Effect of a patient information video on the pre-operative anxiety levels of cataract surgery patients

Authors: Kiran J Ahmed MB ChB, Joshua D Pilling MB ChB, Khuram Ahmed MD, John Buchan FRCOphth

Research location: Leeds, West Yorkshire, United Kingdom

Conflict of interest: The authors declare no conflict of interest. The authors declare no proprietary or financial interest.

Funding sources: The salary of John Buchan is supported by the Queen Elizabeth Diamond Jubilee Trust through the Commonwealth Eye Health Consortium, International Centre for Eye Health, London School of Hygiene & Tropical Medicine, United Kingdom.

Corresponding Author

Dr Kiran Jan Ahmed

St James's University Hospital

Beckett Street

Leeds

LS9 7TF

Email: kiranjahmed@gmail.com

Telephone: 07584439291

Abstract

Purpose

To assess whether a cataract surgery patient-information video reduces patients' pre-operative anxiety levels.

Setting

Leeds Teaching Hospitals NHS Trust, UK.

Design

Prospective controlled trial of an intervention to reduce anxiety for first eye elective cataract surgery patients.

Methods

A total of 200 patients attending for first eye elective cataract surgery were included in the study. The primary outcome measure was a questionnaire based upon the Amsterdam Pre-operative Anxiety and Information Score (APAIS), and a 80mm Visual Analogue Score (VAS). The questionnaire was administered to a control group of 100 consecutive pre-operative cataract surgery patients who had not seen the information video. Subsequently, the video was introduced to the surgical pathway and the questionnaire was administered pre-operatively to an intervention group of 100 consecutive patients who had watched the video.

Results

There was a significant difference in mean VAS anxiety scores between the control 45.5mm ± 21.4mm [SD] and intervention group 11.2mm ± 11.4mm ($p< 0.001$). On a 5-stage Likert scale, responses to the APAIS statement "I am worried about the procedure" (range 1 = not at all to 5 = extremely worried) also showed that the control group patients were significantly more worried than the intervention group ($p<0.001$). The mode response score was 3 in the control group, compared to 1 in the intervention group.

Conclusions

The patient information video prior to cataract surgery was a cheap and effective intervention in reducing pre-operative anxiety. Such interventions could improve overall patient experience of cataract surgery.

Introduction

Cataract surgery is the most frequently performed operation in developed heath economies.[1] Patient anxiety surrounding all surgery is well recognised. Previous studies have reported high levels of anxiety amongst pre-operative patients and have attempted to quantify this through the use of questionnaire. [2,3] Most of these studies relate to experience prior to anaesthetic or general surgery but anxiety in patients attending for cataract surgery has also been documented.[4] A study by Morrell et al showed that information regarding safety of cataract surgery could reduce patient anxiety. [5] Furthermore, providing information on the procedure itself, risks, benefits and alternatives are all required as part of the informed consent process.[6] However, given such large numbers of cataract operations provided annually, delivering high-quality individual pre-operative patient counselling places strain on clinicians' time resource. The quality of verbal information provision is dependent on the commitment and communication skills of the physician concerned which can be dampened by the reality of a busy clinical environment,[7,8] and previous studies have shown poor information retention following clinic appointments in pre-operative cataract surgery patients.[9,10] Therefore, there is a need for efficient, standardised methods of delivering the necessary information to patients.

Videos are a practical method for providing pre-operative information in a standardised, reproducible manner. Research has shown that multimedia assisted delivery of information to patients improves their retention, with videos leading to better outcomes on knowledge questionnaires than face-to-face verbal and leaflet information provision.[11,12] A study by Shukla et al demonstrated that a video tape presentation, in

conjunction with an information sheet at low reading grade level, showed increased understanding of the risks and benefits of cataract surgery.[11] In a paper by Pager, patients were allocated to view either an "anatomy" video or an "expectations" video in cataract surgery. Patients who watched the "expectations" video were found to be more satisfied following the surgery than those in the "anatomy" group.[13]

With cataract surgery being the most frequently performed ophthalmic operation[14], the presence of such a simple intervention to potentially reduce anxiety levels for such a large number of patients represents an important opportunity for health care providers to improve the service they offer. Videos have the added advantage of being able to show patients information in a way that is not possible verbally. For example, giving a virtual guided tour of an operating theatre, or including patient testimonials from previous cataract surgery patients describing their experiences.

Previous studies have looked at the use of videos as a way of delivering information to patients undergoing surgery and outpatient procedures, assessing the effect this has on overall anxiety. A randomised trial in women attending for colposcopy showed significantly less anxiety in the intervention group using a pre-operative explanatory video.[15] A study carried out on pre-procedure colonoscopy patients showed significantly less anxiety in patients receiving a pre-procedure information video compared with those who did not[16], whilst Lee et al also showed that anxiety related to anaesthetic was reduced with media based intervention.[17]

Despite cataract surgery being the most frequently performed surgery worldwide, and the well recognised positive impact of pre-operative information videos in various surgical settings, there is a dearth of literature exploring the effect of such videos on pre-operative anxiety levels in elective cataract surgery. This research aimed to assess whether a cataract surgery patient-information video has an effect on patients' pre-operative anxiety levels.

Methods

This prospective comparative study based at a hospital in West Yorkshire, United Kingdom, collected data on two hundred patients undergoing their first, elective, age-related cataract surgery over a three-month period.

This study focused on the evaluation of the impact of a video, which was created by two of the authors to reduce pre-operative anxiety levels for cataract surgery. The measurement of pre-operative anxiety in a control group was therefore possible by starting the evaluation before the video was ready for routine display to those undergoing cataract surgery. As an opportunistic evaluation of a Health Service

Intervention, and due to financial and practical constraints, the patients were not randomly assigned to the study groups. However, we ensured that general baseline characteristics were as similar as possible using the inclusion criteria. Also, all participants were from the same study population as they had attended for surgery in the same hospital in West Yorkshire over a three-month period. Due to the opportunistic nature of the study formal ethical committee approval was not required, but full regard was paid to the tenets of the Declaration of Helsinki.

The inclusion criteria were patients scheduled for routine age-related first eye cataract surgery, with capacity to provide informed verbal consent, and the ability to see, hear and understand the video, as well as be able to complete the questionnaire. The exclusion criteria were previous cataract surgery in the other eye, patients who did not consent to, or were unable to complete the questionnaire.

One hundred consecutive patients undergoing routine cataract surgery, who had not seen the video pre-operatively, constituted the control group. The intervention group constituted one hundred consecutive patients who were shown the video pre-operatively on the day of their surgery. Participants in the intervention group were shown the video on arrival to the ward prior to dilation. Both groups had the anxiety questionnaire scoring conducted by the researchers immediately prior to them leaving the ward to undergo elective day-case topical anaesthetic cataract surgery. For comparability of the control and intervention groups, the patients' age and gender were

also recorded. Furthermore, the patients were recruited consecutively over a three-month period, with no time gap between the control and intervention group.

The video was created using new material and importing material under accepted terms of fair usage. It includes an explanation of the process of routine phacoemulsification cataract surgery and individual patients feature on the video describing their experience of cataract surgery. The video has been made available online subsequent to the study at http://www.leedsth.nhs.uk/a-z-of-services/ophthalmology-eye-department/patient-information.

The APAIS questionnaire involved three statements: "I am worried about the procedure", "The procedure is continually on my mind" and "I would like to know as much as possible about the procedure". Each statement had 5-stage Likert scale responses graded from 1 (not at all) to 5 (extremely) to assess patient anxiety related to the procedure.

The VAS was labelled "not at all anxious" on the extreme left and "extremely anxious" on the extreme right. Patients were asked to mark how anxious they felt on the scale. The position of the mark was measured in millimetres with a range of 0-80 millimetres where 0 meant the patient was not anxious at all and 80 meant the patient was extremely anxious.

Statistical analysis was conducted using SPSS software (version 22.0, SPSS, Inc.). Quantitative values are presented as the mean +/- standard deviation. Independent-samples t-test was used to compare VAS anxiety scores between the two groups, whilst Mann-Whitney U test was used to analyse categorical data generated from Likert responses. Statistical significance level was set at $p<0.05$ (5%).

Results

A total of 200 patients were recruited over a three-month period. The mean age of the study population was 74 years old, with a total of 88 males and 112 females. The participants in the intervention and control group were similar in terms of age and gender distribution (see Table 1).

As an overall group, t-tests show there was a significant difference between the mean VAS anxiety score of males 23.4 ± 20.8, and females 34.1 ± 26.9 ($p < 0.001$). On average, female patients were more anxious than male patients. T tests also show significant difference in average VAS anxiety scores between the control and intervention groups ($p< 0.001$). Table 1 shows that patients in the control group were more anxious than those in

the intervention group based on the mean VAS anxiety scores ($p< 0.001$). Likert-scale responses to "I am worried about the procedure", where a score of 1 meant not at all and a score of 5 meant extremely worried, also showed that patients in the control group were significantly more worried about the procedure than those in the intervention group, $p<0.001$. The mode Likert-scale score to this statement was 3 in control group compared to a mode score of 1 in the intervention group. The frequencies of each stage of the 5-stage Likert scale response to "I am worried about the procedure" are shown in Figure 1. No patients in the video intervention group gave a rating score of 4 or 5 to this statement. The mode Likert-scale score for "The procedure is on my mind continually" was 1 (Not at all) for both groups, with the majority of patients commenting that they had not thought about the surgery until the day of the procedure.

Comparisons of information needs based on responses to "I would like to know as much as possible about the procedure" showed there was no significant difference in Likert-scale scores between the control and intervention group, with the mode score being 5 (Extremely) for both groups, 34% (n=34) of responses and 38% (n=38) respectively. There was no association between VAS anxiety scores and how much information patients desired about the procedure; 86% (n=86) of the control group patients and 96% (n=96) of the intervention group patients gave a Likert score of 3 or more.

Discussion

This is the first study using standardised anxiety scores to investigate the potential role of a patient information video, which includes patient testimonials, to reduce pre-operative patient anxiety regarding cataract surgery. The positive result of a significant reduction in anxiety in patients who had been shown the video resonates with findings from other surgical specialties where videos have been shown to reduce anxiety.[15,16]

This study involved a questionnaire based upon the Amsterdam pre-operative anxiety and information score (APAIS) and a visual analogue scale (VAS). The State Trait Anxiety Inventory (STAI) is often regarded as a gold standard questionnaire in assessing anxiety.[18] However, it is a time consuming assessment to perform, involving forty self-report statements that are scored by the participant on a scale of one to four which makes it impractical in a high turn-over clinical environment such as most cataract surgery units. On the contrary, a VAS is a simple, quick measurement method that has been shown to correlate well with other measures of anxiety. Visual analogue scales have been used widely with studies showing good validity, reliability and correlation with the STAI. The APAIS has also been shown to correlate well with the gold standard STAI.[19] Therefore these were chosen as the main outcome measures for the study.[18]

Second eye cataract operations were excluded to reduce the source of potential bias constituted by previous personal experience. However, we did not exclude or ascertain if patients had a spouse or close relative who had undergone surgery; neither did we

determine patients' level of experience of previous ophthalmic or non-ophthalmic operations. Furthermore, educational level and occupational background of the patients was not recorded. Such factors could impact upon patients' perceptions and their overall pre-operative anxiety of cataract surgery; therefore, they should be included in further research.

In terms of desire for information, both the control and intervention groups reported a high score; this suggests that, despite counselling in clinic, patients still wanted to receive more information. This resonates with findings from previous research that suggests patients a) have low level of understanding recollection of information given in clinic[7,14] and b) want more information than they felt they received.[20] Furthermore, studies have shown that information provision is a substantial factor influencing overall patient satisfaction; with perceived lack of information correlating to poorer satisfaction outcomes.[21,20,22] Subsequently, the use of a video information tool can be crucial in improving patient understanding and recollection, reducing anxiety and contributing to greater overall satisfaction. This is an important outcome as greater patient satisfaction has been linked to greater compliance with follow-up appointments, medical advice and treatments. Therefore, enhancing health outcomes. [23,24]

The desire for more information was also reflected in patients' comments, "I looked on the Internet to try to find a video to tell you what's involved in the procedure, but the video playing in the waiting room was exactly what I wanted to know". In a technological age, many patients source information for themselves via the Internet.

This raises the issue that sometimes the vast amounts of information available online can be difficult to filter and patients may be unable to judge the quality of the information without specialist knowledge, which may increase anxiety levels. A patient information video routinely introduced into the surgical pathway could help overcome this challenge for patients.

On the contrary, there was a small minority of patients who did not want to know as much as possible about the procedure. It is possible that, whilst the overall effect on the population is beneficial in reducing anxiety, for a small sub-group of patients increasing information provision can be overwhelming and anxiety provoking. Patient preference must be respected by providing information at a level, amount and pace that is suitable for them. This may involve excluding video information if patients feel they have adequate detail and understanding from a face-to-face clinic discussion; a leaflet with written information could be provided, which includes direction to the information video if they wish to watch it at a later date.

Although this study demonstrates that a cataract surgery information video can help reduce patient anxiety, caution should be exercised when extrapolating these results because the content of the video has a role to play in its impact on anxiety levels.[13] The inclusion of actual patient testimonies, filmed in the same location as patients found themselves at the point of watching it, was felt to be beneficial. The video demonstrated patients who were anxious before the procedure but then went on to report various, generally positive experiences of surgery. One participant commented, “It is lovely to

see how happy they all are after surgery even though they were so nervous before". Thus, the information video in this study mainly focused on the experience of patients attending for cataract surgery rather than specific surgical detail. Furthermore, there was an attempt to make the video as generic as possible in its description of a typical experience of cataract surgery. However, it may be that a similar video but with a different focus, such as on surgical detail, may provide different results.

For the purpose of this study we did not create any differentiation in the video material in order to evaluate the specific effect of different aspects of content on anxiety levels. Further research, particularly a randomised trial, could focus on variations of video content and timing of exposure, to help create a tailor-made video which can optimize the benefits of improved patient information provision. Outcomes could assess the impact on reducing patient anxiety, improving satisfaction, information recollection, and meeting the requirements for informed consent.

In summary, this study showed that a simple, time-efficient and cost-effective information and patient testimonial video could significantly reduce patients' pre-operative anxiety levels. This could help to improve overall patient experience and satisfaction by reducing anxiety and meeting information needs, which is an invaluable benefit for clinicians and patients given that cataract surgery is one of the most commonly performed procedures worldwide.

What was known

- Patients undergoing cataract surgery often report substantial pre-operative anxiety
- Patient information videos are a standardised, efficient way of delivering information and can help increase level of information retention, superior to that retained after verbal briefing alone or verbal briefings with a supplementary leaflet.
- Although multi-media approaches improve information retention, there is concern and controversy on the effects of using videos on anxiety levels.
- There is a dearth of literature on the effect of patient information videos on pre-operative anxiety levels in a cataract surgery setting

What this paper adds

- The majority of patients undergoing their first elective cataract surgery had a desire for more information
- Anxiety levels in first-eye cataract surgery patients can be significantly reduced by use of a patient testimonial and information video.
- Such videos would be a beneficial addition to the surgical pathway as they are a simple, cost and time-effective, standardised way of providing information

- Further research is needed with an emphasis on video content and timing of exposure, to identify factors that can optimise the benefits of improved patient information provision.

References

1. Wang W, Yan W, Fotis K, Noela M. Cataract Surgical Rate and Socioeconomics: A Global Study. *Invest Ophthalmol Vis Sci*. 2017;57(14):5872-5881.
2. K M, M J, B B, AJ A. Assessment of preoperative anxiety: comparison of measures in patients awaiting surgery for breast cancer. *Br J Anaesth*. 1995;74(2):180-183.
3. Shafer A, Fish M, Gregg K, Seavello J, Kosek P. Preoperative anxiety and fear: A comparison of assessments by patients and anesthesia and surgery residents. *Anesth Analg*. 1996;83:1285-1291.
4. Nijkamp M, Kenens C, Dijker A, Ruiter R, Hiddema F, Nuijts R. Determinants of surgery related anxiety in cataract patients. *Br J Ophthalmol*. 2004;88(10):1310-1314.
5. Morrell G. Effect of structured preoperative teaching on anxiety levels of patients scheduled for cataract surgerY. *Insight*. 2001;26:4-9.
6. Pope T. Legal breifing: informed consent. *J Clin Ethics*. 2010;21:72-82.
7. Jimison, HB. Sher, PP. Appleyard R. The use of multimedia in the informed in the informed consent process. *J Am Med Inf Assoc*. 1998;5:245-256.
8. Moseley T, MN W, O' Sullivan P. Effects of presentation method on the understanding of informed consent itle. *Br J Ophthalmol*. 2006;90:990-993.
9. O'Malley T, Newmark T, Rothman M, Strassman H. Emotional aspects of cataract

surgery. *Int J Psychiatry Med*. 1989;19:85-89.

10. Morgan L, Schwab I. Informed consent in senile cataract extraction. *Arch Ophthalmol*. 1986;104:42-45.
11. Shukla A, Daly M, Legutko P. Informed consent for cataract surgery: Patient understanding of verbal, written and videotaped information. *J Cataract Refract surg*. 2012;38(1):80-84.
12. Wollinger C, N H, Findl O. Computer-based tutorial to enhance the quality and efficiency of th informed-consent process for cataract surgery. *J Cataract Refract Surg*. 2012;38:655-659.
13. Pager C. Randomised controlled trial of preoperative information to improve satisfaction with cataract surgery. *Br J Ophthalmol*. 2005;89:10-16.
14. Tipotsch-Maca S, Varsits R, Ginzel C, Vecsei-Marlovits P. Effect of a multimedia-assisted informed consent procedure on the information gain, satisfaction, and anxiety of cataract surgery patients. *J Cataract Refract surg*. 2016;42:110-116.
15. Freeman-Wang T, Walker P, Linehan C, Glasser B, Sherr L. Anxiety levels in women attending colposcopy clinics for treatment for cervical intraepithelial neoplasia: a randomised trial of written and video information. *BJOG*. 2001;108(5):482-484.
16. Luck A, Pearson S, Maddem G, Hewett P. Effects of video information on precolonosopy anxiety and knowledge: a randomised trial. *Lancet*. 1999;354(9195):2032-2035.
17. Lee A, Chui P, Gin T. Educating patients about anesthesia: a systematic review of randomised controlled trials of media-based interventions. *Anesth analg*. 2003;96(5):1424-1431.
18. Boker A, Browrnel L, Donen N. The Amsterdam preoperative anxiety and

information scale provides a simple and reliable measure of preoperative anxiety. *Can J Anaesth*. 2002;49(8):792-798.

19. Scrimshaw S, Maher C. Responsiveness of visual analogue and McGill pain scale measures. *J Manip Physiol Ther*. 2001;24:501–4.
20. Harris J. You can't ask if you don't know what to ask: a survey of the information needs and resources of hospital outpatients. *N Z Med J*. 1992;105:199–202.
21. Padberg R, Padberg L. Strengthening the effectiveness of patient educaiton: applied principles of adult education. *ONF*. 1990;17:65.
22. Carr-Hill R. The measurement of patient satisfaction. *J Public Heal Med*. 1992;14:236–49.
23. Williams B. Patient satisfaction: a valid concept? *Soc Sci Me*. 1994;38:509–16.
24. Aharony L, Strasser S. Patient satisfaction: what we know about and what we still need to explore. *Med Care Rev*. 1993;50:49–79.

Figure 1 Patients' anxiety score to the statement "I am worried about the procedure" on a 5-stage Likert scale (range 1 = not at all, to 5= extremely)