A Pilot Study of the Fundamental Elements of Osteopathic Diagnosis as Currently Taught in the Osteopathy Course at Victoria University.

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ABSTRACT

Historically, osteopathic diagnosis used concepts such as the osteopathic structural lesion (OSL), or somatic dysfunction. However, these osteopathic concepts are poorly understood by other health professionals. As a result, there has been pressure on the profession to adopt a more "orthodox" style of diagnosis. Unfortunately, osteopaths often deal with dysfunctional, rather than pathological states. In addition, recent research has called into question the validity and reliability of many of the tests commonly used in osteopathic diagnosis.

This study investigated how clinicians and teaching staff at Victoria University (VU) currently write diagnoses. Results indicated that most subjects had moved away from traditional osteopathic diagnostic models, and felt it important to identify "tissues causing symptoms", despite the lack of reliability of tests aiming to achieve this. There appeared to be no relationship between years of experience and any change in the way subjects write diagnoses. It was also noted that subjects' opinions differed in many cases from what is actually taught in the course.

This raises the question of whether the model taught at VU for writing diagnoses needs to be revised to reflect current research and actual clinical practice.

KEYWORDS

Osteopathic diagnosis, osteopathy, diagnosis, osteopathic structural lesion, somatic dysfunction.

INTRODUCTION

Diagnosis is fundamental to all medical practice. Diagnosis is described by Dorland's Medical dictionary as:

1. The determination of the nature of a cause of disease; and
2. The art of distinguishing one disease from another.[1]

Any diagnosis is based upon a thorough history, a physical examination and appropriate laboratory tests. Osteopathic diagnosis is similar in that the osteopathic practitioner does a standard physical examination, but also differs in that it includes palpation and motion testing of the musculoskeletal system that is different from the standard orthopaedic examination.[2] Osteopathic diagnosis is also determined by the osteopathic philosophy, making the practice of osteopathic medicine unique and different.[2] There has been little work done on ascertaining the required constituents of a diagnosis in Osteopathy, and for that matter in any other manual therapy profession. Consequently, there is minimal literature on osteopathic diagnosis and its fundamental elements.

Historical perspective – the traditional osteopathic model of diagnosis

Osteopathic medicine is based on a medical philosophy first proposed by Dr. Andrew Taylor Still in 1874.[3] His new philosophy was derived from both ancient medical beliefs and contemporary medical ideas. He established the concept of the **osteopathic structural lesion** (OSL), which reportedly stems from Still's statement, "I mean by bony lesion a sufficient strain or dislocation to produce pressure and obstruct the normal discharge of nerve and blood supply."[4]

The OSL is defined as 'a perversion of function of certain vertebral segments, and from this alteration abnormal visceral reflexes may ensue.' [5] Cole describes the cause of the lesion as not simply a disturbance of function in vertebral segments, but also including almost every factor that has damaging effects, which can be summed up under the headings (A) traumatic factors and (B) reflex or toxic factors.[5]

The term somatic dysfunction later replaced the term OSL.[6] Somatic dysfunction refers to a condition of the musculoskeletal system that is recognized exclusively by the osteopathic profession. The customary definition in the *Glossary of Osteopathic Terminology* is as follows:

> *'Somatic Dysfunction is an impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial and myofascial structures, and related vascular, lymphatic, and neural elements.'*

A somatic dysfunction is diagnosed using specific criteria, known as A-R-T. [6]

A – for asymmetry. Asymmetry of related parts of the musculoskeletal system. Either structural or functional asymmetry of the vertebra.

R – for range-of motion abnormality. Alteration in range of motion of a joint, several joints or a region of the musculoskeletal system.

T – for tissue texture abnormality. Alteration in the characteristics of the soft tissues of the musculoskeletal system (skin, fascia, muscle, ligament) is determined by observation, palpation and percussion. [2, 6, 7]

Some practitioners use the mnemonic TART, T – tenderness, or STAR, with sensitivity replacing tenderness,[2] thereby using the patient's own perception of 'tenderness' or 'sensitivity' as part of their diagnosis. Although these mnemonics are

very generalised descriptions for the diagnosis of a somatic dysfunction they do indicate some of the important subcomponents.

An important characteristic of both the osteopathic lesion and somatic dysfunction concepts is that neither is a pathological process or disease entity of the sort recognised by orthodox allopathic medical practitioners, and this is an important issue for the writing of diagnoses. Whereas orthodox medical texts appear to assume that a diagnosis will be of a pathological nature, osteopaths are dealing with states of dysfunction in which a pathological process may not be readily identifiable.

The medical model of diagnosis

Diagnosis in orthodox (i.e. non-osteopathic) medical practice is essentially a problem solving exercise.[8] The process entails health professionals drawing on their existing knowledge and what they learn from the patient verbally or from observation. They then formulate hypotheses, test the hypotheses, and determine a working definition of the problem.[8]

Bickley, [8] describes medical diagnosis as based predominantly on "identifying abnormal structures, disturbed processes, and specific causes." [8] The diagnostic model consists of a number of steps:

1. *Identify the abnormal findings* – from the symptoms that are described by the patient, the signs that are observed by the practitioner on physical examination, and any laboratory reports that may be available to the practitioner.

2. *Localise these findings anatomically* – taking into account referral patterns, and considering some symptoms and signs, such as fatigue or fever have no localising importance.
3. *Interpret the findings in terms of the probable process* – identify the pathological process involved.
4. *Make one or more hypotheses about the nature of the patient's problem* – make a list of differential diagnoses, eliminate the diagnostic possibilities that do not explain the findings and select the most likely diagnosis.
5. *Test the most likely hypothesis* – by further history questioning, physical examination, or laboratory studies to confirm or rule out the tentative diagnosis.
6. *Establish a working definition of the problem* – attempting to define the problem in terms of anatomical structure, pathological process, and cause, which may not be possible in all cases. [8]

The orthodox medical diagnosis currently aims to either identify a pathological process or known disease, and to identify the affected organs or tissues which are the cause of the patient's symptoms.

Making an accurate pathological diagnosis is vital in medicine as it permits optimum treatment. The orthodox model of pathological diagnosis clearly has problems, however, when it comes to the diagnosis of musculoskeletal conditions. Musculoskeletal dysfunctions are often diagnosed by the use of 'descriptive labels,'[9] such as 'tennis elbow,' 'shin splints,' and 'frozen shoulder.' These descriptions are

not pathological diagnoses, but rather simple symptom descriptors, a fact which highlights one of the difficulties faced by practitioners of musculoskeletal medicine.

Difficulties faced by practitioners of manual medicine

Osteopaths and other manual medicine practitioners often face difficulties in diagnosing a musculoskeletal dysfunction. Part of the reason for this is that there is considerable variation in the criteria suggested for osteopathic musculoskeletal diagnosis. Student osteopaths are faced with a range that includes, as well as recognised pathologies and injury processes, dysfunctions with no clearly identifiable pathology, dysfunctions with multi-tissue and multi- system involvement, and dysfunctions with multiple causes. This range may explain the difficulty in obtaining a satisfactory model of osteopathic diagnosis.

There are instances where it may be impossible to make a precise pathological diagnosis. In the case of a patient with lower back pain, the exact source of the pain is often difficult to isolate. In some cases of lower back pain it is possible to exclude certain causes (e.g. spondylolysis, spondylolisthesis), whereas in some cases only areas of focal tenderness, altered soft tissue consistency or restrictions in range of motion can be identified. With presenting problems such as this, treatment will be dictated by the abnormal findings. "How the treatment affects signs and symptoms may be the only way to determine how each particular abnormality contributes to the overall picture." [9] "Skill in diagnosis depends on knowing *what* happens rather than *why* events happen." [10]

Robin McKenzie [11] challenged this idea. He believed that a precise diagnosis for non-invasive therapy (i.e. Osteopathy, Physiotherapy) is not necessary for treatment, as

"problems exist concerning the value of a structural diagnosis." He argues that all that is needed is a general understanding of musculoskeletal tissue behaviour in health and pathology and the implications this has on management.[11] "What difference will a diagnostic label of structural pathology make to the treatment process?" [11] McKenzie believed that knowing which structure is the cause of the pain is purely for academic reasons and not necessary for treatment to occur. [11]

Medico-legal issues

While McKenzie's view may hold true for the realities of treatment, the increase in medical litigation has had an impact on the content of a diagnosis. This is primarily driven by the requirements of the courts to be able to identify specific tissues and pathologies for the purpose of establishing compensation.

In medico-legal cases the amount of compensation is usually determined on the basis of diagnosis and prognosis, and an accurate prognosis is dependent upon the nature of the injury or disease process, a knowledge of the tissues or organs involved, an assessment of the patient's underlying health, and a knowledge of any predisposing, aggravating and/or maintaining factors. The increasing prevalence of litigation has led to pressure on all the manual medicine professions to develop models of diagnosis and prognosis which match the needs of medico-legal professionals, and which are comprehensible to medical lawyers and other health professionals.

Current VU guidelines for osteopathic diagnosis

Diagnostic guidelines for musculoskeletal dysfunctions that have been taught to Osteopathic students at Victoria University of Technology are as follows. Students are expected to try to identify:

- SITE – exactly where the patient has the problem
- TISSUES CAUSING SYMPTOMS and process occurring to cause the symptoms.
- PATHOLOGICAL STATE/NATURE OF THE PROBLEM – i.e. Acute or chronic, stage of pathogenesis of the problem.
- AETIOLOGY – the factors involved in the causation of the problem
- PREDISPOSING FACTORS – what factors have led to the injury occurring.
- MAINTAINING FACTORS – what is maintaining the condition and preventing it from improving. [12 13]

Similar points are covered in Bickley and Hoekelman's Guide to a Physical Examination and History Taking, [8] demonstrating that what is taught at VU is similar to the medical model of diagnosis.

These points are not documented in any Osteopathic textbooks, but have been developed by VU teaching staff. A search of osteopathic texts reveals that, apart from older texts such as those by Still [2] which refer to diagnosis only in terms of osteopathic lesions and somatic dysfunctions, and technique texts such as Johnston and Friedman [14] and Jones, [15] which adopt diagnostic procedures specifically designed for use with the techniques taught, none of the major current general osteopathic texts such as Di Giovanna and Schiowitz [6] actually make any detailed reference to how an osteopathic diagnosis should be written.

Summary

Most of the literature cited places great emphasis on the importance of a diagnosis and the necessity of a thorough history to achieve the most accurate diagnosis. However, the actual writing of a diagnosis, and the fundamental elements of a diagnosis are both poorly described and documented in the same material. The literature reviewed consisted mainly of opinions of practitioners derived from their own experiences, and there was no clear consensus. This study therefore aimed to investigate the views of clinicians and lecturers in an osteopathic teaching institution about what they felt were the required elements of a diagnosis. The research may be used as a basis for further investigations in other institutions, with a view to arriving at a consensus throughout the profession.

METHODOLOGY

Method Rationale

The method involved collection of descriptive data, rather than interval-ratio quantitative data, therefore a qualitative research methodology was an appropriate choice.

An interview method was appropriate in this study because the participants were allowed to discuss their ideas and views on the crucial elements that were necessary to the writing up of an Osteopathic diagnosis. Holstein [16] cites the interview as the most appropriate means of collecting information on events or phenomena which are not readily observed.

The aims of the study were limited to obtaining and identifying the views of the participants, in order that the information gained could be used a possible basis for further research into the reasons for, and the factors underlying the opinions given.

Participants

The sample group for this study consisted of 15 clinicians at the Osteopathic Medicine clinic at Victoria University, and three lecturers responsible for classroom teaching of Osteopathic Science at Victoria University.

Selection Criteria:

Purposive sampling was undertaken of all participants who were directly associated with teaching and implementing standards and boundaries for students writing

osteopathic diagnoses, as set out in the Osteopathic Science subject outlines contained in the Faculty of Human Development Handbook.[17] The participants were chosen because they were likely to be informative about the particular topics investigated, not because they would necessarily be representative of a larger population.

Procedures

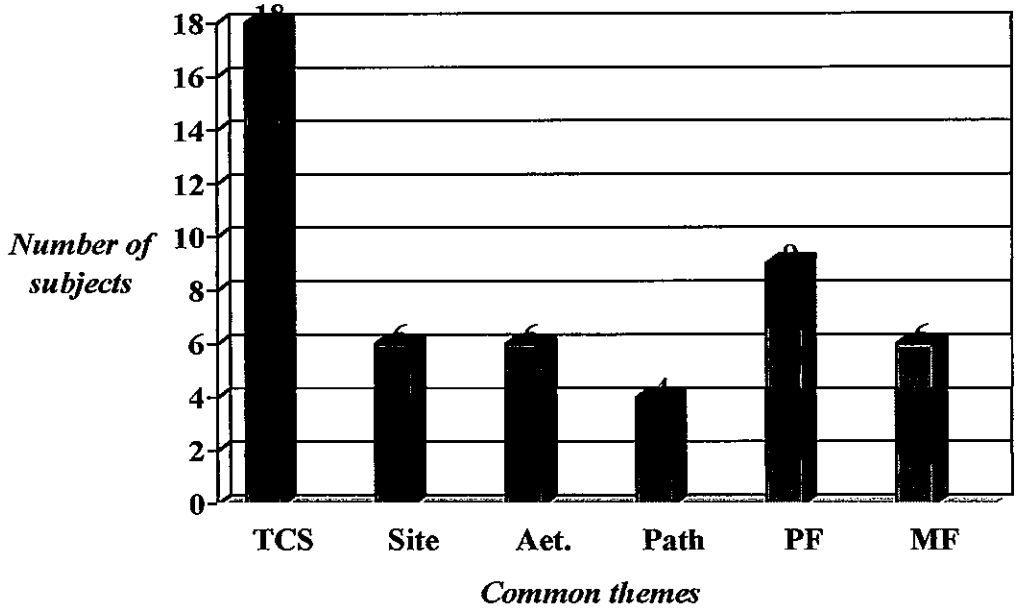
The group of 15 clinicians at the Osteopathic Medicine clinic at Victoria University and the three lecturers responsible for classroom teaching of Osteopathic Science at Victoria University, were invited to participate in individual structured interviews regarding the fundamental elements of an osteopathic diagnosis. The interviews were recorded using a hand-held tape recorder. The tapes were subsequently transcribed verbatim.

The data was analysed using thematic analysis (a descriptive qualitative approach) in which the researcher reviewed the transcriptions and identified common themes and ideas. In theme identification, the researcher was looking for particular patterns, themes, or responses that were repeated in the interviews by the participants. Once identified, the common themes and ideas were coded and the dominant themes were ranked according to the frequency of response. [18] This data is displayed in graphs and tables in the results section. Verbatim quotations have been presented in the discussion to provide a clear indication of the participants' ideas.

RESULTS

Graph 1 - Definition of diagnosis

Question – "How do you write and construct an osteopathic diagnosis?"



TCS = Tissue causing symptoms Aet. = Aetiology Path = Pathology

PF = Predisposing factors MF = Maintaining factors

Table 1 – *Change with experience*

Question. "Do you still write diagnoses according to what you were initially taught?"

Years of experience	YES	NO
1		1
2	1	
3	2	1
4	1	
5	1	2
6	1	
7		
8		2
9		1
10		1
11-15		1
16-20	2	
21-25		
26-30		
31-35	1	

Table 2 – *Change with experience by university of qualification*

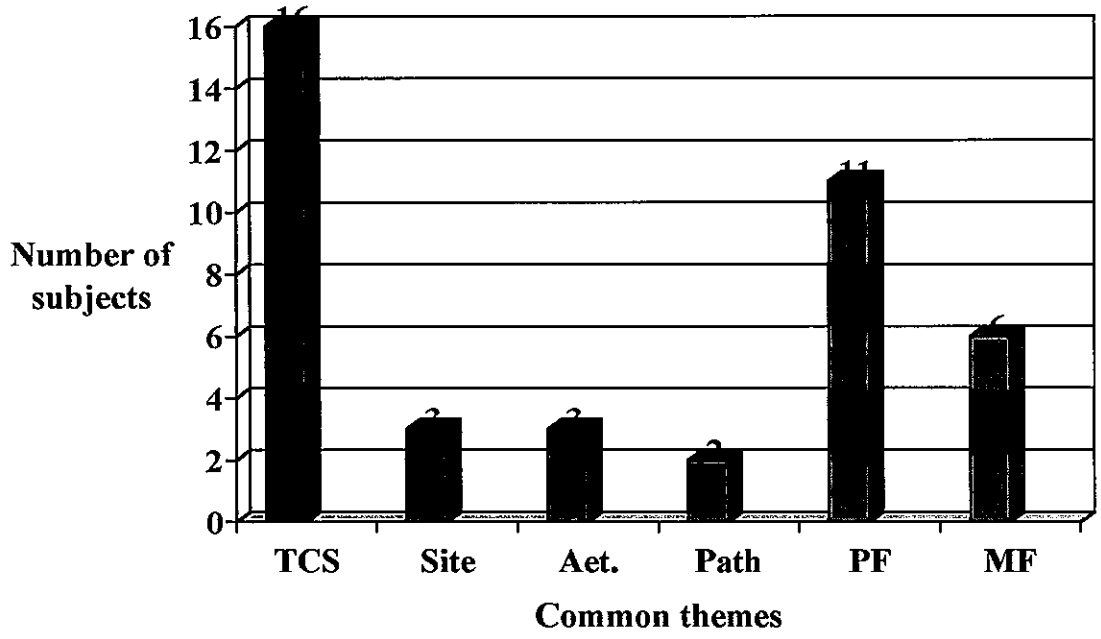
University	YES	NO
VU	4	5
RMIT	5	1
BSO	0	3

VU = Victoria University RMIT = Royal Melbourne Institute of Technology

BSO = British School of Osteopathy

Graph 2 – *Crucial Elements*

Question. "What do you believe to be the most crucial elements in the write-up of an osteopathic diagnosis?"



TCS = Tissue causing symptoms Aet. = Aetiology Path = Pathology

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DISCUSSION

1. Definition of Diagnosis

All the participants were asked 'How do you write and construct an Osteopathic diagnosis?' The intended purpose behind this question was to ascertain the participants' views of what an osteopathic diagnosis should be. However, participants chose to answer the question in terms of what a diagnosis should contain, rather than giving a simple definition. As a result, there was some overlap between the results for this question and those for question 3, indicating a possible problem with the phraseology of the question. The questions were piloted prior to use by being administered to osteopathic staff members not participating in the actual interviews, but this problem did not arise in the pilot interviews that were conducted. The major theme that was discussed was the need to identify 'Tissue Causing Symptoms," and this was cited by 100% of participants. The second major theme was 'Predisposing Factors," mentioned by 50% of the sample group. Other themes that were collectively mentioned by 33% of the subjects were 'Site,' 'Aetiology,' and 'Maintaining Factors.' 'Pathology' of the tissues was stated by 22% of the participants.

Perhaps the most interesting point about the answers to these questions was that none of the participants interviewed indicated that they would use traditional osteopathic concepts such as the OSL or somatic dysfunction as primary components of a diagnosis. This would appear to indicate that the trend towards more "orthodox medical" styles of diagnosis has become well entrenched in the profession.

All of the diagnostic themes mentioned are taught at Victoria University (VU), but without any weighting of importance given to any of them. It was, however, clear from the interviews that clinicians and academics appear to assign different weightings to the importance of the various diagnostic components identified.

The majority of the subjects interviewed placed particular importance on tissues causing symptoms and predisposing factors, "I try and find the source of the pain, so the tissue that's causing the pain, and pretty much write that down as my diagnosis, and construction of it includes predisposing and maintaining factors." [19]

2. Change with experience

Interviewees were asked, "Do you still write diagnoses according to how you were initially taught?' 50% of the participants replied 'Yes,' they had modified their approach to writing diagnoses, and 50% of the participants replied 'No,' they had not modified their approach to writing osteopathic diagnoses.

There was no apparent relationship between increased years of experience and modification of the write-up of diagnosis. It was hypothesized that with increasing years of experience osteopaths might change their approach to diagnostic write-up. In fact, the opposite was found to be the case, as the three subjects who had practiced for the longest, 17 to 34 years, said they had not modified their approach to writing osteopathic diagnosis at all. Each of these subjects had graduated from the British School of Osteopathy (BSO).

This latter result in particular was interesting. All of these practitioners graduated at a time when an "orthodox" medical style of diagnosis may not have been the norm in the osteopathic profession as a whole, and yet their answers suggested very similar views to those of the other participants. One may speculate that this may indicate one of two things – either that the BSO was moving towards a non-traditional style of diagnosis much earlier than other institutions or other practitioners, or that the practitioners concerned may have modified their method of writing diagnoses, but were reluctant to admit to this fact. This could possibly be clarified by further investigation of the BSO syllabus for previous years, if indeed the syllabus contained information on the teaching of diagnostic models. However this would be a topic for further study and is beyond the scope of this current investigation.

3. Change with experience by school of qualification

Of nine VU graduates, four said they had changed their method of writing diagnoses with experience. Five out of six RMIT graduates reported they had changed their method of writing diagnoses with experience. As previously discussed, all three BSO graduates explained they had not changed their method of writing diagnoses with experience. It could be postulated that the higher percentage of RMIT graduates who said they had modified their approach may reflect the fact that they had, in the main, graduated earlier than the VU graduates, and may have been taught a more traditional osteopathic approach to diagnosis, whereas VU has adopted an "orthodox" model from an early stage in the development of the course. Again this could possibly be clarified by further investigation of the RMIT syllabus for previous years and would be a topic for further study.

4. Crucial elements

The participants were asked 'What do you believe to be the most crucial elements in the write up of a diagnosis?' "Tissue causing symptoms" was mentioned by 88% of the participants as being the most crucial element. 72% of participants mentioned predisposing factors. 33% of the subjects mentioned maintaining factors. Site and aetiology was cited by 16% of the subjects.

The emphasis placed on identifying tissues causing symptoms was a point of interest. While it certainly is in accord with VU teaching on diagnosis, recent research has called into question the ability of manual medicine practitioners to accurately identify specific tissues in testing. Evidence-based Guidelines for Acute Low Back Pain suggest that, except where radicular pain is present, it is usually impossible to specifically identify the tissues involved. [20]

In addition, many of the tests osteopaths use in practice have been demonstrated to be unreliable.

For example, studies of tests used for sacro-iliac dysfunction have shown that many of them have limited reliability and validity. [21, 22] As a result, the belief that a specific tissue should be identified may not always be clinically justifiable. The obvious implication of this is that the emphasis placed on this point in VU guidelines may need to be reconsidered.

5. Clinicians versus lecturers

There were no distinguishing factors in the overall results between the lecturing staff and the clinicians. It was anticipated that lecturing staff would describe diagnosis

very closely to what is taught to students at Victoria University in lectures on Osteopathic Science, and that there may be more variation among the clinicians. However, this proved not to be the case. This may indicate a very high degree of general agreement with the diagnostic guidelines as taught. However, analysis of the findings suggests otherwise. The VU guidelines do not place different weightings on points such as maintaining factors and aetiology, but it was clear that most participants rated these as less important, due to the infrequency of these points mentioned. The implication may be that all participants, whether clinicians or lecturers, had areas of disagreement with the current guidelines. If so, this is clearly a matter for discussion between the course planners at the university and the clinical staff.

CONCLUSION

The results indicate that, whatever the variances in their individual views, all of the osteopaths interviewed had moved away from traditional osteopathic methods of diagnosis based on OSL and somatic dysfunction towards a model which is more medical in nature. This may have occurred due to medico-legal reasons. However, despite medico-legal issues possibly influencing patterns of diagnosis, many participants did not feel that a diagnosis should include an analysis of predisposing and maintaining factors, even though these are clearly related to prognosis, an important factor in litigation. For example, "I probably don't focus so much on the maintaining and predisposing factors." [23]

In addition, the emphasis placed on the need to identify specific tissues was an area of interest, given the recent research that calls into question the ability of osteopaths to accurately do this.

One conclusion that may be drawn from this study is that the VU diagnostic guidelines may need to be reconsidered both in the light of research findings and the obvious disagreement of some staff with the current guidelines.

LIMITATIONS TO THE STUDY

This study had a number of limitations. There were only 18 participants, which is a very small percentage of the Australian osteopathic population. The opinions offered cannot therefore be regarded as statistically representative. Further the study concentrated on VU clinical staff, so may not represent the views of the overall Australian osteopathic population. However, the staff included a broad cross-section of graduates of different colleges, and given that the vast majority of current Australian practitioners are either VU, RMIT or UK graduates (mostly BSO, though other UK colleges are also represented), this may be less of a problem.

Another limitation to this study was the recorded interview process, as this may have led some subjects to report to the interviewer what they thought was expected of them, rather than their genuine views. The first question on definition of diagnosis may also have been poorly phrased.

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APPENDIX

INTERVIEW QUESTIONS FOR RESEARCH

Where did you complete your Degree in Osteopathy?

What year did you graduate?

How do you write and construct an Osteopathic diagnosis?

Do you still write diagnoses according to what you were initially taught?

Have you modified your approach to writing diagnoses since you qualified?

What do you believe to be the most crucial elements in the write up of an osteopathic diagnosis?