Patient anxiety and IV sedation in Northern Ireland

O. Hunt[1], N. McCurley[2], M. Dempster[3] and J. Marley[4]

VERIFIABLE CPD PAPER

IN BRIEF

- Provides an insight into the dental practitioner's decision-making process regarding sedation.
- Shows that anxiety is the most important factor for the dental practitioner when assessing a patient's need for IV sedation.
- Demonstrates the lack of standardised procedures when assessing patient anxiety.

RESEARCH

Background In recent years there has been an increase in the provision of conscious sedation, which is said to be a safe and effective means of managing the anxious patient. However, there are no guidelines to aid the dental practitioner in assessing the patient's need for sedation based on their level of anxiety. **Aims and methods** The present study investigated the importance of patient anxiety as an indicator for IV sedation, using focus groups to inform the development of narrative vignettes. Ninety-nine practitioners responded to a series of scenarios to determine whether the level of patient anxiety and the patient's demand for IV sedation influenced their decision making. **Results** Level of dental anxiety had a stronger influence on the clinician's decision making than patient demand, with increasing levels of dental anxiety being positively associated with the likelihood of clinicians indicating a need for IV patient sedation and also, the likelihood of clinicians providing IV sedation to these patients. Only 14% (n = 14) of respondents reported formally assessing dental anxiety. **Conclusions** While dental anxiety is considered to be a key factor in determining the need for IV sedation, there is a lack of guidance regarding the assessment of anxiety among patients.

INTRODUCTION

Anxiety is quoted by many patients as a barrier to the receipt of dental care.[1–4] It is said to be one of the most important and challenging aspects of everyday clinical dental practice.[5] Indeed, in the Adult Dental Health Survey, up to 45% of people cited fear of dentistry as a major barrier to the receipt of dental care.[6] Recent studies have also demonstrated that the incidence of dental fear does not appear to be decreasing despite the advances in dentistry and dental treatment.[7] While various instruments are available to assess anxiety[8–10] and have been designed for specific dental situations,[11] there is little data available in relation to their routine application in the dental setting.

One of the better known anxiety questionnaires is the Corah Dental Anxiety Scale (DAS).[12] When using this instrument respondents are asked four questions that relate to how they would feel in certain dental situations, for example, in the waiting room or in the dental chair. Each question has five possible answers indicating how anxious the patient feels in each situation. Newton and Buck[13] provide a good review of anxiety measures, making reference to which measures are more suited to a clinical or research setting. They recommend the Corah DAS for clinical dentistry settings. However, in the UK, the use of pre-treatment dental anxiety questionnaires was found to be low among dental practitioners.[14]

Dental anxiety is often cited as an indication for the provision of sedation. Much information is available to the clinician on the appropriate practice, safety aspects and correct equipment requirements for the practice of conscious sedation[15–17] yet none of these guidelines state how dental anxiety should be assessed or what level of anxiety is necessary to indicate the need for sedation. 'Need' for sedation has been described as a clinical need due to a procedure or a patient need due to anxiety or compliance issues.[18] Conscious sedation is a pharmacologically-induced state of relaxation in which the patient remains conscious and cooperative throughout the dental treatment. The procedure allows the patient to maintain their protective reflexes and vital signs. The patient should also remain able to respond rationally to command during any treatment.[19–21] Conscious sedation is therefore a valid and valuable treatment option but it is not without risk. It is important that the indications for its use are evidence-based. In addition, in an environment of increasing cost restriction, it would be reasonable to argue that its indications for use should be carefully considered.

The publication in July 2000 of *A conscious decision* by an expert group chaired by the Chief Medical and Dental Officers[19] expressed concern over safety and standards in the provision of dental general anaesthesia within the profession and consequently resulted in its practice being restricted to the hospital environment.

The Working Party publication *Standards for conscious sedation in dentistry*[15] and the General Dental Council (GDC)[22] have stated that the control of anxiety and pain is fundamental to the practice of dentistry.

[1]*Lecturer, [4]Senior Lecturer/Consultant in Oral Surgery, Centre for Dental Education, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, Grosvenor Road, Belfast BT12 6BP; [2]Specialty Doctor in Oral Surgery, The Ulster Hospital, Upper Newtownards Road, Belfast BT16 1RH; [3]Research Coordinator, DClinPsych Programme, School of Psychology, Queen's University Belfast, University Road, Belfast BT7 1NN
*Correspondence to: Dr Orlagh Hunt
Email: o.hunt@qub.ac.uk

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Taken together with the public demand for a method of treatment that allowed wakefulness, but insensibility to pain and amnesia, there has been a rise in the use and demand for conscious sedation.

Furthermore, while recent surveys in the UK have highlighted that conscious sedation is becoming a very popular management option,[7,18] it is still not being practised by all practitioners, with many not feeling equipped to provide it. A survey of general dental practitioners in Northern Ireland in 2005[23] found that up to 43% of respondents did not provide sedation for their own patients but preferred to refer patients for such treatment options. This study also investigated referral patterns for sedation, demonstrating that 39% of respondents would refer or have referred patients who require sedation to another high street practitioner, 35% would refer or have referred to the Community Dental Service and 26% would refer or have referred patients to the hospital setting for sedation. Only 53% of respondents felt adequate sedation services were available in their area. Seventy-three percent of respondents felt further training in sedation would be advantageous.

A similar study in Scotland[1] found that 75% of practitioners felt there was a real need for sedation in their daily practice; however, less than 50% felt able to offer this option to their own patient. In the same survey 70% of those questioned felt there was a need for further training in the area of sedation. This information would suggest there is a training need in the practice of sedation but there may be other influences on sedation practice which have not been explored in these studies.

Intravenous sedation is a means of delivery of conscious sedation and is the focus of this study. It involves the use of one or more drugs to depress the central nervous system of the patient thus reducing awareness to their surroundings, while maintaining verbal contact. Loss of consciousness with subsequent loss of protective reflex should not occur and should be unlikely with the drugs used. However, little information is available as to the selection criteria for patients being offered or choosing IV sedation. No clear guidance is available as to what level of anxiety would be deemed appropriate before IV sedation should be considered and how the level of anxiety should be assessed.

The primary aim of the present study was to explore the importance of patient anxiety as an indicator for the provision of IV sedation among dental practitioners in Northern Ireland. Ethical approval for the study was obtained from Queen's University Belfast (*PREC 11-09*).

METHOD

Focus groups

A series of focus groups were organised to gain a better understanding of the issues surrounding the treatment of dental patients using IV sedation. Four focus groups were organised for various dentally qualified professionals: general dental practitioners (n = 4), specialist practitioners in oral surgery (n = 5), community dental officers (n = 4) and consultants in oral and maxillofacial surgery (n = 3). The focus groups were audio-recorded with the permission of each group and moderated by a health psychologist and one of the dentally qualified investigators. Participants in the focus groups also completed a questionnaire relating to demographic issues, undergraduate and postgraduate training and their current practice of IV sedation. The information obtained from the focus groups was used to inform the design of a series of narrative vignettes which were then used to assess the factors which influence dental practitioners in choosing to provide IV sedation.

Vignettes

A number of key themes emerged from the focus groups, with the two main issues identified as:

1. The patient's demand for sedation
2. The practitioner's assessment of the patient's level of anxiety.

Six vignettes were then developed, each describing a scenario involving a patient who required the removal of a number of teeth. The treatment description remained as a constant in each of the vignettes. To reflect the findings from the focus groups, each vignette portrayed a different level of patient anxiety and a statement on the patient's level of demand for sedation. The vignettes were designed to provide all possible permutations of levels of anxiety and demand for treatment (Appendix 1).

Participants were asked to answer two questions in relation to each vignette:

1. How likely do you think it is that the patient needs sedation?
2. How likely are you to provide this patient with sedation?

Responses to each question were made on a five-point scale with 1 being 'very likely' and 5 being 'not at all likely'.

Demographic questionnaire

All of the participants were asked to complete a modified version of the focus group questionnaire to obtain information about their current practice of IV sedation. Additional questions were asked to address whether participants formally assessed anxiety and, if so, how this was assessed. Participants were also given a list of possible influencing factors when deciding to offer sedation to a patient and asked to rank order the influence of these factors on their decision making (Appendix 2).

Web-based study

Every dentist in Northern Ireland who was registered on the General Dental Council's list was eligible for inclusion in the study. An invitation asking dentists to take part was issued by post. Details of the study were included in each dentist's schedule of payment with information provided about how to take part online. An online site was piloted by a selected group from the original focus groups and a number of hospital dentists to determine ease of comprehension and navigation of the site.

The vignettes and questionnaire were made available to a potential audience of 700 GDPs, 20 community dental officers, ten specialist practitioners in oral surgery and ten consultants in oral and maxillofacial surgery. The website remained active for a period of 20 weeks. During that time two further reminders about the study were sent by post to all potential participants. Email reminders were sent where possible and a further reminder was made about the study at two consecutive local GDP meetings.

The data were entered into SPSS, version 15, for statistical analysis.

RESULTS

Completed responses were received from 99 clinicians (13%), 58% of whom were male. The median age group was

Table 1 Need for sedation with changing levels of anxiety and demand

Anxiety	Demand	Mean	Standard error	95% confidence interval	
				Lower bound	Upper bound
None	No	3.909	0.101	3.709	4.109
	Yes	3.596	0.111	3.375	3.817
	Total	3.753	0.093	3.567	3.938
Slightly anxious	No	3.758	0.100	3.560	3.955
	Yes	3.293	0.102	3.091	3.495
	Total	3.525	0.089	3.348	3.703
Very anxious	No	2.737	0.123	2.493	2.982
	Yes	2.495	0.125	2.246	2.744
	Total	2.616	0.119	2.381	2.851

Table 2 List of factors influencing choice of sedation with mean rank importance scores

Factor	Mean rank
Anxiety	2.68
Medical history	2.72
Chaperone	3.82
Treatment	4.18
Training	4.86
Previous treatment under IV sedation	5.13
Demand for sedation	5.26
Age	5.54
Finance	7.68

30-40 years (25% aged 23-30 years; 35% aged 31-40 years; 29% aged 41-50 years; and 11% aged over 51 years). The majority of respondents had graduated after 1980 (10% graduated 1961-1980; 32% graduated 1981-1990; 36% graduated 1991-2000; 22% graduated from 2001 onwards).

A breakdown of the sector of work of the clinicians shows that 78% of respondents were GDPs, 7% were community dental officers, 5% were specialist practitioners and 10% were hospital-based consultants in oral and maxillofacial surgery.

Regarding relevant postgraduate training in IV sedation, 45% (45/99) of respondents had attended a Northern Ireland Medical & Dental Training Agency (NIMDTA)-recognised course, most of which were within the past 5 years. Twenty-three per cent of the clinicians stated that they currently perform IV sedation.

Analysis of the responses to the vignettes (using a 3 × 2 ANOVA) indicated that clinicians were more likely to respond that the patient should be given sedation with increasing levels of patient anxiety ($F(2,196) = 75.514$, $p < 0.001$). A statistically significant difference was also observed between the vignettes indicating a high and low demand for sedation. Clinicians reported that the patients who demanded sedation in the vignettes were more likely to need sedation than the patients who did not demand sedation in the vignettes ($F(1,98) = 27.443$, $p < 0.001$).

However, there was no statistically significant interaction between level of anxiety and level of demand with regard to the clinicians' perceptions of the need for sedation ($F(2,196) = 2.244$, $p = 0.114$).

Conclusions about these relationships were not affected by the inclusion of age, gender and graduation year as covariates in the analysis. The mean scores are provided in Table 1 and suggest that anxiety has a stronger impact on the decision about sedation than demand.

Clinicians were also provided with a list of factors that the focus group research concluded may be important considerations in clinicians' decision making about sedation. Clinicians ranked these factors in terms of importance in their decision about the need for sedation for a patient. The factor ranked as most important was anxiety followed by medical history (Table 2).

Fourteen percent of the respondents said they assess anxiety formally, with only two respondents using a formally validated anxiety questionnaire. The other respondents used either personal experience or unvalidated questionnaires to determine the level of anxiety of their patients.

DISCUSSION

The aim of this study was to explore the importance of patient anxiety as an indicator for the provision of IV sedation among dental practitioners in Northern Ireland.

Forty-nine percent of respondents reported offering sedation to their patients. However, only 23% (n = 23) of the clinicians taking part in the study stated that they currently perform IV sedation. Only 14% (n = 14) formally assess anxiety, with only two clinicians reporting the use of a validated questionnaire to do so.

Responses to the vignettes indicate that clinicians were more likely to respond that the patient should be given sedation with increasing levels of patient anxiety, making sedation more likely to be prescribed as the patient displayed more anxiety. When asked to rate a number of factors that may be important in decision-making about IV sedation, clinicians ranked anxiety as the most important factor. While clinicians believe that anxiety is the most important factor to consider when deciding on the administration of IV sedation, it is concerning to see that only 14% of those asked reported that they assess anxiety in a formal way.

It is possible that in practice anxiety is assessed more informally than the clinician realises and that there is a heavy reliance on subjective elements such as intuition or past anecdotal experience. The possibility with this type of informal assessment is that a clinician may provide a patient with sedation who is not necessarily in true need of it or alternatively they may deny someone the benefit of sedation where it is required. At present there do not appear to be any specific standard guidelines available to dental professionals in terms of assessment of anxiety and therefore it is understandable that they would determine the need for sedation in the way that they currently do. A difficulty arises, however, if the clinician incorrectly assesses the patient's need for sedation based on personal intuition. A negative experience of dental treatment could result in the patient experiencing even greater anxiety and prove detrimental to future attendance and/or treatment with their dentist.

The lack of use of standardised and robust measurements for anxiety places a heavy onus on both the patient to appropriately request sedation and on the clinician to correctly decide that it is needed. Further research warrants a detailed examination of the way in which clinicians currently assess anxiety, and also their knowledge of the various methods available to do so.

Furthermore, from the vignettes it emerged that dentists were more likely to rate a patient to be in need of sedation where the patient demanded sedation. This is an interesting finding which suggests that the patient's expectation for sedation may influence the clinician's decision to administer it. It is possible that the patient is able to correctly assess their own need for sedation for various dental procedures and the dentist is then in agreement with this request. However, a recent study has demonstrated that 38% of patients did not know sedation was available for dental treatment and therefore such patients do not have the ability to request sedation.[7] It is also possible that the patient is basing their request for sedation on factors which may not necessarily be good indicators for sedation such as a lack of knowledge about the treatment or having received previous treatment under sedation. While it is important to take the patient's requests on board and explore their reasons for such requests, it is also imperative that the dentist uses sound clinical evidence to support any decision for administration of or referral for sedation. At the same time it is important that the dentist listens to the patient in terms of their fears and anxieties surrounding treatment. Patient involvement in his/her own treatment options is recognised as an important factor in promoting wellbeing. Therefore, it is essential that the dentist is willing to listen to the patient's concerns and beliefs surrounding their treatment and care. An open dialogue between the dentist and the patient, where both parties are content with the final treatment decision, will lead to greater satisfaction for both the patient and dentist.

It is interesting to note that while demand for sedation was a strong influencing factor when the dentists were discussing sedation in the focus groups, it was rated as less important than a number of other factors in the rank order of items that might influence decision-making. It is possible that dentists know that demand for sedation by the patient is not a sound clinical indicator for sedation and therefore they did not rate it highly in the rank order of items presented. However, it seems that in reality it does play some part in their decision making, as evidenced during the focus group discussions and their responses to the vignettes. Perhaps the clinicians felt more comfortable indicating a need for sedation when demand was high as presented in the vignettes and also while discussing it in the relaxed atmosphere of the focus groups.

Demand for sedation was rated as having less influence on decision-making than the patient's medical history, availability of a chaperone, and the clinician's own training experience when using a rank order of items. While these other issues were not key factors that emerged during the focus group discussions, and therefore did not form part of the vignettes, it would seem that the dental professional has a wide range of factors to consider when deciding on IV sedation as a patient management option. Vignettes incorporating a fuller picture of the patient could be used in future work in this area. However, this does demonstrate the multiple and interacting factors which are likely to be at play when the dental health professional is making a decision about IV sedation.

Age, gender and year of graduation did not affect results, suggesting that having greater experience was not a factor in the decision making process. This seems to provide further evidence that the use of sedation is based on intuition or some other related subjective factor.

Use of focus groups and vignettes

Vignettes provide a valuable technique for exploring people's perceptions, beliefs and meanings about specific situations, and are especially useful for sensitive areas of inquiry that may not be readily assessable through other means.[24] The technique is gaining widespread use in healthcare.[25] As there was very little previous research on how clinicians assess a patient's need for sedation based on their anxiety, the authors felt that the use of focus groups and the subsequent vignettes were the best way to identify the main issues relating to sedation and anxiety as well as providing the clinician with a contextualised situation in which they could provide their opinion. Future studies could include vignettes detailing a range of procedures that varied in difficulty to determine whether the treatment itself might alter the perceived importance of anxiety in treatment planning.

Response rate

The focus groups were organised to represent all possible clinicians who would be referring or providing sedation to patients and therefore were considered to be representative of the population under study. A web-based approach to data collection in the main study was chosen as it allowed full access to the large number of participants who were eligible for inclusion. While web-based studies can have a poor response rate, it was felt that this was the most appropriate method of data collection to optimise the response rate among busy dental health professionals. The response rate in this study reflects the fact that all dentally qualified professionals in Northern Ireland were included in the study (99 out of a possible 740 participants). Future research in this area could build upon the findings of the present study but use a more clearly defined sample to enhance the response rate. Ideally, it would have been preferable had more clinicians taken part in the web-based study. However, these findings do give us a previously unknown insight into the factors at play when dental professionals consider sedation for their patients.

CONCLUSIONS

1. Anxiety is considered by dental health professionals to be the most important factor when assessing a patient's need for IV sedation
2. Anxiety is infrequently assessed in a formal manner.

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Appendix 1 Vignettes

1. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation.

2. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation. Her family and friends normally have dental treatment with sedation and she feels she must have sedation to have the extractions.

3. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation. Her family and friends normally have dental treatment with sedation and she feels she must have sedation to have the extractions. You perceive the patient to be slightly anxious about the planned treatment.

4. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation. Her family and friends normally have dental treatment with sedation and she feels she must have sedation to have the extractions. You perceive the patient to be very anxious about the treatment to be done.

5. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation. You perceive the patient to be a little anxious about the treatment planned.

6. A 32-year-old female attends your surgery for removal of a number of periodontally involved upper teeth (754321/123467). She is fit and well, with no contra-indication to having IV sedation. You perceive the patient to be very anxious about the treatment planned.

Appendix 2 Possible influencing factors when deciding to offer sedation to a patient

Influencing factor	Rank order (1 being the most important)
Age	_____
Previous medical history	_____
Type of treatment	_____
Chaperone home post-operatively	_____
Patient's demand for sedation	_____
Finance	_____
Level of postgraduate training in IV sedation	_____
Previous treatment received by patient under sedation	_____
Anxiety level of patient	_____