

# Patient satisfaction during and following procedural sedation for ambulatory surgery

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**Background:** Patient satisfaction is multidimensional. The clinician's perspective of a good outcome and the patient's experience of a satisfactory service are often two different end-points. The primary aim of our study was to assess the perioperative experience of patients undergoing procedural sedation. A secondary aim was to create a postoperative questionnaire which could be used as a measurement tool. The questions could also be used as an audit to assist with adherence to quality assurance and clinical governance.

**Method:** A questionnaire was compiled to attempt to assess the perioperative aspects of procedural sedation. Five hundred consecutive patients undergoing procedural sedation for dental-related outpatient procedures were asked to complete a questionnaire. Patients who didn't complete it were excluded. Ninety-eight per cent of the patients returned the questionnaire and 489 questionnaires were evaluated.

**Results:** A total of 489 patients were included. Ninety-three per cent of the patients expressed a good (7+/10) overall experience of procedural sedation, and 92.6% indicated that they would recommend it to others.

**Conclusion:** Our study population showed a high level of satisfaction with their sedation experience. It is suggested that the devised questionnaire could be used successfully in future as an assessment tool or audit of patient satisfaction following procedural sedation for ambulatory surgery.

**Keywords:** patient satisfaction, postoperative questionnaire, procedural sedation

## INTRODUCTION

The concept of procedural sedation is widely accepted for managing pain and anxiety for procedures outside the operating theatre. Defining patient satisfaction involves a multidimensional approach which includes clinical aspects of care, safety, and patients' perception of a satisfactory outcome.

Procedural sedation is a rapidly expanding field. It is an alternative to general anaesthesia within the scope of widening ambulatory surgery. Patients are often poorly informed of what procedural sedation entails, and want reassurance that even though they are not unconscious, as in the case of general anaesthesia, they will still be comfortable, and without pain and anxiety while in the chair.

Measuring clinical outcomes is limited by a lack of validating instruments. Mortality and length of hospital stay are commonly used variables. However, neither is applicable in the case of elective ambulatory surgery.<sup>1</sup>

Patients expect more from an anaesthetic than merely being able to wake up afterwards.<sup>2</sup> For example, postoperative nausea and vomiting (PONV) after general anaesthesia can increase the cost of the total health care by increasing recovery room time and potential hospital admission. It is equally important that patients are dissatisfied and uncomfortable with PONV.<sup>3</sup> Patients report that avoiding PONV is of greater importance than preventing postoperative pain.<sup>4</sup>

Patients are viewed as customers who expect a certain standard of care in a service delivery-driven world.<sup>4</sup> Patient autonomy gives patients the right to partake in a number of available treatment options.

According to local sedation guidelines,<sup>5</sup> an annual audit needs to be conducted of the performance of every practice for clinical governance and quality assurance. The primary aim of our study was to assess the peri-operative experience of patients undergoing procedural sedation for ambulatory dental procedures. A secondary aim was to create a postoperative questionnaire which could be used as a measurement tool. The questions can also be used as an audit to assist with adherence to quality assurance and clinical governance within a practice setting.

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Table 1: The post-sedation questionnaire used in the study	
Questions asked	Method of answering
Why did you opt for conscious sedation? <ul style="list-style-type: none"> <li>• Fear or anxiety about being awake while the surgeon is doing the procedure</li> <li>• To avoid experiencing a gag reflex, as conscious sedation also helps to alleviate the gag reflex</li> <li>• The length of the procedure is too long to be awake and experience the whole surgery</li> <li>• A previous bad experience with surgery under a local or general anaesthetic</li> <li>• A previous good experience with sedation</li> <li>• It was suggested by the surgeon or dentist</li> <li>• There is an advantageous cost benefit with sedation over the other procedures</li> <li>• Other</li> </ul>	Tick the appropriate box
Before sedation: <ul style="list-style-type: none"> <li>• Did you receive printed documentation on sedation beforehand?</li> <li>• Did the surgeon explain sedation to you before the procedure?</li> <li>• Did the sedationist explain sedation to you before the procedure?</li> <li>• Did you feel more comfortable after the sedationist talked to you?</li> <li>• Did you feel comfortable having the surgery performed under sedation?</li> <li>• In hindsight, do you think that you were adequately prepared for sedation?</li> </ul>	Circle "Yes" or "No" as your response to each subquestion
On a scale of 1–10, what was your experience of the operation under conscious sedation? (1 = "never again" and 10 = "excellent")	Select the appropriate number
During sedation, did you: <ul style="list-style-type: none"> <li>• Feel uncomfortable at all?</li> <li>• Feel as if you were choking?</li> <li>• Feel cold at any stage?</li> <li>• Have any problems breathing?</li> <li>• Experience any pain?</li> </ul>	Circle "Yes" or "No" as your response to each subquestion
The nature of conscious sedation allows for communication between doctor and patient during the sedation. You were frequently reassured throughout the procedure. Do you remember: <ul style="list-style-type: none"> <li>• The nature of this?</li> <li>• The sedationist's intravenous injection in your arm or hand?</li> <li>• The local anaesthetic injection by the dentist or surgeon?</li> <li>• Follow-up injections of local anaesthetic by the dentist or surgeon?</li> <li>• The operation or procedure itself?</li> </ul>	Tick an option: <ul style="list-style-type: none"> <li>• Not at all</li> <li>• A little</li> <li>• All of it</li> </ul>
<ul style="list-style-type: none"> <li>• How much of your journey home can you remember after the sedation?</li> </ul>	Tick an option: <ul style="list-style-type: none"> <li>• Not at all</li> <li>• A little</li> <li>• All of it</li> </ul>
Did you have a headache after your procedure?	Tick an option: <ul style="list-style-type: none"> <li>• Not at all</li> <li>• Yes, lasting &lt; 4 hours</li> <li>• Yes, lasting &gt; 4 hours</li> </ul>
After the sedation: <ul style="list-style-type: none"> <li>• Did you have to take antibiotics after your surgery?</li> <li>• Did you feel nauseous before you left the surgery or clinic?</li> <li>• Did you feel nauseous after you left the surgery or clinic? (i.e. within 24 hours of being discharged)</li> <li>• Did you vomit before you left the surgery or clinic?</li> <li>• Did you vomit after you left the surgery or clinic? (i.e. within 24 hours of being discharged)</li> </ul>	Circle "Yes" or "No" as your response
How soon after surgery did you experience pain at the operation site, if at all?	Tick an option: <ul style="list-style-type: none"> <li>• No pain</li> <li>• &lt; 1 hour</li> <li>• 1-6 hours</li> <li>• 6-24 hours</li> <li>• &gt; 24 hours</li> </ul>
On a scale of 0–10, please rate the degree of pain experienced two hours after your operation was complete? (0 = "no pain at all" and 10 = "worst pain")	Select the appropriate number
On returning home, did you suffer from a disturbance in your sleep pattern?	Tick an option: <ul style="list-style-type: none"> <li>• No disturbance</li> <li>• Disturbance for 1 night</li> <li>• Disturbance for 2 nights</li> </ul>

**Table 1:** (Continued)

Questions asked	Method of answering
How long did it take before you felt as if you could resume your usual duties?	Tick an option: <ul style="list-style-type: none"> <li>• The same day</li> <li>• The next day</li> <li>• Within 2 days</li> </ul>
What would be your choice of sedation if you were to undergo a similar procedure again?	Tick an option: <ul style="list-style-type: none"> <li>• Local anaesthetic</li> <li>• Local anaesthetic with sedation</li> <li>• General anaesthetic</li> </ul>
How would you evaluate the cost of the sedation that you received?	Tick an option: <ul style="list-style-type: none"> <li>• Modest</li> <li>• Fair</li> <li>• Too expensive</li> <li>• Not applicable</li> </ul>
Do you feel that you would recommend conscious sedation to others?	Circle "Yes" or "No" as your response

## METHOD

The questions were designed based on the entire perioperative experience, starting with the indications and preoperative information given. Questions on the procedure itself, immediate postoperative time and the following 48 hours, based on common side-effects experienced, were also included. The questions were based on existing questionnaires that have been in use at our facility. A total of 28 questions was listed. The questionnaire is included in Table 1 in its entirety.

During August 2014, 500 adult patients who received procedural sedation for dental-related procedures were included in this study. They were asked to complete the questionnaire. A total of 490 patients (98%) returned it. The patients received it in a stamped envelope at the time of their procedure, and were asked to return it via mail or at their first follow-up visit. Patients who failed to complete the questionnaire were excluded. Patients' responses remained confidential and anonymous.

Four hundred and eighty-nine questionnaires remained for analysis. All questions in the remaining eligible questionnaires were assessed separately and a record was kept of unanswered questions. We expressed each unanswered answer as a percentage of the total assessed (489).

Patients underwent procedural sedation, in which advanced techniques were utilised. Advanced sedation techniques are defined as the use of a combination of sedative and/or analgesic drugs administered via any route, or by using intravenous sedation, with the exception of titrated dosages of midazolam, or by target-controlled infusion.<sup>5</sup> Patients received a combination of titrated midazolam, propofol and a small dose of ketamine immediately before the local anaesthetic injection.

Moderate sedation and analgesia levels were targeted and achieved for patients. This is defined as the drug-induced depression of consciousness, during which the patient responds purposefully to verbal commands, either alone or accompanied by light and tactile stimulation. Intervention is not required to maintain a patent airway. Spontaneous ventilation is adequate. Cardiovascular function is usually maintained.

## RESULTS

In studies done that utilizes mail to communicate information to and from patients, a response rate of 50% for mailing methods was considered to be adequate for analysis.<sup>6</sup> Of the 500 patients in this study, 98% returned their questionnaire. The results are summarised in Table 2.

### Preoperative experience

Two hundred and fifty-two patients (51.5%) opted for procedural sedation due to fear or anxiety of being awake during the procedure, while 233 patients (47.6%) had been recommended sedation. Four hundred and sixty-three patients (94.7%) felt more comfortable after discussing the procedure with the sedationist.

### During sedation

Four hundred and fifteen patients (84.9%) reported that they never felt uncomfortable during the procedure, and 431 (88.1%) that they didn't experience any pain. Of the 489 patients, 315 (64.4%) couldn't remember the local anaesthetic injection.

### After the procedure

Fifty patients (10.2%) felt nauseous after they left the clinic, and only 13 patients (2.7%) vomited. Four hundred and fifty-four (93%) patients expressed a good (7+/10) overall experience of procedural sedation. Four hundred and fifty-three (92.6%) patients would recommend it to others.

## DISCUSSION

Overall, the patients were very satisfied with their experience of procedural sedation. They were well-informed about the procedure and sedation, as demonstrated by our study results. Patients recovered quickly, with minimal post-sedation sideeffects, which facilitated a speedy return to work and normal duties.

The response rate achieved using a mailed questionnaire is usually less than that obtained using an interviewing method. However, an extremely high response rate was accomplished in our study. This could possibly be explained by our chosen method of collecting the questionnaire. Patients could either mail the envelope back (the envelope was already addressed and stamped), or bring it with them to the first follow-up consultation. Patients

**Table 2:** A summary of the results

Why did you opt for conscious sedation? (More than one indication is acceptable)	Results (%)
Fear or anxiety about being rendered unconscious	51.5
To avoid experiencing the gag reflex, the norm with general anaesthesia	11.0
The length of the procedure is relatively short	23.5
A previous bad experience with surgery under a local or general anaesthetic	14.3
A previous good experience with sedation	26.2
It was suggested by the surgeon or dentist	47.6
There is an advantageous cost benefit with sedation over the other procedures	0.8
Other	2.0
No answer	0.2

Before sedation	Yes (%)	No (%)	No answer (%)
Did you receive printed documentation on sedation beforehand?	96.0	3.3	0.6
Did the surgeon explain sedation to you before the procedure?	90.0	7.8	2.0
Did the sedationist explain sedation to you before the procedure?	97.5	1.4	0.8
Did you feel more comfortable after the sedationist talked to you?	94.7	3.1	2.0
Did you feel comfortable having the surgery performed under sedation?	97.5	1.8	0.6
In hindsight, do you think that you were adequately prepared for sedation?	97.5	1.4	1.0

**During sedation****How was your experience of the operation under conscious sedation? (Rate it on a scale of 1–10)**

	1 (never again)	2	3	4	5	6	7	8	9	10 (excellent)	No answer
<b>Results (%)</b>	0.0	0.4	0.2	0.4	2.0	0.8	6.7	11.0	16.6	59.3	0.0

During the sedation, did you:	Yes (%)	No (%)	No answer (%)
Feel uncomfortable at all?	12.0	84.9	3.0
Feel as if you were choking?	2.0	94.7	3.3
Feel cold at any stage?	5.9	91.0	2.7
Have any problems breathing?	1.4	97.3	1.2
Experience any pain?	11.5	88.1	0.4

**The nature of conscious sedation allows for communication between doctor and patient during the sedation. You were frequently reassured throughout the procedure.**

Do you remember:	Not at all (%)	A little (%)	All of it (%)	No answer (%)
The nature of this?	50.9	38.9	24.5	0.4
The sedationist's intravenous injection in your arm or hand?	9.8	31.9	57.5	0.8
The local anaesthetic injection by the dentist or surgeon?	64.4	21.3	13.3	1.0
Follow-up injections of the local anaesthetic by the dentist or surgeon?	78.9	13.0	6.5	1.4
The operation or procedure itself?	42.9	48.0	8.8	0.2

How much of your journey home can you remember after the sedation?	Results (%)
Not at all	4.0
A little	23.5
All of it	71.4
No answer	1.0

Did you have a headache after your procedure?	Results (%)
Not at all	79.1
Yes, lasting < 4 hours	13.5
Yes, lasting > 4 hours	7.1
No answer	70.2

After the sedation	Yes (%)	No (%)	No answer (%)
Did you have to take antibiotics after your surgery?	55.8	43.8	0.4
Did you feel nauseous before you left the surgery or clinic?	3.5	94.9	1.6
Did you feel nauseous after you left the surgery or clinic? (i.e. within 24 hours of being discharged)	10.2	88.5	1.2
Did you vomit before you left the surgery or clinic?	2.7	97.1	0.2
Did you vomit after you left the surgery or clinic? (i.e. within 24 hours of being discharged)	2.7	95.9	1.4

<b>Table 2: (Continued)</b>											
<b>How soon after surgery did you experience pain at the operation site, if at all?</b>											<b>Results (%)</b>
No pain											40.3
< 1 hour											25.8
1–6 hours											20.0
6–24 hours											7.8
> 24 hours											4.9
No answer											1.0
<b>Post sedation</b>											
<b>On a scale of 0–10, please rate the degree of pain experienced two hours after your operation was complete?</b>											
	0 (no pain at all)	2	3	4	5	6	7	8	9	10 (worst pain)	No anssswer
<b>Results (%)</b>	29.7	11.9	10.6	8.0	5.7	14.7	5.7	5.5	3.0	1.4	1.2
<b>On returning home, did you suffer from a disturbance in your sleep pattern?</b>											<b>Results (%)</b>
Not at all											65.0
Yes, for 1 night											19.4
Yes, for 2 nights											11.9
No answer											3.5
<b>On returning home, how long did it take before you felt as if you could have resumed your usual duties?</b>											
Same day											15.7
Next day											44.8
2 days											34.2
No answer											5.3
<b>If you were to have a similar procedure again, what would be your choice?</b>											
Local anaesthetic											0.4
Local anaesthetic with sedation											74
General anaesthetic											2.7
All of it											71.4
No answer											1.0
<b>How would you evaluate the cost of the sedation that you received?</b>											
Modest											79.1
Fair											13.5
Expensive											7.1
No answer											5.5
<b>Do you feel that you would recommend conscious sedation to others?</b>											
Yes											92.6
No											2.7
No answer											4.7

had to return for a follow-up, making it easier to track their response to the questionnaire.

Chanthong *et al.*<sup>7</sup> who reviewed 379 abstracts on patient satisfaction and ambulatory surgery, mostly performed under general anaesthetic, reported on a suggestion to create and develop a standard questionnaire to evaluate outcome. It was also proffered that further studies should be conducted and should utilise a rigorous methodological psychometric questionnaire to establish a standardised one to be used as the gold standard.<sup>7</sup> Such a questionnaire has not yet been devised. Sparse literature is available on assessments of the perioperative experience of patients undergoing procedural sedation. We believe that our questionnaire covers the most important patient concerns. However, ideally, a validated assessment tool, which is comparable with the Iowa Satisfaction with Anaesthesia Scale, is needed;<sup>8</sup> the difference being that the Iowa Satisfaction scale was developed to assess patient

satisfaction during Monitored Anaesthesia Care, and not the perioperative period of sedation as in our case.

Chantong *et al.*<sup>7</sup> noted that certain dimensions should be included in a questionnaire when assessing ambulatory anaesthesia, including information on postoperative pain and home care management. The measuring instrument should also include questions on information provision, physical discomfort and emotional support, i.e. relaxed, reassuring and attentive.<sup>9</sup> Our postoperative questionnaire contains all of these elements.

Eberhart *et al.*<sup>10</sup> considered patient preference by interviewing patients after a preoperative visit where general information and the side-effects of anaesthesia were explained. Avoidance of PONV was a major concern of patients, followed by the desire to experience no or mild pain. The restoration of postoperative vigilance was of minor importance.<sup>10</sup> It was clearly shown in our study that

patients experienced a very low rate of nausea (10.2%) or vomiting (2.7%) following sedation. Four hundred and fifteen patients (84.9%) reported that they never felt uncomfortable during the procedure, and 431 (88.3%) that they didn't experience any pain.

Few studies, if any, are available in which patient satisfaction and the side-effect profile after procedural sedation is compared.

It is noteworthy that numerous patients in our study did not complete the last few questions, while those on the last page were often overlooked. It could be concluded that the questionnaire contained too many questions. It was evident from our responses given that 361 (74%) patients would opt for the option of local anaesthetic and procedural sedation in a future procedure. However, 107 (22%) of patients didn't answer this question.

A weakness of our study was that the focus was mainly on dental related procedures. It cannot be assumed that the expressed satisfaction would extend to other procedures. Also, the study population only consisted of adult patients.

## CONCLUSION

A high level of satisfaction was demonstrated by our study population with their sedation experience. The postoperative sedation questionnaire is a useful tool with which to determine the perioperative experience of patients undergoing procedural sedation.

However, a validated assessment tool which can be used to audit the quality of sedation, train clinicians and establish protocolspecific guidelines for satisfactory procedural sedation is required. A possible suggestion is the identification of 8–10 core questions to be taken from this pilot study and included in a validated assessment tool.

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