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ORIGINAL RESEARCH

Patient Perspectives and Concerns Regarding Cataract Surgery and Cataract Surgery Sedation: A Qualitative Study

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Purpose of Study: Given the low inherent risk posed by modern cataract surgery, there is ongoing debate regarding the need for anesthesia personnel for this procedure. However, few studies report patient perspectives about cataract surgery sedation. We sought to characterize patient perspectives regarding their experiences undergoing cataract surgery with monitored anesthesia care (MAC) and their willingness to consider cataract surgery with sedation alternatives to MAC.

Methods Used: Semi-structured interviews were conducted with 9 patients (4 women) who recently underwent routine cataract surgery at the University of California, San Francisco. Participants were recruited from the Parnassus Outpatient Surgery Center. Interviews were recorded, de-identified, transcribed, and analyzed using an inductive thematic analysis approach. We ascertained the most relevant themes related to patients' experience with cataract surgery and their perspectives on alternatives to anesthesia-led sedation during routine cataract surgery.

Summary of Results: We found that patients are most concerned about achieving the best surgical outcome due to the importance they placed on preserving their vision. They expressed their fear of disrupting surgery intraoperatively and shared that they experienced a relative lack of communication about sedation in advance of surgery. However, while patients expressed a strong preference for anesthesia-led sedation during cataract surgery, they conveyed their openness to considering sedation alternatives in the presence of appropriate perioperative education, the availability of recent evidence supporting the safety of alternative approaches for cataract surgery, and their strong trust in their ophthalmologist's professional recommendations.

Conclusion: Patients prefer anesthesia-led sedation for cataract surgery but are willing to consider alternatives to MAC if the published evidence and their ophthalmologist attest that the alternatives are safe and effective.

Keywords: qualitative study, patient perspectives, cataract surgery sedation, monitored anesthesia care, cataract surgery, patient interviews

Introduction

Cataract surgery is a common, low-risk procedure performed around the world,[1] and the approach to cataract surgery sedation varies widely.[2] Some ophthalmologists offer topical anesthesia with minimal to no intravenous (IV) sedation and operate without anesthesia personnel present.[3–5] Others offer oral sedation with or without an IV.[4,6] Regardless of the type of sedation administered, many patients are routinely monitored intraoperatively by either an anesthesiologist or a nurse anesthetist during cataract surgery,[7] which entails being attentive to patient vital signs and assessing for any medical complications that may arise.

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In the US, 90% of Medicare beneficiaries undergo cataract surgery with monitored anesthesia care (MAC), which typically entails one-to-one monitoring and light IV sedation administered by a licensed anesthesia professional.[8] This is in contrast to other countries that perform a majority of their cataract surgeries without MAC with no reported difference in surgical outcome.[4,9] Given the low inherent risk posed by modern cataract surgery, there is ongoing debate regarding the need for anesthesia personnel to provide monitoring and sedation during cataract surgery. Proponents of the continued provision of MAC for cataract surgery in the US argue that anesthesia care improves patient safety in an older and medically complex patient population. The higher prevalence of anxiety and obesity in the US compared to other countries where MAC is less frequently used for cataract surgery has also been used to justify current sedation practices.[10–13] However, to the best of our knowledge, there are currently no qualitative studies reporting patient perspectives on cataract surgery sedation.

Given the importance of delivering patient-centered medical care,[14–17] soliciting patient perspectives will help inform clinicians and policymakers on whether patients will consider alternatives to MAC as acceptable sedation options for cataract surgery. Therefore, we conducted an exploratory study using semi-structured interviews with patients who recently underwent cataract surgery to characterize their sedation experiences during cataract surgery and explore their overall willingness to consider the possibility of non-anesthesia-led sedation for cataract surgery.

Methods

This was a qualitative interview study to assess and capture patient perspectives on sedation for cataract surgery. The investigators (AJH, CLC, RS, NL, LM) codesigned and guided recruitment strategy and materials, survey implementation, data collection, analysis, and result discussions. The investigators consisted of a practicing anesthesiologist and health services researcher (CLC), a health services researcher and implementation scientist with qualitative expertise (RS), an internal medicine physician experienced with managing older adult patients (AJH), and two medical students (NL, LM). Four investigators were women (AJH, CLC, RS, NL) and one was a man (LM) ranging from early- to senior-career, and all had training in qualitative methods. This study complied with the Declaration of Helsinki. This study was approved by the Institutional Review Board at the University of California, San Francisco (IRB# 21-35606).

Study Participants

Study participants were eligible for participation if they were aged 55 years or older, underwent routine cataract surgery at the University of California, San Francisco, could provide consent for themselves, and could complete the interview in English. Nine participants (out of 16 approached) were recruited to the post-anesthesia care unit at the Parnassus Outpatient Surgery Center. Informed consent was obtained at a later date through Docusign after a thorough discussion of risks and benefits. Informed consent included the approval of publication of anonymized responses and direct quotations from participants. Participants filled out a Qualtrics pre-interview survey with demographic data and basic information about their cataract surgery experience (see Supplementary Material 1). To compensate participants for their time and contribution after surgery, upon completion of the interview, all participants received a $75 electronic gift card.[18]

Data Collection

Virtual interviews were conducted by two interviewers (LM, CLC), for quality control. A semi-structured interview guide was used to assess patient perspectives on their cataract surgery experience, specifically exploring their opinions on non-anesthesia led sedation during cataract surgery (Appendix A). The interview guide was developed iteratively by study investigators (CLC, RS, NL, LM) over the course of 4 months and refined via two pilot interviews prior to starting data collection.

Interviews were recorded and reviewed for interview guide strength and interviewer efficacy. A qualitative researcher (RS) reviewed the interviews and post-interview summaries to assess for bias and key takeaways. After each interview, the interviewers debriefed to discuss observations and feedback from interviews. All interviews were transcribed verbatim and de-identified for analysis.

Analysis

Quotations were coded and analyzed by multiple investigators to limit bias. Using ATLAS.ti software (Version 24.0.1), the coding team (CLC, RS, NL, LM) developed and iteratively refined a codebook to align on the most salient themes. Interview transcripts were imported into ATLAS.ti, with 20% of the data coded and reviewed by a minimum of two coders to ensure rigor. Schema were reviewed for accuracy and comprehensiveness, with the rest of the codes applied to transcripts by LM. All discrepancies were resolved by consensus through verbal and written discussion.

Results

Participant demographics and characteristics of the 9 participants are presented in Table 1, with additional illustrative quotes detailed in Table 2. Interviews ranged in length from 28 to 60 minutes, with an overall mean of 40 minutes. All participants were interviewed within 8 weeks of receiving cataract surgery, performed by a variety of surgeons, at a hospital outpatient department with MAC provided by staff anesthesiologists or nurse anesthetists.

Interview schema was organized into two major themes that reflected patients' cataract surgery experiences and perspectives regarding non-anesthesia led sedation during routine cataract surgery. The first theme was that *patients want the best surgical outcome* – characterized by subthemes of the importance of vision, fear of disrupting surgery, and lack of communication. The second theme was *openness to cataract surgery sedation alternatives* and encapsulated subthemes of trust in ophthalmologists and the health system, preferred sedation route and staffing, wanting safeguards for emergent events, and shared decision-making.

Theme 1: Patients Want the Best Surgical Outcome

Importance of Vision

Many patients considered vision as essential and crucially important to their quality of life. As one participant commented,

> …vision is central to how you perceive your surroundings….

Table 1 Baseline Characteristics of Study Participants

Total Participants (N=9)	N (%)
Sex	
Male	5 (55.6%)
Female	4 (44.4%)
Age	
56–60	4 (44.4%)
61–65	2 (22.2%)
66–70	1 (11.1%)
71–75	1 (11.1%)
76–80	1 (11.1%)
Race/Ethnicity	
White	3 (33.3%)
Hispanic, Latino, or of Spanish Origin	1 (11.1%)
Black or African American	2 (22.2%)
Asian	3 (33.3%)

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Table 2 Illustrative Quotes

Patients Want the Best Surgical Outcome	
Importance of Vision	"I was more afraid or worried about cataract surgery [than other procedures] because of course my vision is at [risk]."
	"I was so concerned about something going in my eye and just a phobia about it for me. I had gone through a stem cell transplant. I wasn't even worried about the stem cell transplant"
Lack of Communication about Sedation	"Well, I mean, yes, you listen to your doctor, but it's always best to have a second opinion of any major things. But it is on the spot right there on that day of cataract procedure. Okay, we are going to say you are going to be awake for this, I am thinking like, well, cannot I say no now, you know? In the back of my mind, I am thinking like, I waited till March for this, I cannot say no now, I want to get this done now, you know? So it's like, I really have no choice, you know?"
	"It's only on day of the surgery. This is the person that's going to be doing it or whatever. You never get a chance to even question it or look them up or see if they're qualified or anything about him or her or whatever."
	"…If I would have understood it was conscious sedation only and not being out (I do not know why I thought I was going to be completely out) but it would have made me a little worried more…it was fine once I got there and found out this is what it has to be…I needed to get the procedure done, so it was fine moving forward."
Fear of Disrupting Surgery	"But if I inadvertently sort of– let's say I dropped off to sleep and then I was awakened suddenly and I woke up with a startle and I moved and the surgeon was doing something at that particular time, that would be catastrophic…"
	"…[I was worried] that I would move too much and hurt the operation, because that was the worst part."
Openness to Changes in Cataract Surgery Sedation	
Trust in the Ophthalmologist and Health System	"I would go to the ophthalmologist's recommendation…The ophthalmologist knows best what's best for me…"
	"But no, I don't know enough about [sedation drugs] and I don't care, as long as it works. So to me, the result's the main thing."
	"…All my doctors and healthcare professionals are at [medical center], and I think it's, I trust the people there."
Sedation Route and Staffing	"But if it was proven that the pill would last this long and I would come out of it feeling the same way, well, sure, I would do the pill. Rather than get stuck with a needle, yeah, [I'd] probably do that."
	"I guess, when you say [that a bedside nurse is] 'trained in sedation,' that definitely makes a difference. I think my preference would be a nurse anesthetist or an anesthesiologist, but I do not think I would say, 'Oh, no, I'm not going to do this unless,' if you are just trained in sedation."
	"…I have to look at more research into it to see the success rate and so forth. I wouldn't like to be the first to jump in."
Wanting Safeguards for Emergent Events	"If they did not give me enough, and they needed to give me some more. If they needed to give me more, how are you going to? 'Okay, here, take some more medicine. This is not enough.' Or if something, God forbid, happened. I mean, especially with cataracts surgery, I am younger. Most of the time it's older people on the table So what if their blood pressure spikes, and you got to bring their blood pressure down in the middle of the procedure, or something happens to them on the table? If that IV is there, it's good to go. So I think that would be a protection."
	"…If you were allergic to anesthesia […] the anesthesiologists would be the ones that would even intervene. […] they would be there to be able to know what to do with that and take care of it."
Shared Decision Making	"…It's just you are informed, and if there's other options [then] maybe I would be the type of person that just wants the pill, and get this over with, and nothing in my IV or nothing. Everybody's different."
	"I think if I was able to talk to the doctor and understand what the different options are, and I get to make a choice, yeah, I definitely would go for that […] So yeah, I definitely would want to be involved in that process."
	"…They need to take into consideration how I feel about things, which may be different from another patient's feelings about things."

These patients were not strangers to surgical environments or sedation experiences – multiple had previous anesthetic encounters but still expressed a deep fear of cataract surgery:

> I was more afraid or worried about cataract surgery…I'd already went through [sedation] several times before. So I wasn't worried really about the sedation. It was just the nervous[ness] about something going in my eye.

Some were even paradoxically fearful that it would worsen their vision or cause a loss of their vision:

> You kind of look back to how your vision was before the cataracts […] will it be the same, will it be a little worse? Like I said before, it's that level of uncertainty in terms of the surgery outcome.

Fear of Disrupting Surgery

Patients strongly desired to work with the surgical team to not disrupt surgery and avoid affecting their visual outcome. Patients were cognizant that sedation could lead to unexpected movements and decreased awareness intraoperatively. A few claimed the worst thing that could happen during cataract surgery was

> …waking up and movement…all of a sudden you wake up, you're going to be like, wondering 'what's going on?'

This involuntary and accidental movement was

> …really the only thing that I was concerned about is moving when I shouldn't move inadvertently….

Another participant recounted their accidental movements during surgery:

> …I was [in] a little uncomfortable position and that was making my leg hurt…I would just move a little bit and she'd [ophthalmologist] go, 'What's going on?' It forces you to really be more still… [and I didn't want to do anything] …to hurt what the [ophthalmologist] is doing…it seems like such a delicate operation…

Lack of Communication

Patients recalled having few to no conversations about what to expect leading up to their cataract surgery. This lack of preoperative communication regarding the sedation approach caught some participants by surprise on the day of surgery:

> …*the doctor came in and said*, "Okay you know you're probably going to be awake…

and the patient suddenly realized

> …okay, I'm gonna be awake for this. So that kind of caught me off guard….

Several expressed their desire to be informed about the sedation plan in advance although all patients received preoperative telephone visits with the anesthesia service:

> …the anticipation of being awake when they operate on your eye could have been better described…

Theme 2: Openness to Cataract Surgery Sedation Alternatives

Trust in Ophthalmologist and Health System

While patients were concerned about how perioperative decisions related to sedation might affect their vision, they consistently voiced a strong trust and deference to the physician's recommendations.

> I just trust the doctor completely, that in this case, she would know whatever she said I would go with because I just trust [the doctor] a hundred percent.

Participants also demonstrated a trust in the broader healthcare system:

> I have faith in those who are performing the surgery, the procedure, and that the team that's put together is going to be comprised of people who know what they're doing, and again, have been trained or monitored,

one patient commented. Others shared similar sentiment, essentially echoing the statement,

> I trust the [medical center] staff.

Sedation Route and Staffing

A few patients expressed a preference for oral sedation when possible:

> I mean, there's benefits to [an IV], but if you don't have to, that'd be awesome. I hate getting poked in the veins.

Others felt similarly, with the caveat that oral sedation should be comparable to other routes of administration:

> As long as there were no side effects from [oral sedation], yeah…if I knew all the information, I'm pretty adventurous, yeah, I would probably try it. But I just know with the pills in general. Got a lot of pills I take, but for blood pressure, things like that, they tend to work.

Patients understood the linear relationship between depth of sedation and possible harm, acknowledging that an anesthesia provider might not be needed for a procedure performed under oral sedation.

> If it's an oral medication that is going to sedate me like an IV, then I would want [an anesthesiologist],

one participant said,

> …but if it's just like how you can take like an anti-anxiety medicine sometimes before procedures. That to me is different. That's not a sedation…No, I wouldn't need an anesthesiologist for that type of a medication.

In contrast, the participants were less open to the idea of receiving IV sedation and emergent care from sedation nurses:

> …I would be less confident that the [sedation] nurse would be able to take care of a complication than an anesthesiologist …,

one patient summarized. Patients also sought strong evidence that any new approach was non-inferior to anesthesia-led sedation for cataract surgery in terms of overall safety and efficacy, stating,

> I think it depends on if there is a body of evidence that not using IV administered sedative or anesthetic…[if] that says people do fine, they don't have any more discomfort or pain during the surgery, then I would be fine with it.

Wanting Safeguards for Emergent Events

The potential risk of unexpected intraoperative emergencies worried patients, especially when faced with the possibility of changing anesthesia staffing and sedation:

> So let's say that if I was going through the cataract and the pill didn't last as long as it should be, and there's no person there to like IV or whatever, then what's going to happen?

asked one patient. Others were concerned regarding the resuscitation ability of the clinicians caring for them:

> If something went wrong, I wanted to have a skilled provider present…if that skilled provider is…25, 50 feet away in the ambulatory surgical center or the doctor's office, that would be okay. But I would want to know that there is somebody available who is really skillful at resuscitation.

Shared Decision-Making

Regardless of the ultimate sedation approach, interviewees emphasized the importance of engaging patients in pre-operative conversation to discern their sedation preferences:

> I think in any kind of operation, if there's options you can give people, then they should be discussed.

Another patient expressed:

> I like to be informed, and I also like to have a say in my healthcare… and choose what I consider to be the best option for me.

Patients appreciated being able to participate in shared decision-making.

I discussed how I felt and learned about the different [lens] options. So yeah, I definitely would want to be involved in that process. [choosing the sedation approach].

Discussion

In this qualitative study of cataract surgery patients' experiences with cataract surgery sedation designed to solicit their perspectives on non-anesthesia-led care, we discovered that while patients appear to be open to changes in routine cataract surgery sedation, some details surrounding risks, information, and perioperative practices give them pause.

Concerns about their surgical outcomes, particularly with regard to impact on vision, emerged as a potential driver of patients' attitudes towards various aspects of their care. Patients viewed vision as a central part of their quality of life, and many patients expressed fear and anxiety in anticipation of cataract surgery itself. A recent study found that having good vision at baseline increases the fear of undergoing cataract surgery.[19] Although cataract surgery is a much lower-risk procedure compared to some other procedures that they had already experienced, multiple patients reported feeling more nervous about undergoing cataract surgery than these other surgical procedures, including one who had undergone a stem cell transplant, which has proven to have much greater risk of morbidity and mortality.[20,21] This highlights the extreme importance that patients can place on preserving their vision.

In contrast, patients rarely reported that they had devoted any thought to the sedation approach for these procedures before agreeing to participate in this interview study. However, we found that because the patients in our study received very minimal sedation for this procedure, consistent with the usual approach to cataract sedation at our institution, they frequently shared feelings of anxiety regarding their personal impact on the operation's success. This highlights a unique aspect of cataract surgery compared to other surgical procedures involving anesthesiologists, where patients are generally either deeply sedated or completely unconscious under general anesthesia. In contrast, many ophthalmologists prefer patients to be awake enough to comply with their instructions during cataract surgery and avoid unexpected movement, which can threaten surgical outcomes for such a delicate procedure.[22,23] For some patients, being awake and interacting with the surgeon during the procedure was a new and unexpected experience. This new sense of responsibility appeared to contribute to their opposition to any transition away from anesthesia-led sedation, since the potential absence of anesthesia care escalated the pressure patients felt regarding their role in the success or failure of the operation.

Patients also expressed concerns about negative impact from the loss of anesthesia care on intraoperative comfort, safety, and surgical outcomes and emphasized their appreciation for the preoperative consent discussion with the anesthesia staff immediately before undergoing cataract surgery. However, despite their discomfort with the potential loss of anesthesia care, multiple participants concluded that they would still defer to the ophthalmologists' recommendation regarding alternatives to MAC rather than requesting specific sedation staff. The most important factor we identified influencing patients' openness to change was whether they felt that the approach was supported by their ophthalmologist. Patients' lack of familiarity with care options also seemed to guide their choice to defer to their ophthalmologist, especially pronounced among patients who admitted that they were not certain of the full risks and benefits of the sedation options being presented to them. This trust in their surgeon was a consistent finding across many interviews and supports the importance of a therapeutic alliance between patient and physician.

Some patients distinguished between oral sedation and IV sedation in terms of the need for an anesthesia provider being present for administration, acknowledging that an anesthesia provider might not be needed for a procedure performed under oral sedation. While physician and anesthetist considerations for anesthesia management strategies have been studied,[24] this kind of risk stratification and patient preference on sedation method for cataract surgery have not been previously reported. Although patients felt that it would be safer to keep IV sedation in the hands of anesthesia specialists, they still appeared willing to consider having non-anesthesia staff administer IV sedation if certain safeguards were in place, such as having anesthesia staff easily accessible in case of emergency.

Regardless of which sedation approach is offered going forward, the importance of engaging patients in discussions about the sedation options for their procedures was another recurring theme. While patient education and shared decision-making are an important part of medicine, these aspects of patient-centered care can sometimes get lost given the time constraints of perioperative care.[25] It is important to note that patient viewpoints and preferences may not reflect

surgeon preference or may be contraindicated due to comorbidities or significant risk to patient safety. However, based on our interviews, some patients would benefit from early discussions about sedation with the ophthalmologist in clinic so that they are better prepared for the sedation approach presented to them on the morning of surgery. This will be especially important if ophthalmologists take on more ownership of sedation when considering any transition to oral sedation for cataract surgery. Such discussions would also contribute to an improved relationship with patients, build trust, and allow for shared decision making on their treatment options, regardless of whether they receive oral or IV sedation on the day of surgery.[26]

This study has some limitations. First, since the sample size was modest and study participants were recruited from a single ambulatory surgery center, those who chose to participate may not represent the full spectrum of patient experiences, which limits generalizability. However, there is literature to suggest that nine participants for a qualitative study may meet the lower limit necessary for thematic saturation.[27] In our study, we also found that our final two interviews elicited similar themes heard from prior participants rather than introducing new themes that required deeper exploration. Furthermore, the value of qualitative research is to elucidate new knowledge and improve our understanding of the patient experience, rather than speaking to how representative the perspective is of all patients.[28] Second, since all study patients underwent cataract surgery with an anesthesia team, their responses are subject to anchoring bias from their recent positive experiences with the anesthesia team; therefore, they may not have been able to express their opinions on the range of alternative sedation options that might be available for cataract surgery. Patients may have also displayed response and courtesy bias since one of the main interviewers was a practicing anesthesiologist. Finally, despite the short elapsed time between their procedure and the interview date, participants may have been prone to recall bias. Despite these limitations, our study reveals important insights into how patients perceive various components of cataract surgery care that have not been previously reported, which can serve to inform best practices in the delivery of equitable and patient-centered care, moving forward.

Conclusion

In summary, our study findings suggest that patients may prefer anesthesia-led sedation for cataract surgery. However, patients are open to changes in the sedation management strategy in the presence of appropriate perioperative education and communication, the availability of recent evidence supporting the safety of alternative approaches, and their strong trust in their ophthalmologist's professional recommendations.

Data Sharing Statement

The data analysed for the current study are not publicly available to preserve participant anonymity.

Ethics Approval and Consent to Participate

This study was approved by the Institutional Review Board at the University of California, San Francisco (IRB# 21-35606). Written informed consent and consent to publish anonymized responses and direct quotes were obtained from all participants involved in this study. This study complies with the Declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests in this work.

References

1. Liu Y-C, Wilkins M, Kim T, Malyugin B, Mehta JS. Cataracts. *Lancet*. 2017;390(10094):600–612. doi:10.1016/S0140-6736(17)30544-5
2. Chen SP, Woreta F, Chang DF. Cataracts: a Review. *JAMA*. 2025;333(23):2093. doi:10.1001/jama.2025.1597
3. Ianchulev T, Litoff D, Ellinger D, Stiverson K, Packer M. Office-Based Cataract Surgery: population Health Outcomes Study of More than 21 000 Cases in the United States. *Ophthalmology*. 2016;123(4):723–728. doi:10.1016/j.ophtha.2015.12.020
4. Lee RMH, Thompson JR, Eke T. Severe adverse events associated with local anaesthesia in cataract surgery: 1 year national survey of practice and complications in the UK. *Br J Ophthalmol*. 2016;100(6):772–776. doi:10.1136/bjophthalmol-2015-307060
5. Kugler LJ, Kapeles MJ, Durrie DS. Safety of office-based lens surgery: u.S. multicenter study. *J Cataract Refract Surg*. 2023;49(9):907–911. doi:10.1097/j.jcrs.0000000000001231
6. Peeler CE, Villani CM, Fiorello MG, Lee HJ, Subramanian ML, Oral versus Intravenous Sedation Study Group. Patient Satisfaction with Oral versus Intravenous Sedation for Cataract Surgery: a Randomized Clinical Trial. *Ophthalmology*. 2019;126(9):1212–1218. doi:10.1016/j.ophtha.2019.04.022
7. Eichel R, Goldberg I. Anaesthesia techniques for cataract surgery: a survey of delegates to the Congress of the International Council of Ophthalmology, 2002. *Clin Experiment Ophthalmol*. 2005;33(5):469–472. doi:10.1111/j.1442-9071.2005.01063.x
8. Perumal D, Dudley RA, Gan S, et al. Anesthesia Care for Cataract Surgery in Medicare Beneficiaries. *JAMA Intern Med*. 2022;182(11):1171. doi:10.1001/jamainternmed.2022.4333
9. Norregaard JC. Results from the International Cataract Surgery Outcomes Study. *Acta Ophthalmol Scand*. 2007;85(thesis2):5–32. doi:10.1111/j.1600-0420.2007.00937.x
10. Vasunilashorn S, Kim JK, Crimmins EM. International Differences in the Links between Obesity and Physiological Dysregulation: the United States, England, and Taiwan. *J Obes*. 2013;2013:618056. doi:10.1155/2013/618056
11. Altiparmak B, Çelebi N. Dexmedetomidine versus remifentanil sedation for obese patients undergoing cataract surgery. *Int J Clin Exp Med*. 2016;9:14728–14733.
12. Obuchowska I, Konopinska J. Fear and Anxiety Associated with Cataract Surgery Under Local Anesthesia in Adults: a Systematic Review. *Psychol Res Behav Manag*. 2021;14:781–793. doi:10.2147/PRBM.S314214
13. Collier Villaume S, Chen S, Adam EK. Age Disparities in Prevalence of Anxiety and Depression Among US Adults During the COVID-19 Pandemic. *JAMA Network Open*. 2023;6(11):e2345073. doi:10.1001/jamanetworkopen.2023.45073
14. Talley-Rostov A. Patient-centered care and refractive cataract surgery. *Curr Opin Ophthalmol*. 2008;19(1):5–9. doi:10.1097/ICU.0b013e3282f2d7a3
15. Gusmano MK, Maschke KJ, Solomon MZ. Patient-Centered Care, Yes; Patients As Consumers. *No Health Aff Proj Hope*. 2019;38(3):368–373. doi:10.1377/hlthaff.2018.05019
16. Joshi GP. Putting patients first: ambulatory surgery facilitates patient-centered care. *Curr Opin Anaesthesiol*. 2021;34(6):667–671. doi:10.1097/ACO.0000000000001070
17. Roberts GP, Levy N, Lobo DN. Patient-centric goal-oriented perioperative care. *Br J Anaesth*. 2021;126(3):559–564. doi:10.1016/j.bja.2020.12.004
18. Marinescu I, Klein N, Chamberlain A, Smart M. Incentives Can Reduce Bias in Online Reviews. 2018; 1 :11189.
19. Hu S, Wey S, Yano RA, Kelly LD. Fear of Cataract Surgery and Vision Loss: the Effects of Health Literacy and Patient Comprehension at an Academic Hospital-Based Eye Clinic. *Clin Ophthalmol*. 2025;19:1103–1110. doi:10.2147/OPTH.S490630
20. Bernstein SH, Nademanee AP, Vose JM, et al. A multicenter study of platelet recovery and utilization in patients after myeloablative therapy and hematopoietic stem cell transplantation. *Blood*. 1998;91(9):3509–3517. doi:10.1182/blood.V91.9.3509
21. Labrador J, López-Corral L, Vazquez L, et al. Incidence and risk factors for life-threatening bleeding after allogeneic stem cell transplant. *Br J Haematol*. 2015;169(5):719–725. doi:10.1111/bjh.13344
22. McCannel CA, Olson EJ, Donaldson MJ, Bakri SJ, Pulido JS, Mueller D. Snoring is associated with unexpected patient head movement during monitored anesthesia care vitreoretinal surgery. *Retina*. 2012;32(7):1324–1327. doi:10.1097/IAE.0b013e31823bea54
23. Brogan K, Dawar B, Lockington D, Ramaesh K. Intraoperative head drift and eye movement: two under addressed challenges during cataract surgery. *Eye Lond Engl*. 2018;32:1111–1116.
24. Reeves SW, Friedman DS, Fleisher LA, Lubomski LH, Schein OD, Bass EB. A decision analysis of anesthesia management for cataract surgery. *Am J Ophthalmol*. 2001;132(4):528–536. doi:10.1016/S0002-9394(01)01159-X
25. Tylee MJ, Rubenfeld GD, Wijeysundera D, Sklar MC, Hussain S, Adhikari NKJ. Anesthesiologist to Patient Communication: a Systematic Review. *JAMA Network Open*. 2020;3(11):e2023503. doi:10.1001/jamanetworkopen.2020.23503
26. Barry MJ, Edgman-Levitan S. Shared decision making--pinnacle of patient-centered care. *N Engl J Med*. 2012;366(9):780–781. doi:10.1056/NEJMp1109283
27. Hennink M, Kaiser BN. Sample sizes for saturation in qualitative research: a systematic review of empirical tests. *Soc Sci Med*. 2022;292:114523. doi:10.1016/j.socscimed.2021.114523
28. Crouch M, McKenzie H. The logic of small samples in interview-based qualitative research. *Soc Sci Inf*. 2006;45(4):483–499. doi:10.1177/0539018406069584