

IN BRIEF

- Readers will understand the nature of primary care difficulties in the management of temporomandibular disorders (TMD).
- Readers will understand the basis of management of TMD and the biases it is liable to.
- Readers will be aware of the potential for mismanagement of TMD due to the lack of good quality evidence.

'Management is a black art' – professional ideologies with respect to temporomandibular disorders

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Objective To gain a deeper understanding of the range of influences on the full range of dental professionals who provide treatment for temporomandibular disorders (TMD).

Design Qualitative semi-structured interviews.

Setting Primary and secondary care in the North and South of the United Kingdom.

Sample and method A criterion-based purposive sample was taken of dental practitioners, comprising primary and secondary care practitioners. In-depth interviews were conducted and data collection and analysis occurred concurrently until data saturation was achieved.

Data and discussion There was a reported lack of adequate remuneration for provision of treatment for TMD within primary care. This alongside the primary care practitioners' reported uncertainty in diagnosis of TMD appeared to lead to a propensity for referral to secondary care. Practitioners recognised a poor and scanty evidence base on which to base their care, and this allowed for idiosyncratic practice. Often the outcome measure for treatment was a subjective questioning of the patient focussing mainly on relief of pain.

Conclusion There is a need for better quality evidence on which to base TMD treatment, more continuing professional development and improvement in contracting arrangements to enable primary practitioners to feel confident in managing TMD.

INTRODUCTION

There is no 'gold standard' approach to treating temporomandibular disorders (TMD) and treatment strategies vary from lifestyle changes, physiotherapy and simple pain relief, through

to the provision of specially made splints, the use of specific medications, adjustments to the occlusion, complementary therapies and occasionally even surgery. Often the approach to treatment seems to include many of these approaches in a seemingly random order with no underlying strategy. There is some reasonable evidence for the efficacy of different treatments, but often this is confusing and difficult to quantify. There has been an attempt to ascertain practitioners' attitude towards TMD utilising quantitative techniques. Tegelberg *et al.*¹ examined clinicians' attitudes towards TMD in adolescents and two separate research teams^{2,3} have also examined attitudes towards adults with TMD. However, given the likely complexity of the influences, quantitative studies based solely on researchers' perceptions of what dentists think, do not allow us to fully understand what is going on. This study has used a qualitative approach to gain a deeper understanding of the attitudes and experiences of a range of dental professionals who provide clinical care to people with TMD. If we are ever to achieve a rational, consistent and evidence-based approach to managing TMD it is important that we know and understand where we are starting from.

SAMPLE

A criterion-based purposive sample was taken of dental practitioners comprising primary and secondary care dental practitioners. These were taken from the North and South of the United Kingdom, as we hypothesised that there might be differences in practice as a result of socio-geographical influences. Where possible we interviewed individuals distant from academic institutions as well as those from within, to ensure a breadth of views. Table 1 shows the identification method, the inclusion criteria and numbers of each practitioner type included in the sample. From experience⁴ it was felt that given the range of professionals involved, approximately twenty interviews would be necessary for saturation to be achieved. Saturation is deemed to have occurred when no new ideas or themes can be identified from the data; in this study this was achieved after eighteen interviews.

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Table 1 Outline of selection criteria for sample

Primary or secondary care	Type of practitioner	Identification and selection criteria	North	South	Total
Primary	New GDP (NGDP)	GDPs less than five years qualified at the time of interview and with no further accredited postgraduate qualification were identified from the GDC register	1	1	2
	Experienced GDP (EGDP)	GDPs greater than five years qualified with or without further qualifications were identified from the GDC register	1	1	2
	Special interest GDP (SIGDP)	GDPs were identified from the membership of the British Society for Occlusal Studies	2	0	2
Total					6
Secondary	Oral medicine (OM)	Consultants in oral medicine were identified from the British Society for Oral Medicine's register	1	1	2
	Oral and maxillofacial surgery (OMFS)	NHS and academic consultants were identified from the British Association of Oral and Maxillofacial Surgery	5 (2 academic, 3 NHS)	2 (1 academic, 1 NHS)	7
	Restorative dentistry (RD)	NHS and academic consultants were identified from the Association of Consultants and Specialists in Restorative Dentistry's register	2	1	3
Total					12
Cumulative total					18

METHOD

Once the sample was identified, dental practitioners were invited to take part in an in-depth interview by a standard letter with accompanying reply and consent form which was posted to their listed address on the appropriate register. If the offer was declined, the next individual that fitted the criteria alphabetically was contacted. The topic guide was not given to any participant prior to their interview.

Semi-structured interviews were used in this study. This method allows for certain key areas to be explored through the use of open-ended questions, whilst at the same time being flexible enough to allow for the exploration of new topics not anticipated at the outset of the study. As interviews progressed, the topic guide evolved according to data gathered. This was an inductive piece of research, with data collection

and analysis occurring concurrently. Earlier interviews and their subsequent analysis informed later ones, thus allowing for a detailed exploration of all emergent themes.

The semi-structured in-depth interviews took place in a setting of the interviewees' choice, and at a convenient time for them. All distractions were minimised for an hour, although most interviews took between twenty-five to thirty minutes. All the interviews were undertaken by the same interviewer (JD), after appropriate extensive training. The interviews were digitally recorded and professionally transcribed verbatim. Once transcribed and checked by the interviewer the recordings were destroyed. Two of the authors (JD and CE) reviewed the data and coded it appropriately utilising a framework⁵ to help organise the data.

Ethical approval was granted from the Eastern Multi-centre Research Ethics Committee and a grant obtained from the Newcastle Healthcare Charity to afford the General Dental Practitioners (GDPs) reimbursement for their time at the British Dental Association guild rate (£74/hour), and to cover travel and transcription costs.

DATA AND DISCUSSION

As is customary with qualitative research, the data are presented with the discussion to allow development of theory alongside the data.

Three major themes emerged from the data, these related to:

1. Practitioners' perceptions of TMD
2. Practitioners' rationale for interventions used
3. Practitioners' measure of clinical outcome.

Sub-themes developed within each theme, but for the basis of this paper we will discuss, in largely generic terms, each of the three major themes. Quotations will be used to support the developing theory and these are representative of the recurring themes. The reference in parenthesis after each quotation contains the speciality of the practitioner (see Table 1) and a numeric reference to their study number. The sampling included practitioners from the North and South of England, but in terms of the general perceptions no discernable recurrent differences were noted.

Practitioners' perceptions of TMD

When discussing TMD, practitioners tended to view it as an entity in its own right, rather than as a group of sub-classifications. Their perceptions of TMD fell into two broad areas: the perceived aetiology of the condition and their perceptions of the patient. There was widespread variation of opinion on the aetiology of TMD. The only agreement was related to a pivotal role of bruxism and stress in propagating or causing TMD. In addition to these, behaviours such as '*telephone holding in strange ways*' (OMFS 3) and '*sleeping position*' (SIGDP 4) were amongst some of the many purported causes given. This variation seemed to have a concomitant effect on the explanations practitioners were able to give patients for their condition, which again varied widely, as is illustrated below.

'I think it can be quite a distressing condition but in turn I think distress can actually exacerbate or somebody would say, cause the condition... So you get into this vicious circle of what causes what' (OMFS 3).

'...I think it's quite easy to explain a mechanical problem of

disc displacement to a patient if you take your time over it and you would handle it carefully... But the bit that gets difficult is why the problem has arisen because I don't think we know the answers to that. And that's when it gets difficult. So I normally end up telling people what I think that the theories are' (RD 8).

This ambiguity in the aetiology of the condition did not lead to a negative opinion of the patient. In contrast, practitioners empathised with the patient but did view the condition negatively; they felt it was difficult to treat, and in primary care there was an issue with the time taken counselling the patient, time that was ill recompensed. The incumbent fee-per-item system operational at the time had previously been shown not to reward complex or time intensive treatment.^{6,7} This is also supported by the primary care practitioners' assertions in this study.

'No I think that they, occasionally you open a large can and sometimes it takes quite a long time to talk through' (EGDP 10).

'I think the treatment of TMD is a very difficult subject to actually approach and unless you get a specialist who specifically likes the treatment of TMD problems, you tend not to get very far anyway' (EGDP 13).

Practitioners' rationale for interventions used

In terms of management of TMD, there was generalised agreement on the need for an initial conservative approach, the constitution of which varied but tended to include some or all of the following: diet/habit modification, physiotherapy, appliance therapy and non-steroidal anti-inflammatory drugs. The primary care practitioners expressed a fear of making a misdiagnosis of TMD and reported a low threshold for referring the patient on to secondary care as a safety net to rule this out. It is likely that this is due in some part to the uncertainty of the aetiology, or their level of education with respect to TMD, an issue which both primary and secondary care practitioners acknowledged. The lack of education described by primary care practitioners may be due to a lack of good quality evidence⁸⁻¹⁰ upon which to base practice. This lack of evidence-based practice has led primary care practitioners indirectly to report that they utilise the 'rule out the worse case scenario'¹¹ approach, referring possible TMD patients to hospital as a safety net. This approach is a heuristic, 'a rule of thumb'. Heuristics are always liable to bias and more so in conditions of uncertainty.¹² In the case of the primary care practitioners, they tended, indirectly, to report a regret bias.¹¹ In other words, they over-estimate the probability of a diagnosis with a severe outcome due to the problems that might result if an important diagnosis were missed.

'I'm always terrified that I try to do something and really they should be seen by doctors and have their symptoms investigated elsewhere' (SIGDP 4).

'...I might decide that maybe it's the best that they're seen by someone who knows what they're doing rather than someone who's just trying to guess' (NGDP 14).

There was a general reported reluctance in primary care to embark on more complex treatments on the NHS. This appeared to be due to the potential for financial difficulties under the

fee-per-item system in place during this study, although this may also be attributed to their uncertainty and a tendency towards dental orthodoxy.¹¹ Primary care practitioners expressed dissatisfaction with the need to apply for approval for a splint, hard or soft, and the lack of remuneration for the time TMD patients require.

'It's the difficulty with having to write for approval... money comes down to it at the end of the day in General Practice and people need to know what they're taking on [the cost of a lower soft splint] ...I can't understand why the GDS doesn't have a simple code for making a splint' (EGDP 10).

'...A hard splint now, it's an item you can't get done on the NHS. There will be a fee for it but you can't get a lab who will make you one for a reasonable price. So you're stuck with, you generally have to offer it as a private thing because the lab fee would be more than the fee would be from the NHS.' (SIGDP 17).

Nevertheless, it should be emphasised that suitably trained general practitioners can be very successful at managing TMD,¹³ but without adequate remuneration it is questionable that their enthusiasm to continue managing TMD can be maintained.

Secondary care practitioners tended to convey the opinion that primary care could and should be doing more of the initial management of TMD. At present, this apparent discrepancy between primary and secondary care regarding the ownership of initial management of TMD may result in a patient not receiving appropriate care. In a sense, it seems that none of the groups are particularly comfortable taking responsibility for the care of TMD patients. Well targeted continuing professional development courses covering TMD may help some primary care practitioners by allowing them to initially manage TMD with confidence.

'I think that initially the, you know, patients who present to the general dental practitioner with some complicated stress overload, TMJ syndrome, should and could be diagnosed and treated within primary care.' (OMFS 6).

'I think all the sort of baseline treatment that we do here and the diagnostic process is not specialist treatment. I think all that could happen in primary care.' (RD 8).

When secondary care practitioners were asked about their rationales for treatment, they all had experience to call upon which appeared to compensate for the uncertainty caused by the lack of evidence: *'...and consequently [I] kind of learnt on the job' (OMFS 6), '...management [of TMD] is a black art' (RD 2).* This experience-based practice was often idiosyncratic, and therefore it is likely that patients' experiences of care and treatment will vary significantly between different professionals. Due to the large variation in management provided between clinicians, it is not feasible to describe the wide variety of treatment protocols for individual diagnoses of the various sub-classifications of TMDs. However, there were general themes of treatment provided that appeared consistent with the type of training the specialist would have received. For example, oral medicine specialists tended to utilise pharmacological interventions, restorative dentists had a

tendency to concentrate on the occlusion and splints and the oral and maxillofacial surgeons had a multitude of approaches, which probably reflects their long and varied training in both medical and dental disciplines. These approaches inevitably started with simple conservative management, but also included various pharmacological approaches, bio-feedback, psycho-therapeutic techniques and the use of the pain clinic. The surgeons' consensus was that there are few indications for surgery in TMD and it was therefore extremely rare for them to perform any.

Biases also appear to occur in the surgeons' treatment decisions. The bias seems to be influenced by their experience and illustrates the possible subjectivity of experiential-based practice. A recurrently expressed example was the wish to do no harm with surgery, therefore again illustrating regret bias.¹¹ However, this approach to management also reflects the accepted maxim of providing conservative treatment, especially initially.

'I've seen disasters of people operating on TMJ. People with chronic pain come into hospital. Phoning in, coming in every week, being brought in and put into IMF just to quieten them down. Disasters. I've never had that disaster. I've never had a person like that in 25 years being treated conservatively' (OMFS 12).

The secondary care practitioners in general acknowledged the lack of evidence to base practice upon and reflected upon the possible misuse of the evidence as it stands. The concerns they expressed were the pursuit of possibly inappropriate irreversible treatments or non-evidence based treatments, thereby risking reinforcement of the patient's anxiety over their condition.

'There's very little good science in TMJ. There's a lot of witchcraft and there's a lot of opinion. And there are a lot of these evangelical factions propagating dubious scientific theories... The only thing that concerns me, as I say, is people that get irreversible interventions which ultimately are quite damaging.' (OMFS 6).

'If you embark upon a whole variety of different treatments none of which frankly have very much in the way of an evidence base to support their techniques, in my opinion you are reinforcing in the patient's mind that they do have a serious condition that is continuing to give them problems but that you are just unable to treat it.' (OMFS 9).

Practitioners' measure of clinical outcome

The lack of evidence to base practice upon within the literature has been accredited to the lack of a valid, reproducible outcome measure.⁸⁻¹⁰ This lack of an outcome measure was evident in our data. The practitioners' measurement of success tended to be a subjective questioning of the patient. The outcome desired is best summarised by the following quotation: *'As long as they're comfortable, that's all I want really... I'm not after a silky smooth joint or anything'* (NGDP 14). Unfortunately this could lead to the possibility of explicit or implicit coercion of the patient to admit a decrease in pain and then discharge them with no further thought to their other potential complaints.

'[Success is] a person who no longer needs to come and see me' (OMFS 12).

'Realising that it's perhaps never going to be cured' (RD 8).

Practitioners could play on the 'white coat phenomenon' either consciously or subconsciously to try and discharge perceived recalcitrant patients. Given that practitioners have already been proven to be poor at ascertaining quality of life changes in patients with similar chronic conditions,¹⁴ it would seem that this approach is problematic, and perhaps not in line with patients' needs.

SUMMARY

When considering TMD, it appears practitioners perceive it as a singular entity rather than a group of disorders with complex social implications. The lack of robust evidence currently available for the management of TMD, partly due to the lack of a valid and reproducible outcome measure, underpins an uncertainty in the diagnosis and management of TMD. In primary care the practitioners report a lack of education with respect to the condition and this, coupled with the lack of good quality evidence, leads to an uncertainty over diagnosis. The financial implications of TMD treatment in primary care further compound uncertainty and fear of misdiagnosis and appear to encourage referral to secondary care. Secondary care practitioners, in direct contrast, envisage that most of the initial management should have been initiated in primary care.

Within secondary care, the lack of evidence serves to create experiential-based practice, which the practitioners acknowledge. The secondary care practitioners seem more comfortable in their diagnosis and management of TMD compared to primary care practitioners due to their experience. However, the plethora of treatments prescribed would seem to suggest they too suffer from the same lack of evidence.

The dearth of high quality evidence, which has been reported elsewhere, is probably due in part to unreliable processes of determining success in the treatment of TMD. This subjectivity would seem to be central to encouraging the continued use of idiosyncratic experiential-based practice.

CONCLUSION

Our research identifies a series of problems resulting in difficulties with the management of TMD. Central to this is the lack of a valid reproducible outcome measure, which leads to difficulties in producing best quality evidence on which to base standardised practice. We feel it is important to stress that the real clinical difficulties and lack of consistency we have identified are a reflection of the lack of evidence, rather than the honest empathetic approach of the practitioners interviewed.

We can identify three areas that may require attention:

1. There is a need for better quality evidence on which to base management, including the development of a valid, reproducible patient-centred outcome measure
2. There appears to be a need for a primary care education initiative to help reduce practitioners' uncertainty. This could be based on diagnostic training, which has been shown to be successful previously
3. Dental contracting arrangements should allow appropriately trained primary care practitioners the ability, if they so wish, to provide initial management of TMD without financial penalty.

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1. Tegelberg A, List T, Wahlund K, Wenneberg B. Temporomandibular disorders in children and adolescents: a survey of dentists' attitudes, routine and experience. *Swed Dent J* 2001; **25**: 119-127.
2. Just J K, Perry H T, Greene C S. Treating TM disorders: a survey on diagnosis, etiology and management. *J Am Dent Assoc* 1991; **122**: 55-60.
3. Le Resche L, Truelove E L, Dworkin S F. Temporomandibular disorders: a survey of dentists' knowledge and beliefs. *J Am Dent Assoc* 1993; **124**: 90-94, 97-106.
4. McColl E, Smith M, Whitworth J, Seccombe G, Steele J. Barriers to improving endodontic care: the views of NHS practitioners. *Br Dent J* 1999; **186**: 564-568.
5. Ritchie J, Lewis J (eds). *Qualitative research practice. A guide for social science students and researchers*. London: Sage, 2003.
6. Linden G J. Variation in periodontal referral by general dental practitioners. *J Clin Periodontol* 1998; **25**: 655-661.
7. Morris A J, Burke F J. Primary and secondary dental care: how ideal is the inter-face? *Br Dent J* 2001; **191**: 666-670.
8. Al-Ani M Z, Davies S J, Gray R J, Sloan P, Glenny A M. Stabilisation splint therapy for temporomandibular pain dysfunction syndrome. *Cochrane Database Syst Rev* 2004: CD002778.
9. Koh H, Robinson P G. Occlusal adjustment for treating and preventing temporomandibular joint disorders. *Cochrane Database Syst Rev* 2003: CD003812.
10. Shi Z, Guo C, Awad M. Hyaluronate for temporomandibular joint disorders. *Cochrane Database Syst Rev* 2003: CD002970.
11. Croskerry P. Achieving quality in clinical decision making: cognitive strategies and detection of bias. *Acad Emerg Med* 2002; **9**: 1184-1204.
12. Hall K H. Reviewing intuitive decision-making and uncertainty: the implications for medical education. *Med Educ* 2002; **36**: 216-224.
13. Wassell R W, Adams N, Kelly P J. Treatment of temporomandibular disorders by stabilising splints in general dental practice: results after initial treatment. *Br Dent J* 2004; **197**: 35-41.
14. Holmes W F, MacGregor E A, Sawyer J P, Lipton R B. Information about migraine disability influences physicians' perceptions of illness severity and treatment needs. *Headache* 2001; **41**: 343-350.