Refusal of implant supported mandibular overdentures by elderly patients

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Objective: The aim of this study was to gain greater in-depth understanding of why elderly patients who are currently dissatisfied with conventional dentures decline implant treatment.

Background: There is strong evidence from high-quality randomised controlled trials to support the use of implant-supported overdentures for the restoration of the edentulous mandible. However, whilst recruiting for randomised clinical trials, researchers have found that a high proportion of potential subjects decline participation, despite the removal of financial constraints.

Materials and methods: The study adopted a qualitative approach to provide a rich and deep understanding of people’s reasons for refusal. Data were collected through focus group interviews in a two-centre study based in Montreal, Canada and Newcastle, UK. A semi-structured interview schedule was used and iteratively developed as analysis identified themes from previous focus groups. Transcripts of focus groups were coded and emergent themes determined.

Results: Two main themes emerged; patients’ fear and anxiety (relating to the pain of surgery, complications of the procedure and immediate post-surgical denture use), and the appropriateness of the procedure in an elderly person.

Conclusions: Fears of pain, complications and social embarrassment, exacerbated by age, are important factors that help explain refusal of implants by elderly patients.

Keywords: edentulous, overdentures, implant, refusal.

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Introduction

The loss of teeth leading to edentulism was once accepted in society as an inevitable part of the ageing process. The reduction in the rates of edentulism in industrialised societies undermines this supposition. Indeed, edentulism fulfils the World Health Organisation (WHO) definition of physical impairment, since it involves anatomical loss, abnormality in structure and/or psychological disturbance¹. Locker reported that 39% of edentulous individuals indicated that they could not eat the foods that they would like to eat and that 29% enjoyed food less than before they lost their teeth². Food avoidance or dietary restriction usually involves the hard fibrous foods that are difficult to chew, and this is well described in edentate patients³–⁵. Thus, all edentulous patients are impaired, and this impairment often renders them disabled, as they are frequently unable to eat certain foods¹. In addition to the dietary limitations, edentulism causes many individuals to avoid social functions in which food is offered⁶. This in itself fulfils the WHO definition of a handicap¹.

Studies investigating the effect of edentulism on patients’ quality of life reveal that some patients regard edentulism as a disfigurement⁷,⁸. Some feel that they look different from other people, and some are ashamed by their tooth loss. Many edentulous patients feel dissatisfied with conventional dentures and believe that they just need to accept the problems they encounter as part of the denture-wearing experience⁷–⁹. Simple replacement with new conventional dentures does not appear to give substantial improvement¹⁰,¹¹. For many patients, the greatest
problems are associated with the mandibular dentures.

The advent of dental implants has offered a potential solution for edentate populations. Nevertheless, prostheses on multiple implants are very costly and, in most countries, are unavailable through the social healthcare system. For the vast majority of edentulous patients the most feasible, and cost effective, option appears to be the two-implant-supported mandibular overdenture (IOD). The case for this form of treatment as a minimal standard of care was made in the McGill Consensus Statement on Overdentures, and more recently in the York Consensus Statement.

Implant-supported overdentures are one of the few areas within restorative dentistry where there is strong evidence from high-quality randomised controlled trials regarding their efficacy in terms of patient satisfaction and quality of life outcomes. For the restoration of the edentulous mandible, there is an accumulating body of evidence that patients are more satisfied with IODs than conventional dentures (CDs), and that oral health-related quality of life can be significantly improved using IODs.

However, whilst recruiting for randomised clinical trials, researchers have found that a high proportion of potential subjects decline participation because they may be randomised to receive implants. The published evidence is limited but suggests that, whilst few patients refuse implant therapy for replacement of single teeth (4–7%), approximately one-third of edentate patients may decline implants.

The reasons for refusal are unclear. Financial limitations are likely to be an issue when patients are required to fund their own treatment but significant refusal rates are evident during recruitment to clinical trials in which patients are exempted from charges.

Objective

The aim of this study was to gain a greater in-depth understanding of why elderly patients who are currently dissatisfied with conventional dentures decline implant treatment.

Methods

Research design

The study adopted a qualitative approach to provide a rich and deep understanding of people’s perceptions of the treatments being offered. Data were collected through focus group interviews. The study received ethical approval from the Local Research Ethics Committee (UK) and the McGill University Faculty of Medicine Ethics Committee (Canada), and written consent was obtained from all participants.

Sample selection

This multicentre study recruited potential participants in two research projects designed to evaluate the efficacy of mandibular two-implant overdentures. The research projects were undertaken in Newcastle, United Kingdom and in Montreal, Canada. In Montreal, participants were recruited from a list of people who had replied to an advertisement seeking patients who wished to have replacement dentures, but who declined further involvement stating that they did not wish to have implant treatment. Newcastle patients were recruited from a waiting list of patients who had been offered an implant solution for ongoing complete denture problems and who, subsequently, refused this option.

Focus group participants were recruited according to the following criteria:

- 50 years of age or older.
- Complete denture-wearers seeking to replace them.
- Refusal to receive implants to support new dentures.

Focus group interview procedures

Focus groups interviews, each including between four and eight participants, were held in non-clinical meeting rooms distant to the site of treatment delivery. They were conducted by two teams, one in Montreal and one in Newcastle, each including a professional moderator and an assistant moderator. The discussions lasted approximately 2 h and were audio-taped in order to be transcribed verbatim. At the end of each session, participants were invited to fill out a short socio-demographic questionnaire.

A semi-structured questionnaire guide served to orientate the group discussion, as suggested by Krueger. Primary analysis of the data from each focus group allowed modification and development of the questionnaire guide to identify emerging themes. After a brief introduction designed to encourage solidarity among participants, the moderator structured the discussion to address increasingly specific issues related to the research question: understanding implant refusal. To this end, discussion of participants’ common denture-wearing experiences and expectations about dentures was
followed by discussion of implants, including knowledge about them, attitudes toward them, and comparison with standard dentures.

Analysis

Debriefing sessions and written documents detailing emergent themes and reflections enabled the researchers to share interpretations as a cumulative process. This allowed them to consider each group discussion separately and progressively. QSR N’Vivo 2.0 qualitative data analysis software was used to index the interview transcripts; each transcript was broken down in its entirety into meaningful segments, which were assigned to at least one code. Multiple coding also occurred when segments contained more than one thematic possibility.

For each transcript, at least two researchers coded and compared the data, and resolved discrepancies when they occurred; validity was thus established through inter-rater reliability. In qualitative research, the necessary sample size ultimately becomes apparent through analysis: by the fifth focus group, no new themes were emergent and data collection ceased.

Results

Thirty edentulous individuals participated in five focus groups (three in Montreal with 21 subjects, two in Newcastle with 11 subjects). Participants were aged between 55 and 80, with all but one participant aged between 62 and 80. Seventeen of the participants were female (11 from Montreal).

A major theme raised by the participants was fear and anxiety. This primarily related to pain associated with the surgical procedure itself, early and late complications and the inability to wear dentures during the immediate post-surgical healing period.

Pain associated with the surgical procedure

Participants expressed considerable fear of pain associated with the surgical procedure related to implants. Some consequently claimed to require strong reassurance about pain and pain control in order to be able to consider implants as an option:

If my dentist said...it might hurt a little bit, not a lot but a little bit, then maybe yes [I would agree to implant surgery].

More often, though, participants expressed a non-descript apprehension of the unknown, and a conviction that implant surgery would be painful:

I don’t want it [implant surgery]...they could give them to me [free of charge]; I’d still refuse. I’m too afraid of suffering. I’ve had enough suffering. I don’t think I would go for it. To start with, I have a very low tolerance level for pain, thank you very much. So I would worry about the pain caused by the implantation.

A fellow participant concurred,

I was going to say that ... I know it’s not possible but like she says if you just didn’t know about it.

Participants’ fear of the surgery was often fuelled by previous painful dental experiences. A female participant in one of the Canadian focus groups repeatedly alluded to surgery undergone almost 40 years ago to remove her teeth as justification for refusing implant surgery today:

I went through the operation to cut the gums. (...) I wouldn’t go through that again.

A male participant in the UK sample spoke in strikingly similar terms about tooth extractions undergone several decades ago:

I was in the Merchant service during the war and I had teeth pulled out at different countries all over the world and they hurt me, really hurt me, so I didn’t want to go through all that...again.

Participants had also made their decision to refuse implants based on other forms of past personal medical experience, notably surgery. From their perspective, any form of surgical intervention presented major obstacles. For instance, some drew an analogy between implant and cataract operations, since both involve purportedly minor forms of surgery; they nonetheless found cataract surgery to entail more than they had expected due to complications, in the case of a British participant, but also despite success, in the case of a Canadian participant.

A tendency to confound surgeries was also noted. For instance, participants were reluctant about implants because of past gall bladder, heart and ear surgery as well as past medical conditions. One woman who suffered peritonitis during pregnancy many years ago developed a great fear of pain, which explained her recent refusal of implants:

I’d been through enough, with one thing and another.

Early postoperative complications

Participants expressed a fear of post-surgical pain and complications stemming from implant placement:
It’s afterwards that bothers me. They were under the impression that serious side-effects, especially infection, might cause considerable suffering and lengthen recovery: It’s very scary. Imagine yourself having your jaw drilled, then the infection; you are the only person who is going to suffer no matter how fine the dentist is… He or she can’t help you if you get that infection.

Later postoperative complications

Participants consistently perceived dental implant surgery as presenting significant risks leading to insurmountable complications:

Am I going to regret them? Am I going to suffer side-effects for the rest of my life?

Participants also discussed the possibility of a failed procedure:

when you have bad dentures, you have to keep going back to the dentist to get them fixed, or else, (when) I’ve had enough, I put them in the drawer, I don’t wear them because they hurt all the time…it can be the same with implants, they can hurt all the time.

Rumours or ‘horror stories’ of failed implant procedures circulated in the social networks of the Canadian, but not the British, denture wearers. The stories purported to be a warning against implants since they relate botched operations that left patients disfigured or agonising in pain:

if they [the victims of failed implant surgery] had it to live over they wouldn’t do it because of the pain after surgery and all that.

Yet, upon learning a few basic facts about implants, which were provided later in the focus group discussion, many participants seemed relieved, and admitted that their fears were probably fuelled by unfounded tales. One participant conceded that those in his network who were vocal against implants:

probably didn’t know more than I do.

Post-surgical denture-wearing

A significant theme that emerged from the Newcastle Group related to post-surgical denture wearing. Participants in the Newcastle focus groups had been informed of a healing period after surgery during which they would not be able to wear dentures; some found this unbearable to contemplate:

The fact that I would have no teeth in and I couldn’t, if they had given me a million pounds I couldn’t walk around for three weeks, I was told, with no teeth. No way would I’ve, even in the house in a room I wouldn’t walk around.

Fears related to a period without dentures allude principally to psychosocial, as opposed to physical factors; indeed, participants had in the past endured pain rather than removing their dentures: Me, personally, I would go through hell rather than take them out. I would rather suffer, I have done. I’ve left them in and when I’ve cleaned them…I’ve taken them out and my gums have been cut and I’ve gaggled with salt and I’ve dabbed it and I’ve shoved them straight back in; I’ll suffer.

Many of these concerns were expressed in terms of age and perceived vulnerability. Across focus groups, participants defended their refusal of implants in similar terms, citing inappropriateness of the procedure, low resistance to pain and vulnerability to complications, as several individually stated, ‘at my age’. Most participants suggested that they would have considered implants had they been younger.

Age-related concerns about the appropriateness of the implant procedure

By weighing the perceived potential for harm against the benefits, our participants typically concluded that the procedure would almost certainly be more complicated than health care professionals might lead them to believe:

I distrust professionals a bit … because they tell little lies. So as not to scare you, maybe he looks at you and says [to himself] … ‘it [the implant procedure] would be good for him’. So they tone it down. The guy’s selling his product.

He can make a mistake…you go to the garage with your car, you go in with a flat tyre, you come out needing a new motor…I get the impression it’s the same thing [with the dentist].

Interviewer: So the [dentist] that said … your jaw, it’s just big enough [to support implants], would you have confidence in him?

Participant: No, because I have my own judgement on that and I was convinced myself that my jaw wasn’t strong enough for it.

This concern was echoed by others, who believed that they were now poor candidates for implants, having become increasingly fragile and potentially unable to withstand surgery:

your bones are already brittle, because you are older, and you…have a hole [from the implant insertion]. It’s like planting a nail in a dry board; it can split in two, it can break…

Age-related vulnerability to complications and pain

Participants expected their recovery to be long and arduous, arguing that their age renders recovery
after almost any procedure much more of a challenge than it would be for a younger patient:

I’m afraid of the consequences. At our age, too...what if there was a little problem, an infection for some reason? At 40, the body is okay [at fighting it] but at 60, 65 or 70, or older still, it’s not as quick [to recover], eh?

Our participants moreover conflated pain and bodily decline. Such an all-encompassing fear helps explain how implant surgery could be dramatised, and considered by some as a potential source of great suffering and even death:

It’s the pain. I don’t want to die yet...It [implant surgery] sends you down that road.

Discussion

Focus groups are a good way of examining issues shared by people with pertinent homogeneous characteristics. By bringing people together to discuss a common concern, this method facilitates group interaction, which helps to bring out issues that might not emerge in other research settings, as well as to establish which aspects of the topic are salient.¹⁹

None of our participants had received implants, and their fears were therefore based, to a large extent, on their perception of an unknown entity. They tended to rely on partly analogous surgical and medical experience, as well as on limited information and rumours about implants, when imagining treatment. Discouraging beliefs about implants were, in part, culled from participants’ social networks through what may amount to urban legends or horror stories shared among groups of edentulous acquaintances about the perils of implant surgery. These concerns surfaced only in the Montreal focus groups; Newcastle participants did not have frightening stories to tell. This difference between the British and Canadian groups is likely to be explained by the greater prevalence of the procedure in North America as compared to Britain. Our Canadian participants were highly receptive to these warnings from their social groups even when they were based on vague notions of what surgery actually entails or on simple rumours. While fear of implants among Montreal participants may be explained by a greater exposure to implant horror stories, Newcastle participants cited an additional fear of implants due to the implications for denture-wearing; they would be required to forego dentures altogether during a post-surgical healing period. The Newcastle participants received much more detailed information about implant surgery and its stages, which is the normal practice for consultations at this university dental clinic. They were, as a result, aware of this limitation while the Montreal participants were not, having been contacted only briefly by telephone regarding the clinical study.

The thought of surgery, postoperative pain and long-term complications frightened many. Participants’ past experience and current attitudes toward medical procedures affected their decision making, with potential problems being considered alone or in combination to warrant refusal of surgery. They drew on a negative view of dental surgery in particular and of medical procedures in general. There is therefore a tendency to associate disturbing concepts and negative experiences with current consideration of implants.

All of these concerns were reinforced by a sense of particular vulnerability; the elderly participants in this study considered themselves to be especially unsuited to implants due to age-related issues. They suggested that age is a factor in attitudes toward implants, as well as in experience of pain and acceptance of it. Fear of pain and complications are often paramount, despite the fact that beliefs about the intensity and duration of pain are unfounded, as outlined by clinical studies.²⁰ Indeed, the study participants typically lacked the information necessary to make an informed decision, and many knew virtually nothing about implants. They drew these conclusions without much background information about implants, notably concerning risks and recovery time. They appeared to believe that such information would not apply to them anyway, assuming that any reassurances about the procedure would be based on data from younger, healthier patients and hence could not give them an accurate indication of what to expect. Participants were also under the impression that dentists do not take their age into account when recommending implant surgery. This was often phrased in terms manifesting a distrust of the professional judgement of practitioners. In some instances this was expressed as a general sense of mistrust of the professional, who was seen to be selling a product. Beliefs about vulnerability and appropriateness of implants for the elderly present major concerns and fears specific to this age group. Our participants’ arguments deserve careful examination because they may set our cohort apart from younger implant candidates.

Since all of our participants were elderly, we rely on their retrospective accounts of change over time and their adaptation to ageing. Consequently, we cannot know how accurate reports of past attitude and behaviour actually are. We must
correspondingly interpret with caution the claim by many that they would have considered implant surgery had they been younger. A better gauge of age-related attitudes to implants would involve either a multi-age, cross-sectional study or, of course, a longitudinal design capable of tracking changes over a span of denture wearers’ lives.

The groups differed in terms of the circumstances under which they were offered implants. The Newcastle participants were offered implant supported overdentures free of charge, so clearly their refusal was not made on financial grounds. The Montreal participants had been invited to participate in a randomised clinical study in which they would be assigned to one of two groups: one group would receive implants and overdentures, whereas the other would receive new, high-quality conventional dentures. Participants would be expected to pay 500 (Canadian) Dollars, an amount less than they would normally pay for a new set of conventional dentures. The Canadians in the study were aware of the usual cost of dentures and the financial advantage that participation in the study would have brought. They declined participation in the clinical study due to considerations unrelated to cost; moreover, participants emphasised that money was not an issue: they could give them to me [free of charge]; I’d still refuse.

To promulgate the use of novel alternative treatment strategies such as implant supported overdentures, dentists need to engender a trusting relationship with their patients. Central to that relationship must be the patient-held belief that the dentist will act (and advise) in the individual patients best interest at all times. Effective communication relating to the concerns of patients may help to establish this belief. Communication must be patient centred, and the development of improved patient information resource tailored to particular clinical circumstances and patient demographics may be helpful.

Conclusion

While the quality of life of many elderly edentulous people might be improved if the inconvenience, discomfort, or pain associated with their current prostheses was eliminated, the perceived risks involved with implant surgery kept them from opting for implants. Thus, fears of greater pain, complications and social embarrassment, exacerbated by age, are important factors that help explain our elderly participants’ refusal of implants. An understanding of the reasons for refusal is an important step in overcoming a major barrier to the provision of this form of treatment.

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