



## Full Length Article

## Effect of Video Counselling Versus Verbal Counselling on Patient's experience during phacoemulsification under topical anaesthesia

Merlin Benzy<sup>a,\*</sup>, Rengaraj Venkatesh<sup>b</sup>, Vivekanandan Vellam Ramakrishnan<sup>a</sup>, Varshini Santharajan Odayar<sup>c</sup><sup>a</sup> Department of Cataract and IOL Services, Aravind Eye Hospital, Pondicherry, India<sup>b</sup> Department of Glaucoma, Aravind Eye Hospital, Pondicherry, India<sup>c</sup> Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA, USA

## ARTICLE INFO

## Keywords:

Video counselling  
 Verbal counselling, phacoemulsification  
 Patient cooperation  
 Anxiety  
 Pain

## ABSTRACT

**Purpose:** To evaluate the impact of video and verbal counselling on patients' undergoing phacoemulsification under topical anaesthesia.

**Methods:** This is a prospective randomized controlled trial conducted at Aravind Eye Care System, Pondicherry, India. All patients had a 15 min one-on-one verbal counselling covering surgical technique, implant options, anaesthesia and payment options one day prior to surgery. On the day of surgery, patients were randomized into two groups; in the first group, patients were provided with video counselling and in the second group, patients were given verbal counselling prior to undergoing phacoemulsification under topical anaesthesia. Measurements of blood pressure, heart rate, respiration rate, and the Likert-scale anxiety rating were collected at preoperative, perioperative, and postoperative time points.

**Results:** A group of 186 patients (aged 45–70 years) were provided video counselling via portable iPad before first-time phacoemulsification, and a second group of 186 patients underwent surgery with verbal counselling. Systolic and diastolic blood pressure measurements were lower in both the video and verbally counselled groups during the intraoperative time point. Furthermore, during the intraoperative period, 123 (66.1%) video counselled patients felt relaxed compared to 119 (64%) patients who were provided verbal counselling ( $P = 0.6636$ ). Patient cooperation during surgery was excellent in 76(40.9%) video counselled patients and 67(36%) verbally counselled patients ( $P = 0.3374$ ). 25.8% and 21% ( $P = 0.2703$ ) of patients experienced no pain during surgery in the video and verbal counselled groups respectively.

**Conclusions:** Although measures such as pulse rate, respiratory rate and feelings of relaxation did not show significant differences among the two groups of video and verbal counselling, patients marked cooperation during surgery and furthermore, the level of anxiety is most reassuring.

## 1. Introduction

Cataract surgery is the most commonly performed surgical procedure in ophthalmology practice.<sup>1</sup> In 1992, Fichmann first described phacoemulsification surgery under topical anaesthesia.<sup>2</sup> Topical anaesthesia provides sufficient anaesthesia for phacoemulsification with rapid visual rehabilitation to the patient.<sup>3</sup> However, literature suggests that high levels of patient anxiety surrounding the procedure. Ramirez et al. designed a 36-item questionnaire on patient anxiety to understand anxiety experienced by patients when undergoing phacoemulsification. Of

the sixty-one patients included in the analysis, individuals described greatest anxiety about the operation as well as potential risks of becoming blind.<sup>4</sup> Due to high levels of anxiety reported by patients, studies have explored the impacts of preoperative verbal counselling on anxiety and fear levels in patients. Newman-Casey et al. designed a survey and administered it to sixty-one newly-diagnosed cataract patients before and after undergoing pre-surgical counselling in order to measure change in cataract knowledge, decisional conflict, a measure of anxiety about one's decision to undergo surgery, as well as patient satisfaction.<sup>5</sup> They found that patient knowledge increased while decisional conflict

\* Corresponding author. Department of Cataract and IOL Services, Aravind Eye Hospital, Pondicherry, India

E-mail addresses: [merlin.benzy@aravind.org](mailto:merlin.benzy@aravind.org) (M. Benzy), [venkatesh@aravind.org](mailto:venkatesh@aravind.org) (R. Venkatesh), [vrivek@aravind.org](mailto:vrivek@aravind.org) (V. Vellam Ramakrishnan), [varshodayar@college.harvard.edu](mailto:varshodayar@college.harvard.edu) (V.S. Odayar).

<https://doi.org/10.1016/j.aopr.2022.100050>

Received 30 September 2021; Received in revised form 23 March 2022; Accepted 13 April 2022

Available online 10 May 2022

2667-3762/© 2022 The Authors. Published by Elsevier Inc. on behalf of Zhejiang University Press. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

decreased, suggesting that counselling was effective in decreasing patient anxiety about surgical procedures and improving knowledge as well.

Studies have further aimed to understand specific patient anxieties surrounding surgical procedures. Voon et al. utilized a multicenter randomized clinical trial, recruiting patients undergoing elective phacoemulsification under topical anaesthesia into two groups whereby one group was given additional counselling on the intraoperative visual experience during phacoemulsification along with routine counselling.<sup>6</sup> The study found that the mean fear scores were 0.3 and 0.9 ( $P = 0.03$ ) in the additional and routine counselling groups respectively, concluding that preoperative verbal counselling on the possible intraoperative visual experiences during phacoemulsification under topical anaesthesia can in fact decrease fear levels of patients undergoing cataract surgery. The conclusions of this study further indicate presence of fear specifically surrounding potential visual experiences during surgery.

Video counselling has been tested as an apt method of providing education surrounding various medical procedures, and thus could prove to be a useful technique in reducing patient anxiety during phacoemulsification under topical anaesthesia. Calderon et al. recruited 128 patients and randomized them into two groups of educational video versus educational session with counsellor in order to evaluate the educational effectiveness of a rapid HIV post-test counselling video.<sup>7</sup> The study reported mean knowledge scores to be higher in the video group (76.2%) than in the counselling group (69.3%), thereby concluding that the educational counselling video is as effective as the counsellor session, serving as a viable alternative to the counselling session. While such data has suggested that educational videos are effective in providing post-HIV test education, there is no literature comparing the impacts of traditional verbal counselling versus video counselling methods for patients undergoing cataract surgery. Furthermore, current literature is yet to explore how levels of anxiety may be impacted by verbal versus video counselling methods.

Thus, the purpose of this study is threefold: (1) to evaluate the impact of video counselling on comfort levels, pain, and state of anxiety of patients undergoing phacoemulsification under topical anaesthesia for the first time, (2) to assess the comfort level of the surgeon performing the procedure in both groups and (3) to compare the changes in blood pressure, respiratory rate and pulse rates in patients undergoing cataract surgery during pre-operative, intraoperative, and postoperative periods between the groups.

## 2. Methods

This study was conducted in Aravind Eye Hospital, Pondicherry after obtaining the Institutional Ethical board committee approval. Informed consent was obtained from all patients. This prospective open label randomized controlled trial study included 372 patients with 186 patients in the video counselled group and 186 patients in the verbally counselled group). The study included patients aged 45–70 years with immature cataract undergoing phacoemulsification cataract surgery under topical anaesthesia for the first time with the grade of cataract being Nuclear Sclerosis (NS) 1, 2, 3, Nuclear opalescence (NO) 1, 2, 3, or Posterior Subcapsular Cataract (PSCC) of any grade who were willing and have given written consent to participate in the study.<sup>8</sup> Patients with previous ocular surgeries, recent myocardial infarction, stroke, chronic systemic disease, psychiatric illnesses, hypertension, traumatic cataract, hard brown cataract, hard of hearing, or grade of cataract of NS4, NO4, Posterior Polar Cataract (PPC) were excluded from the study. Patients were recruited from the cataract clinic at Aravind Eye Hospital, Pondicherry, India. All patients advised to receive cataract surgery were escorted to counselling area after biometry. The patient and caregiver have a one-on-one session with a cataract counsellor where the following topics are discussed –surgery plan, IOL types, control of systemic conditions, inpatient facilities, payment facilities, insurance, as well as general aspects of anaesthesia and surgery. This session is time-limited with a maximum duration of fifteen minutes. Any queries of the

patients were cleared during this period. After confirming a date for surgery, the patient usually arrives at the hospital early in the morning on that day unless admitted the previous day. They are dilated in the preparation room and sent to the hall in the operation theatre. Patients who fulfilled the inclusion and exclusion criteria, and whom had signed the informed written consent form were randomized by a computer generated binary random number. Accordingly, the patients were given either verbal or video counselling on the day of surgery. This counselling described the patient positioning during surgery, duration of surgery, and anaesthesia technique. It also addresses ocular pain and visual sensations. The verbal counselled group received standardized verbal counselling regarding the same from a trained staff for about 2 min using a standard template in the regional language fifteen minutes prior to the surgery. In the video counselled group, the same information was described in a short illustrative video. Patients in the video counselled group were not given an option to interact with the counsellor or staff after video counselling. Operating surgeons and postoperative counsellors were masked regarding the method of counselling received by patient. For both video and verbally counselled groups, patients underwent pre-operative, intraoperative, and postoperative measurement of blood pressure (BP), heart rate (HR), respiration rate (RR) and oxygen saturation level (SpO<sub>2</sub>). The video counselled group was given a portable iPad, and the video in a regional language was played preoperatively fifteen minutes prior to the surgery under the supervision of a counsellor. The video lasts for 1 minute and 23 seconds. Following the final preoperative counselling, both groups were then shifted to the operation theatre for phacoemulsification cataract surgery. After a foldable intraocular lens (IOL) implantation BP, HR and RR were measured. The patients were then shifted to the post-operative waiting area. Immediately after the surgery, the surgeons were prompted to provide a relevant score on the questionnaire, indicating the level of patient cooperation.<sup>9</sup> Fifteen minutes following the surgery, the patients were questioned by a counsellor in the postoperative waiting area regarding intraoperative state of anxiety (utilizing the Likert scale questionnaire) and pain. For anxiety, a single item five-point Likert scale were used.<sup>10</sup> This one-item scale consisted of five evenly spaced numbers each anchored to a level of anxiety:

- 1 Not at all anxious.
- 2 Little anxious.
- 3 Moderately anxious.
- 4 Very anxious.
- 5 Extremely anxious.

For pain, a scoring system based on the Keele verbal pain chart<sup>11</sup> was used:

- 0 None.
- 1 Mild intensity momentary mild sensations of burning or piercing.
- 2 Moderate – intermittent moderate sensations of burning, piercing or fullness/tightness in the eye lasting a few seconds.
- 3 Severe-continuous sensations of piercing or swelling/stretching in the eye severe enough to require additional intervention.
- 4 Unbearable - continuous sensations of piercing or swelling/stretching in the eye severe enough to make the patient want to stop the procedure).

Level of patient co-operation was assessed as following:<sup>9</sup>

- 0 Excellent cooperation: no event
- 1 Good cooperation: 1–2 eyelid squeezing, subsiding when stimuli given once or twice.
- 2 Sufficient cooperation: Head and/globe movements and/eyelid squeezing not significant enough to jeopardize surgery, although giving stimuli more than 2 times is required.
- 3 Poor cooperation: Head and/globe movements and/eyelid squeezing significant enough to jeopardize surgery.

After five minutes, the previously listed metrics were assessed and the resulting score for the qualitative questionnaire were recorded for each patient.

Descriptive statistics and chi-square analysis were utilized to report Likert-scale data. Independent t-tests were used to compare blood pressure, heart rate, and respiratory rate data. A p-value less than 0.05 was considered to be statistically significant. Stata version 14.0 (Texas, USA) was used for statistical analysis.

2.1. Sample size

The sample size 372 (186 per arm) was calculated using the anxiety level for verbal counselling group (67.5%) and video counselling group (53.4%) obtained from the pilot study done with 50 patients (25 per group) with 80% power and 95% confidence interval.

3. Results

The study groups were divided evenly with 186 patients per study arm. The mean patients age (SD) was 57.4 (6.8) and 57.5 (6.6) for the video and verbally counselled groups respectively (Table 1). The video counselling group was comprised of 53.8% males and 46.2% females, whereas the verbally counselled group was comprised of 60.2% males and 39.8% females. Surgeons were divided into two groups (Group 1 and Group 2) according to their year of surgical experience with five surgeons in each group, whereby Group 1 had surgeons with more than 5 years of experience and Group 2 had surgeons with less than 5 years of experience. Both groups of surgeons did not report any notable complications during surgery.

Table 2 indicate the differences in systolic and diastolic blood pressures, pulse rate, and respiration rate between the video counselled and verbal counselled groups at preoperative, intraoperative, and postoperative time points. The systolic blood pressure was decreased in video counselling compared with verbal counselling. Mean pre-operative systolic blood pressure had no statistical significance (P = 0.1). Their measure was 132.3 mmHg in video counselling and 134.5 mmHg in verbal counselling. Mean intra-operative systolic measure had no statistical significance (P = 0.3). Their measure was 142.03 mmHg in video counselling and 144.1 mmHg in verbal counselling. The mean post-operative systolic blood pressure showed statistical significance in both the groups (P = 0.03). Their systolic measure had 133.3 mmHg in video counselling and 137.3 mmHg in verbal counselling.

The diastolic blood pressures showed no significant changes in both groups at all three time points. The mean pulse rate dropped by 1.8 beats/minute and 1.3 beats/minute in the intraoperative period for video and verbal counselled group respectively. Whereas, the respiration rate increased about 2.4 breaths/minute and 1.7 breaths/minute during the

Table 1 Summary of demographic data of study population.

Parameters	Groups		P-value
	Video counselling n = 186	Verbal counselling n = 186	
<b>Age (years)</b>			0.84 <sup>M</sup>
Mean (SD)	57.4 ± 6.8	57.5 ± 6.6	
<b>Gender</b>	<b>Frequency (%)</b>	<b>Frequency (%)</b>	0.24 <sup>c</sup>
Male	100(53.8)	112(60.2)	
Female	86(46.2)	74(39.8)	
<b>Education</b>	<b>Frequency (%)</b>	<b>Frequency (%)</b>	0.5 <sup>c</sup>
Illiterate	27(14.5)	21(11.3)	
Primary	54(29.03)	53(28.5)	
Secondary	63(33.8)	78(41.9)	
Graduate	32(17.2)	27(14.5)	
Postgraduate	10(5.38)	7(3.76)	

n = Sample size; SD = Standard deviation; M = Mann-whitney “U”test; P-Proportion Test; c-Chi square test.

Table 2 Summary of vital signs at three time points – preoperative, intraoperative and postoperative between video and verbal counselled groups.

Systolic Blood pressure	Video counselling	Verbal counselling	P -Value <sup>M</sup>
	Mean ± SD	Mean ± SD	
Preoperative	132.3 ± 15.5	134.5 ± 16.1	0.1
Intraoperative	142.03 ± 20.1	144.1 ± 19.2	0.3
Postoperative	133.3 ± 16.9	137.3 ± 16.2	0.03*
p-value	<0.00001 <sup>f</sup>	<0.0001 <sup>f</sup>	
<b>Diastolic Blood pressure</b>			
Preoperative	79.2 ± 8.12	79.3 ± 8.2	0.9
Intraoperative	83.4 ± 10.6	84.6 ± 10.1	0.2
Postoperative	79.8 ± 10.7	80.9 ± 8.70	0.2
p-value	<0.00001 <sup>f</sup>	<0.00001 <sup>f</sup>	
<b>Pulse rate</b>			
Preoperative	83.3 ± 12.4	84.2 ± 11.1	0.5
Intraoperative	81.4 ± 13.9	82.8 ± 12.7	0.4
Postoperative	80.8 ± 11.6	81.3 ± 12	0.3
p-value	<0.00001 <sup>f</sup>	<0.00001 <sup>f</sup>	
<b>Respiratory rate</b>			
Preoperative	20.9 ± 3.0	21.3 ± 2.8	0.1
Intraoperative	23.3 ± 3.8	23.0 ± 3.4	0.4
Postoperative	22.1 ± 4.2	22.7 ± 4.9	0.2
p-value	<0.00001 <sup>f</sup>	<0.00001 <sup>f</sup>	

\*P < 0.05 – Significant; SD = Standard deviation; M = Mann-Whitney “U”test; f- Fishers Test.

intraoperative period in video and verbally counselled groups respectively.

Table 3 shows the Likert-scale ratings of anxiety in both groups during the intraoperative time period. During intraoperative period, 4.8% of patients in both groups reported feeling “extremely anxious”. 47.3% of patients expressed that they were not anxious intraoperatively in the video counselling group while 49.5% of patients expressed similar feelings in the verbal counselling group. There was no significant difference between patients reporting feeling ‘not anxious’ between the video and verbal counselled group. Similarly, there were no significant differences between the two groups on feelings of relaxation. Overall, 93% of patients who received video counselling strongly agreed to using video counselling for future surgeries. Table 3 shows that 25.8% of patients in the video counselled group experienced no pain whereas only 21% of patients in verbal counselled group experienced the same. Table 3 shows that Surgeons noted excellent cooperation for 40.9% of patients who

Table 3 Data Sample Characteristics showing state of anxiety, pain and patients’ cooperation between video and verbal counselled group.

Parameters	Groups		P-value
	Video counselling n = 186	Verbal counselling n = 186	
	Frequency (%)	Frequency (%)	
<b>Anxiety</b>			
Not anxious	88 (47.3)	92(49.5)	0.7 <sup>P</sup>
Little	69(37.1)	65(35)	0.7 <sup>P</sup>
Moderate	20(10.8)	20(10.8)	1.0 <sup>P</sup>
Very	9(4.8)	9(4.8)	1.0 <sup>P</sup>
Extremely	–	–	–
<b>Pain</b>			
None	48(25.8)	39(21)	0.3 <sup>P</sup>
Mild	112(60.2)	118(63.4)	0.5 <sup>P</sup>
Moderate	22(11.8)	26(14)	0.5 <sup>P</sup>
Severe	4(2.2)	3(1.6)	0.7 <sup>P</sup>
Unbearable	–	–	–
<b>Patients’ cooperation during surgery:</b>			
0-excellent	76(40.9)	67(36)	0.3 <sup>P</sup>
1-Good	65(35)	65(35)	1.0 <sup>P</sup>
2-Sufficient	36(19.4)	46(24.7)	0.2 <sup>P</sup>
3-Poor	9(4.8)	8(4.3)	0.8 <sup>P</sup>

n = Sample size; M = Mann-whitney “U”test; P-Proportion Test.

underwent video counselling whereas only 36% reported the same in the verbal counselled group. No significant differences were discovered between the relationships of education and the experience of anxiety. Even though the data shows few differences, there was no significant differences between both the groups in regards to the various aforementioned measures.

#### 4. Discussion

Anxiety can be described as an emotion with two components: state and trait anxiety. State anxiety is specifically triggered by a threatening situation and fluctuates over time. Trait anxiety is a stable natural anxiety disposition and may influence the state anxiety levels experienced during anxiety-provoking situation.<sup>12</sup> Various studies state that cataract patients can experience anxiety preoperatively, intraoperatively, and post-operatively.<sup>13-15</sup> Anxiety has a number of complications such as pain, nausea, vomiting, cardiovascular disturbances such as tachycardia and hypertension, and increased risk of infection. Various studies show that a large proportion of surgical patients experience considerable preoperative anxiety, and this is reported to affect 60–80% of surgical patients.<sup>16-18</sup> Factors such as a good doctor-patient relationship, social support, and patient education can help to decrease anxiety among patients.<sup>19-21</sup>

Patient counselling plays an important role in surgical management of cataract. Appropriate patient counselling is important as the patient needs to understand the importance of keeping the eye still, which is crucial while performing topical phacoemulsification. Preoperative counselling regarding intraoperative visual sensations in patients undergoing cataract surgery has been shown to reduce level of patient fear as well as the level of anxiety.<sup>22,23</sup> In our study, 47.3% of patients reported feeling “not anxious” intraoperatively following video counselling versus 49.5% after verbal counselling group ( $P = 0.7$ ). While this difference is insignificant, the data suggests that preoperative video counselling in the operating room regarding intraoperative surgical experience is just as effective as preoperative verbal counselling, after a prolonged one-on-one preoperative counselling prior to surgery date.

Thus, patient counselling can be provided through one-on-one interactions with a counsellor through verbal means using a standard template or through video counselling where a video can be shown to the patient explaining intraoperative visual experiences during cataract surgery. Although verbal counselling provides a human component of compassion to patients undergoing surgery and comes with the benefits of having the undivided attention of the patient, there are few limitations for verbal counselling especially in a setting with high volumes of patients. Even though there are standard templates for providing preoperative verbal counselling, reproducibility in delivering the same message to all patients becomes a difficult task as it is possible that counsellors may forget to mention certain important points. A standard preoperative video can ensure that all information, and the same information, can be delivered to each patient. In our study, verbal counselling was done for about two minutes whereas video counselling lasted for one minute and 23 seconds. Thus, the video makes the process more time efficient for staff as well.

However, it is also important to note that video counselling poses challenges, especially if the patient has compromised vision in both eyes due to cataract, other ocular pathology, or if the patient is hard of hearing. Such conditions may deem video counselling as contributing to anxiety for many patients. Thus, in such cases, verbal counselling may be more beneficial especially due to the personal connection which it provides. Overall, preoperative counselling improves the quality of treatment provided and further helps in building and strengthening the confidence of patients, which in turn reflects on the surgical outcome with patient cooperation during surgery. We found that 40.9% of patients provided excellent cooperation following video counselling whereas only 36% of patients had excellent cooperation following verbal counselling

( $P = 0.3$ ). The video counselling group reported having 25.8% of patients experiencing no pain during surgery whereas the verbally counselled group reported 21% ( $P = 0.3$ ). Consequently, changes in patient cooperation and pain experience noted after counselling may lend insight into how counselling system improves cataract surgery outcomes.

Even though our study shows that both video and verbal counselling can reduce the patient's anxiety, pain and improve patient cooperation during surgery, there was no significant difference between the two. Therefore, a future study can be planned to examine the value and outcome of combining both video and verbal methods of counselling.

Current literature and studies on anxiety during cataract surgery generally focus on the level of anxiety and intraoperative visual experiences.<sup>14,24</sup> The strength of this particular study lies in the multiple measures taken to ensure that patients undergo proper video and verbal counselling, thus reducing the patient's anxiety, pain and improving patient cooperation during surgery.

#### 5. Conclusions

Our study did not report any significant differences between preoperative video and verbal counselling methods among patients who were willing to be randomised to either counselling groups, following a prolonged preoperative one-on-one counselling. However, it is clear that anticipating patient anxiety about the intraoperative experience during the preoperative counselling may reduce overall patient anxiety and improve patient satisfaction. Such counselling may also strengthen the patient–surgeon relationship, which may aid the surgeon to provide a safe uneventful surgery. Furthermore, this study proves that video-counselling is as effective as verbal counselling, as evidenced through decreased levels of “no anxiety” in the video-counselling group. This study thus shows that video counselling on the day of surgery following a previous one-on-one pre-operative counselling is an effective method of easing patient anxiety during cataract surgery, and may also reduce the burden on health care providers.

#### Study Approval

The authors confirm that any aspect of the work covered in this manuscript that involved human patients or animals was conducted with the ethical approval of all relevant bodies and the study was performed in accordance with the Declaration of Helsinki and the protocol was approved by the Institutional Ethics Committee of Aravind Eye Hospital, India.

#### Author Contributions

The authors confirm contribution to the paper as follows: Conception and design of study: RV; Data collection: MB; Analysis and interpretation of results: MB, VR V, VSO, VP; Drafting the manuscript: MB; All authors reviewed the results and approved the final version of the manuscript.

#### Acknowledgments

The authors would like to sincerely thank Dr Aditi Ghosh and Dr Thamizhselvi who provided help during the research. Ms Jayashree S, Project Coordinator, Aravind Eye Hospital Pondicherry, India. Mrs Roja Y, Clinical Research Coordinator, Aravind Eye Hospital, Pondicherry, India.

#### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- Salomon JA, Wang H, Freeman MK, et al. Healthy life expectancy for 187 countries, 1990–2010: a systematic analysis for the Global Burden Disease Study 2010. *Lancet*. 2012;380(9859):2144–2162. [https://doi.org/10.1016/S0140-6736\(12\)61690-0](https://doi.org/10.1016/S0140-6736(12)61690-0).
- Fichman RA. Use of topical anesthesia alone in cataract surgery. *J Cataract Refract Surg*. 1996;22(5):612–614. [https://doi.org/10.1016/S0886-3350\(96\)80019-8](https://doi.org/10.1016/S0886-3350(96)80019-8).
- Kang Yong Koo, Kim Myung Jun, et al. Clinical analysis of ocular parameters contributing to intraoperative pain during standard phacoemulsification. *J Ophthalmol*. 2017. <https://doi.org/10.1155/2017/9463871>.
- Ramirez David A, et al. Anxiety in patients undergoing cataract surgery: a pre- and postoperative comparison. *Clin Ophthalmol*. 2017;11:1979–1986. <https://doi.org/10.2147/OPTH.S146135>.
- Newman-Casey Paula A, Ravilla Sathya, HariPriya Aravind, et al. The effect of counselling on cataract patient knowledge, decisional conflict, and satisfaction. *Ophthalmic Epidemiol*. 2015 Dec;22(6):387–393. <https://doi.org/10.3109/09286586.2015.1066016>.
- Voon Li-Wern, et al. Effect of Preoperative Counseling on Patient Fear from the Visual Experience during Phacoemulsification under Topical Anaesthesia: Multicenter Randomized Clinical Trial. vol. 31. October 2005:1966–1969. <https://doi.org/10.1016/j.jcrs.2005.03.059>, 10.
- Calderon Yvette, et al. A randomized control trial evaluating the educational effectiveness of a rapid HIV post-test counseling video. *Sex Transm Dis*. 2009 Apr; 36(4):207–210. <https://doi.org/10.1097/OLQ.0b013e318191ba3f>.
- Chylack LT, et al. The lens opacities classification system III. The longitudinal study of cataract study group. *Arch Ophthalmol*. 1993 Jun;111(6):831–836. <https://doi.org/10.1001/archophth.1993.01090060119>.
- Aslankurt Murat, et al. Pain and cooperation in patients having dominant side or non-dominant side phacoemulsification. *J Cataract Refract Surg*. 2014;40:199–202. <https://doi.org/10.1016/j.jcrs.2013.07.038>.
- Daveya Heather M, Barratta Alexandra L, Butowb Phyllis N, et al. A one-item question with a Likert or Visual Analog Scale adequately measured current anxiety. *J Clin Epidemiol*. 2007;60:356–360. <https://doi.org/10.1016/j.jclinepi.2006.07.015>.
- Keele KD. The pain chart. *Lancet*. 1948;252(6514):6–8. [https://doi.org/10.1016/S0140-6736\(48\)91787-5](https://doi.org/10.1016/S0140-6736(48)91787-5).
- Spielberger CD. *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press Inc; 1970.
- Fagerstrom R. Fear of a cataract operation in aged persons. *Psychol Rep*. 1993;72: 1339–1346. <https://doi.org/10.2466/pr0.1993.72.3c.1339>.
- Foggitt PS. Anxiety in cataract surgery: pilot study. *J Cataract Refract Surg*. 2001;27: 1651–1655. [https://doi.org/10.1016/S0886-3350\(01\)00859-8](https://doi.org/10.1016/S0886-3350(01)00859-8).
- Nijkamp MD, Ruiter RAC, Roeling M, et al. Factors related to fear in patients undergoing cataract surgery: a qualitative study focusing factors associated with the fear and reassurance among patients who need to undergo cataract surgery. *Patient Educ Counsel*. 2002;47:265–272. [https://doi.org/10.1016/S0738-3991\(02\)00002-2](https://doi.org/10.1016/S0738-3991(02)00002-2).
- Bailey Laila. Strategies for decreasing patient anxiety in the perioperative setting. *AORN J*. 2010;92(4):445–460. <https://doi.org/10.1016/j.aorn.2010.04.017>.
- Jlala HA, French J, Foxall GL, et al. Effect of preoperative multimedia information on perioperative anxiety in patients undergoing procedures under regional anaesthesia. *Br J Anaesth*. 2010;104(3):369–374. <https://doi.org/10.1093/bja/aeq002>.
- Pokharel K, Bhattarai B, Tripathi M, et al. Nepalese patients' anxiety and concerns before surgery. *J Clin Anesth*. 2011;23(5):372–378. <https://doi.org/10.1016/j.jclinane.2010.12.011>.
- Breemhaar B, van den Borne HW, Mullen PD. Inadequacies of surgical patient education. *Patient Educ Counsel*. 1996;28:31–34. [https://doi.org/10.1016/0738-3991\(95\)00819-5](https://doi.org/10.1016/0738-3991(95)00819-5).
- APH Visser. Angst en patiëntenvoorlichting. In: Damoiseaux V, APH Visser, eds. *Patiëntenvoorlichting, Een Interdisciplinaire Benadering*. Assen: van Gorcum; 1988: 225–243.
- Gerdes EP, Guidi EJ. Anxiety in patients awaiting primary medical care. *Med Care*. 1987;25:913–923.
- HariPriya A, Tan CSH, Venkatesh R, et al. Effect of preoperative counseling on fear from visual sensations during phacoemulsification under topical anesthesia. *J Cataract Refract Surg*. 2011;37(5):814–818. <https://doi.org/10.1016/j.jcrs.2010.11.041>.
- Voon L-W, Au Eong K-G, Saw S-M, et al. Effect of preoperative counseling on patient fear from the visual experience during phacoemulsification under topical anesthesia: multicenter randomized clinical trial. *J Cataract Refract Surg*. 2005;31(10): 1966–1969. <https://doi.org/10.1016/j.jcrs.2005.03.059>.
- Chaudhry TA, Aqil A, Aziz K, et al. Patients' visual experience during phacoemulsification cataract surgery and associated fear. *BMC Res Notes*. 2014;7: 663. <https://doi.org/10.1186/1756-0500-7-663>.