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· Original Article ·

# Stressful factors experienced by patients while waiting vitreo-retinal day surgery: a qualitative study

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## HIGHLIGHTS

· Patients experienced stress during the waiting period for VR day surgery rose from three main factors: the day surgery procedure itself, worries about their eye conditions, and the supports they received.
· This qualitative approach provided a deeper understanding of perspectives, emotions, and personal narratives of patients while waiting for VR day surgery, which are often difficult to capture through numerical data in our study.
· Medical staff should provide patients with detailed information about the surgery in advance. Clear explanations and psychological support are essential, particularly for patients facing stress.

**Abstract:** **Objective:** The day surgery mode has significantly reduced preoperative waiting time for patients. However, this mode also led to brief and sometimes abrupt interactions between patients with vision loss and nursing staff during the preoperative visits. Additionally, patients may experience negative emotions. The aim of this study was to describe the preoperative experiences and identify related stressful factors among patients waiting vitreo-retinal day surgery. **Methods:** This study was guided by an interpretive approach. Semi-structured, face-to-face, in-depth interviews were conducted with patients from August 2021 to October 2024. Inductive content analysis and research software were used to analyze the data. **Results:** Twenty-seven patients agreed to participate the interviews. Their ages ranged from 19 to 70 years old. The waiting time before hospitalization varied from 7 to 90 days. Three main categories emerged from patients' complaints: day surgery procedures, concerns about eye conditions and supports. **Conclusions:** The findings underscore the importance of preoperative care services. It is suggested that providing accurate preoperative information and

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Full Text

effective support can significantly enhance the quality of preoperative care service.

**Keywords:** preoperative care; stressful factor; experience; vitreo-retinal; day surgery

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# INTRODUCTION

Day surgery is defined as a surgical procedure that does not require an overnight hospital stay, where the admission, surgery and discharge of selected patients are all completed on the same day.[1] The proportion of day surgery procedures is increasing rapidly due to their cost-effectiveness and labor-saving benefits.[2] Furthermore, day surgery, which involves smaller incisions and less trauma, minimizes disruption to patients' daily lives.

With the development of medical system reforms, day surgery procedures have been increasingly adopted by many hospitals in China.[3] Cataract day surgery, one of the earliest and most successful transitions to day surgery, has pave the way for other more complex ophthalmic surgeries, such as vitreo-retinal (VR) day surgery.[4] Surgical interventions for the management of VR pathology include vitrectomy, scleral buckling, cryotherapy, endolaser, and epi-retinal membrane peeling.[5-6] Conditions such as retinal detachment, vitreous haemorrhage, diabetic retinapathy and macular hole often require urgent VR surgery due to their rapid progression within a short time span. Over the decades, significant changes have occured in the management and performance of VR day surgery worldwide,[5] These changes include adoption of regional ocular anaesthesia, increasing sophistication of surgical techniques and instrumentation, resulting in reduced surgical time and eye trauma, and the normalization of awake VR surgery.[4-5]

Compared with in-patient surgery, day surgery offers patients limited time in hospital, resulting in brief interactions between patients and hospital staff during perioperative visits.[7-8] A high incidence of postoperative pain has been confirmed, with approximately 22% of patients requiring narcotic agalgesia within two to six hours after surgery.[9] Additionally, postoperative nausea and vomiting have also been reported.[10]

Furthermore, patients may experience significant psychological stress as soon as the day surgery procedure is planned.[11-12] These negative feelings include abandonment, anxiety, depression, worry, and uncertainty during the preoperative phase.[13] Factors such as low levels of education, being female, insufficient preoperative information, unexpected cancellations of procedures, anticipation of postoperative pain, psychiatric disorders, and fear of surgery have been identified as triggers for preoperative anxiety.[14-17] Previous studies have clearly indicated that providing information, psychological support, and person-centered care are important during the preassessment stage.[15, 18-19] Patients who received only basic information are more anxious than those who receive sufficient information.[19-20] Adequate preoperative preparation can significantly enhance patients' experiences of day surgery. Therefore, gaining a comprehensive understanding of the factors contributing to stress is particularly important for assessing the preoperative experience of patients undergoing VR day surgery.

Day surgery is a relatively new hospitalization procedure in China, and many patients have never experienced it before. Several studies have investigated patients' experiences during the waiting period for day surgery.[3, 5, 7] However, due to cultural differences and expectations between Eastern and Western societies, there are also challenges in interpreting the experiences of patients undergoing VR day surgery. Thus, the aim of this study was to explore the stressful factors affecting the preoperative experiences of patients undergoing VR day surgery. The outcomes of this study could provide new insights for doctors and nurses.

# METHODS

## Study design

An interpretive qualitative approach was employed

to explore and describe the preoperative experiences and identify the associated stressful factors during the period of waiting for day surgery.

## Setting and participants

This study was conducted between August 2021 and October 2024 at Zhongshan Ophthalmic Center in southern China. Participants were purposively selected from an 80-bed day ward within the fundus disease center, where patients underwent VR day surgery. This center comprises 21 registered nurses (RNs) who are scheduled to work 7-hour shifts. On average, 40 patients undergo VR day surgery per day. The inclusion criteria were as follows: (1) patients scheduled to undergo VR day surgery; (2) patients who could speak Mandarin; (3) patients older than 18 years. Patients with cognitive impairment, psychiatric diagnoses, or a cancer diagnosis were excluded from this study.

## Data collection

Semi-structured, face-to-face, in-depth interviews were employed to gather data, and these interviews took place in a healthcare office free from interruptions. The interview guide was initially developed based on relevant literatures and experiences of eye care practitioners.[7, 13] The questions aimed to explore patients' experiences while waiting for VR day surgery. The primary open-ended question posed was, "Can you please describe your experiences during the period while waiting for day surgery?" This was followed by, "Can you please explain why you felt this way while waiting for day surgery?". Additionally, demographic data were collected during the interviews, including age, gender, marital status, education level, occupation, living area, number of previous eye surgeries, waiting time, and awareness of the surgical date. Waiting time was defined as the period between the day of deciding to have surgery and the day of the scheduled surgery.[13] On the day before surgery, all patients routinely completed a preoperative assessment (POA), which afforded doctors and nurses the opportunity to obtain patients' medical history, conduct relevant tests, perform physical examinations, and plan care.[21] Following the POA, the first author, a nurse with experience working in the fundus disease center, approached participants to obtain informed consent. Subsequently, all interviews were conducted by ZY and FXQ, both of whom had received training in qualitative research but were not the participants' primary nurses. Initially, three pilot interviews were conducted with individuals. As the questions and procedures appeared valid, no modifications were made, and the pilot interviews were included in the analysis. Thereafter, another twenty-four participants were interviewed. With the participants' consent, all the interviews, which lasted between 20 and 35 minutes, were audiotaped and transcribed verbatim. Patients were encouraged to express as many aspects of their experiences as possible. Data collection continued until no new information emerged, indicating saturation.[22]

## Ethical considerations

All procedures involving human participants in this study were conducted in accordance with the ethical standards of the institutional and/or national research committee, as well as the 1964 Helsinki Declaration and its subsequent amendments or comparable ethical standards. Ethics approval was secured from hospital Institutional Review Boards. Prior to interviews, written informed consent was obtained from all patients.

## Data analysis

The inductive content analysis method was employed to analyze data in this study. Three steps were undertaken to identify the themes related to patients' experiences. First, ZHH and LJR listened to the audio-tapes multiple times carefully and transcribed them verbatim. Subsequently, ZY and FXQ reviewed the transcripts to ensure the accuracy of the content. Secondly, LY developed an overall impression of the texts after an initial reading. Following this, an in-depth rereading of the transcripts was conducted to identify statements that appeared crucial or revealed aspects of the patients' experiences. Those meaningful sentences were organized using codes, and similar sentences were grouped together. Finally, LY re-examined the data and discussed the labeling methods with HWM to reach a consensus. Three major categories pertaining to patients' experiences were established and described using characteristic words.

Measures to ensure that the translated English

transcripts accurately represented the original data involved a two-step process. In the first authors (ZY), who is bilingual in both Chinese and English, independently translated the transcript from Chinese to English. In the second step, two other authors examined the translated version for accuracy, and in cases where differences arose, the recorded discussions were reviewed until consensus was reached. NVivo 11 (QSR International Pty Ltd, Doncaster, Australia) was used to assist in organizing and analyzing the data for our study.

Trustworthiness served as our guiding framework; we adpoted an inductive content analysis approach to enhance credibility of results.[23-24] All researchers reviewed the data independently and then reached consensus collectively, thereby establishing intercoder agreement, dependability, and confirmability of the results.[24-25]

# RESULTS

## Demographic data

We screened 27 participants who were scheduled to undergo VR day surgery for inclusion in the interviews. The sample comprised 12 females (44.4%) and 15 males (55.6%), with ages ranging from 19 to 70 years. In terms of educational levels, 11 participants had completed middle school or less, 6 had a high school diploma, and 10 were college graduate or higher education. Eleven participants had prior experience with eye surgery. Seven participants resided in rural areas, while 20 lived in urban areas. The waiting time before hospitalization varied from 7 to 90 days. Thirteen participants indicated that they were unware of their surgery date until they received a phone call from the hospital. The demographic and clinical characteristics of the participants are presented in Table 1.

## Interview findings

Participants were asked to describe their experiences while awaiting VR day surgery. Fifteen patients reported experiencing anxiety during the waiting period. Six participants felt a sense of calmness throughout, whereas only six participants who experienced a mood shifted from anxiety to calmness. Among the seven participants residing in the rural areas, four reported feeling anxious while waiting for the day surgery. Our study included six full-time staff members and three students, all of them expressed feeling of anxiety. Thirteen participants were unaware of their surgical data beforehand, and nine of them experienced anxiety, whereas only six participants who were unaware of their surgical date reported feeling anxious. Ten participants undergoing eye surgery for the first time expressed anxiety, while only five who had

**Table 1 Demographic characteristic and clinical data of patients required VR day surgery (*n*=27)**

| Characteristics | Value |
|---|---|
| Characteristics | Value |
| Male sex (*n* (%)) | 15(55.6) |
| Age (years) (mean, range) | 45.6,19-70 |
| Married (*n* (%)) | 18(66.7) |
| Level of education (*n* (%)) | |
| Junior high school | 11 (40.7) |
| Senior high school | 6 (22.2) |
| College and above | 10(37.0) |
| Occupation (*n* (%)) | |
| Employed | 8(29.6) |
| Retired | 5(18.5) |
| Students | 3 (11.1) |
| Others | 11(40.7) |
| Living area (*n* (%)) | |
| Rural | 7 (25.9) |
| Urban | 20(74.1) |
| The number of eye surgery (*n* (%)) | |
| One | 16(59.3) |
| Two and above | 11(40.7) |
| Waiting Time (d) (mean, range) | 21.0, 7-90 |
| Not know the surgical date (*n* (%)) | 13 (48.1) |

Abbreviation: VR, Vitreo-Retinal

previously undergone eye surgery felt anxious at the same time. The experiences of interviewees during the waiting period for day surgery are summarized in Table 2.

The illustrative quotations highlighting the stressful

**Table 2 Patients' mood experience while waiting for VR day surgery (*n*=27)**

| | *n* (%) | Anxiety (*n*) | Calmness (*n*) | A shift mood (*n*) |
|---|---|---|---|---|
| Living area | | | | |
| Rural | 7 (25.9) | 4 | 0 | 3 |
| Urban | 20(74.1) | 11 | 6 | 3 |
| Occupation | | | | |
| Employed | 8(29.6) | 6 | 1 | 1 |
| Retired | 5(18.5) | 1 | 3 | 1 |
| Students | 3 (11.1) | 3 | 0 | 0 |
| Other | 11(40.7) | 5 | 2 | 4 |
| Whether know the surgical date ahead | | | | |
| Yes | 14(51.9) | 6 | 5 | 3 |
| No | 13 (48.1) | 9 | 1 | 3 |
| The number of eye surgery | | | | |
| One | 16(59.3) | 10 | 3 | 3 |
| Two and above | 11(40.7) | 5 | 3 | 3 |

factors experienced by participants during waiting period for VR day surgery are presented in Table 3. The details are described below.

## Day surgery procedures

When patients were queried about their experiences during period of waiting for VR day surgery and the associated stressful factors, their narratives highlighted a significant focus on the day surgery procedures. Patients indicated that the uncertainty surrounding the surgical date left them feeling neglected. Prolong waiting times and the suddenly announced surgical admission dates had the potential to disrupt their work and study. In contrast to longer inpatient stays, they expressed uncertain about whether the quality of the perioperative care could be adequately ensured when they were discharged on

**Table 3 Overview of subcategories and main descriptive category (*n*=27)**

| Main descriptive category | Subcategories | *n* |
|---|---|---|
| -Day surgery procedures | -Effects on self-planning in preoperative period | 14 |
| | -Intraoperative cooperation with doctors | 7 |
| | -Postoperative recovery at home | 10 |
| -Worries about eye conditions | -The worsening of eye conditions | 21 |
| | -History of eye surgery | 9 |
| -Supports | -Family supports | 7 |
| | -Medical staffs' supports | 15 |

Abbreviation: VR, Vitreo-Retinal

the same day as their surgery. Furthermore, concerns regarding intraoperative anesthesia and postoperative symptoms also contributed to their anxiety.

*1) Effects on self-planning in the preoperative period*

Fourteen participants reported unaware of the exact date of their hospital admission, which significantly impacted their self-planning while waiting at home.

*The doctor informed me that surgery was needed, but it could be scheduled anytime within the next month. Worried that this uncertainty would complicate requesting time off from work, I decided to switch doctors to get treatment sooner.*

One patient, who was only 19-year-old, had been diagnosed with retinal detachment and described how anxious his parents were.

*My mom telephoned the nurse's station every day to inquire when my operation could be arranged. My parents worried that my admission to school would be affected by the postoperative posture management.*

Many patients hailed from remote rural areas or other provinces and complained of uncertainty whether to go home to await surgery notification. One patient, who had stayed in a hotel for two weeks, lamented:

*The hospital is 300 to 400 kilometers from my home, so traveling back and forth is impractical. I would have to return if I got a call for hospital admission, which would be too inconvenient.*

*2) Intraoperative cooperation with the doctor*

Regional anesthesia is the preferred method for ocular anesthesia and requires patients to cooperate with doctors to ensure smooth surgical procedures. Seven patients expressed uncertainty about their role during the surgery. One young patient stated:

*I felt very anxious about the surgery, as if I was about to take my college entrance exams. I did not know how to cooperate with the doctors, and terrifying scenes from surgery kept playing in my mind recently.*

In contrast, a 64-year-old patient demonstrated no anxiety.

*I always maintain a calm and harmonious mood now because of my previous surgical experiences. Therefore, I have no psychological pressure regarding the eye surgery.*

*3) Postoperative recovery at home*

Ten patients focused more on the postoperative care. One patient felt that continuity of care, or meeting the doctor who would perform the surgery in a timely manner, would provide a sense of security during the postoperative period.

*I won't feel safe staying in a hotel, even though it's very close to the hospital and only a short walk away. If I stayed in the hospital, the staff could address any issues promptly if I felt uncomfortable after the surgery.*

Another patient, who lived in the same city as the hospital, held a different opinion.

*I thought it would be better to rest at home after surgery since it was quieter and more comfortable. However, there was no medical supervision at home. I hope a service network extending from the hospital to home can be established just in case.*

## Concerns on eye conditions

The patients' narratives also centered on their eye conditions. Vision loss is perceived as irreversible and progressive, leading them to desire immediate VR surgery to preserve their remaining vision. One patient, who had diabetic mellitus, was unaware of his ocular condition until his diabetic retinopathy had advanced to a stage where it severely impacted his daily quality of life. He reported experiencing persistent mental stress, encompassing worries, anxiety, depression and social isolation. Furthermore, other patients highlighted that the failure of the initial VR day surgery was another contributing factor that could exacerbate their anxiety.

*1) The worsening of eye conditions*

Twenty-one patients expressed fear regarding their deteriorating vision.

*My vision decreased suddenly, which has never occurred before. I am very anxious about what has happened to my eye.*

*I feel deeply saddened by what has happened to me, especially since the eyes are one of the most important sensory organs. It feels meaningless to live if I can't see anything.*

A man was diagnosed with binocular proliferative

diabetic retinopathy, requiring for his right eye and laser therapy for his left, demonstrated apparent fear about his vision recovery:

*It would be beneficial if the treatment is effective. Otherwise, I am concerned that I may go blind.*

A patient, 24-year-old patient diagnosed with retinal detachment expressed uncertainty about the future:

*I don't know what I'll do if the disease can't be cured. The doctor informed me that my eye condition was serious and required at least two operations. Furthermore, additional surgeries would be necessary if the retinal detachment recured.*

*2) History of eye surgery*

Nine patients who had experienced failed eye surgeries reported anxiety during the waiting period. One patient, who had his left eyeball removed and underwent two surgeries for his right eye, shared:

*I have mixed emotions that are hard to put into words. I came to the hospital for a follow-up, and the doctor informed me that I need to undergo surgery for the third time. I feel devastated, and now I'm praying that this operation will be successful.*

A woman who had undergone silicone-filling in her right eye and maintained in a face-down position for two months was informed during a clinic visit that her detached retina had not reattached and she needed a second surgery.

*I feel miserable and upset at the thought of undergoing surgical procedures and having to maintain the same position again. I spent entire days lying face-down in bed and struggled to sleep well before. I really hope to avoid having the same experience.*

## Supports

Twenty-two patients acknowledged that support from families and medical staff was important when they were dealing with preoperative stress. Firstly, due to the frightening and burdensome nature of blindness, patients might distance themselves from their families and others. Family support could enabled them to engage in activities that were difficult to perform independently in their daily lives. Secondly, individuals who felt ashamed of their visual impairment, lacked a sufficient understanding of blindness, and had low expectations for the VR surgery that could save their vision acuity, found support from doctors and nurses to be strong indicators of hope and trust. This support drove these patients to undergo VR day surgery in a calm mood.

*1) Family supports*

Seven participants described various forms of help from their families. A 65-year-old patient referred for a doctor's visit shared:

*My son-in-law has always accompanied me to the hospital and handled every issue I encountered there, which has kept me relaxed throughout.*

*My family has provided me with significant support in terms of finances, daily life, and emotional well-being.*

*2) Medical staff supports*

In addition, support from medical staff was vital. Fifteen patients expressed greater confidence in overcoming diseases because of the skills and services of doctors and nurses. One patient stated:

*I haven't been worried at all, even though my surgery might be scheduled three months later. The doctors have been very responsible, patiently answering my questions and outlining my treatment plans. I have complete trust in them and am willing to follow their advice.*

*I felt inspired when the doctor mentioned that my vision could improve. I am determined to stay positive throughout my treatments and have faith in myself.*

## Discussion

On the day preceding VR day surgery, twenty-seven patients completed interviews regarding their experiences during the waiting period. Our study yielded several significant findings. Firstly, seven patients hailing from remote rural areas or other provinces, and eleven patients who were full-time employees or students, experienced anxiety and a sense of abandonment while waiting VR day surgery. These circumstances adversely affected their daily lives, work and academic pursuits. The primary reason was that these patients felt they had not received sufficient information about the surgical date, a notion corroborated by responses to another question in our study. Approximately 51.9% of the patients who were aware of their surgical date tended to maintain a calm

demeanor, whereas 69.2% of those unaware of their surgical date experienced heightened anxiety. These findings underscore the necessity for nurses to refine the preoperative workflow and provide patients with surgery-related information in advance, which can help keep them calm.

Secondly, day surgery procedures, concerns about eye conditions, and support systems emerged as the main stressors influencing patients' experiences. Day surgery procedures encompassed impacts on self-planning during the preoperative period, intraoperative cooperation with the surgeon, and postoperative recovery at home. The uncertainty of the surgical date had an undesirable influence on work and school attendance, often leading to disruptions in daily life. These results are consistent with previous studies on other diseases.[16]

Furthermore, some patients expressed a sense of security if they could recover in the hospital after surgery, as they lacked rehabilitation knowledge and were unable to recognize postoperative complications and adverse events.[3] Traditional inpatient surgical care provides more face-to-face opportunities for hospital staff to manage immediate postoperative complications.[7] In contrast, other patients preferred to recover at home due to the quiet and familiar environment. Additionally, our study emphasized the importance of postoperative continuity nursing in VR day surgery, aligning with the previous researches.[3, 26] These results suggest that nurses should maximize the patients' preoperative waiting time by providing comprehensive information about day surgery procedures, health education interventions, and opportunities for inquiry.

Patients consistently worried about their eye conditions. In our study, those who had never undergone eye surgery (62.5%) exhibited a higher proportion of anxiety compared to those with a history of eye surgery (45.5%). These results indicate that the preoperative phase is an overwhelming experience for many patients concerned about the surgical procedures and outcomes. Perhaps the outcomes would have been significantly different if the patients' preoperative psychological states had been managed appropriately. This highlights the importance of nurses closely monitoring the mood of patients with stressful risk factors and providing them with psychological support and person-centered care during the preoperative preparation phase.

Supports from family can help balance patients' moods. Although this relationship has been emphasized in many studies in similar fields,[27] it is rarely reported in the context of day surgery. Possible reasons include the following: unlike the day surgery mode abroad, the majority of the patients came from distant areas and were relatively older. Moreover, 59.3% of the patients were undergoing VR day surgery for the first time. These factors made it challenging for patients to follow medical advice independently. Additionally, the attitudes and behaviors of medical staff may be the most effective way to install hope in patients. These results indicate that positive experiences before surgery can enhance trust between patients and medical staff, aligning with the previous studies.[13, 28] Family members and health professionals are crucial sources of support for patients. Our findings suggest that family members should consider the mood of the patients, and doctors and nurses should interact with patients patiently to alleviate their anxiety.[13]

### Limitations

Our study had several limitations. This was an exploratory, qualitative study, and all recruited patients were from a single day surgery unit within the same hospital. Consequently, the finding may not be generalized to all patients undergoing VR day surgery, potentially limiting the generalizability of the results. Therefore, a quantitative, multi-center study should be conducted to comprehensively assess the effects of VR day surgery on patients' preoperative experiences.

## CONCLUSION

Given the narrow time frame for VR day surgery interventions, this study highlighted the necessity for nurses to provide patients with the surgery-related information in advance. Furthermore, detailed explanations of day surgery procedures and health education interventions delivered by nurses consistently benefited patients. Most importantly, nurses should consistently provide person-centered care, psychological support and install hope in patients, particularly for those

with stressful risk factors. Thus, it is crucial for nurses to enhance preoperative care services.

## Correction notice
None

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## Author Contributions
(I) Conception and design: Yu Zhang, Wenmin Huang
(II) Administrative support: Wenmin Huang
(III) Provision of study materials or patients: All authors
(IV) Collection and assembly of data: Yu Zhang, Xiaoqun Fang
(V) Data analysis and interpretation: All authors
(VI) Manuscript writing: Yu Zhang, Wenmin Huang
(VII) Final approval of manuscript: All authors

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## Conflict of Interests
None of the authors has any conflicts of interest to disclose. All authors have declared in the completed the ICMJE uniform disclosure form.

## Patient consent for publication
None

## Ethical Statement
The study was approved by the Ethics Committee of the Zhongshan Ophthalmic Center, Sun Yat-sen University, China (2020KYPJ168).

## Provenance and Peer Review
This article was a standard submission to our journal. The article has undergone peer review with our anonymous review system.

## Data Sharing Statement
None



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