

IN BRIEF

- Patients attending heart surgery units are often at high risk of heart disease arising from poor oral hygiene, so this study provides valuable and novel insights.
- Oral health care professionals will be able to devise interventions that are successful using the data presented in this article.

VERIFIABLE
CPD PAPER

Hearts and mouths: perceptions of oral hygiene by at-risk heart surgery patients

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Objective To assess and use the attitudes of patients who are placed at risk after valvular heart surgery due to the connection between poor oral hygiene, valvular heart disease/surgery and the risk of developing infective endocarditis.

Design A qualitative (focus group) design based study carried out on subjects three months post heart surgery.

Method There were five focus groups of five participants each convened by an experienced moderator.

Results These portrayed an apparent pressing desire by most patients to talk about their experiences. However, patients did not accept the link between their oral health and their general health. Oral hygiene practices were not necessarily oral health related.

Conclusions The importance of the study in understanding the reasons for a patient's behaviour is evident when there is a clear need to modify the behaviour patterns of the patients effectively. Clinical trials can now be developed based on these results.

INTRODUCTION

Oral health and the health of the heart have long been linked. The role of oral health in the aetiology of heart disease has been well documented and debated.^{1,2} Most experts in the field accept that poor oral hygiene can be a risk factor for infective endocarditis in vulnerable people (for example, with valves damaged by rheumatic fever in childhood). The treatment of valvular heart disease has become increasingly more sophisticated thereby

dramatically improving surgical outcomes and increasing patients' life expectancy. However, these positive improvements coincide with an increased risk of contracting infective endocarditis and associated sequelae. Poor oral health, especially periodontal status, is an important associated risk factor for infective endocarditis. Gingival inflammation correlates positively with the prevalence and severity of a bacteraemia.³

While the professional views on this issue have been widely aired, we were not aware of the views of patients at risk from endocarditis because of valvular heart disease. The study reported was carried out to remedy this shortfall.

METHOD

The study took a qualitative (focus group) approach. This method is well established in social scientific research, and increasingly in medical and dental research.^{4,5} It is particularly suitable for identifying, exploring and explaining complex attitudes, perceptions and beliefs,⁶ explaining the level of consensus around a given topic,⁷ and can overcome some of the disadvantages of quantitative methods, especially non-sampling errors such as the superficiality of response. As Kitzinger put so succinctly: *'Interviews may be more appropriate for tapping into individual biographies, but focus groups are more suitable for examining how knowledge, and more importantly, ideas, develop and operate within a given cultural context. Questionnaires are more appropriate for obtaining quantitative information and explaining how many people hold a certain (pre-defined) opinion; focus groups are better for exploring exactly how those opinions are constructed. Thus while surveys repeatedly identify gaps between health knowledge and health behaviour, only qualitative methods, such as focus groups, can actually fill these gaps and explain why these occur.'*⁸

Once ethical approval had been obtained, subjects were recruited to participate three months after they had recovered from surgery on their heart valves. A discussion guide was developed before the groups were convened. The groups of mostly men (aged 40 to 80 years) were convened by an experienced moderator, were tape recorded and transcribed, and the subjects were rewarded with a monetary incentive. Five focus groups were run, each with five participants.

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RESULTS

The focus groups were lively; it soon became apparent that the participants had a pressing desire to talk about their experiences surrounding their recent surgery, for example how profoundly and quickly their health had deteriorated before their operation.

'I spent a lifetime climbing up and down ladders 'cause I'm a painter and decorator and I found out that, when I, I'd this that I couldn't even stand on a chair, I've got to pay somebody to come in and do the decorating which I always done myself.'

'And when you go for a shower, a simple thing like getting a shower, and you're only getting dried with a towel and I've got to sit on the bath, and me chest's going like [laugh] and you've only had a shower.'

The heart/mouth connection

Very few of the participants accepted that there was a link between heart health (endocarditis) and oral health.

Researcher: *'Has anyone ever mentioned a connection between your heart and your teeth, or your heart and your mouth? Oral hygiene? I'm not saying there is or isn't a connection, I'm just asking the question.'*

Six out of eight participants (in one focus group) answered 'no'. *'It was definitely never mentioned about oral hygiene.'*

'I wouldn't have thought that a bypass¹ would directly affect your teeth or oral health.'

'...it's well proven if er with a heart condition you're going to have dental work, right, antibacterial gum and so on ... but as far as anything else is concerned I still feel it's very much an unproven situation ... therefore there's no point in going too far along this road until more is known about.'

Some participants had heard of the issue.

'Well I've heard that if you've had a bypass [oral hygiene] can affect your valve.'

'Yes. The physiotherapy team told me that if you have had a bypass then you have to be extra specially careful about your teeth.'

'The first time I went to the (hospital) to see the consultant I was given a red card about teeth and also some antibiotics. She discussed my teeth with me.'

Some participants changed their minds during the discussions.

'Well now you mention it, I can see how there might be a link between your blood and your heart.'

Even when the heart/mouth connection with endocarditis was explained, some participants remained sceptical.

'Well it's basically just a theory isn't it? An opinion?'

'There are many experts who give opinions and it's an opinion. An opinion is an opinion is an opinion. Not a fact. That irritates me.'

What determines oral hygiene activity

There were mixed views on what determined oral hygiene behaviour. Some participants thought they brushed their teeth for health reasons, but others thought grooming or ritualistic behaviour was the predominant reason they practised oral health care.

'I mean it's automatic to me, I'd clean me teeth. You brush your teeth to look good, there is never any indication that, you know, it's our health that could suffer, unless you've got rotten teeth, but then...'

The cardiothoracic team setting the agenda

Most of the participants were in awe of the cardiothoracic teams, to the extent that the surgeons defined what was important to the subjects, and what was not.

'I mean, been in a few hospitals but the Freeman (hospital) staff takes some beating.'

'He (the surgeon) said we've opened you up and your valves have all gone, you've got a big hole in the middle of your heart so we'll have to patch you up and that's the best we can do. I had 12 x-rays, he says you'll be glowing when you leave here. You know he cheered you up just by being there, where most people would say are you all right, you know.'

'Yeah, 'cause you felt like when I've, I've got a friend if, if I want to ask anything I just ask him (the surgeon), and he'll tell us exactly what's the matter.'

'He was very good because when he finished off he picked up the phone and phoned the wife and told her exactly, that the operation was over and that it had been a success. So how many does that?'

Oral health was not included on the agenda of the surgical teams.

'... when you wake up (on the ward) on a morning the first thing they ask. Have you been washed or showered, or shaved, but they never say have you cleaned your teeth.'

'But if we needed to get a new message across that looking after your mouth is just as important as looking after your diet as your exercise, If Mr (Surgeon) said it you would, or Prof (Surgeon) ... or, would you think that was reasonable thing to do or would think he should just be looking after your heart.'

DISCUSSION

There are several possible reasons why patients would not accept the link between their oral health and their general health. Firstly, cleaning teeth is a highly ritualised behaviour, often taught by mothers and reinforced at primary school by visiting dentists, teachers and others. Such ritualised behaviour is indicative of the need for conformity and resistance to change. Acquiring new oral health rituals will take time and depends on building a credible longer-term relationship, an important role for the dental hygienist who is in a position to address this.

At what point in the recovery process should the health professionals intervene with oral health issues? Our findings show the need to introduce the oral health professional at an early stage as a part of the hospital team itself, endorsed by the surgeon to enhance their credibility and status.

Oral health promoters could capitalise on this group of patients' desire to tell their story so long as they are endorsed by the surgeon during the period in hospital. Dealing with patients' oral health through group discussions and demonstrations may not be the method of choice for this group of patients.

Information on valvular heart disease and its complications is a key factor in promoting healthy behaviour. However, provision of this information alone is not indicative of good patient compliance. There may be several reasons for the differences in patients' behaviour. Firstly, there are unexpected barriers to enabling patients to comply eg refusal for treatment by local dentists concerned about the heart condition of the patient. Some patients may find it difficult to register with a dentist, usually through anxiety or inaccessibility. A number of patients may never have received advice on dental care or do not recognise the importance of certain oral symptoms eg oral sepsis. A dental screening examination is not a common occurrence within the hospital cardiac services.⁹ Secondly, many patients hold self-exempting beliefs. Such beliefs have important implications for the content and targeting of health promotion campaigns. Accepting information and therefore maintaining good oral hygiene is dependent on these patients shedding these beliefs that they will not be the ones affected.¹⁰ Thirdly and perhaps most importantly are the differing attitudes of the patients to their situation. Well researched behaviour models categorise people into the perceptions of their circumstances.¹¹ Subsequent perception analysis should provide

indications on behaviour modification techniques for each patient. An example is 'cognitive dissonance', which is caused by conflicts between knowledge or beliefs and behaviour. While many patients acknowledge the risks of poor oral hygiene, they minimise their own perceived risk of disease. In many cases they believe that their own risks are less than those of other patients. Researchers suggest that patients may attempt to minimise, deny or avoid information about the risks of infective endocarditis in order to reduce dissonance.^{12,13} An understanding of cognitive dissonance could improve the efficacy of oral health promotion in valvular heart disease patients as well as other 'at risk' groupings.¹⁴

1. Seymour R, Preshaw P, Steele J. Oral health and heart disease. *Prim Dent Care* 2002; **9**: 125-131.
2. Seymour RA, Lowry R, Whitworth J M, Martin M V. Infective endocarditis, dentistry and antibiotic prophylaxis; time for a rethink? *Br Dent J* 2000; **189**: 610-616.
3. Barreira J *et al.* Understanding of endocarditis risk improves compliance with prophylaxis. *Revista portuguesa de Cardiologia* 2002; **21**: 939-951.
4. Leather D, Roberts M. Attitudes towards breast disease, self-examination and screening facilities among older women: communication implications. *Br Med J* 1985; **290**: 668-670.
5. Blinkhorn A, Hastings G, Leather D. Attitudes towards dental care among young people: implications. *Br Dent J* 1983; **155**: 311-314.
6. Gibbs A. Focus groups. In University of Surrey Department of Sociology, *Social research Update* 19, 1997.
7. Morgan D L, Kreuger R A. When to use focus groups and why. In Morgan D L. (ed) *Successful focus groups*. London: Sage, 1993.
8. Kitzinger J. Introducing focus groups. *Br Med J* 1995; **311**: 299-302.
9. Lowry L, Rugg-Gunn A, Lowry R, Patten W. Barriers to the dental care of children with heart problems. *J Dent Res* 2001; **80**: 117.
10. Chapman S, Wong W L, Smith W. Self-exempting beliefs about smoking and health: Differences between smokers and ex-smokers. *Am J Public Health* 1993; **183**: 215-219.
11. Tripp A. Attitude theories of relevance to adapted physical education. *Adapt Phys Activ Quart* 1991; **18**: 12-27.
12. Halpern M. Effect of smoking characteristics on cognitive dissonance in current and former smokers. *Addict Behav* 1994; **119**: 209-217.
13. Newby-Clark I, Zanna M, McGregor I. Thinking and caring about cognitive inconsistency: When and for whom does attitudinal ambivalence feel uncomfortable? *J Pers Clin Psych* 2002; **82**: 157-166.
14. Draycott S, Dabbs A. Cognitive dissonance: An overview of the literature and its integration into theory and practice in clinical psychology. *Brit J Clin Psych*; **37**: 341-353