPI or its development (OPID). Initiatives in the International Journal of Osteopathic Medicine (*IJOM*) have undoubtedly raised the profile of osteopathic education research [39–41], but this has often focused on practical issues such as student assessment [42–44] and learning resources [45–47]. A search of IJOM, from inception to present, revealed only three examples of peer-reviewed primary research with *explicit* OPI focus [23,24,48], although there are some discussion papers [39,49–53]. However, inferences about OPI can be found across primary osteopathic research, even when not the explicit focus. This review, therefore, aimed to explore peer-reviewed primary osteopathic research for evidence to advance understanding of OPI and OPID.

2. Method

As a "rigorous and transparent method for mapping areas of research" but which permits "subjective interpretation" of existing knowledge [54], the review broadly followed Arksey & O'Malley's [55] five-stage scoping review framework. The PRISMA ScR Extension Fillable Checklist [56] was used to promote robust data collection, analysis and reporting.

2.1. Stage 1. Identifying the research question

Given that this review aimed to explore evidence around OPI and OPID, the research question was deliberately broad, namely, "What has been said, explicitly or implicitly, within existing osteopathic research, about individual and collective OPI and OPID?"

2.2. Stage 2. Identifying relevant studies

A variety of sources were interrogated to achieve comprehensive coverage [55]. *IJOM* was hand-searched for primary studies, followed by computer-based searches of Scopus and PubMed for osteopathic research published in non-specialist journals. Reference lists of selected papers were scrutinised for further studies. Bibliographic software (Zotero) was used to assemble and manage records. Writing as a UK-registered osteopath, a start date of 2000 was chosen to reflect the year the Osteopaths Act [57] and Revised Standards of Proficiency (S2K) [58] came into force, and beyond which only osteopaths possessing a Recognised Qualification (RQ) were eligible for registration [59]. As such, 2000 signalled a new era in terms of osteopathic training and regulation in the UK.

The search strategy (Table 1) was developed from the research question, Fitzgerald's PI concept analysis [22] and existing definitions of OPI [23,24]. A preliminary strategy was devised, and iteratively developed as relevant papers were found. The final version was used for Scopus and adapted for PubMed.

Table 1
Search terms & strategy.

Keywords OR title	Osteopath*, "osteopathic identity", "Osteopathic medicine" [MeSH] AND "Professional identity development", "professional identity formation", identi* [OR] Attitude, barriers, beliefs, perspective, values [OR] Evidence-based, practice, clinical reasoning, diagnostic reasoning [OR] Education, student, skill, training, preparedness [OR] Qualitative, interview, "focus group", "thematic analysis", grounded theory [OR] Role, profession*
Limit to	English, 2000 onwards
Exclude	Editorial, note, letter, erratum, short survey Research conducted in United States

2.3. Stage 3. Study selection

Whilst selection of papers by a single researcher may be subject to bias, repeatability was enhanced by predefined inclusion and exclusion criteria. A provisional list was devised, and growing acquaintance with literature allowed for refinement whilst searches were conducted (between 6th and March 20, 2020). Fine-tuning culminated in selection criteria for establishing relevance [55], determined by title, abstract and full text, with papers being retained until actively excluded [60]. Where abstracts were missing, introduction and background sections were skimmed [61].

The decision was taken to go direct to source and explore primary studies, as the aim was to capture breadth, rather than depth or quality, of research field. Inclusion criteria therefore comprised peer-reviewed primary studies with an explicit OPI focus or those exploring attitudes towards any aspect of professional practice or osteopathic education. Exclusion criteria included pieces that perhaps represented views only of their authors (such as narrative and opinion, conceptual or philosophical pieces), literature reviews, pilot or feasibility studies, quantitative research into effectiveness of treatment or reliability of clinical tests, and evaluation of quantitative measures. USA-based research was excluded due to the dual nature of medicine/osteopathic qualifications, as opposed to purely osteopathic qualifications in the UK and elsewhere.

2.4. Stage 4. Charting the data

Once the final list of papers was compiled, each paper was re-read, using a checklist to reassess against selection criteria and to obtain overall sense. As per protocol [55], key information (author, year of publication, location, title, aim & conclusion) was entered into a chronologically ordered summary table.

To facilitate inductive analysis, memos were added to the table noting the reviewer's interpretation of each paper's relevance to OPI. Codes, as bulleted statements, were generated for each paper based on memos, keywords and full text. Memos and codes were presented in a italics font to distinguish their interpretive nature from original material in papers themselves. Table 2 provides an example for one paper. On completion of the summary table, six studies (18%) were chosen at random for re-evaluation of memos and codes to establish intra-rater consistency and, in light of observations, all studies were reassessed.

Table 2
Exemplar summary table entry indicating original content (columns 1–3) and interpretive elements (columns 4 & 5).

Author(s), year, location	Title & Aim	Conclusion	*Reviewer's Memo - interpretation of relevance to OPI and/or OPID*	*Codes*
Consedine, Standen & Niven, 2016 Australia	Knowing hands converse with an expressive body: An experience of osteopathic touch Aim: to examine and describe the patient's experience of touch during a consultation with an osteopathic practitioner	Touch is a powerful and distinctive form of communication & an important feature of practitioner-patient interaction. For participants, touch communicates practitioner's care and attention, professional attitude and competence. Effective communication forms basis of successful patient-practitioner relationships and profoundly dictates patient satisfaction and other healthcare outcomes.	*Looks at role of touch as an important form of non-verbal communication, in establishing therapeutic relationship, indicating practitioners' care, attention & competence as well as boundaries and trust, ie implies that these are attributes of osteopathic PI.*	• *Touch as form of patient-practitioner communication* • *Importance of effective communication for patient-practitioner relationships* • *Touch as centrepiece of osteopathic interaction for examination, diagnosis & treatment* • *Patient expectations of osteopathic care*

2.5. Stage 5. Collating, summarising and reporting the results

Scoping studies do not need to assess quality or weight of evidence as, unlike systematic reviews, they do not directly inform interventions or policies [55]. However, given their role in mapping research territory, scoping review protocols require presentation of an overview of *all* material reviewed. Therefore, all codes from selected papers were thematically analysed as illustrated in Fig. 1. Diagramming aids analysis as it necessitates thinking about data [62] so Lucidchart [63] software was trialled as an analytical aid after coding 50% of papers. Any ambiguous codes were checked against source paper(s) and reworded for clarification. To prevent imposing an a priori framework when coding remaining papers, trial-generated findings were disregarded [64].

3. Results

The search process (Fig. 2) [65] yielded studies conducted in the UK (n = 18), Australia (n = 10), Italy (n = 1), Austria (n = 1) and New Zealand (n = 3), with 50% published since 2018. Twenty-six studies appeared in *IJOM*, the remainder in peer-reviewed, open access manual therapy-related journals.

Fig. 3 shows papers included in the review. Some authors contributed to multiple papers, and subgroups of collaborating authors were observed. Further exploration indicated that two-thirds of selected papers had at least one author on the *IJOM* editorial board (shown in hexagons, correct August 2020), possibly because individuals with research interests are also likely to contribute to editorial processes within professional journals.

3.1. Methodological and content characteristics

Study type and method of analysis are shown in Fig. 4. Given that inclusion criteria sought papers exploring attitudes to OPI or OPID, it is unsurprising that 27 out of 33 adopted qualitative data collection methods, with predominantly constructivist approaches to analysis. The remainder were quantitative in design, providing evidence of osteopaths' perspectives via statistical analysis of survey or quasi-experimental data. One study used a two-stage mixed methods approach.

Only three papers had specific OPI focus [23,24,48], with fourteen more mentioning OPI in passing [66–79]. Others indicated individual or

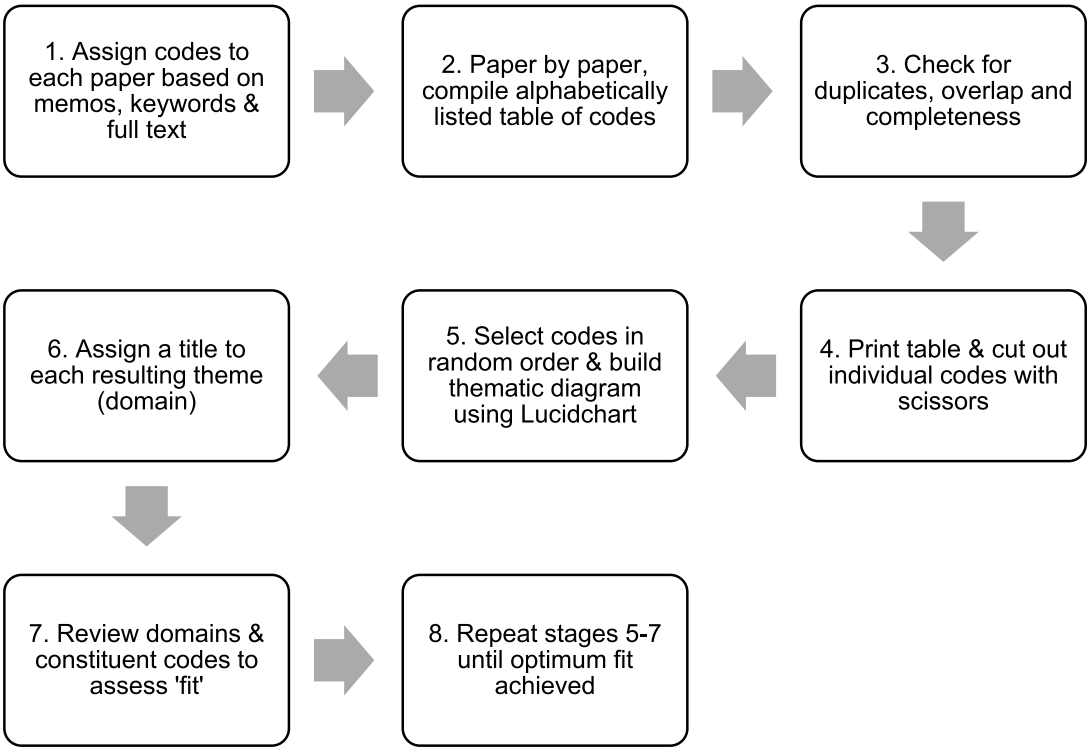

Fig. 1. Process for thematic analysis.

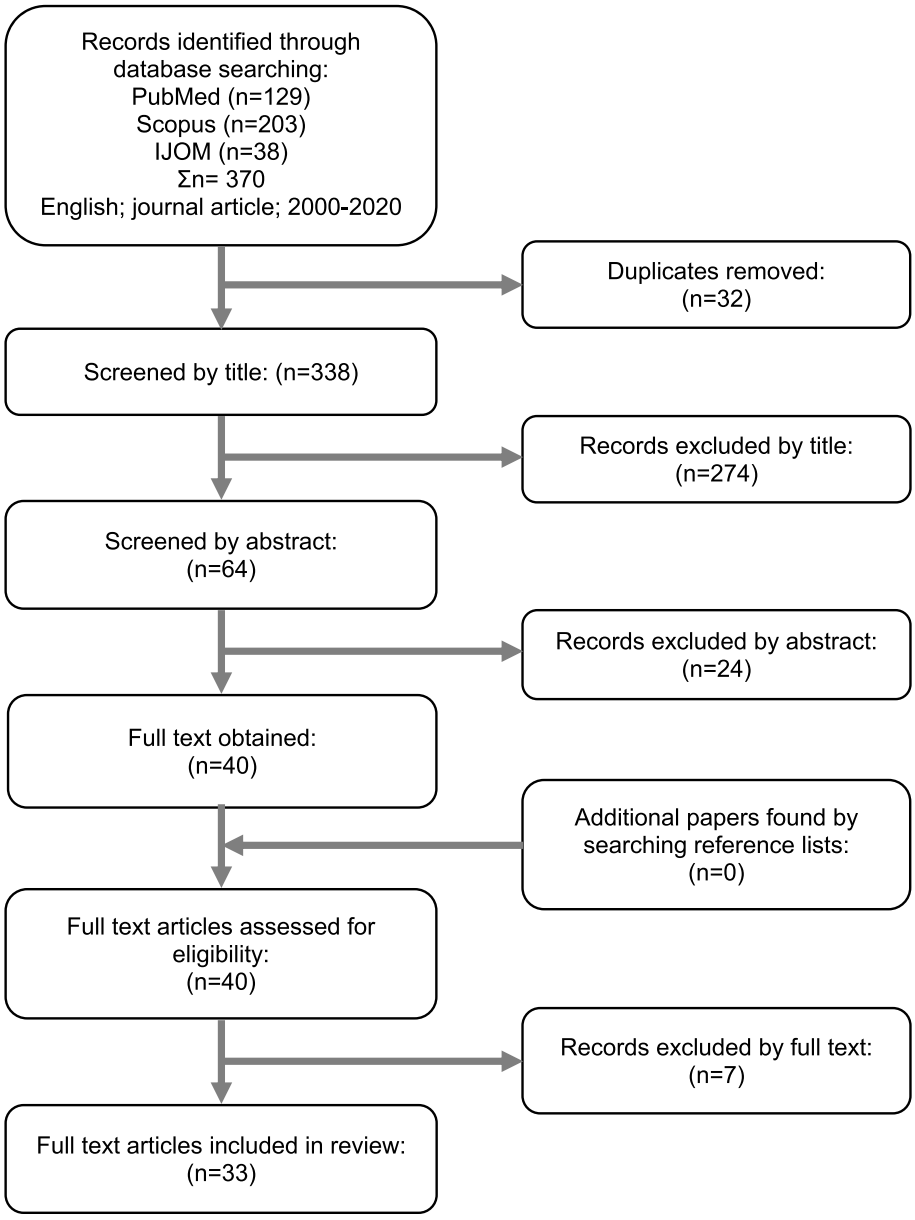

Fig. 2. Adapted PRISMA flowchart of search process.

collective osteopathic attributes whilst investigating a range of professional issues (Fig. 5). Some papers fell into more than one category, for example, clinical decision-making and therapeutic approach [68], and patient management, clinical reasoning and pain [78].

Thematic analysis resulted in five domains (Fig. 6): Therapeutic Alliance, Building a Picture of the Patient, Epistemology of Osteopathic Knowledge, Conceptions of Osteopathy and Role of Osteopathic Education Institutions. Each indicated attributes of OPI and are described below, with illustrative codes tabulated (Tables 3–7).

1. Therapeutic Alliance (TA)

TA has been described as a dynamic entity, whereby patient and practitioner share responsibility for delineating treatment goals and therapeutic tasks through trusting and accepting relationships [93]. Codes in this domain resulted in two subdomains - *Therapeutic Setting* and *Therapeutic Role* (Table 3).

1.1. Therapeutic Setting

This subdomain reflected factors instrumental in enabling rapport and collaborative relationships as well as patient education and empowerment [24,82]. These provided the backdrop against which patient-practitioner interaction occurred, through elements such as

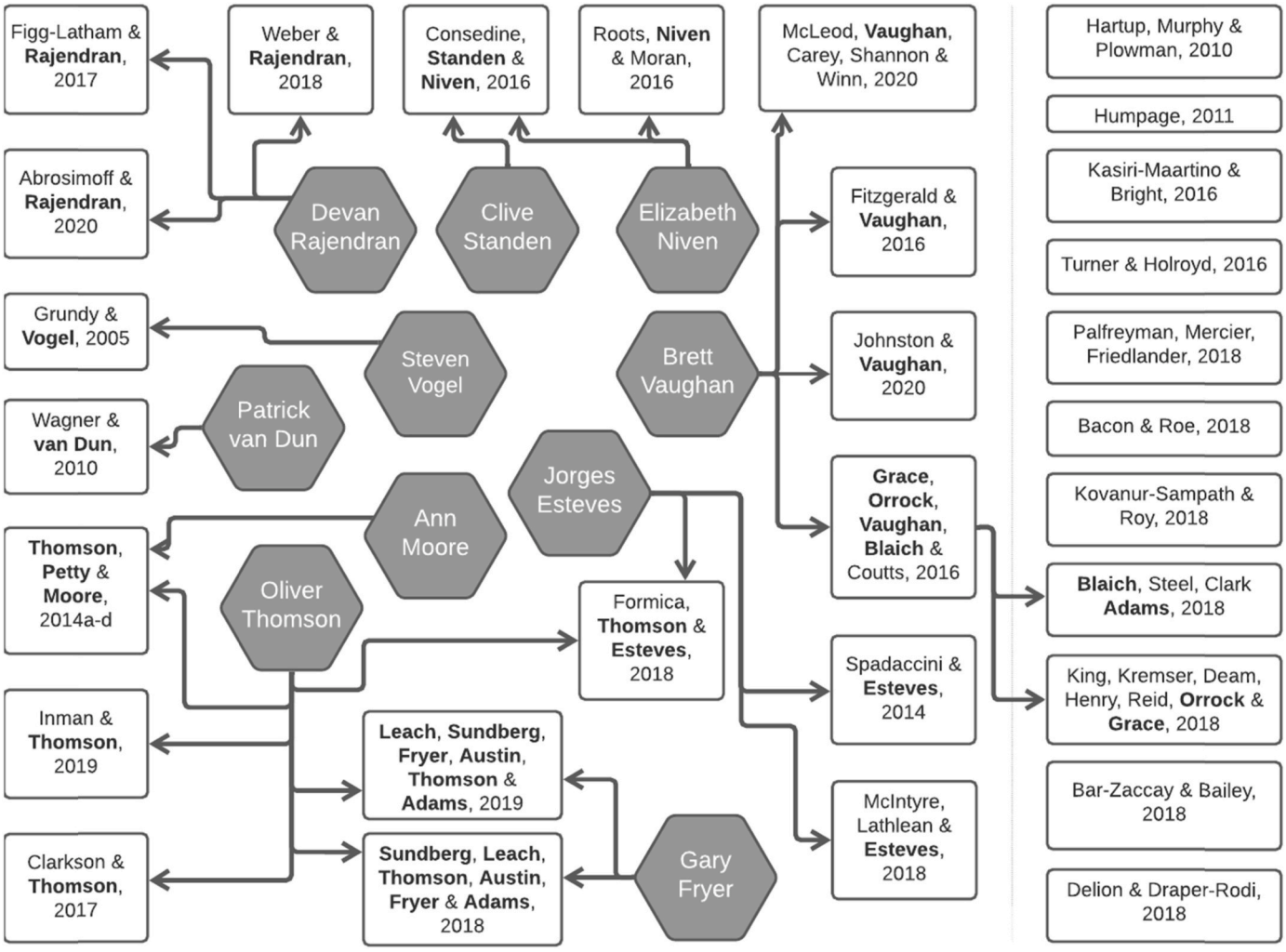

Fig. 3. Chart showing papers included in review. Authors with multiple contributions are shown in bold, subgroups of collaborating authors are shown by arrows, and authors associated to IJOM editorial board are shown in hexagons.

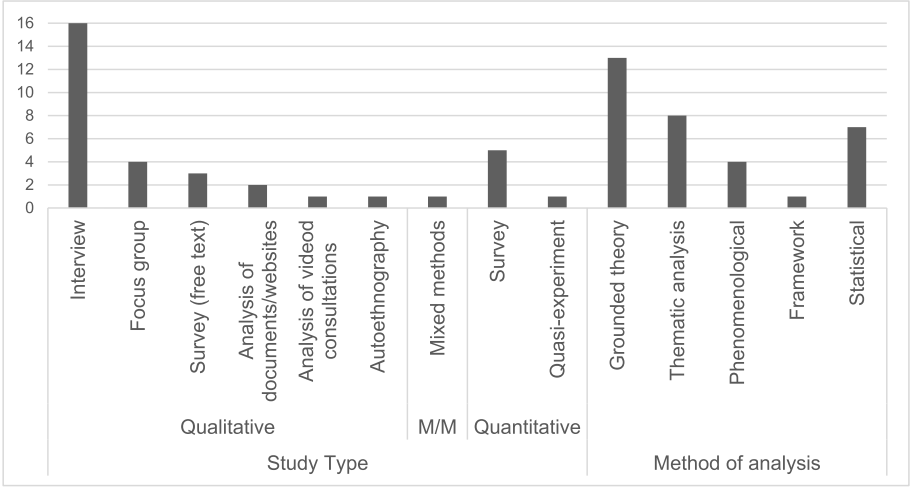

Fig. 4. Study type and method of analysis.

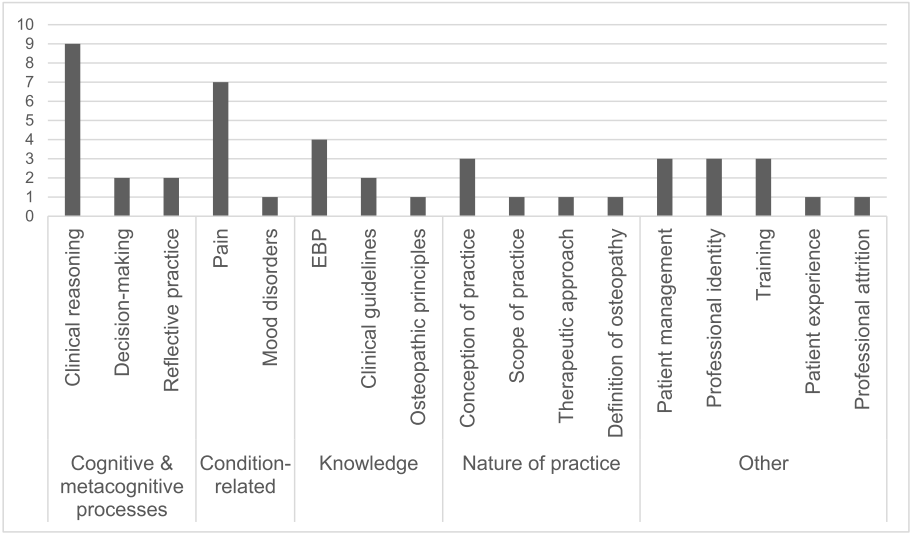

Fig. 5. Focus of content of studies.

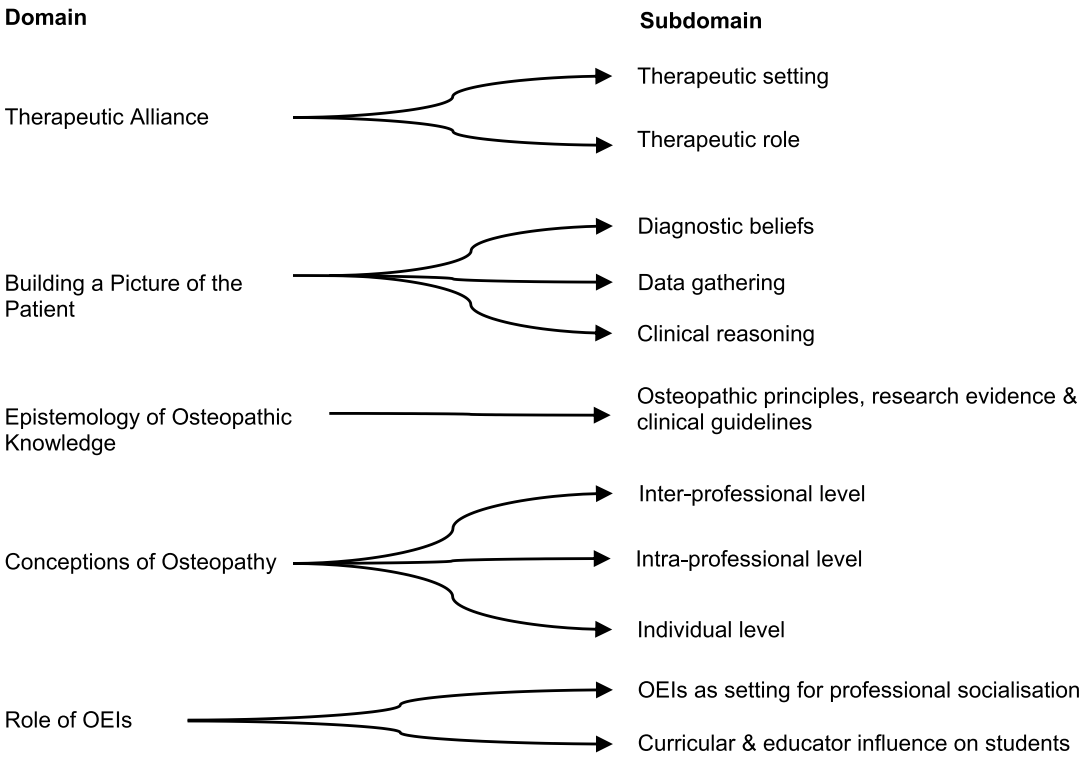

Fig. 6. Domains & subdomains.

sensitivity, compassion [78,81] and effective verbal and non-verbal communication [74,81,80]. As such, the "positive intention of one person to help another" within a "safe space" [81] enabled trusting interpersonal relationships for facilitating information exchange [74].

1.2. Therapeutic Role

This subdomain indicated that osteopaths' conception of their role was key in determining extent of patient involvement in decisions about their care [24]. Whilst some studies noted a paternalistic role (sometimes perpetuated by patient expectations of osteopathy [71]), more commonly reported was osteopaths' self-perception as facilitators of patient healing. Whereas the former was associated with some osteopaths' beliefs that they "fix" physical dysfunction through manual therapy [68,71,78], the latter aimed "to re-able and bolster agency" by fostering confidence and promoting behavioural change [78] through patient education and collaborative decision-making [82].

Overall, codes within the TA domain highlighted importance of patient-practitioner communication and relationships, and implied values associated with *being* an osteopath, such as trustworthiness, empathy, compassion and respect.

Table 3
Therapeutic Alliance: subdomains & illustrative codes.

Subdomain	Illustrative Codes	Reference
1.1 Therapeutic Setting	• Importance of effective patient-practitioner communication	[80]
	• Therapeutic space as "safe space" that engenders trust, support, and empathy • Importance of giving time and listening to patients • Need for practitioner to be passive and sensitive within therapeutic relationship • Positive intention of one person to help another person as key to healing	[81]
	• Importance of verbal and non-verbal communication in clinical management • Quality interpersonal relationship essential for information exchange and managing uncertainty, facilitating patient self-management	[74]
	• Importance of values-based practice & compassionate detachment	[78]
1.2 Therapeutic Role	• Conception of therapeutic role affects degree of patient involvement in decision-making	[24]
	• Collaborative management, patient education and patient empowerment as critical components of therapeutic communication	[82]
	• Osteopathy as empowering patients to take responsibility for own health	[81]

Table 4
Building a Picture of the Patient: subdomains & illustrative codes.

Subdomain	Illustrative Codes	Reference
2.1 Diagnostic Beliefs	• Symptoms as manifestation of cause-effect relationships over a lifetime	[70]
	• Psychosocial factors as potential barriers to recovery & potential risks for chronicity	[73]
	• Psychosocial factors considered secondary compared to biomedically oriented structural-tissue-postural factors	[74]
	• Manual therapy can effect change regardless of psychological factors	[78]
	• Physical symptoms may reflect deeper emotional or psychological issues	[81]
	• Diversity of views regarding relationship of pain & tissue damage	[83]
2.2 Data Gathering	• Data gathering used to build a picture of the patient • Palpation used for tissue examination as well as to gain sense of whole body • Visual patient information gathered both formally & informally	[76]
	• Facilitation of patients' storytelling essential for co-construction of meaning	[78]
	• Role of intuition, transpersonal experience & other ways of knowing in form of emotions, feelings or representations eg imagery	[81]
2.3 Clinical Reasoning	• Importance of inter-relatedness of findings	[76]
	• Osteopathic reasoning is used to guide treatment rather than to identify named medical conditions • Osteopathic reasoning is characterised by a two-stage approach	[78]
	• Osteopaths' clinical reasoning is similar to other health professions	[84]
	• Findings from direct patient contact (observation & palpation) are central to clinical reasoning • Pattern recognition, hypothetico-deductive reasoning & narrative reasoning all used	[85]
	• Continuous transition between different reasoning modes - analytic & intuitive - evidence of metacognitive processes	[76]

2. Building a Picture of the Patient (BPP)

Subdomains here indicated three components of the diagnostic process (Table 4) which together enabled osteopaths to build a picture of each patient facilitating patient-centred care. These were osteopaths' beliefs regarding factors that contribute to patients' symptoms, osteopaths' means of gathering patient information, and strategies for information synthesis.

2.1 Diagnostic Beliefs

This subdomain indicated a range of ontological beliefs and assumptions about relationships between person, mind and body, with two main theoretical models regarding causes of pain [83]. First was a biomedical or "tissue damage" diagnostic model, attributing physical symptoms to structural, physiological and postural factors [74] and advocating "technical rationality" to address perceived dysfunction [68,77,94]. Second, the "biopsychosocial" (BPS) model considered social, emotional and psychological contributors to symptoms [78], alongside physical factors. Here, psychosocial issues were seen as potential barriers to recovery and important prognostic indicators [73,74], requiring creative thinking and "professional artistry" to address complexities of each patient [68,77,78,94].

Traditionally, osteopathy has presented itself as adopting a holistic approach, consistent with a BPS model [95,96] although studies in this review reported various barriers to BPS management. Even amongst osteopaths who self-identified as adopting a BPS approach, biomedical management strategies were observed [78]. This was attributed to lack of knowledge and skills needed to assess and address psychosocial factors [73,74].

This subdomain contributed to understanding of OPI by indicating beliefs about factors that predispose and maintain patient symptoms.

2.2 Data Gathering

This subdomain indicated ways in which osteopaths obtain information about patients. Studies indicated that verbal, visual and haptic input enabled practitioners "to develop a rich understanding of the patient, their illness experience and the wider social factors related to their pain" [74]. Facilitating patients' storytelling and direct questioning were reported for co-constructing meaning [78], whilst visual observation enabled assessment of posture and factors indicative of overall health [76].

With haptic input, "palpation" and "touch" both contributed to the patient picture during examination, diagnosis and treatment [78]. "Palpation" seemed used mainly to signify targeted examination of tissues [82], whereas "touch", through "'listening' or 'seeing' hands" [97], appeared associated with "other ways of knowing" [81]. These included transpersonal phenomena, such as intuitive insight and embodied cognition, perceived as emotions, feelings or representations [76,81,80], acknowledgement of which has sometimes been considered "taboo" [81].

This subdomain thus implied further aspects of OPI by highlighting practitioner behaviours for accessing patient information. It suggested that data gathering is multisensory, informing initial diagnosis, but also provides ongoing feedback [76] allowing practitioners to adapt examination and treatment to dynamic patient circumstances. Furthermore, it suggested that some practitioners hold beliefs that they may be reluctant to discuss, making it difficult to assess extent to which they are held

Table 5
Studies' observations relating to sources of osteopathic knowledge.

	Observation	Reference
Osteopathic principles	• Principles & philosophy as central to osteopathy	[67]
	• The validity of osteopathic principles provokes strong feelings within the osteopathic profession with some regarding them as the essence of professional identity • Lack of clear definition of osteopathic principles • Anecdotal evidence is inadequate for principles that are supposed to guide professional practice • Use in clinical reasoning may result in rejection of scientific evidence	[69]
	• Participants at one OEI possess a strong sense of professional identity and an unshaking belief in the precedence of osteopathy and that practice is informed by their osteopathic principles	[71]
	• Osteopathic principles create barrier for integration of osteopathy into healthcare	[72]
Research evidence	• Research is reductionist & not applicable to osteopathy • Osteopathic expert opinions were revered and viewed as the highest quality osteopathic evidence	[71]
	• Osteopaths should incorporate self-reflection as part of their professional development so they can identify beliefs that contradict EBM	[83]
	• EBP assists in clinical decision making & necessary for osteopathy • Osteopaths have moderate EBP skills and wish to upskill	[86]
Clinical guidelines	• Guidelines useful for clinical decision making and patient care • Personal experience valued over clinical guidelines • Clinical guidelines seen as restricting uniqueness of osteopathic practice	[77]
	• Respondents did not search or use available online practice guidelines, believing guidelines were inapplicable to osteopathic patients, who were unique	[87]

within the osteopathic community.

2.3 Clinical Reasoning

Whilst the previous subdomain indicated multisensory data gathering methods, this subdomain revealed how multisensory findings were used to inform diagnosis and management. Osteopathic reasoning showed similarities to other forms of healthcare in that iterative data gathering required metacognitive skills [76,79,84,98]. Further similarity included flexibility between pattern recognition, hypothetico-deductive and narrative forms of reasoning [82,84,85] in response to dynamic patient factors. Evidence was inconsistent as to whether clinical reasoning strategies varied according to length of osteopathic experience [79,98,85].

Osteopathic clinical reasoning also showed distinctiveness from other forms of healthcare. First, it was characterised by a two-stage approach [79], with an initial biomedical assessment to rule out red flags, followed by use of an "osteopathic lens" to guide treatment. Diagnosis was seen to guide treatment, rather than for identifying named medical conditions.

The BPP domain contributes to OPI understanding by highlighting beliefs and behaviours around causal factors in pain and dysfunction, and ways osteopaths access and synthesise patient information to inform management. Studies suggested that building a picture of the patient was multifactorial, multisensory and iterative, requiring metacognitive processes to accommodate clinical uncertainty and enable flexible patient management [76,79,84].

Table 6
Conceptions of Osteopathy: subdomains & illustrative codes.

Subdomain	Illustrative Codes	Reference
4.1 Inter-professional level	• Diversity of views re role in healthcare system • Research as necessary to gain acceptance within healthcare	[67]
	• Osteopathy as distinct from & more complex than other manual therapies	[71]
	• Need for collaboration with other healthcare providers • Osteopathic principles create barrier for integration of osteopathy into healthcare	[72]
	• Poorly developed referral networks	[75]
	• Frustration with scope of practice	[88]
4.2 Intra-professional level	• Osteopathic regulation in the UK as encompassing varied interpretations of osteopathy	[23]
	• Intra-professional differences suggest lack of collective identity	[48]
	• Mismatch between osteopathy as espoused by 'the profession' & actual practice	[69]
	• Debate over osteopaths as specialists vs generalists	[72]
	• Inconsistency between individuals' PI and that of profession as a whole	[78]
4.3 Individual level	• Passion for osteopathy • Osteopathy as lifestyle	[89]
	• Individuals' conception of practice influences decision-making & therapeutic approach	[24]

3. Epistemology of Osteopathic Knowledge

Whilst previous domains suggested values, attitudes and behaviours relating to everyday patient-practitioner encounters, this domain illustrated perspectives towards osteopathic principles, research evidence and clinical guidelines as sources of osteopathic knowledge (Table 5). Seven papers focused specifically on this issue [67,69,71,77,86,87,99].

Codes did not present discrete subdomains so much as a spectrum of perceived value of different sources. A "precedence of osteopathy" model of practice [71] considered osteopathic principles and philosophy as essence of *being* an osteopath [69] and central for navigating clinical uncertainty [77]. It was observed that this perspective valued practitioner experience over other sources of information, was sceptical of medicine, regarded research evidence as invasive and reductionist [67] and rejected clinical guidelines [71]. However, the "precedence of osteopathy" model may itself represent a range of perspectives because, whilst broadly attributed to osteopathy's founder, AT Still, his writings have been subject to multiple interpretations, and debate about origin, detail and validity of osteopathic principles continues [49,52,100–103].

In contrast to the "precedence" model, allegiance to osteopathic traditions, coupled with limited research engagement, was seen as threatening continued viability of osteopathy, mainstream healthcare acceptance [24,67] and, ultimately, patient care [83]. Studies reported low dependence on published research, despite most osteopaths acknowledging value of research evidence [86,99]. Positive attitudes to research were weakly associated with recent graduation and Master's level qualifications [86,99]. Most osteopaths were aware of clinical guidelines [87] although conflicting evidence was reported regarding extent of their use [86,87]. The fact that some osteopaths accepted research-based guidelines whilst failing to engage directly with research evidence indicated barriers to engagement, including time pressures,

Table 7
Role of Osteopathic Education Institutions: subdomains & illustrative codes.

Subdomain	Illustrative Codes	Reference
5.1 OEIs as the setting for professional socialisation	• Professional socialisation facilitates PI development of individuals and profession as a whole • Professional socialisation is the process through which students learn the tacit rules, norms and skills of their profession	[23]
	• Broader admission criteria encourage more diverse student cohorts providing richer learning environments • Nature of entry criteria raises questions regarding attributes deemed essential by OEIs for osteopaths-to-be	[90]
5.2 Curricular and educator influence on students	• Osteopaths' opinions are largely shaped within the educational setting, in particular by teachers • Unquestioned upholding of OP has resulted in dogmatic tendencies, particularly within the educational context • Lack of consensus amongst osteopathic educators may result in conflicting role models and present apparently contradictory faces of the osteopathic profession	[69]
	• Individuals' attitudes and values may be strongly influenced by training institution • Ideology of individual OEIs, teachers and tutors may impact on student attitudes to guidelines • Where supported in a clinical environment, indirect guideline education influences students	[71]
	• OEIs unwittingly continue to emphasise biomedical model. Results in graduates lacking ability to follow NSLBP clinical guidelines	[78]
	• Careful consideration needs to be given to how students experience the curriculum in order to avoid unintended consequences or fostering a hidden curriculum.	[91]
	• Importance of ensuring clinical educators are trained to facilitate reflective practice	[92]

paucity of osteopathic research, limited EBP skills and poor awareness of emerging evidence [87,99].

Overall, this domain contributed to understanding of OPI by highlighting varying epistemological beliefs amongst osteopaths. Evidence suggested that multiple sources of knowledge supported decision-making in osteopathy [99], although value placed on these varied.

4. Conceptions of Osteopathy

Whilst previous domains explored aspects of everyday practice, this domain looked at conceptions of osteopathy at inter-professional, intra-professional and individual levels (Table 6).

4.1 Inter-professional level

This level indicated beliefs around similarities and differences with other healthcare modalities [71], need for collaboration and referral [72,75] and scope of practice [88]. Scope of practice raised questions about boundaries of osteopathic professional activity and opportunities for involvement in healthcare domains not traditionally inhabited by osteopaths. For example, Grundy & Vogel explored osteopaths' attitudes to seeking prescribing rights, seen by some as a means of expanding scope of practice but, by others, as a threat to osteopathic identity [66]. Increased implementation of the biopsychosocial approach was also proposed for expanding scope through greater priority of patients' psycho-emotional factors [74,75,78]. Threats to scope of practice were also raised, for example if osteopaths chose to specialise rather than continue as "generalists" [72], or that absence of "proof" of treatment effectiveness might curtail treatment options [67]. Conversely, research was reported as an opportunity to broaden scope by actively addressing current public health demands [72].

Overall, at inter-professional level, studies reported barriers to osteopathy's integration into mainstream healthcare which included prioritisation of osteopathic principles over research evidence, low levels of inter-professional collaboration and poor referral networks [72,75]. Whilst concerns were raised about osteopathy's continued relevance and viability as a profession [48,69,72], broadening scope of practice was contentious in that it challenged deep-rooted beliefs about osteopathic tradition and EBP [66].

4.2 Intra-professional level

At intra-professional level, national and international differences were revealed. Within the UK, there was recognition that osteopathic regulation permitted varied interpretations of osteopathy [23] and, across Europe, Wagner & van Dun reported "significant intra-professional differences" threatening osteopathy's status as an academic profession [48]. This lack of "common orientation of professional values" within UK and European osteopathy [48] suggests potential for poor intra-professional cohesion and, consequently, risks to "health" of the osteopathic profession [25]. Similarly, within Australian osteopathy, disunity in the face of challenges to the profession was reported as threatening its continued sustainability [72].

4.3 Individual level

This subdomain suggested personal beliefs about osteopathy and their behavioural implications. Individuals expressed "passion" for osteopathy as well as conceptualising it as a "lifestyle" [89], the latter suggesting that osteopathic beliefs underpin individuals' decisions and behaviours, in both professional and personal contexts.

Thomson et al's study [24] explicitly explored individuals' OPI and identified "well-" and "less-defined" OPI, each associated with specific conceptions of osteopathy. In the former, osteopaths who perceived osteopathy as qualitatively different from other forms of healthcare demonstrated a "practitioner-centred" approach. In contrast osteopaths, for whom inter-professional differences were less pronounced, displayed "less-defined" or "ambivalent" OPI, and adopted a "collaborative" or "empowerment" style. At individual level, OPI was instrumental in associating abstract conceptions of osteopathy with specific patterns of behaviour and practice.

5. Role of Osteopathic Educational Institutions (OEIs)

This final domain illustrated OEIs' potential influence upon students. Analysis resulted in two subdomains: OEIs as setting for professional socialisation, and curricular and educator influences (Table 7).

5.1 OEIs as setting for professional socialisation

Professional socialisation has been defined as "a nonlinear, continuous, interactive, transformative, personal, psychosocial and self-reinforcing process that is formed through internalization [sic] of the specific culture of a professional community" [104]. Whilst students might enter training with pre-existing attitudes, motives, values and expectations not always congruent with current practice [105], Clarkson

& Thomson [23] suggest professional socialisation as means by which they acquire tacit professional behaviours, evolving through stages and transition points.

Importance of socialisation environment was also raised by Palfreyman et al. [90]. Whilst the focus of their study was not OPI *per se*, they argued that allowing greater student diversity may enrich learning environments and benefit the profession. As such, they questioned assumptions regarding "essential" attributes of osteopaths-to-be, and suggested science-based entry criteria should be reconsidered, particularly given their poor predictive value for student achievement.

5.2 Curricular and educator influence on students

This subdomain indicated impact on students of the "hidden curriculum", defined by Hafferty as the "set of influences that function at the level of organizational structure and culture … The 'understandings,' customs, rituals, and taken-for-granted aspects of what goes on" [106]. Whilst the term itself has attracted debate [107], the hidden curriculum helps explain discrepancies between what is consciously and deliberately *taught*, and what is unconsciously and unintendedly *learned*.

OEIs provide environments where students are introduced, through the "curriculum on paper" [107], to behaviours and attitudes which, in theory, represent those the profession wishes to uphold. However, the hidden curriculum may exert both positive and negative influences, particularly given diversity of views within and between OEIs [69,71,78,91]. As role models, educators may contribute to the hidden curriculum by transmitting beliefs, values and behaviours from one generation to next, shaping OPI of individuals as well as profession as a whole. For example, Kasiri-Martino & Bright's study warned of "strongly opinionated teachers" coupled with "malleable students", finding that some educators encouraged unchallenged "acceptance of everything osteopathic" whereas others took care to present varying perspectives and encouraged a critical approach [69]. Similarly, Figg-Latham & Rajendran [71] observed educator impact, reporting that students' behaviour closely matched that of tutors in terms of adherence to, or rejection of, clinical guidelines.

Student beliefs may also be generated by unquestioned assumptions and longstanding processes at institutional level, for example about knowledge and skills required for the professional role. It was suggested that science-based entry requirements may perpetuate student perceptions of osteopathy as biomedically-focused manual therapy [90], and this would seem to be supported by reports of student demand for increased anatomy input in early training [91]. Studies described OEIs' curricular overemphasis on "technical rationality" [98] and the biomedical model [78]. Furthermore, student inability to follow clinical guidelines for non-specific low back pain [78] was directly attributed to inadequate training in psychosocial [73] and pain management [74] skills. Metacognitive and reflective skills were also reported as receiving insufficient attention and observed to lag behind analytical and decision-making proficiency [98], particularly in early training [92].

4. Discussion

This review aimed to explore peer-reviewed primary osteopathic research to advance understanding of OPI and OPID. Attributes of OPI (Table 8) - values, beliefs and motives, experiences and behaviours - were extracted from reviewed papers and related to five domains of practice and education. Values, beliefs and motives were grouped due to ambiguities of terminology. For example, osteopaths' views about usefulness of clinical guidelines might be considered either beliefs or epistemic values [52], but are also motives in that they determine behaviour in terms of guideline usage. Tyreman's in-depth discussion of values [52] highlights the tautology that "a value only has value to the person who values it", and an example here may be the differing views around osteopathic principles - for some, these are valued as essence of osteopathic practice, whereas others regard them as beliefs which are subject to debate.

Table 8
Attributes of osteopathic professional identity extracted from primary osteopathic research.

Values, Beliefs & Motives	**Osteopaths value the importance of:** • touch as central for osteopathic interaction • rapport • trusting & accepting relationships • safe therapeutic space • sensitivity to patient needs • compassion • empathy • verbal and non-verbal communication • patient-practitioner information exchange **Osteopaths hold a range of beliefs regarding:** • causes of pain & dysfunction • predisposing & maintaining factors (prognostic indicators, barriers to recovery) • holism • strategies for patient care • transpersonal phenomena • role of osteopathic principles • usefulness of clinical guidelines & EBP • role in healthcare system • scope of practice • 'essential' osteopathic attributes & skills **Osteopaths' motives include:** • positive intention of one person to help another • facilitation of patient healing
Behaviours	**Osteopaths' behaviours include**: • multisensory & multifactorial data gathering • reflective practice • metacognition • a two-stage diagnostic approach • flexible management in response to changing patient factors • acceptance of uncertainty • use of multiple sources of osteopathic knowledge
Experiences	**Osteopaths' experiences are formative in that:** • socialisation facilitates *becoming* • experiences create practitioner role expectations & affect reactions to subsequent experiences • formal & hidden curricula influence what is taught and learned • educational & career experiences result in professional transitions over time

Terminology aside, domains suggested some attributes of OPI that are perhaps more widespread than others across healthcare. The TA domain demonstrated values likely to be universal in healthcare, including compassion, trust and intention of one person to help another. Other domains too revealed intra- and inter-professional similarities, such as clinical reasoning strategies, metacognitive behaviours [68,76] and barriers to evidence-based practice [108]. The "Role of OEIs" domain revealed PID influences also observed in other healthcare settings, such as impact of overt and hidden institutional practices, and socialisation as key to shaping one's professional identity [4,105].

Conversely, osteopathy-specific attributes included importance of touch for examination and treatment [80], use of an "osteopathic lens" and perception of osteopathy as "lifestyle".

Osteopathy has yet to explore many aspects of PI and PID. However, discussion papers on "osteopathic" values, philosophy, principles and education [25,40,49,52,96,100,109,110], as well as the few qualitative studies into OPI [23,24] have paved the way for further research. Further exploration of osteopathic socialisation may reveal impacts, both positive and negative, on students' developing OPI. Moreover, research into student, faculty and institutional perspectives around influences on OPI [91,111] might indicate whether these align, informing ongoing debates about underlying "osteopathic principles", objectives and practices within OEIs.

Clarkson and Thomson's findings about stages of OPI development also suggest need to investigate OPI transitions, when and why these occur and how students attempt to navigate them. Educational theories, such as threshold concepts [112], liminality [113] and identity

dissonance [4,6,20,114] provide possible analytical approaches here. Research might additionally explore inter-relationships between personal and professional identity, as well as incoming students' pre-conceptions [20,115] of osteopathy, both of which may impact students' developing OPI through receptiveness or resistance to experiences encountered [37] during and beyond training.

The fact that it was possible to identify attributes of OPI from such a diversity of studies, reiterates its importance for ways of *being* and *doing* in everyday clinical practice. Tyreman argues that professional behaviour is value-driven [52], in that decision-making depends on individuals' aesthetic, epistemic, ethical, ontological and pragmatic values. Moreover, "the habitual and judicious use of … values" is deemed essential for osteopaths' competence in their roles as ethical and reflective practitioners, lifelong learners, educators and health promoters [116].

Simultaneously, behaviour is both outcome, and input for, perception, cognition and other psychological processes [117]. In her studies of infants, Adolph [117] describes how behaviour becomes more flexible, adaptive, and functional through "error-filled practice" and parallels may perhaps be drawn with osteopaths developing their professional identity. *Being* and *becoming* thus require reflective skills and reflexivity for evaluating experiences as well as explicit and tacit professional behaviours, allowing progression from "peripheral" to "complete" participation in communities of practice [27,28].

Being an osteopath would seem to represent an array of OPI attributes, with a continuum of timepoints of *being* constituting a timeline of *becoming*. However, *becoming* an osteopath, is more than merely getting better at what we do. It involves ontological transformation, through ongoing changes to underlying beliefs and values, with our past shaping our openness or resistance to new encounters and, hence, opening up possibilities or acting as constraints for present and future behaviour [33].

Beliefs, values, motives, behaviours and experiences offer points of entry for further exploration of OPI and, whilst each component may be *explored* in isolation, none *act* in isolation. Taking values as an example, research might investigate the nature of "osteopathic values" *per se* [52], or perhaps ask questions such as, "How do clinical role models impact students' epistemic values?" [51,67,87]. Equally, observation of behaviours may raise, or answer, questions about underlying values, for example "What can we learn about osteopaths' ethical values by observation of patient-practitioner interaction?"

4.1. Limitations of this review and directions for further study

This review suggests OPI attributes and indicates domains contributing to knowledge of OPI but does not aim to inform interventions or policies as, in line with scoping review protocol [55], quality or weight of evidence were not assessed. Whilst rigorous and trustworthy data collection, analysis and reporting were sought, and an appropriate checklist [118] used to guide manuscript production, work of a single author may result in "subjective interpretation" [54]. This may be compounded by the author's perspective as a UK-registered osteopath, reflected in language criteria and publication date threshold.

Inclusion criteria stipulating peer-reviewed primary research may have excluded other rich data sources. Extensions of this study might include analysis of reviews, published and unpublished theses, professional magazines, internet-based resources such as organizational websites and social media, and a broader timeline. Additionally, perceptions of OPI amongst patients, wider public and other health professions may offer insight as to whether these match osteopaths' self-perceptions and identity that the profession wishes to portray.

Further investigation might consider whether this review represents views of the wider osteopathic community, particularly as studies rarely made explicit their educational or osteopathic philosophical perspectives. Fig. 3 shows that studies included in this review represented a relatively small group of authors, many associated within subgroups and through editorial links with IJOM. Osteopaths engaged in research, or those who participate as research subjects, may have motivations not illustrative of those who are primarily clinicians. Furthermore, institutional norms and expectations for research conducted within OEIs may pose constraints on content and methodology, as may publication bias.

5. Conclusion

This review aimed to examine primary osteopathic research to advance understanding of OPI. Thematic analysis resulted in five domains, each illustrating osteopathic traits and debates, cohesion and conflict at individual and collective level.

Multiple studies in healthcare have shown benefits to individuals and professions when professional identity is actively managed through institutional practices and educational interventions. Trede et al. [119] discuss professional identity development in terms of generic and discipline-specific factors and, similarly, this review indicated some PI characteristics common within healthcare and others more distinctive to osteopathy. Findings from other fields may apply to osteopathy; however, only by researching OPI in our professional context may we harness this understanding to benefit individual osteopaths, the osteopathic profession and, indeed, our patients.

Returning to Cotton's questions, "Who are my brothers and sisters? … Are they like me?" [25], this review produces few definitive responses. Scope for diversity in osteopathy exists within regulatory requirements and, as a profession, we have unresolved and deep-seated tensions which challenge perceptions of our collective identity. Tyreman [52] rightly advises us to engage in "deep reflection, to ask searching and potentially disturbing questions about the nature of osteopathic practice" to provide opportunities for introspection and change [120]. Ultimately though, optimal patient care depends more on osteopaths' capacity for self-reflection and receptiveness to change than ideological harmony.

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