MSc in Implant Dentistry

Factors that influence patient's decisions not to proceed with treatments involving dental implants in a primary care setting

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Declaration

I declare that the work in this dissertation is my own it has not been used before and has not been published.

No material has been used before writing this report. None of this material has been published.

Some of the interviews contained in this study are part of a Medical Research Council funded study at Newcastle University. Exley et al “Paying for treatments? Influences on negotiating clinical need and decision-making” Ref: G0500968.

Signed…………………………………………………………Date……………………………

Dr Ian Lane

Abstract

The placement of dental implants has been proven to be an effective replacement for natural teeth and that they may improve the retention and the stability of removable prosthesis. However the financial costs of dental implants are substantial. There is a common perception among dentists that the financial cost of dental implants is the only taken into account when a patient considers their clinical options. It is important that dentists understand how patients balance their clinical need and the dental implant treatment options with their own social, psychological and financial circumstances.

Methodology

This qualitative study was carried out using the research tool of semi-structured, in-depth interviews. Nine patients were purposively sampled with a range of characteristics. These patients had been referred to a primary care dental implant centre, had received a comprehensive assessment and a written treatment plan but had decided not to proceed with a treatment plan involving dental implants. A topic guide was used to support the interviews.

Analysis

The verbatim transcripts underwent a systematic analysis to develop key themes. These key themes were dental anxiety, financial costs, perception of need and access to dental implant services. Interpretation of the key themes has allowed the development of action points for the referring dentists, the implant centre and referred patients.

Results

The in-depth interviews provided the author with a range of views on factors that affect why patients chose not to proceed with complex dental implant treatment. These thematic illustrations are described in more details in the results section. The main barriers to patients up-taking dental implant care are, dental anxiety states, financial costs, perception of need and lack of access.

Conclusion

Professionals involved in the delivery of dental implant services have a responsibility to referred patients. These responsibilities are to ensure that all patients have all the appropriate information to make an informed decision about their dental implant care. The study also identifies ways to remove the barriers to dental implant care and to improve communication between the referring dentist and the dental implant service. Further work is required to improve access to dental implant care for those patients who have limited financial resources.

Abbreviations

PCT	Primary Care Trust
NHS	National Health Service
UK	United Kingdom
DwSI's	Dentists with a special interest
RCT's	Randomised Controlled trials
RM &G	Research Management and Governance
SSI	Site specific information
MRC	Medical Research Council
FDI	International Dental Federation
NRES	National Research and Ethics Service

Introduction

In western society the proportion of elderly people is rapidly increasing. This increase has lead to higher incidence of age related diseases for example, dental problems such as edentulousness. Loss of permanent teeth can also happen to younger people who suffer trauma and cancer or poor oral health. The latest United Kingdom (UK) figures from the Adult Dental Health Survey in 1998 showed 87% of adults had some natural teeth, while 13% had lost all their natural teeth (Kelly 2000). Among adults in all age groups under 45 years old, 1% or less had lost all their natural teeth compared with 58% of adults aged 75 years old and above (Kelly 2000). The solutions to edentulousness in the UK have been managed largely within the National Health Service (NHS) primary care dental services a cash limited service. Recently, patients in the UK have experienced greater choice for more complex dental treatment which is provided by primary care based, specialised dental surgeons working outside the NHS constraints.

The use of osseointegrated dental implants to replace missing teeth and to provide a platform on which restorative solutions can be achieved has a good evidence base (Allen, McMillan et al. 2001; Morris, Ochi et al. 2004; Esposito, Koukoulopoulou et al. 2006). However treatments involving the placement of dental implants are rarely covered by the NHS and only when the aetiology of tooth loss is related to congenital anomalies, trauma or cancer. These dental implant cases are treated in secondary care hospital environment. These hospital services have limited resources to supply dental implants. The alternative for patients who require dental implants is to privately fund their treatment and in this event the financial costs are high (Zitzmann, Sendi et al. 2005). Current evidence suggests that most edentulous patients would benefit from implant supported prosthesis. This mode of treatment has been proposed by the

"McGill Consensus" as the "minimal standard of care" (Feine, Carlsson et al. 2002), However, there are not enough resources available to enable this in the NHS.

Anecdotal evidence suggests that the biggest barrier to the uptake of dental implant treatment is the financial cost. However there is limited research material exploring why patients choose to proceed or choose not to proceed with treatments involving dental implants. Patients face complex choices and decisions as they seek to make sense of the treatment options and services offered to them by implant dentists. These choices include balancing clinical need with the potential benefits to their quality of life and an assessment of value for money.

This study aims to look at how complex treatment options are prioritised by patients, given their individual life circumstances, and why patients choose not to proceed with oral rehabilitation involving dental implants. A qualitative approach is required as there is currently limited sound research available in the area to formulate a conventional quantitative questionnaire. The background literature review undertaken in the next Chapter will look at the use of qualitative research in health care systems and will show some examples of how this research has been applied to dentistry. A review of the factors affecting patient uptake of complex treatment in dentistry will also be considered. In subsequent Chapters a description of the ethical approval process, the methods used and the collection of data will also be identified. The results will be described following a thematic analysis of verbatim transcripts taken from the purposefully selected sample. A discussion of the results, the conclusions that can be drawn from them and some reflection on this study will follow. Recommendations for further proposed work will be made. Advice to other

professionals on the factors that influence how patients make decisions for treatment involving dental implants need will be provided.

Some of the data collected for this dissertation will contribute to a wider Medical Research Council (MRC) designed study to investigate how patients and dental practitioners negotiate decisions about clinical need in relation to implant supported prosthesis (Exley 2008).

Literature review

Qualitative research

For many years, dental research has focused on quantitative research with a growing importance on the use of randomised controlled trials (RCT's) to prove clinical or laboratory based outcomes (Averley, Lane et al. 2004). In Sociology and health care medicine, however, qualitative research is used much more frequently. There is now a growing trend for qualitative research to be used in dental public health (Kay and Blinkhorn 1996) to explore topics that cannot be dealt with by traditional quantitative methodology.

Qualitative research aims to explore and obtain a deeper understanding of little known or complex clinical issues. Qualitative data can be obtained by several methods which include individual interviews or focus groups depending on the type of data collection required. Dentists routinely interview patients during their clinical day but this is not considered legitimate research. However, in sociology and medical sociology, interviewing is an established research technique (Britten 1995). The following qualitative tools were evaluated for use in this study.

Questionnaires

Data from questionnaires may be collected from large numbers of subjects. When postal questionnaires are used, geographical factors are reduced and minimal inconvenience is caused to the subject (Veltrini, Capelozza et al. 2002). A high degree of confidentiality is possible, potentially encouraging subjects to express their views openly. The formulation of the questionnaire itself is crucial to its success as a research tool (Oliver 1996). For this reason, questionnaires are often preceded by the use of a different research tool, such as interviewing, to guide the formulation of

questions. This is particularly the case when, as with this study, there is a lack of research in the field on which to base a questionnaire.

Individual interviews

There are three main types of interview: structured, semi-structured and in-depth interview (Britten 1995; Denzin 2005). Structured interviews use structured questions delivered by a trained interviewer in a standardised manner. This technique has limited value when trying to explore complex treatment decisions made by patients. Semi-structured interviews use a series of open ended questions that define an area to be explored. More detailed discussion may follow if the interviewer wishes to explore a particular topic of discussion. In-depth interviews are less structured than the first two and may only cover one or two issues. Further questions in the interview would be based on what the interviewee said. Sometimes a topic guide can be added to in-depth interviews to act as an 'aide memoir' during the prolonged interview process (Gill 2008).

Small group interviews

This involves the interviewing of two or three subjects at a time. Such interviews are used when examining dialogue between subjects, as well as between interviewer and subjects. This technique is often used when interviewing younger children to increase confidence answering questions and often when subjects know each other, for example friends, partners or colleagues (Britten 1995). This model is not relevant for individual analysis on potentially sensitive personal financial issues.

Focus groups

Focus groups share many of the features described for an in-depth interview and typically consist of between six and ten purposely selected subjects. The discussion

is guided, monitored and recorded by a researcher or facilitator (Kitzinger 1994). Discussions are tape recorded, and later data are subject to systematic analysis. The key ingredient of focus groups is interaction between group members. This interaction is intended to prompt members to scrutinise their own way of thinking by listening to others. Focus groups were first used as a research tool in market research. The success of focus groups in marketing led to their wider use in health sciences. One such study identified the effectiveness of communication within General Medical Practice (Edwards, Matthews et al. 1998). The authors in this study used focus group discussion to assess how difficult subjects could be communicated to patients in primary care. Focus groups were not considered for this MSc study as the subject number was low and individual circumstances could be better identified on an individual basis

In-depth interviews in dentistry for patients

Individual interviews can range from short, somewhat structured face to face encounters which aim to gather information about a topic to longer, more broad ranging sessions which explore many aspects of a topic or experience (Britten 1995; Gill 2008).

Patton explained that good questions in qualitative interviews should be open-ended, neutral, sensitive, and clear to the interviewee (Patten 1987). He listed five types of questions that could be asked, those based on behaviour or experience, on opinion or value, on feeling or knowledge, on sensory experience and on demographic or background details.

A qualitative research interviewer aims to discover the interviewee's own framework of meanings; the research task is to avoid imposing the researcher's structures and

assumptions as far as possible (Patten 1987). Some of the key features of in-depth interviewing such as topic guides, researcher, analysis and sampling will be discussed in more detail below.

The topic guide

An essential part of an in-depth interview is an interview schedule or topic guide (Gill 2008). The topic guide must be designed to give the researcher the most detailed information about the study topic. Most qualitative interviewers will have a list of core questions or “topic guide” that define the areas to be covered (Britten 1995). Unlike quantitative interviews based on highly structured questionnaires, the order in which questions are asked will vary, as will the questions designed to probe the interviewee's meanings. Wordings cannot be standardised because the interviewer will try to use the person's own vocabulary when framing supplementary questions.

Researcher as research instrument

Qualitative interviews require considerable skill on the part of the interviewer. Experienced doctors or dentists may feel that they already possess the necessary skills, and indeed many of the skills they possess are transferable. The novice research interviewer however needs to take care not to be too directive with how he or she is being, to ensure that leading questions are not being asked, whether cues are picked from the interviewee or ignored, and whether the interviewees are given enough time to explain what they mean (Britten 1995). Patton provided three strategies for maintaining control. Firstly knowing the purpose of the interview, secondly asking the right questions to getting the information needed, and finally giving appropriate verbal and non-verbal feedback (Patten 1987). Some common pitfalls for interviewers identified by Field and Morse include outside interruptions,

competing distractions, “stage fright”, awkward questions, jumping from one subject to another, and the temptation to counsel interviewees. Awareness of these pitfalls can help the interviewer to develop strategies to overcome them (Feild 1989).

Interview analysis

In most qualitative research, the analysis process begins as soon as the data is collected during the interview. This is called sequential or interim analysis and has the benefit of allowing the researcher to go back and refine questions or topic guides. This allows the topic guide to develop in an iterative way as each interview is completed (Pope, Ziebland et al. 2000).

Several methods of data analysis have been proposed to describe and explain social experiences gathered during in-depth interviews. Analysis can either be derived inductively and gradually obtained from the data or used deductively at the beginning or part way through the analysis. Deductive analysis is less common but has more recently gained popularity with the “framework approach”.

Sampling

The methods of sampling are very different from quantitative study. Qualitative study often aims to reflect the diversity within a given population. There are several sampling methods but the most common is purposive sampling whereby subjects are chosen because of their particular demographic characteristics, behaviours, attitudes or experiences (Silverman 2000)

Examples of qualitative interview studies in dentistry

Examples of studies that have collected data using interviews are often limited to basic aspects of dentistry such as the attendance pattern of patients(Gibson,

Drennan et al. 2000). Gibson's study provided an improved understanding of the factors that influenced patient's dental visits by interviewing two patient groups. An in-depth interview technique was carried out when patients' attended for routine dental appointments and when patients' attended who were only seeking emergency dental care. The researchers found comparisons between dental attendance and patient attendance for other chronic illnesses. A study by Kay and Blinkhorn (Kay and Blinkhorn 1996) gave a detailed insight into a dentist's decision making in relation to treatment choices. This paper described a qualitative study which sought to identify issues, other than the extent of pathology, which may impinge upon dentist's restorative treatment decision making. This study found that clinical decisions about treatment was not necessarily related to pathology or treatment options, but were often affected by patient discussions, patient's values and by the dentist's feelings of self esteem and conscience.

We can see from these studies that qualitative interviews can offer dentistry a unique insight into personal perspectives of patients' and provide a more comprehensive understanding of their beliefs, knowledge and attitudes. Qualitative study can also offer improved flexibility during a patient interview and allow a greater range of topics to be explored than might be possible through a conventional questionnaire which is often used in quantitative research (Denzin 2005).

Influence of cost on uptake of dental implants

A Medline search looking at health care costs and dental implants identified 36 references (See Table 1). Many of these references were not relevant to this particular area of study. However a selection of the more relevant articles will be discussed below.

Table1 Literature review implant costs

Dental Implants - Health care costs and dental implants 1987-2007

Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

Search	Search history	Results
1	exp *Dental Implants/	6896
2	exp *Dental Implantation	8492
3	1 or 2 (12993)	12993
4	exp *"Patient Acceptance of Health Care"	42515
5	exp Patient Compliance/	32552
6	exp Choice Behaviour/	22602
7	exp Financial cost	21800
8	Combine 3,6 and 7	150
9	limit 8 to (english language and yr="1987 - 2007") (114)	36

A questionnaire based study of 1000 adults in Austria, interviewed members of the public about several aspects of dental implant treatment (Tepper, Haas et al. 2003). Around two thirds of all those interviewed commented that dental implants “were for the rich” even before the specific dental implant fees were disclosed. The cost associated with dental implant treatments appears to be a common factor in patients rejecting this type of care. In fact 31% of patients questioned in Japan (Akagawa, Rachi et al. 1988), 30% of patients in a Swedish study (Palmqvist, Soderfeldt et al.

1991) and 29% of patients in a United States of America study (Zimmer, Zimmer et al. 1992) identified cost as the main reason for not proceeding with dental implant treatment. A study by Muller found cost not to be identified as a major barrier to the provision of dental implant care in an edentulous German population (Muller, Wahl et al. 1994) but this does not appear to be the norm. The Tepper study investigated the issue of dental implant cost in the greatest detail of any of the studies listed (Tepper, Haas et al. 2003). They found that interviewees had a good understanding of the patient's fees and professional costs but that all subjects believed the cost to the end user was too high. They also found that when more information about the necessary research, training and dental implant production costs were provided, patients could accept the costs of dental implant treatment much more readily. They also summarised by stating;

"When patients realise that implantology in many respects touches upon the most complex areas of state-of-the-art dentistry, they may well be prepared to reconsider their views about implant cost."(Tepper, Haas et al. 2003).

Unfortunately no such study has been identified for a UK population making direct comparisons difficult.

Several studies have looked at the cost of dental implants compared to conventional therapies (Heydecke, Penrod et al. 2005; Walton and MacEntee 2005; Zitzmann, Sendi et al. 2005). Dental implant treatments have been shown to provide greater improvements in dental health outcomes but also require substantially higher initial costs. The increased costs have been identified as 3 and 6 times higher for 2 and 4 implant systems to stabilize a complete lower denture (Zitzmann, Sendi et al. 2005). However, another author identified similarities between removable dentures and

implant supported dentures when cost of denture adjustments were included in the overall cost analysis (Takanashi, Penrod et al. 2004).The actual costs involved were similar to those identified by Zitzmann. When all indirect and direct costs were assessed, implant retained overdentures were three times more expensive than conventional dentures. However, when dental implant costs were extended over 10 years Zitzmann found the two implant retained overdentures to be cost effective (Zitzmann, Sendi et al. 2005) and this view is supported by The McGill consensus who advised two implants to retain a lower overdenture (Feine, Carlsson et al. 2002). The McGill consensus was made up of a panel of experts who work in areas relevant to the consensus question, as well as patients and clinical trial subjects who have experience with these dental prostheses. The consensus statement was based on presentations given by these experts during a two-day session in 2002 using available scientific knowledge on this topic plus personal experience of the patients (Feine, Carlsson et al. 2002).

It appears from these limited studies, that the benefits of dental implant supported restorations can be proven clinically and cost-effectively when compared to conventional therapies. However the challenge for the modern professional seems to be to convince patients in a relatively short consultation about these benefits.

Barriers for patients accepting dental care.

The subject of patient acceptance of dental care is a complex one. It involves complex psychological analysis of the interaction between the patients, the dental professionals and the wider society. These interactions are referred to as the psycho-social factors that influence patient’s decision to proceed with treatments (Cohen 1987). A brief summary of the psycho-social factors affecting uptake of dental health

care will be discussed below. Evidence for dental implant treatment uptake is poor so the model of psychosocial factors for routine dental check-ups will be used. The routine dental check-up has been analysed for many years and much work has been carried out to determine why regular attendance is poor in some groups (Adams, Freeman et al. 1997). Adams found that accessing dental care was related to age, social class, and the geographical ward of residence, dentate status and dental phobia status. They concluded;

“psychosocial factors together with dental health status can act as determinants when accessing primary dental services” (Adams, Freeman et al. 1997).

A qualitative study by Gibson interviewed patients in an attempt to determine factors that affected regular dental attendance (Gibson, Drennan et al. 2000). They found that people attend dental practice in a similar pattern to those seeking medical care for chronic illnesses.

The International Dental Federation (FDI) identified three separate barriers to dental care (Gibson, Drennan et al. 2000). The first relates to the individual;

“patients avoid dental care due to lack of perceived need, anxiety and fear, financial considerations and lack of access.”

Whilst the second category looks at the dental professional;

“dentists may present a barrier to care due to lack of manpower, uneven practice location, training not in-line with current needs and insufficient sensitivity to patient attitudes and needs”

And the third category discussed the effect of the wider social community;

"insufficient public support of attitudes conducive to health, inadequate oral health facilities or manpower and insufficient support for research"

These factors reflect the complex psycho-social nature that governs how patients make decisions regarding the uptake of dental care. Further elaboration on the barriers to dental care has been provided by Freeman in 1999. She proposed four psycho-social factors which act as barriers to accessing dental care (Freeman 1999). These psychosocial factors are dental anxiety states, financial costs, perceptions of need and the lack of access to dental services and will be discussed in more detail below

Dental anxiety states

Dental anxiety has been identified as one of the most important barriers to dental attendance (Adams, Freeman et al. 1997). However despite considerable anxiety about dental treatment, some patients are able to accept regular dental care whilst others would delay treatment until acute symptoms occur. It is important to assess the dental anxiety state in the early stages of any dental assessment to have a clear understanding of patient tolerance for complex dental care(Freeman 1999).

Financial costs

In his study of London patients, Adams identified financial costs associated with dental treatment as being the second most significant barrier to dental care (Adams, Freeman et al. 1997). Irregular attendance and poor uptake of restorative treatment is more likely to occur in lower socio-economic sections of society (Call 1989). It appears that an inverse care law exists where patients with the highest need are unable to afford the appropriate degree of healthcare, whilst those with greater

disposable resources can access better standards of healthcare and have a lower need for complex and expensive treatment (Adams, Freeman et al. 1997).

Perception of need

Patient attendance for dental treatment is not proportionate to the degree of symptoms being experienced (Freeman 1999). Patients with no sign of need, often attend regular for dental check-ups whilst others in severe pain will still avoid dental care until all other options have been exhausted. These patterns of patient attendance form part of the complex psycho-social factors that are influenced by dental anxiety, previous dental experiences and lifestyle commitments.

Lack of access

There may be an obvious geographical access problem when the supply of dental professionals is less than the number of patients wishing to seek dental care. The introduction of a new NHS dental contract in 2006 has attempted to correct the limited access to dental services. However, this will not have made any impact on delivery of specialised services as these are beyond the remit of the current NHS dental service.

Patient acceptance of dental implants

There is much evidence to support the use of dental implant supported prosthesis for edentulous patients to improve function, comfort and satisfaction (Adell, Lekholm et al. 1981; Boerrigter, Stegenga et al. 1995; MacEntee, Walton et al. 2005). However the financial cost of this treatment remains a substantial barrier to many people (Marcus SE 1994). This is probably because implant dentures are more expensive to fabricate and maintain than conventional dentures (Walton, MacEntee et al. 1996). It is reasonable to assume that more patients would seek dental implant treatment if

the treatment costs were lower. However little is known about the factors that motivate patients to chose or refuse dental implant treatment. There is evidence from clinical trials that edentulous subjects with and without dental implants have more psycho-social problems compared to people with natural teeth (Allen and McMillan 2003). It has also been noted that patients with complete dentures seeking treatment involving dental implants to improve support give a more negative score on the Oral Health Impact Profile (OHIP) (Slade and Spencer 1994; Allen, McMillan et al. 2001).

A comprehensive Medline search combined “dental implants” with “patient acceptance of health care”, “patient compliance” and “treatment refusal” (see table 2 and 3 below) to produce 112 separate references. From this list only a small number of references had any relevance to the specific factors that affect a patient’s decision not to proceed with complex dental implant treatment. Approximately 25% of the papers contained expert opinion about dental implant treatment modalities. Approximately 50% of the papers reviewed contained case studies on dental implant topics ranging from Randomised Controlled trials to case studies and expert opinion. The overall quality of the evidence-based study on the uptake of dental implant treatment was poor but many authors have looked at patient satisfaction once dental implants have been placed. There were a handful of papers out of the 112 references reviewed that gave any indication as to why patients chose not to proceed with dental implants.

Table 2 Literature review, Barriers to dental care

Dental Implants- Acceptance of/barriers to using etc 1987-2007. Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

Search	Search history	**Results**
1	exp *Dental Implants/	6896
2	exp *Dental Implantation	8492
3	1 or 2 (12993)	12993
4	exp *"Patient Acceptance of Health Care"	42515
5	exp Patient Compliance/ (32552)	32552
6	exp Choice Behaviour/ (22602)	22602
7	barriers.ti. (18271)	18271
8	exp Treatment Refusal/ (8508)	8508
9	limit 8 to (english language and yr="1987 - 2007") (114)	114
10	11 limit 10 to (editorial or letter or news) (2	2
11	from 12 keep 1-112 (112)	112

Table 3 Literature review, Acceptance of dental care

"Patient Acceptance of Dental Care" reviews search 1987-2007

Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

Search	Search History	Results
1	exp "Patient Acceptance of Health Care"/	99851
2	limit 1 to (English language and dentistry journals)	3924
3	limit 2 to "review articles"	226
4	exp *"Patient Acceptance of Health Care"/	42515
5	3 and 4	43
6	limit 5 to local holdings	39
7	from 6 keep 1-10	10

Many papers quoted the degree of satisfaction experienced by patients with implant supported overdentures. One questionnaire-based study looked at subjective patient feelings on the improvements experienced following implant supported dentures (Cibirka, Razzoog et al. 1997). Cibirka found that patients experienced significant differences of comfort, speech, aesthetics and function. However the population size was low and little value can be placed on the findings due to the small sample size. A much larger study by Morris, who had done extensive testing of the Ankylos system prior to its launch in the United States, showed high levels of patient satisfaction in nearly all 470 patients and 1500 dental implants (Morris, Ochi et al. 2004). Morris demonstrated that function, speech and the taste of food had all increased in 90% of

the sample population. Other workers in Europe have shown that the costs of oral implant treatment could be justified following an assessment of patient satisfaction (Pjetursson, Karoussis et al. 2005). The costs of dental implant treatment were assessed using a verbal questionnaire and a Visual Analogue scale following 10 years of function.

When studies demonstrate a high patient satisfaction score and improved function with implant supported prosthesis, it is surprising that this treatment modality is not more widely used. It is often assumed that the high costs for dental implant treatment are mostly to blame for the low uptake by certain patients. However, a study in Canada has tried to remove this bias from a patient’s decision making of whether to proceed with implant supported overdentures. Over 100 edentulous volunteers, unhappy with their dentures, responded to promotional material offering free dental implant treatment at a University teaching hospital (Walton and MacEntee 2005). The volunteers were accepted into the trial following a consultation with a prosthodontist and following confirmation that the existing prosthesis was clinically satisfactory. When cost was removed as a factor, almost two thirds of the subjects accepted the offer of free dental implant care. These subjects stated that improved denture security and stability was the main reason for seeking more complex treatment. However over one third of the subjects refused the offer of free dental implant treatment, stating that anxiety about dental implant surgery and the complexity of treatment meant they were happier to accept their current prosthesis instead.

Anxiety related to dental implant treatment has also been noted in other studies (Kiyak, Beach et al. 1990). Kiyak carried out an extensive questionnaire analysis on 39 subjects during the 18 month course of dental implant treatment. Satisfaction

scores were generally high, but showed continued improvements through to the final assessment. The only group experiencing negative outcomes consisted of patients scoring high on neuroticism.

Management of patients within primary care

Seven years after the development of formal specialisation in the UK, there does not appear to be any published research which has assessed the impact of these changes. It is generally perceived that most specialists operate in the private sector, and there appears to be significant parts of the country that have poor access to specialist practitioners. For patients unable to afford private specialist care the options for receiving complex dental implant treatments are limited.

The financial resources for primary dental services are no longer held centrally but have been devolved to NHS Primary Care Trusts (PCT's). These Trusts commission and manage dental services through contracts with local dentists. The Department of Health has indicated that the devolution of commissioning and contracting will allow Primary Care Trusts to contract with dentists to provide services under a scheme for dentists with special interests (DwSIs). A key aspect of this health policy has been to increase the provision of care in community settings by general practitioners in order to reduce the referral rate to secondary care (Morris and Burke 2001). This is a key element of the NHS Plan (Department of Health, 2000) and has had major implications for NHS medical practice. Since the introduction of GP fund holding in 1991 and the more recent development of Primary Care Trusts, incentives within primary care have changed to encourage more efficient use of secondary care services (Hausman and Le Grand 1999).

Whatever the future is for primary care commissioning in the UK, it is unlikely that expensive and complex treatments will ever be funded by local Primary Care Trusts due to limited resources. This will leave complex treatment plans including dental implants to be funded either privately or by private health care funds.

Aim & objectives

Aim

To understand the factors that influence how patients balance clinical need and treatment options with social, psychological and financial factors before making the decision not to proceed with complex dental implant treatment plans.

Objectives

To select a sample of patients who represent a broad range and a balanced spread of views.

- To carry out semi-structured, in-depth interviews with purposely chosen subjects.
- To use a validated thematic framework tool to analyse the data.
- To identify themes that can be translated into actions which will improve the understanding of patient motivators for dental treatment
- To seek to understand the wider relevance of the findings.

Methods

This is an exploratory piece of qualitative research to investigate the factors that influence a patient's decisions not to proceed with treatments involving dental implants in a primary care setting. Semi structured, in-depth interviews were considered the most appropriate research tool to facilitate a comprehensive understanding of patient beliefs, their knowledge and their attitudes.

This study will explore the reasons that patients give for not proceeding with complex dental implant treatment plans. The study will use a topic guide to facilitate data collection. The interviews will be recorded using a digital voice recorder, anonymised and transcribed verbatim by an independent transcriber at the University of Newcastle upon Tyne. These research protocols will help to reduce researcher bias in the data collection and analysis phase.

Ethical approval

This study of patients referred to a primary care dental implant centre was part of a larger MRC study into patient choice on complex treatments (Exley 2008). An application was made to the chairman of local Research Management and Governance (RM & G) unit to amend the existing ethical approval. The author was detailed as the Principle Investigator and the following steps were carried out. The Site-Specific Information (SSI) form was completed. This clearly stated which local PCT(s) the research was to be conducted in (Appendix 5). An electronic copy of the SSI was sent to the local RM&G Unit along with a copy of the MRC study consent to contact subject form and the subject study information sheet: (See Appendix 6 & 7).

The research protocol and supporting documentation (e.g. subject letter of invitation, subject consent form and subject information sheet) were included with the following;

- A copy of NRES application form parts A and B
- A copy of the letter giving NHS REC favourable opinion and any site specific approvals
- Written evidence from Dr Exley of University of Newcastle upon Tyne that she has agreed to accept Sponsorship Responsibilities

Ethical approval was gained for the author to carry out primary care interviews for patients referred to Queensway Dental Practice (REC Reference no 06/Q0904/25). Site specific approval was also gained by Durham and Tees Valley Research Governance unit.

The documentation for subjects in the MRC was similar to that used in this study as consistency between subjects was essential. The larger MRC study did not allow either dentists or researchers to carry out interviews on patients who they had previously met. The interviews conducted by the author were with patients who had been assessed at the practice but by a different implant dentist.

Sampling

Qualitative study often aims to reflect the diversity within a given population. There are several sampling methods but the most common used is purposive sampling whereby subjects are chosen because of their particular demographic characteristics, behaviours, attitudes or experiences (Silverman 2000). This study has used purposive subject selection. Not all subjects invited to join the study responded which limited the diversity and number of subjects in the study.

Twenty two subjects were selected from patients who had been referred to Queensway Dental Practice and who were considering treatments involving dental implants. These subjects had been assessed, had received a written treatment plan with a detailed explanation of their treatment options. The written treatment plan also detailed the financial costs of the proposed treatment and contained information about possible risks and potential complications of dental implant treatment. These subjects had subsequently decided not to proceed with a dental implant solution. Following ethical approval, a number of patients were invited to join the study by means of an introductory letter and through a patient information sheet which was sent to them via their General Dental Practitioner. A “consent to contact” form was also included in the introductory letter which the patient was invited to sign before being verbally contacted to arrange an interview appointment (Introductory letter to patient, Patient information sheet and Consent to contact (See appendices 6, 7 and 8). Due to the limited response from patients at Queensway, three of patients were added from the larger MRC study. These interviews were carried out by a senior researcher at Newcastle University. Consistency was maintained between the researchers by using a similar topic guide.

Prior to carrying out any interviews, the author attended a training course on qualitative interviews in medical sociology. This University of Edinburgh course looked at the essentials of in-depth interviews, designing a topic guide and group work on interview role play.

Once the subjects had returned their consent to contact forms an appointment was made for a researcher to visit the subject at a location convenient to them in order to conduct a recorded interview lasting approximately one hour. A further consent was

signed prior to the interview which indicated the patient's willingness to partake in the study. (Appendix 8)

Inclusion criteria

- Patients referred to a primary care dental implant practice for treatment to replace missing teeth in the previous 12 months
- Patients who had received a detailed written dental implant treatment plan including financial costs
- Patients who had decided not to proceed with any further dental implant care.

Exclusion criteria

- Patients who had been referred to the primary care dental implant centre and who had decided to proceed with dental implant supported restorations
- Patients assessed for dental implant treatment at the practice by the author

Data Preparation and Analysis:

Data was collected during the interview by digital audio recording of the discussions. The recordings were independently transcribed to a text document. This text document was edited by the author to remove all subject specific references and subject specific places and names. The anonymised data from the transcripts was assessed, analysed and summarised before being transferred to a Microsoft Excel spreadsheet as the identified key themes. Along the vertical axis were the details of the subjects. Along the horizontal axis were subheadings corresponding to themes, or common discussion topics, which had surfaced within the dialogue. Direct quotations from the transcripts were transferred to the relevant part of the

spreadsheet, as described above. This meant that all dialogue relating to a particular theme was in a single column of the spreadsheet, allowing analysis of the information gathered.

Confidentiality

All researchers involved in the study signed codes of confidentiality and conduct. Recommended data security and storage procedures were followed by the researchers. All personal data collected and held was registered in accordance with the 1998 Data Protection Act, and the Newcastle University data protection policy was followed. All identifiable information was stored in locked filing cabinets and rooms. Databases linking subject identifiable information with code numbers were password protected. All the patient confidentiality processes of data collection and storage was available for the patient to discuss prior to the start of any recorded interview.

Results

This chapter sets out to summarise the keys findings from each interview used in this study.

Twenty two patients were purposively selected to join the study about why people chose not to proceed with dental implant treatment. Positive responses were received from 13 patients and data saturation was achieved following nine interviews. The data recorded from 9 subjects comprised 6 females and 3 males. The age spread was from 23 to 72 years. The patients were selected to provide a range of dental implant opinions and experiences from subjects who did not continue with a dental implant retained treatment plan. When all aspects of decision-making for dental implant treatment had been exhausted, the data collection was ended. There was no loss of data during the interviews and full transcriptions were used for analysis.

The results are presented under a series of subheadings, based on the themes which arose during analysis of the in-depth interviews. Beneath each subheading, the results are illustrated, where necessary, with example quotations from the interview transcripts. To ensure rigour in the analytic process Dr Cath Exley (project supervisor and lecturer in medical sociology) advised and commented on the coding and interpretation of data. Each quotation has been marked with a subject number and the age and sex of each subject is listed in Appendix 4.

Demographic and personal background

All male subjects were over 60 years of age, retired and lived in their own home. These subjects had previously worked as self-employed business people with a range of vocations from factory owner to a self employed builder. The female

subjects had a larger age spread from 23 to 65 years. Only two female subjects were retired and the others had a broad range of vocations from care assistant to teacher. All subjects lived across a wide area of the Durham and Tees valley region and one subject travelled more than one hour to seek care at the dental implant practice. Only one subject lived alone and one younger female lived at home with dependant children.

Dental history and dental health

All subjects were partially dentate with a range of teeth missing. Some subjects had lost just two anterior teeth due to trauma whilst another had gradually lost all the teeth in an arch resulting in a full upper or lower denture. Each subject sought to have teeth replaced with dentures or fixed bridgework and was originally interested in a dental implant retained alternative. Two female subjects had rejected the denture and were undecided about how they would have the missing teeth replaced. There was a range of explanations given by the subjects as to how tooth loss had occurred. One retired male subject explained that by growing up on a farm his teeth were weaker as he was not exposed to fluoride.

"the water was from a stream on the hill, so it was fresh water and it wasn't from [name of] reservoir and it was full of fluoride and that's supposed to save your teeth isn't it." (Subject 8)

Another female subject remembers the difficulty of having dental treatment carried out as a child due to her dental anxiety.

"I just remember struggling and lots of people having to hold me down, and that seems to be the pattern that's followed me through whenever I've needed gas, it

seems to be it either induces some sort of horrific nightmare of the need in me to struggle against it you know". (Subject 6)

All subjects expressed their disappointment at having suffered tooth loss.

"I think I have been more conscious of it and wearing the denture I've suddenly decided that I can't even speak properly, you know, so it's just made it really bad for me when I've been talking to people". (Subject 3)

"Very, very aware of my teeth. It's not the same looking in the mirror I always used to look in the mirror when I cleaned my teeth I go 'Oh', I feel sorry for myself actually". (Subject 2)

".... if I have four teeth out at the front, how can I possibly face a classroom of children [sure] with a big gap because [yeah] that's what I saw", (Subject 4)

"It was horrible, I hated it. I was like dead depressed and err, it was horrible. Unhappy with false teeth; and I'm always like self conscious in case people notice all the time". (Subject 7)

However the male subjects appeared to be more accepting of tooth loss and happy to wear a denture if they could proceed with dental implants.

"I regard teeth now as a functional item, if [implant dentist] said the best thing to do is whip all of them out like they used to do in the 1920s and we'll put 2 palates in, I'd say OK as long as I can eat, and I can take part in a photograph that's the way I look at It". (Subject 9)

Most of the older subjects had experienced missing teeth for a long time and some had had gaps since their late teens or early twenties. Many subjects had accepted

these gaps for a long time and tolerated using dentures to replace missing teeth when necessary. Several people had had very positive experiences with fixed tooth supported prosthesis.

"And the work he did, I was over the moon with and I had them for years. They seemed to last longer then—(Right).Than they do now". (Subject 1)

Psychological effect of wearing dentures or fixed bridges

The male subjects in the study group appeared to be more accepting of the removable prosthesis. Two males related the use of dentures to something that was previously considered a luxury item in past generations and both talked about dentures in a positive way.

"At one time the aristocracy the moneyed people that was a 21st birthday present for their sons and daughters, false teeth" (Subject 8)

"When a young farmer was going to get married and his future wife, before they got married she would have all her teeth removed. (Yeah.)And false teeth put in". (Subject 1)

However the female denture wearers were not quite as accepting of the removable prosthesis or spaces within the dentition. Most females gave very vivid descriptions of how little they enjoyed wearing a removable denture. This disappointment with dentures did not appear to be age specific.

"My palate, I love just taking it out so I can breathe [laughs]. It's not as bad as it used to be. [Uhuh] I've like kind of got used to it now but you know it's there and stuff and when you eat as well, it's like totally different if you take it out, it's so much nicer….Well I'm only 23 aren't I".(Subject 7)

"Really I think it was down to vanity, you know, and the fact that I couldn't have that thing in my mouth. It really disturbed me having something in my mouth and it still does. Would be something that I would think was a wet nappy stuck to me" (Subject 3)

"I mean I just permanently have my hand over it you know [yeah], over my mouth and depending how I sit, thinking well they can't see you know what I mean, even though there is a, like a gap between you know, these two and" (Subject 5)

Experiences of patients with implant dentist

Most patients had very positive experiences with the dentists who were planning to carry out the dental implant treatment. In 3 subjects the implant dentist was the patient's own dentist who had a special interest in dental implant provision. The remainder had been referred to the implant dentist within the local region. Favourable interactions with implant dentist include.

"Well he's very approachable, you know, and he's very knowledgeable at what he does and he doesn't push you into anything you don't want to do....and he's a very gentle dentist, he's not, in my opinion, you know, he's doing the best for his patients, and that's you're not an inconvenience because you had to sit in the chair five minutes longer" (Subject 6)

.I've a lot of faith in him because he saved these ones for me by that ozone filling and one of them came out and I went to him cos I know that one of them was very, it's not far off the nerve, it would make me jump, and I was dreading it and all he did was just scraped it a little bit and just squirted some more of this ozone stuff on and he saved the teeth". (Subject 8)

"My brother in law recommended [implant dentist predecessor] to me cos he was a friend of his, played golf with him". (Subject 9)

Most subjects regarded the dentist's manner and reputation to be the most important factors. Only one subject discussed checking the dentists qualifications prior to considering implant placement.

"Implant dentist is highly qualified isn't he? Erm that is important. Whoever looks after me, I like to know that they know what they are doing". (Subject 2)

Factors affecting decision making for uptake of implant treatment

Information from consultation process

All patients referred to the primary care dental implant centre had positive experiences with the implant assessment process. Patients had shared experiences of feeling fully informed about the complexities of dental implant treatment. This information was provided in a detailed consent letter and was supported with professional publication from the Association of Dental Implantology (ADI-UK)

"Information from consultation was very good. That was excellent I have to say. I got erm a little booklet, a handout of exactly what would happen. It was fully illustrated with photographs, that was great". (Subject 3)

"Implant dentist explained what was involved in having the implants, and said that it wasn't going to be an easy fix in that you know, it could involve lots of months of you know, living with it, going back, having more treatment and so on and so on, it was the timescale, because with having to have you know, at least four done [yeah], it sounded to me like it could be 18 months worth at least!" (Subject 4)

"well this is my chance to spend something to improve my looks' and as I say I went to see him and he was very professional, you know, gave me the full quote and everything, you know, I mean it wasn't anything I had to go ahead with if I didn't have the money, it was just a consultation sort of thing, you know" (Subject 6)

Complications and failure rates of implant treatment

Following the consultation process most patients had a clear understanding of the complications of dental implant treatment. Several subjects appeared to be affected by the surgeons reported success rates. Many patients indicated that by spending large amounts of money on dental implant treatment the success rates should 100%.

"I wasn't prepared to put myself through it [yeah], without a total guarantee Anxiety of treatment, I think actually, the money factor, although it's a huge factor [yeah], if it wasn't as bad psychologically, I might have gone for it".(Subject 4)

Surgery, time off work, success rates

None of the subjects had extreme views on the need for surgery to allow dental implant placement. Even anxious patients who had suffered negative experiences as a child appeared to accept that surgical aspect of implant dentistry.

"But to be honest I don't think the pain side, for anybody who has had a new denture and like I did to have them taken out and put straight back in again, you know, the pain might be excruciating for the first 24 hours after, you know, and then you know, a dull ache for the next few days after that but its something you soon get used to". (Subject 6)

"because I just wanted it doing. [Uhuh] Sounded a bit gruesome though because I think they like cut away the bone on my chin". (Subject 7)

The long duration of dental implant surgery was also specifically commented on by one patient who was quite accepting of the time scale.

"I said two and a half hours No, it's not that, there's only been that one occasion where he had the problem with the root on the bottom palette he couldn't get out, and he said I'll have to send you through to the hospital". (Subject 9)

Influence of friends and family in decision making

Many of the subjects referred to family members when considering dental implant options. A younger patient was relying heavily on parental support to allow the dental implant treatment to be funded.

"So, my mom and dad haven't got that, like the money to afford to do that neither. [Mmmm] And obviously I can't afford I can just about afford to pay rent". (Subject 7)

Older subjects had feelings of selfishness and likened dental implant treatment to cosmetic surgery such as breast augmentation or plastic surgery.

"Yeah the family, you know you think is it, oh am I being totally selfish because it's a cosmetic thing I think. I suppose it's the same as having a facelift you know or er a boob job," (Subject 2)

However none of the male subjects expressed any influence from friends or family. Most females in the group explained that they had consulted with close friends and family about how their appearance had changed following tooth loss. Some friends had very clear ideas about whether the subject should continue with extensive dental implant treatment. Other subjects had obviously consulted friends about their edentulous spaces and later disregarded positive support from these friends.

"Do you notice anything different about me? Can you notice anything different?' And people were saying no they didn't get it into your head that you have got a tooth missing, but now it's starting to bother me more when I am eating (Subject 2)"

"Friends from village also considering complex crown options. But opinion on implant trt different when I talked to good friends who were sympathetic to the situation, you know their attitude was, apart from the expense, why put yourself through all that when it may not even work". (Subject 4)

Financial implications and consumerism

All subjects in the study made some comment about the high cost of dental implant treatment. From the detailed interviews analysed, the expense of dental implants appeared more frequently than any other theme. The male subjects commented on the appropriateness of spending large figures on their own dental health.

".I looked at the charges and I thought, for someone of 72, I thought that it wouldn't be right for me. I, like anyone else, you tend to wonder why is that, why have those costs, why is it so high?" (Subject 1)

There were several comments which epitomized patients' inability to comprehend the fees associated with complex private health care.

"All they are doing is taking two teeth out and they putting some pegs in and you know dear me "(Subject 1)

"I can't remember him telling me a price but I do remember thinking at the time sort of still near £10,000, £12,000 which would never ever be within my price range". (Subject 6)

"Well let's say £1,000 – how he can charge another 12 to 14 thousand pound for just putting some rawl plugs into your gums. So I'd love to have it done, I could put up with it if I thought I was going to get my taste back as well because when you've got dentures you don't have the same taste. So yes I would love to have it done but it's far too expensive". (Subject 8)

All subjects made direct reference to the high cost of treatment. The younger subject who relied on other family support commented on her parents' inability to fund private treatment.

"So, my mom and dad haven't got that, like the money to afford to do that neither. [Mmmm] and obviously I can't afford I can just about afford to pay rent. [Mmmm] So. treatment should be available on NHS Yeah, definitely, totally. Because obviously I can't afford to have something like this done" (Subject 7)

Many of the subjects also commented on how the proposed dental implant treatment was prioritized against other personal, social or family activities.

"It's a nice holiday that's how I look at it……….- you're not going to get anything back [right] if you spend £10, 15, 20,000 having implants…….. It is the cost, at my time of life having had the medical history that I've got, taking on things, any long term project which is not a cost effective one, you have to be realistic about it and say are you going to live long enough to be able to fulfil this and what have you, so you have to be able to be practical about it." (Subject 9)

When questioned about their willingness to proceed with dental implant treatment with the aid of reduced or subsidized fees most people responded positively.

Approximately half the implant dentists' quoted fee appeared to be acceptable to the patients involved in the study.

"I said, I don't know whether I could afford them' and I might have been tempted if it had kept it at you know, even £5,000 you know. I was unsure why variable quotes were given from initial assessment to final treatment plan" (Subject 5)

This subject also had strong views about a change in estimated fees following a more detailed assessment of her clinical situation. It was not easy for the patient to comprehend how fees may change from an initial assessment to a more detailed analysis of the oral cavity prior to dental implant placement.

Willingness to seek alternatives to proposed implant plan

Some patients had a very positive experience with the implant dentist and did not consider seeking a second opinion or alternative fee structure.

"I know that there is all that information out there and some of it's good and some of it not so good, so it never even entered into my head [yeah] to research it any further [yeah], I felt that I what I had been given was plentiful as far as I was concerned" (Subject 4)

Whilst other subjects had used other media such as magazines, newspapers and the internet to seek alternative dental implant treatment plans.

"Well when I read the newspaper article, I thought mmm, a week in Tuscany and have my teeth done and you read it you know and you think oh this is nice, but erm, see this sounds awful but I don't trust foreign dentists" (Subject 2)

Some of the patients involved in the study discussed openly how they had taken steps to find alternate dental implant treatment in another country.

"I went through every dentist on that internet in England. I went through everyone in England, America, everywhere, looking because in honesty if I could have got it done here at a more reasonable price I wouldn't have had a problem with that. I couldn't afford to do it" (Subject 3)

This patient went on to explain how treatment had already begun at a clinic in Poland. Treatment was reported to be much cheaper than in the UK primary care dental implant practice. The patient also had a very positive influence from a close friend who had received similar treatment in Europe in the last year.

"And she said 'anyway, you're going to Poland, book yourself into a dentist there, they do them there.' I was like, oh yes. And I came off the phone and I thought, but people do that. And that was how it started". (Subject 3)

A more detailed account of the European dental implant treatment followed which included some of the negative aspects of the European healthcare market.

"I think because the language is quite difficult, between the two, you just sort of say the basics and then you leave so really the experience in East European city was they'll have given me the basic information, you know, we're going to take you in and you know you will get your teeth, we'll start the work and everything, you know, you'll get sort of like, you'll attend three or four times into East European city as the treatment progresses, you know. But they don't tell you the actual nitty gritty of I'll take all your teeth out, give you no denture, and basically that's it" (Subject 3)

Summary statements from patients

It was clear from the interviews that patients' life experiences were closely linked to uptake of complex and expensive dental implant treatment plans. However the common factor in rejecting treatment appeared to be the financial pressure which dental implant fees placed on the subject's families.

"I had breast cancer and I only read what I needed to read [yeah], I didn't research you know, all over, because I felt that actually, you can be you know, your mind gets a bit boggled [yeah], with too much information [yeah], and sometimes you don't want to read anymore". (Subject 4)

For others it was a straight decision made by the lack of adequate compensation available following an assault

"when I got the compensation I got nowhere near the amount that I was hoping for so I've had to make do with a palate". (Subject 7)

Whilst another subject was unable to rationalize the expensive treatment against the uncertain nature of his long term health

"you have to be realistic about it and say are you going to live long enough to be able to fulfil this and what have you, so you have to be able to be practical about it" (Subject 9)

A final view summarized by a patient was trying to relate the dental implant costs to another object of much lower value. The object of comparison was an inexpensive rawl-plug or masonry device and had been chosen by the dentist as a way of expressing the simplicity of the treatment.

"a few years ago he said it's the price of a small extension and then he told me, it's just like putting 4 rawl plugs in. I thought they're very expensive rawl plugs them like" (Subject 8)

Discussion

This study was designed to investigate the factors that influence patient's decisions not to proceed with treatments involving dental implants in a primary care setting. This Chapter seeks to interpret the key findings from the results and place these findings in context with references from the literature review. It is the intention of the author to include verbatim quotations of the subjects to help illustrate why patients do not proceed with complex dental implant treatment. Following this discussion some action points will be suggested to help to improve communication between those involved in the referral process.

The literature review did not identify extensive evidence on this area of study or the use of qualitative research in implant dentistry. This type of research does not aim to quantify the number of people holding a certain opinion but has been a useful scoping exercise to assess the factors which influence patient decision making in this complex area. It is hoped that the conclusions from this small study will be able to improve our understanding of patient decision making.

As part of a larger study, this study has allowed the author access to expert support when carrying out this qualitative research. This support has improved the validity of the research.

The key themes that have been drawn out from this qualitative study can be related to work by Freeman in 1999 who looked at patient motivators for routine dental attendance(Freeman 1999).

Barriers to dental implant treatment

The International Dental Federation (FDI) identified three separate barriers to dental care (Gibson, Drennan et al. 2000). The first relates to the individual,

"patient's avoid dental care due to lack of perceived need, anxiety and fear, financial considerations and lack of access".

These factors were apparent in most of the transcriptions analysed in the results. Subjects were often happy to accept less invasive or less complicated treatment options over complex dental implant options as the financial costs were too high.

The second barrier is related to the dentist. Several subjects in this study identified very positive opinions about dentists that they had been assessed by. Subjects spoke very highly of the care that they had received when visiting the implant dentist for an assessment. Only one out of the nine subjects had expressed dissatisfaction. This dissatisfaction was related to the financial cost that had been quoted by the dentist at the initial assessment. In this situation the patient could not understand why an initial dental implant estimate of cost could change so much following a more detailed assessment. An interesting observation was also made with another subject who was keen to proceed with dental implant care to replace many failing teeth. This subject had been assessed in the UK but due to the high financial costs had made alternative arrangements to have the dental implant treatment carried out in Poland. In this case the dental implant treatment was not a barrier but the associated financial cost. When all the travel costs and the sundries had been added to the cost of the dental implant restoration, the patient's overall financial savings were minimal.

The third barrier is the effect of the wider social community. In this study many patients expressed positive support from their family and their friends to proceed with dental implant care. However positive re-enforcement from their family members did not ultimately affect the subject's decision to have dental implant treatment carried out.

Perception of financial cost

The high cost associated with dental implant treatments appears to be a common factor in patients rejecting this type of care. There is much evidence to support the use of dental implant supported prosthesis for edentulous patients as it will improve function, comfort and satisfaction (Adell, Lekholm et al. 1981; Boerrigter, Stegenga et al. 1995; MacEntee, Walton et al. 2005). However the financial cost of this treatment remains a substantial barrier to many people (Marcus SE 1994). This is probably because implant dentures are more expensive to fabricate and maintain than conventional dentures (Walton, MacEntee et al. 1996) All subjects in this study made some reference to the high financial cost of dental implant care. It was apparent that financial cost was not the only reason for not proceeding with dental implant care but it did affect subject decision making. Comments similar to those from Subject 8 were commonly found in the interviews.

"So I'd love to have it done, I could put up with it if I thought I was going to get my taste back….So yes I would love to have it done but it's far too expensive". (Subject 8)

The prevalence of comments on cost in this study is much higher than other reported studies, in fact only 31% of patients questioned in Japan (Akagawa, Rachi et al. 1988), 30% of patients in Sweden (Palmqvist, Soderfeldt et al. 1991) and 29% of

patients in a United States of America (Zimmer, Zimmer et al. 1992) identified cost as the main reason for not proceeding with dental implant treatment.

A study in Austria investigated the issue of dental implant cost in the greatest detail of any of the studies listed (Tepper, Haas et al. 2003). They found that subjects had a good understanding of the patient's fees and professional costs but all subjects believed that the cost to the end user was too high. Some of the views expressed in this study indicated that subjects did not have a good understanding of the treatment proposed including the financial costs.

"All they are doing is taking two teeth out and they putting some pegs in and you know, dear me that's expensive "(Subject 1)

The researchers in Austria also found that when more information about the necessary research, training and dental implant production costs were provided patients could accept the costs of dental implant treatment much more readily. Most subjects interviewed had had detailed information regarding the implant procedures and a colour brochures from the Association of Dental Implantology (ADI-UK) regarding implant treatment. The information provided did not appear to improve patient understanding about financial costs.

"Well let's say £1,000 – how can he charge another 12 to 14 thousand pound for just putting some rawl plugs into your gums.

When indirect and direct costs are assessed, implant retained overdentures are three times more expensive than conventional dentures in the first few years. However when dental implant costs were extended over 10 years Zitzmann found that two implant retained overdentures to be cost effective (Zitzmann, Sendi et al. 2005) and

this view is supported by The "McGill consensus" who advised two implants to assist retention of lower overdentures (Feine, Carlsson et al. 2002). It is essential therefore that patient's in the UK have a greater understanding of the long term benefits of dental implant care and a good knowledge of the potential financial costs associated with long term non-implant treatment options. When immediate costs are assessed by dental implant patients the initial financial outlay appears high. Justification of the high fees, extended treatment time and the long term benefits and potential cost saving are important for patient's to consider as they assess their treatment need.

Dental anxiety

Patients in this study expressed limited anxiety about receiving dental implant treatment. The majority of subjects accepted the complexity of the dental implant treatment and the associated pain and discomfort without indicating dental anxiety as detailed below.

"the pain might be excruciating for the first 24 hours after, you know, and then you know, a dull ache for the next few days after that but its something you soon get used to". (Subject 6)

Only one female subject in the study gave dental anxiety as a significant reason for not proceeding with her dental implant treatment plan.

"I wasn't prepared to put myself through it [yeah], without a total guarantee Anxiety of treatment, I think actually, the money factor, although it's a huge factor [yeah], if it wasn't as bad psychologically, I might have gone for it".(Subject 4)

It is often assumed that the high costs of dental implant treatment are mostly to blame for the low uptake rates by certain patients. A Canadian study tried to remove

this bias from patient's decision making of whether to proceed with implant supported overdentures (Walton and MacEntee 2005). One third of the subjects refused the offer of free dental implant treatment, often stating anxiety about dental implant surgery and the complexity of treatment as the most likely reason to accept their current prosthesis. It is important for dentists to consider all patients anxiety states before continuing with complex dental implant treatment plans. If a patient consents to complex dental implant surgery and is unable to proceed following the first surgical stage then both patient and dentist have been wasted significant time and financial costs unnecessarily. Adequate assessment of patient's dental anxiety is an essential part of the pre-operative implant assessment.

Perception of treatment need

This study of patient need in implant dentistry was not identified in the literature review. Other models such as the dental check-up have been assessed within dentistry to identify how patients manage clinical need. Patient attendance for dental treatment is not proportionate to the degree of symptoms being experienced (Freeman 1999). Patients with no sign of need often attend regularly for dental check-ups whilst other patients in severe pain will avoid dental care until all other options have been exhausted. This pattern appears to extend to patient need for complex dental implant treatment. Several subjects in the study could perceive the clinical need for dental implants to replace their missing teeth. Comments described below indicated low clinical need

"It's a nice holiday that's how I look at it- you're not going to get anything back [right] if you spend £10, 15, 20,000 having implants…….. It is the cost, at my time of life having had the medical history that I've got, taking on things, any long term project

which is not a cost effective one, you have to be realistic about it and say are you going to live long enough to be able to fulfil this and what have you, so you have to be able to be practical about it. (Subject 6)

Accessibility to specialist implant care

A key aspect of modern health care policy has been to increase the provision of care in community settings by general medical practitioners in order to reduce the referral rate to secondary care (Morris and Burke 2001). This has resulted in the widespread use of primary care polyclinics in General Medical Practice to reduce the dependency on larger more inefficient hospitals. However this shift in local health policy has not occurred in dentistry and more complex dental treatments can only be carried out under a private arrangement between dentist and patient. Secondary care dental teaching hospitals often have the expertise and equipment to deliver complex dental implant treatment but resources are limited. One of the subjects in this study had been assaulted and required an anterior dental implant supported bridge to replace two missing teeth. She was very self conscious of the spaces in her mouth and was experiencing psychological difficulties during the use of her removable denture. It was clear from the interview that this subject was unable to fund her desired dental implant treatment privately. This subject expressed dissatisfaction with the UK NHS system as it would not fund her dental implant treatment.

"obviously I can't afford I can just about afford to pay rent. [Mmmm] So.treatment should be available on NHS, definitely. Because obviously I can't afford to have something like this done" (Subject 7)

Whatever the future is for primary care commissioning in the UK it is unlikely that expensive and complex dental treatments will ever be funded by local Primary Care

Trusts due to limited resources. This will leave complex dental treatment plans including dental implants to be funded privately or by private health care insurance denying those with limited funds access to the most appropriate dental care.

Improvements to existing practice

The information gained from this study has identified several areas were improvements could be made to a modern primary care dental implant practice. The most significant of these would be a re-classification of PCT funding for dental implant treatment. It is clear from these in-depth interviews that the financial cost of dental implant treatment is a major barrier to patients. There is little doubt from the literature that dental implants are highly effective replacement for teeth(Morris, Ochi et al. 2004). Studies such as the McGill consensus (Feine, Carlsson et al. 2002) confirm wide ranging research that dental implants are the minimal requirement when the support of a removable lower dental prosthesis is required. It is therefore difficult to justify, to those patients with significant clinical need, that this treatment is not covered by our current primary care dental NHS system. Alternative funding plans should also be explored by patients, professionals and politicians to identify ways in which dental implant treatment could be made more accessible to those with the greatest need.

An assessment of dental anxiety and a comprehensive dental history should be a fundamental part of any implant assessment. Allowing patients to proceed with complex surgical and dental prosthetic treatment is only possible when anxiety is correctly managed. The use of conscious sedation techniques should be discussed with patients prior to commencing dental implant treatment. These anxiety

management options will allow more anxious patients to continue with appropriate dental implant care.

Ensuring clarity of information for patients attending a primary care dental implant service is also important. It is possible for a patient to be referred to a dental implant practitioner with little understanding of the complexity of surgery or financial cost of treatment. Clearer communication between the dental implant service and the referring colleague would improve patient understanding before the implant consultation begins. Efforts should be made to increase the information available to referring colleagues to promote communication with patients considering dental implant treatment. This information should include full referral protocols for the referring practitioner and important information for the patient to consider. Most subjects in this study were keen to understand the success rates of dental implant treatment, the average associated financial costs and some examples of previous treatment completed by the implant dentist.

In the modern consumer driven market patients are considering dental implant options in foreign countries. It is important that all dental professionals are aware of some of the benefits and possible pitfalls of travelling to a foreign country to have complex dental implant surgery carried out. The information gained from one subject's experience in this study will enrich the information available to other patients who are considering travelling abroad for their implant dentistry.

Action points

In order to reduce the financial barriers for patients seeking implant care the following action points for an implant referral centre have been identified:

- Identify alternative payment options for patients receiving dental implant treatment
- Contact local PCT to identify any additional funds that may be available for those patients with the greatest need for financial support.
- Ensure referring dentists have access to the dental implant practice fee structure
- Ensure that patients have access to practice literature such as dental implant information booklets or the practice website.

In order to reduce and appropriately manage dental anxiety about dental implant care the following is advised for dental implant services:

- Encourage referring dentists to indicate the patient's normal anxiety state before making a referral
- Ensure a thorough assessment of the patient's pre-treatment anxiety state
- Ensure the patient is aware of the complexity and the type of surgery likely to be required for the dental implant treatment
- Advise the patient of the anxiety management treatment options available to support the dental implant surgery.

To improve patient communication about the benefits of dental implant supported prosthesis and to allow patients to make appropriate informed decision the following is suggested for implant services:

- Contemporary information on the proven risks and benefits of dental implant retained restorations

- Patient centred information booklets free from jargon with clear diagrammatic illustrations

- Installation of a patient education area within the practice. Additional use of audio-visual displays or interactive computerised education tools

- Unbiased communication from the dental professional to guide the patient through a wealth of information

Although some patients would place complete faith in the dentist's opinion and others would not consider dental implant treatment regardless of cost, many individuals require clear information to help guide them through their decision making. It should be the responsibility of all dentists to facilitate this shared decision making.

Limitations and weaknesses

The views of nine patients interviewed for approximately one hour with a semi structured in-depth interview technique has given data saturation of the factors that influence patient decision making on why not to proceed with dental implants. It is accepted that a greater age range and different states of edentulousness would have enriched the study further. The addition to the sample group of patients from different geographical areas would have been beneficial. Given additional time and a larger patient base these factors would have been possible.

The study was carried out by a novice qualitative researcher and this has raised several difficulties during the acquisition of data during the interviews. Some of the

limitations of being a novice researcher were improved by direct access to experienced support from the Centre for Health Services Research at the University of Newcastle upon Tyne. Patten explained that the novice research interviewer needs to take care with how directive he or she is being, whether leading questions are being asked, whether cues are picked up or ignored, and whether the interviewees are given enough time to explain what they mean (Patten 1987). Some common pitfalls for interviewers have been identified by Field and Morse and most were experienced during the interview stages. Difficulties in following a topic guide and ensuring robust data collection is often challenging for the inexperienced researcher. It is clear from some of the transcripts that jumping from one subject to another and the temptation to counsel interviewees is difficult to control when daily clinical practice affects how practitioners interact with patients. However awareness of these pitfalls can help the interviewer to develop strategies for overcoming them (Feild 1989).

Although subjects were selected for a range of experiences, those that agreed to participate had a particular reason to do so. It must be accepted that if a larger population were to be available to the study some of these biases would have been reduced. Some bias was eliminated by the author only completing interviews on patients who had not previously been assessed or contacted by the author. It was clear that each patient interviewed had a particular motivation to be involved in the study. This is a recognized limitation of this particular type of research.

The association of this study with a wider MRC study on negotiating clinical need resulted in some obvious benefits and disadvantages. The main benefits included access to an experienced qualitative research team with close support from two keys

members of the MRC group. It would be very difficult to carry out this type of research in a reproducible and rigorous manner without the guidance of experienced individuals. Other benefits include the access to an ethics approval process. Considerable time was spent gaining site specific approval for the study group to include this patient cohort. Core material was already available to support this application and it is accepted that amendments to an existing ethical approval was less complex than a complete application process. Complications of trying to integrate new research into an existing project occurred during collection and analysis of data. Although many patients were available for inclusion in the study, the MRC protocol insisted that the researcher could not have access to patient data if the patient had a professional relationship with the researcher. Important scientific information has been lost to the study due to this proviso in the MRC protocol. However the primary care implant service has undoubtedly enriched a study of wider clinical importance.

Conclusion and recommendations

This study was carried out with patients from the North East of England, from an industrial town and neighbouring villages. These areas have traditionally received extensive support from NHS general dental services. In recent years, the demand for more complex cosmetic and implant dentistry is increasing. The insights gained from this study will help improve the understanding of what motivates patients to accept or reject dental implant care. This information will shape changes to the referral process in a developing dental implant practice, improve the literature available to referring dentists and improve the quality of information available to patients seeking to make complex decisions about their care.

Dentists are involved in clinical assessment and interviewing of patients on a daily basis. The transition from this daily interaction with patients to a formalised researcher has many challenges. The dentist must acquire information during the history and examination in an efficient manner before processing the findings and arriving at a diagnosis in a relatively short space of time. However during qualitative research, the interviewer must allow conversation to flow and use minimal prompts whilst still referring to the topic guide to ensure consistency between each interview. Some of the common pitfalls identified by Field have been identified during data collection and understanding these problems has helped this study.

The primary factor in why patients chose not to proceed with dental implant treatment is the high financial cost of such treatments. This factor appeared more often than any other theme during the course of each interview and subjects consistently failed to understand why dental implant care is the most expensive form of dentistry. However Tepper noted that consumers of dental implants can at best give limited

estimates of what dental implants are worth (Tepper, Haas et al. 2003). It is difficult for patients to grasp the complex nature of the product and the service input needed when they begin to assess the expected benefits of dental implant care. It is important for dentists to emphasise the special advantages of implant supported prosthesis in comparison to the traditional alternatives. The transfer of effective information from the dentist to patient should have a positive impact on what patients subjectively think about the financial cost of implant treatment. Dentists should discuss openly with their patients what resources are necessary to provide high standards of clinical care, explaining the financial cost of contemporary equipment and facilities and the need for continuing professional development as products and techniques change.

Other factors identified from the thematic analysis of the subject interviews were the effect of dental anxiety on the acceptance of dental implant care. Patients appeared well informed about the risks and the complications of dental implant surgery. However none of the subjects identified dental anxiety as an overwhelming factor to decline dental implant care.

The second most common factor found during analysis of the data revolved around the perception of patients need for implant treatment. In general this group of patients were more accepting of traditional prosthesis or edentulous spaces than other reported groups (Walton and MacEntee 2005). Regular comments were made about the prioritising of dental implant treatment below a commitment to other family members and spare time for leisure activities rather than dental implant surgery. Balancing the benefits of dental implant treatment over other health issues such as cardio-vascular disease was a key issue for the older male subjects.

Finally geographical access to dental implant services was not considered to be an issue. All subjects were prepared to travel for an hour to reach the dental implant referral practice. The access to dental implant services appears to be due to the lack of support from local PCT who do not support this treatment option in primary care. Implant dentistry is funded in regional secondary care centres but in specific categories of patient only. The greatest improvement in access to dental implant services would be to allow partial or full financial support for dental implant treatment options in primary care. This financial support should be available provided a need has been demonstrated for the most evidence based approaches. Identifying those patients with the greatest need and the lowest available resources would help to close an obvious health care gap that exists in oral rehabilitation with dental implants.

Most dentistry in the UK has traditionally been delivered under NHS general dental services. This has allowed many patients to receive an adequate standard of oral health care at an affordable price. However the emphasis for most dentists and patients is now changing from adequate care to what is the best long term solution to a dental problem. Public awareness of advanced cosmetic treatments and implant dentistry has increased over the last 10 years due to a greater media focus. This has placed an increased demand on dentists to deliver higher standards of care in areas that were previously unfamiliar to the average UK dentist. It is the responsibility of the profession and the General Dental Council to ensure these new and exciting treatment modalities are delivered to a high standard. Patients should be given the correct amount of information in a form they can understand to assist them through the decision making process.

This study shows that patients are well informed about the treatment stages that are involved in dental implant care and the associated risks of the surgery. Patients find it difficult to relate the complexity of treatment with the high financial costs placed upon them by implant dentists. This study identifies shortcomings in the information provided to patients by their referring dentist. Improvements could therefore be made by the primary care implant service to educate local dentists of the financial cost of dental implant treatment, its duration and the complexity of care required.

The following key points are recommended to assist patient decision making before they take up complex dental implant treatment plans.

For the referring dentist

- Ensure the implant practice has the appropriate skill mix to deliver high quality implant dentistry
- Complete referral forms to identify the patients' primary concern with an indication of treatment history and anxiety states
- Provide patients with an appropriate implant information leaflet prior to referral so that the patient can begin investigating what is involved in dental implant treatments before attending the dental implant service
- Be familiar with the referral protocols of the implant clinic prior to referring patient. Sharing of key dental records such as radiographs and study models.

For the assessing implant dentist

- Ensure clear referral protocols are available to all referring dentists

- Produce a practice information booklet that records recent audits, failure rates, team qualifications and commitment to training

- Provide referral forms that are easy to complete and prompt the dentist to share relevant information

- Provide evidence of previous treatment cases and the associated time and financial costs incurred by patients recently seen at the practice

- Ensure referring dentists are kept up to date with new implant techniques that are available at the practice.

- Evidence should also be provided on the investment an implant team has made to its equipment and facilities, staff training and general clinical governance

For the potential implant patient

- Patients must have easy access to practice implant booklets and educational videos

- A dedicated implant education centre available at the dental implant service may help improve patient understanding of the complex nature of dental implant care

- Create a database of patients previously treated at the practice who are willing to discuss their own dental implant experiences

- Ensure patients have good access to an implant co-ordinator or dental professional to allow concerns and questions to be addressed early in the decision making process

- Improve access to implant services by seeking NHS support for funding

- Implant dentists should offer patients alternative methods of payment for treatment. Finance or insurance schemes may increase patient uptake of complex restorative care

These recommendations will form part of the revised implant referral protocols for Queensway Dental Practice and Implant Centre. Further efforts will be made to improve patient literature and this will be shared with all referring dentists in a written form and in a down-loadable format from the practice website.

The continuing development of this implant service will require an in-depth analysis of attitudes of referring dentists who currently refer to the implant centre. The study of professional attitudes to a primary care implant centre is in progress and when combined with this study will advance the service for patients and professional colleagues alike.

Reflections

The transition from dental practitioner to qualitative researcher has been a challenging one. This has been an interesting piece of work which has required considerable effort and acquisition of new skills with research partners from a regional Centre for Health Services Research at the University of Newcastle upon Tyne. This type of research is common place in sociology and related subjects but as I discovered in my literature review only occasionally used in dentistry.

I was keen for this study to be relevant to my daily implant practice and I wanted to explore a little more deeply what motivates people to engage with complex aspects of implant dentistry. Qualitative in-depth interviews have provided me with a way to get an insight beyond the usual pre-conceptions of patient’s decision making in dentistry. However achieving robust scientific data from a series of detailed interviews is not an easy task for the novice researcher. Without the support from well qualified medical researchers and experienced dental academics this project would have failed.

The study has required me to develop new skills in patient interviewing which can be used in future practice development. I have also gained a greater understanding in the process of ethical approval and site specific applications. I have forged new contacts with the local Research Governance Manager and the principle researcher on a large MRC funded project of national importance.

I am sure that the key outcomes for our local referring colleagues, the implant practice and our own patients will improve the service we have developed so far.

Word count = 15300.

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Appendices

Appendix 1 Literature review implant costs

Dental Implants - Health care costs and dental implants 1987-2007

Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

	Search history	**Results**
1	exp *Dental Implants/	6896
2	exp *Dental Implantation	8492
3	1 or 2 (12993)	12993
4	exp *"Patient Acceptance of Health Care"	42515
5	exp Patient Compliance/	32552
6	exp Choice Behaviour/	22602
7	exp Financial cost	21800
8	Combine 3,6 and 7	150
9	limit 8 to (english language and yr="1987 - 2007") (114)	36

Appendix 2 Literature review, Barriers to dental care

Dental Implants- Acceptance of/barriers to using etc 1987-2007.

Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

	Search history	**Results**
1	exp *Dental Implants/	6896
2	exp *Dental Implantation	8492
3	1 or 2 (12993)	12993
4	exp *"Patient Acceptance of Health Care"	42515
5	exp Patient Compliance/ (32552)	32552
6	exp Choice Behaviour/ (22602)	22602
7	7 barriers.ti. (18271)	18271
8	8 exp Treatment Refusal/ (8508)	8508
9	limit 8 to (english language and yr="1987 - 2007") (114)	114
10	11 limit 10 to (editorial or letter or news) (2	2
11	from 12 keep 1-112 (112)	112

Appendix 3 Literature review, Acceptance of dental care

"Patient Acceptance of Dental Care" reviews search 1987-2007

Database: Ovid MEDLINE(R) <1950 to October Week 1 2007>

#	Search History	Results
1	exp "Patient Acceptance of Health Care"/	99851
2	limit 1 to (english language and dentistry journals)	3924
3	limit 2 to "review articles"	226
4	exp *"Patient Acceptance of Health Care"/	42515
5	3 and 4	43
6	limit 5 to local holdings	39
7	from 6 keep 1-10	10

Appendix 4 Key features of study subjects

Results – Subjects involved in study, Key personal details

Subject 1 – Male 72 years. Lives alone in own house in suburban area

Subject 2 – Female 60 years. Lives with husband in own house in suburban area.

Subject 3 – Female 49 years. Lives at home with husband and two teenage children in suburban area.

Subject 4 – Female 52 years. Lives at home with husband in own house in rural area.

Subject 5 – Female 65 years. Lives at home in rented house in rural area

Subject 6 – Female 58 years. Lives alone in own house in suburban area

Subject 7 – Female 23 years. Lives at home in rented accommodation with one offspring in suburban area

Subject 8 – Male 67 years old. Lives at home with wife in suburban village

Subject 9 – Male 65 years old. Lives at home with wife in suburban area.

Appendix 5 Ethical approval for site specific application

Primary Care Trust

Ref: RE-MM204

Teesdale House
Westpoint Road
Thornaby
Stockton-on-Tees
TS17 6BL

Tel: 01642 666700
Fax: 01642 666701

6th November 07

Dr Catherine Exley
Lecturer in Social Science
Centre for Health Services Research
21 Claremont Road
Newcastle upon Tyne
NE2 4AA

Dear Dr Catherine Exley

Paying For Treatments? Influences on negotiating clinical need and decision – making

North Tees Primary Care Trust gives approval for this project to begin, subject to the following:

- Approval from the Local Research Ethics Committee
- All Accidents and Complaints related to the research are reported to the PCT
- Serious Adverse Events affecting local patients are reported to the PCT promptly
- The RM&G Unit is informed of any changes to the original Protocol before those changes are implemented
- The researchers will provide assistance with any Monitoring or Audit required by the PCT
- The research will not require any financial support from the PCT, unless there is a written agreement to the contrary.
- The PCT and RM&G Unit are informed when the project ends

Best wishes in your research.

Yours sincerely

Marie Clark
Lead for Research Management and Governance

cc: Richard Errington
RM&G Unit Lead

Dr Ian Lane
General Dental Practitioner

Mr Graham Prest, Chairman
Mrs Chris Willis, Chief Executive
Dr Rodger Thornham, Executive Committee Chairman

A partner in the Primary Care College for Tees and Durham - learning and working together

Appendix 6 Introductory letter to patient

(Practice Headed Paper)

Date as postmarked

Dear [Insert Name of Patient]

I am looking for your help with some research I am doing with colleagues at Newcastle University.

The research team at the University would like to talk to some of the patients from this practice with whom dental implant treatment has been discussed.

The researchers would like to hear about the experiences of people who have not had implant treatment (for whatever reason).

There is no treatment involved. The research team simply want to hear your thoughts about dentures and implants and how you made your decision. The researchers (Dr Ian Lane and Ms Nikki Rousseau) would like to be able to telephone you to explain what would be involved and invite you to take part in the study, but they cannot do this without your consent.

Enclosed with this letter you will find an information sheet. Please take your time to read this carefully and if you are happy to be contacted please complete the enclosed ‘consent to contact’ form. This should then be returned in the stamped addressed envelope included for your convenience.

I would really appreciate your help as it may help dentists to provide better services for people like you.

I sincerely hope that you will be able to help with this study which is innovative and prestigious for the University and the North East and is being supported by the Medical Research Council.

Yours sincerely,

[Name of Dental Practitioner]

Appendix 7 Consent to contact

Dental implants or dentures: Which to choose?

Consent to contact form

If you are interested in taking part in the study and wish to discuss your involvement further or indeed wish to go ahead and arrange for an interview, we need your consent to contact you (ideally by telephone).

By completing the form below you are not consenting to take part in the interview. You are only consenting to being contacted by one of our researchers (Dr Exley or Ms Rousseau).

Name …………………………………………………………………………..

Address……………………………………………………………………….

Post code ………………………………

Telephone ………………………………….

Please give the number where you would prefer to be contacted (Home, Work, and Mobile)

When is the best time for us to telephone you? ………………………………………

I agree to being contacted by one of the researchers involved in the above study in order to discuss my further involvement and/ or to arrange a suitable appointment for an interview

__________________________ ______________ ________________________________

Name Date Signature

Please return this form to us using the stamped addressed envelope included. Thank you for taking the time to read through this information and considering taking part in this study.

Appendix 8 Study information

Dental implants or dentures: Which to choose?

Patient Information Sheet

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

The study examines how dentists and their patients make decisions about which treatments to have. In this study we are looking at how people decide whether or not to have dental implants.

Why have I been chosen?

You have been identified by your dentist as someone who has recently had dental implants suggested to them as a treatment option. It does not matter whether you have actually had the implants or not. We are interested in hearing a range of experiences from people who have chosen to have implants and those who have not. We want to interview you because your experiences are important.

Do I have to take part in the interview?

No. It’s up to you to decide whether or not to take part. If you decide to take part now you can change your mind at any time, even after the interview has started. We will not tell your dentist if you choose to take part or not, and your treatment from your dentist will not be affected in any way.

What will happen if I take part?

A research interviewer from the university will ask you questions about your general dental health and specific questions about how implants were discussed with you, and how you came to the decision

about whether to have them or not. If you don't want to answer a question you don't have to, and you can end the interview at any point. Your interview will last about an hour and will be tape recorded.

Why do you record interviews?

We record the interviews because it is hard to take notes of what people say, listen carefully and think all at the same time! After the interview the recording will be listened to carefully and every word that both you and the interviewer say will be typed down. We use this written record, to help us remember what people said. The recording will be kept until the end of the study, and then destroyed.

What do I have to do?

If you are interested in taking part, please send back the enclosed form, making sure you fill in your telephone number.

A researcher will get in touch with you to answer any further questions you may have. After that, if you would like to take part, they will find out what times suit you best to be interviewed. Usually we interview people in their own homes, but if you prefer to be interviewed here at the university we can easily arrange that. We can provide travelling expenses of up to £20.

When the interviewer arrives to interview you, they will ask you to fill in a consent form. This is to show that you understand what the study is about, that you are happy to be interviewed and that you are happy for us to record the interview.

You should keep this copy of this information sheet and the consent form.

Are there any benefits to helping with the interview?

Although there are no direct benefits to you personally, we hope that you find being interviewed an interesting experience. Your involvement will give us a better understanding of how people are offered dental implants and how they make a decision about whether to proceed or not. We believe this will be of use to health care professionals, giving them a better understanding of what sort of information patients would like, in order to make important decisions about treatments.

Are there any disadvantages to helping with the interview?

The main disadvantage is the time it will take; an interview usually lasts about an hour. When talking about how you made the decision about dental implants you might also talk about personal things, which you may find a bit difficult, but our interviewer is well trained and used to hearing these kinds of things.

Will my taking part in the study be kept confidential?

Yes. Everything you tell us during the interview is completely confidential. We won't tell your dentist or anyone else anything. All personal information – your name, names of family or friends or your dentist - or anything else which might identify you will be removed so that no-one can identify you personally.

All recordings and written records are treated as confidential material. The written records are stored securely within the University under the supervision of Dr Catherine Exley, and in compliance with the Data Protection Act will be retained for 10 years before being destroyed. They will not be played or shown to anyone outside the research team.

Who has reviewed the study?

The scientific merit of the study was judged positively by reviewers selected by the Medical Research Council and the study was given a favourable ethical opinion for conduct in the NHS by Sunderland Research Ethics Committee.

How can I get more information about the study?

If you want to know about what the interview will involve or about the study in general please get in touch with us. Our telephone number is: 0191 222 7045, please ask for Nikki Rousseau or Ian Lane. Our address is: Institute of Health & Society, Newcastle University, 21 Claremont Place, Newcastle upon Tyne, NE2 4AA.

Appendix 9 Example of patient study consent

CONSENT FORM (Patient)

Title of Project: **Dental implants or dentures: Which to choose?**

Name of Researcher:

Please initial box

1. I confirm that I have read and understand the information sheet dated ....21.2.7............ (version ....4.......) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☑
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical/dental care or legal rights being affected. ☑
3. I understand that audio tapes and written notes from my interview may be looked at by other members of the research team but not by others outside the team. ☑
4. I agree to take part in the above study. ☑

DIANE PROCTER	14/1/08	D Procter
Name of Patient	Date	Signature
Name of Person taking consent (if different from researcher)	Date	Signature
IAN LANE	24/1/08	[signature]
Researcher	Date	Signature

When completed 1 for patient; 1 for researcher site file;

Influences on negotiating clinical need and decision making; 1
Patient Consent Form Vers. 4; 21/02/07