

# Perceptions of health professionals and recipients regarding perioperative care in corneal transplantation: a qualitative study

*Percepções de profissionais da saúde e receptores sobre assistência perioperatória no transplante de córnea: estudo qualitativo*

*Percepciones de profesionales de la salud y de los receptores sobre la asistencia perioperatoria en el trasplante de córnea: estudio cualitativo*

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**ABSTRACT: Objective:** To understand the perceptions of health professionals and recipients regarding the perioperative process of corneal transplantation in a university hospital in northeastern Brazil. **Methods:** A qualitative, descriptive study with data collected through focus groups and interviews. Participants included health professionals involved in the perioperative care of corneal transplant patients and individuals who had undergone this type of transplant and were in the postoperative period. Data were analyzed using thematic analysis. **Results:** A total of 34 individuals participated, including 25 health professionals and 9 patients. Four categories emerged from the data analysis: a) perioperative care in corneal transplantation; b) potentialities of perioperative nursing care for patients undergoing corneal transplantation; c) weaknesses of perioperative nursing care for patients undergoing corneal transplantation; d) participants' suggestions. **Conclusion:** The results highlight that professional qualification and the implementation of preoperative nursing consultations contribute to strengthening patient safety and improving the quality of perioperative care in the context of transplants.

**Keywords:** Corneal Transplantation. Nursing Care. Perioperative Nursing. Patient care team.

**RESUMO: Objetivo:** Conhecer a percepção de profissionais da saúde e receptores sobre o processo perioperatório de transplante de córnea em um hospital universitário do Nordeste brasileiro. **Métodos:** Estudo qualitativo, descritivo, com coleta de dados por grupo focal e entrevistas. Participaram do estudo profissionais de saúde que atuam no perioperatório de transplante de córnea e pacientes submetidos a esse tipo de transplante e encontravam-se no período pós-operatório. Para o tratamento dos dados, utilizou-se a técnica de análise temática. **Resultados:** Participaram 34 indivíduos, sendo 25 profissionais de saúde e 9 pacientes. Com base na análise dos dados, delinearão-se quatro categorias: a) cuidados perioperatórios no transplante de córnea; b) potencialidades da assistência de enfermagem perioperatória de pacientes submetidos ao transplante de córnea; c) fragilidades da assistência de enfermagem perioperatória de pacientes submetidos ao transplante de córnea; d) sugestões dos participantes. **Conclusão:** Os resultados evidenciam que a qualificação profissional e a implementação da consulta de enfermagem pré-operatória contribuem para fortalecer a segurança do paciente e aprimorar a qualidade da assistência perioperatória no contexto dos transplantes.

**Palavras-chaves:** Transplante de córnea. Cuidados de enfermagem. Enfermagem perioperatória. Equipe de assistência ao paciente.

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**RESUMEN: Objetivo:** Conocer la percepción de los profesionales de la salud y de los receptores sobre el proceso perioperatorio del trasplante de córnea en un hospital universitario del noreste de Brasil. **Métodos:** Estudio cualitativo, descriptivo, con recolección de datos mediante grupos focales y entrevistas. Participaron del estudio profesionales de la salud que actúan en el perioperatorio del trasplante de córnea y pacientes sometidos a este tipo de trasplante, quienes se encontraban en el período postoperatorio. Para el análisis de los datos se utilizó la técnica de análisis temático. **Resultados:** Participaron 34 individuos, 25 profesionales de la salud y 9 pacientes. Con base en el análisis de los datos se delinearón cuatro categorías: a) cuidados perioperatorios en el trasplante de córnea; b) potencialidades de la asistencia de enfermería perioperatoria a pacientes sometidos a trasplante de córnea; c) fragilidades de la asistencia de enfermería perioperatoria a pacientes sometidos a trasplante de córnea; d) sugerencias de los participantes. **Conclusión:** Los resultados evidencian que la capacitación profesional y la implementación de la consulta de enfermería preoperatoria contribuyen a fortalecer la seguridad del paciente y a mejorar la calidad de la asistencia perioperatoria en el contexto de los trasplantes.

**Palabras clave:** Trasplante de córnea. Atención de enfermería. Enfermería perioperatoria. Grupo de atención al paciente.

## INTRODUCTION

Organ and tissue transplantation is a surgical procedure in which a compromised organ or tissue is replaced with a healthy one. It is indicated when available therapies no longer produce an adequate response and is intended to improve quality of life and extend life expectancy in individuals with advanced, irreversible diseases. Among the various modalities, corneal transplantation is notable, as it is recommended to restore vision in conditions that damage corneal tissue, resulting in substantial improvement in quality of life<sup>1</sup>. In Brazil, the primary indications for this procedure are keratoconus, followed by bullous keratopathy<sup>2</sup>.

In 2024, a total of 17,089 corneal transplants were performed in Brazil; however, by the end of the same year, the waiting list had reached 28,650 individuals, indicating a substantial mismatch between demand and the availability of donated tissue. Regionally, the Northeast accounted for 5,881 individuals awaiting the procedure, of whom 4,227 received treatment. These figures underscore the need for more effective strategies for the procurement, distribution, and utilization of corneal tissue, with the aim of reducing waiting times and increasing access to transplantation.

The donation and transplantation process involves a multidisciplinary approach in which nurses play a central role, participating in all stages. Resolution No. 710 of September 26, 2022, issued by the Federal Nursing Council (*Conselho Federal de Enfermagem* — COFEN), regulates the responsibilities of the nursing team in the processes of donation, procurement, and transplantation of organs, tissues, and cells, including the cornea<sup>3</sup>. In the specific context of corneal transplantation, nurses perform activities such as conducting family interviews, evaluating and enucleating the eyeball,

packaging the eyeball and reconstructing the donor's body, as well as preparing, assessing, and packaging the cornea, among other responsibilities<sup>4</sup>.

In this context, the following research question was formulated: How do healthcare professionals and transplant recipients perceive the perioperative process of corneal transplantation in a university hospital in Northeast Brazil?

This study expanded the understanding of the perioperative process of corneal transplantation based on the perceptions of healthcare professionals and recipients, providing support for safer and more humanized practices. The findings may inform multidisciplinary training strategies and improvements in the management of the perioperative process, thereby helping to reduce gaps in care and enhance the quality of assistance in the context of corneal transplantation.

## OBJECTIVE

To understand the perceptions of healthcare professionals and transplant recipients regarding the perioperative process of corneal transplantation in a university hospital in Northeast Brazil.

## METHODS

This was a field study with a qualitative approach, conducted in accordance with the recommendations of the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist<sup>5</sup>.

The study was conducted at a university hospital in Northeast Brazil, which has 506 beds and provides care across

multiple specialties, including organ and tissue transplantation. On average, the institution performs 12 corneal transplants per month.

Nurses, nursing technicians, surgeons, and anesthesiologists involved in corneal transplant procedures, as well as corneal transplant recipients, were invited to participate in the study. The final sample consisted of 34 participants, including 25 healthcare professionals (9 nursing technicians, 2 nurses, 5 surgeons, and 9 anesthesiologists) and 9 patients.

For healthcare professionals, the inclusion criterion was involvement in the perioperative process of corneal transplantation for at least six months. Individuals who were on vacation or absent from work during the data collection period were excluded.

Regarding the patients, those in the postoperative period of corneal transplantation who attended the outpatient clinic for their first follow-up appointment were included, while those who were not clinically able to participate in the interview were excluded.

Data collection was carried out between August and September 2023 by the principal investigator, who was embedded in the hospital where the study was conducted. This immersion facilitated closer relationships and trust with participants; however, it also carried the potential for bias, which was mitigated through the use of a structured script and the researcher's impartial conduct.

Before data collection began, the researcher contacted the coordination of the surgical unit and the technical manager of the ophthalmology service by telephone to present the study and obtain authorization for its implementation in that setting. Data were collected in two formats: focus groups (FG) with nursing professionals (technicians and nurses) and individual interviews with patients and physicians (anesthesiologists and surgeons). Participants who agreed to take part in the study received the Informed Consent, with one copy provided to each participant and another retained by the researcher.

The FG technique is designed to explore experiences, beliefs, and information on a specific topic, using group interaction to generate insights and facilitate the development of new hypotheses<sup>6</sup>. Three face-to-face sessions were conducted over consecutive weeks, each lasting approximately one hour. The meetings were held in a private room at the hospital and followed a script developed by the researchers, consisting of nine open-ended questions related to the corneal transplant process at the institution, addressing its stages, perioperative care, and associated strengths and weaknesses.

The participation of physicians (anesthesiologists and surgeons) and patients was conducted through individual interviews. Interviews with surgeons and anesthesiologists included four questions related to the perioperative care of patients undergoing corneal transplantation, addressing care strengths and weaknesses, service needs for process improvement, and suggestions to enhance the quality of care. Additionally, information on the professional profiles of the participants was collected. The interviews lasted an average of approximately 10 minutes, varying according to each professional's availability and level of engagement.

The data collection strategy employing individual interviews with these professionals differed from that used with the nursing staff (focus groups) due to the participants' limited availability to take part in the study.

To collect patient data, the researcher contacted the outpatient clinic nurse by telephone to identify individuals scheduled for their first postoperative corneal transplant consultation, which, according to the service's routine, occurs within 72 hours after the procedure. Patients were approached individually in the waiting room, where the study objectives, ethical considerations, and an invitation to participate were presented. Interviews were conducted in a private room to ensure participant privacy. The interview guide included six questions addressing the participants' profiles, experiences of undergoing corneal transplantation, and guidance received from the healthcare team, as well as space for suggestions to improve perioperative care. Interview duration ranged from 8 to 14 minutes.

The interview scripts for physicians and patients were pretested in a pilot study with two individuals: a healthcare professional working in an ophthalmology surgical center, who evaluated the script intended for professionals, and a layperson, who tested the script designed for patients. These participants were not included in the final study sample. The professional was selected for convenience due to their proximity to the principal investigator, while the layperson, also known to the researcher, was chosen randomly. The pilot study aimed to assess the clarity and comprehensibility of the data collection instruments for both groups. No modifications to the instruments were required.

The focus group sessions and individual interviews were audio-recorded (MP4 format) and transcribed by the principal investigator using Transkriptor<sup>®</sup> software. The transcripts were reviewed by two researchers and subsequently validated with participants, except for patients, who were only contacted during data collection.

To facilitate organization of the statements, participants were identified using acronyms corresponding to their professional category or patient status: nurses (N), nursing technicians (T), anesthesiologists (A), surgeons (S), and patients (P). Each acronym was followed by a sequential number reflecting the order of participation in the first FG or the individual interviews, resulting in identifiers such as N1, N2, T1, T2, A1, A2, S1, S2, P1, P2, and so forth.

Data from interviews and focus groups were analyzed using the thematic analysis method proposed by Minayo<sup>7</sup>, following the stages of pre-analysis, material exploration, and interpretation of results. Initially, the transcripts underwent pre-analysis through a floating reading to establish the study corpus in accordance with qualitative validity criteria. In the subsequent stage, coding was performed, organizing the most relevant units of meaning into categories based on the synthesis of the text into significant words and expressions. Finally, during the treatment of results, inferences and interpretations were developed in relation to the research objectives. It should be noted that, in presenting the qualitative findings, language errors were corrected without altering the essential content.

The research project was approved by the Research Ethics Committee under opinion No. 6.144.791 and CAAE 70395023.6.0000.5086. The study complied with Resolution No. 466 of December 12, 2012, of the National Health Council, as well as the General Law on the Protection of Personal Data (*Lei Geral de Proteção de Dados Pessoais — LGPD*)<sup>8,9</sup>.

## RESULTS

The sample profile exhibited the following characteristics: among the professionals, there was a predominance of females (n=13; 44.8%). Regarding professional training, an equivalent distribution was observed between nursing technicians (n=9; 31.0%) and anesthesiologists (n=9; 31.0%), followed by surgeons (n=5; 17.2%) and nurses (n=2; 6.9%). Participants' ages ranged from 28 to 55 years, and time since professional training ranged from three to 30 years. Length of experience in the field ranged from 1 to 20 years, with most participants (n=17; 58.6%) having more than five years of experience in the corneal transplantation process.

Regarding the patient profile, males predominated (n=6; 66.7%), followed by females (n=3; 33.3%). Age ranged from 23 to 80 years, and time on the transplant waiting list varied

from one month to eight years. The main indications for the procedure were leukoma (n=3; 33.3%), keratoconus (n=2; 22.2%), corneal ulcer (n=2; 22.2%), bullous keratopathy (n=1; 11.1%), and corneal perforation (n=1; 11.1%).

The analysis of data obtained from the focus groups and individual interviews with healthcare professionals enabled the identification of central themes related to perioperative care in corneal transplantation. The codes were organized into thematic categories, considering convergences and divergences among the different professional profiles, thus ensuring rigor and consistency in the qualitative analysis. Chart 1 presents the identified themes, accompanied by illustrative excerpts that demonstrate the articulation between the empirical data and the analytical interpretation.

Based on the identified themes, four categories were organized, as presented in the open-source code map (Figure 1):

### Category 1: Perioperative care in corneal transplantation

When questioned about preoperative care, nursing professionals highlighted the actions performed upon patient admission to the ophthalmic surgical center, such as checking vital signs, measuring blood glucose levels, and confirming information related to fasting, allergies, and medication use. They also emphasized attention to correct patient identification and confirmation of laterality, as illustrated in the following statements:

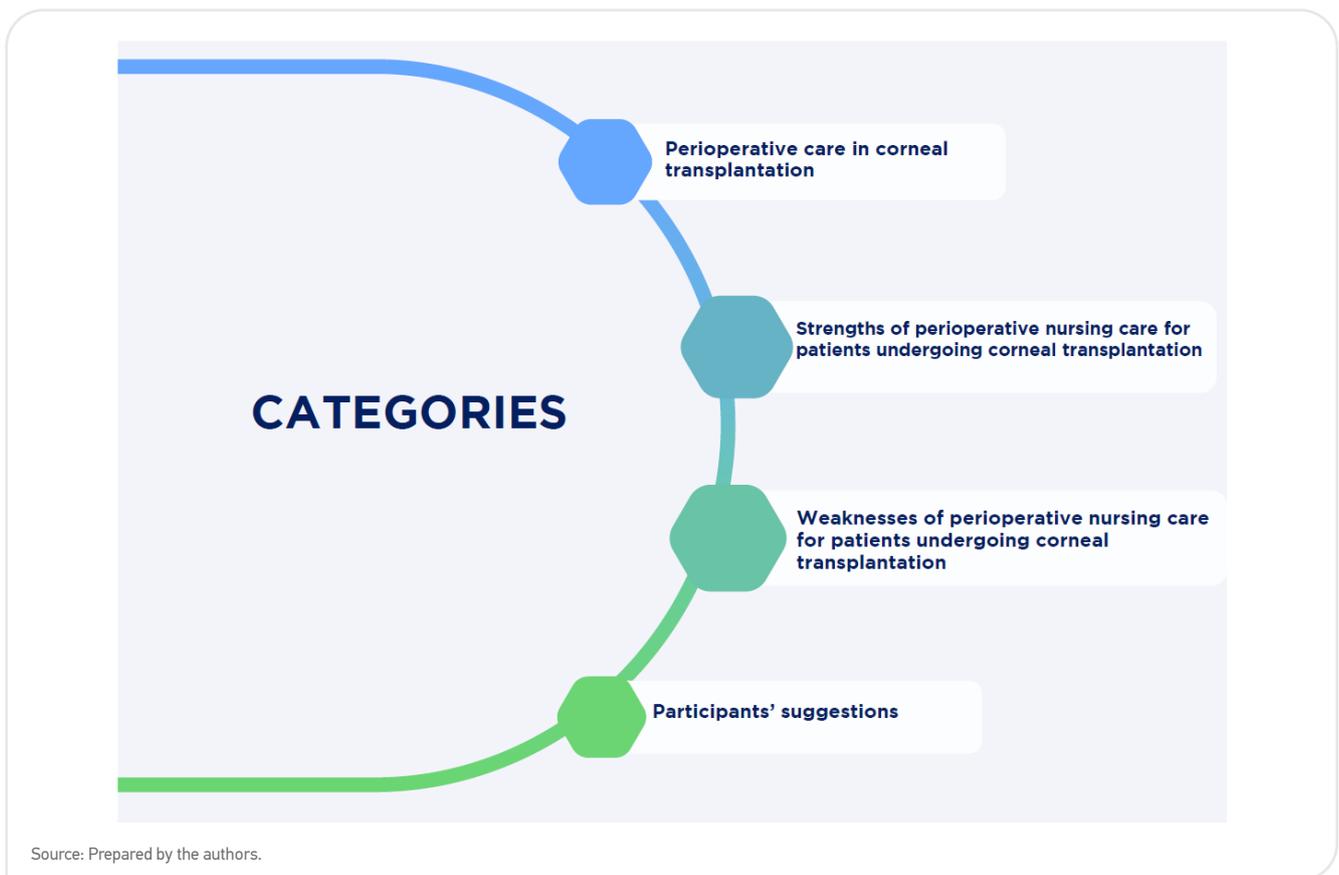
We check their BP [blood pressure], we check their blood sugar, [...] we have them change clothes, [...] have them wash their hands and face, which is part of our hospital's protocol, [...] we ask about the correct side of the procedure and then we label it. We put the label and the wristband on the same side they confirm they're having surgery on. We have them wash their hands and face again and, if we need to insert an IV line, we do that, right? (T2)

[...] explaining all the procedures that will be done, how the checklist will be carried out, checking the exams, [...] giving them all the information they need so they can stay calm and not get anxious. Explaining what the surgery will be like, how the anesthesia will work, and what the postoperative period will be like, for both the patient and their family member. (T4)

**Chart 1.** Distribution of categories and themes according to the statements of participating healthcare professionals (nurses, nursing technicians, surgeons, and anesthesiologists; n=25). São Luís (MA), Brazil; 2023.

Categories	Themes	Participants
Perioperative care in corneal transplantation	Preoperative	A8, T2, T5, T6, P3, P5
	Intraoperative	A4, N1, T5, T9
	Postoperative	A5, N1, T3, T4, T5, P2, P4
Strengths of perioperative nursing care for patients undergoing corneal transplantation	Reception and humanized care	A3, T1, P1, P5, P6, P9
	Safe surgery protocol	A7, N1, T2
	Perioperative assistance	A1, N1, T5
	Infrastructure	A7
	Care team	A6, A9, N2, T8
Weaknesses of perioperative nursing care for patients undergoing corneal transplantation	Preoperative care	A1, A2, S5, N1, N2, T1, T3, T8
	Safety	N1, P3
	Infrastructure	A6, S1, S2, S4, T1
	Access to postoperative care	T9
	Donor insufficiency	S3
	Time on waiting list	P7, P8, P9
Participants' suggestions	Suggestions	T5, T6, T7

Source: Prepared by the authors.



Source: Prepared by the authors.

**Figure 1.** Map of free codes. São Luís (MA), Brazil; 2023.

Regarding intraoperative care, nursing professionals emphasized adherence to the steps of the safe surgery protocol, including the use of the surgical checklist in the operating room (time out). They also reported providing additional forms of care, such as assisting with anesthesia, performing venipuncture, conducting cardiac monitoring, coordinating activities within the operating room, and receiving the corneal tissue. These aspects are illustrated in the following statements:

[...] once the patient is in the operating room, we provide all the necessary care [...], monitoring, completing the surgical safety checklist at all three stages, [...] placing any needed IV lines, administering medications [...] and providing all the intraoperative care. (N1)

[...] requesting [...] the cornea from the eye bank by filling out the specific form. [...] an external staff member requests the cornea from the [...] eye bank, it gets released, and when the cornea arrives at the surgical center, all the checks are performed. (N1)

Regarding postoperative care, participants reported that patients and their companions receive both verbal and written instructions on aspects to be monitored in daily life.

[...] we also explain to the patient and their companion [...] what time the dressing should be removed, [...] not to sleep on the operated eye, [...] which antibiotic they need to use, and the full schedule for it [...]. (T5)

[...] all the postoperative instructions, returning the patient's test results, guidance on how to use the eye drops as prescribed, and the instructions for their outpatient follow-up appointment. (N1)

[...] there are other instructions we give them as well, written down on paper, 'cause sometimes if we only explain it verbally, they might forget [...] so we give everything in writing to the family member. (T3)

Patients who participated in the study confirmed that they had received guidance regarding the procedure and postoperative care:

[...] I was well taken care of by the professionals, and I got all the information I needed about the procedures and the care I should take after the surgery. (P2)

[...] they explained to me beforehand how the procedure would be done, and also went over everything again afterward. (P3)

Using eye drops and glasses, all that. (P4)

## Category 2: Potential of perioperative nursing care for patients undergoing corneal transplantation

The results indicated that a welcoming and humanized approach to care is present in perioperative assistance, representing a distinguishing feature of the service.

[...] our team makes a point of keeping the patient calm so that the surgery goes smoothly [...] from start to finish. (T1)

[...] so that they are well informed [...] and know what might happen [...] during the procedure. (A3)

Adherence to the safe surgery protocol was also highlighted as an essential element of the care provided to patients undergoing corneal transplantation:

[...] I think it's part of patient safety [...] the checklists here are used properly. (A7)

[...] the cornea is checked [...] by the nurse [...] and then checked again with the surgeon [...]. (T2)

The technical training of the nursing team was also noted:

[...] we have a team [...] trained [...] to provide care [...] to the patient [...] with quality, [...] and safety, [...] ensuring [...] safe care [...]. (N1)

[...] everyone is committed [...] to making it [...] possible. (T8)

[...] the guidance from the nurses [...] was helpful for the surgery. (P8)

Participants emphasized that care is present in all phases of the perioperative process, encompassing both direct and indirect patient assistance. They also highlighted the existence of guidelines that structure practice, such as standard operating procedures (SOPs):

[...] we organize the room for the surgery, [...] with the correct materials for the procedure. (T5)

[...] following the standard operating procedure, which includes the entire process from patient admission to intraoperative care and postoperative care. (N1)

Points were highlighted that demonstrated the commitment and competence of the care team, particularly the nursing staff, as illustrated by the following statements:

[...] the multidisciplinary team is well prepared to care for the patient and provide the best possible outcomes. (A9)

[...] we work [...] with an excellent nursing team [...]. (A6)

However, weaknesses were also identified, which are presented in the following category.

### **Category 3: Weaknesses in perioperative nursing care for patients undergoing corneal transplantation.**

The weaknesses identified by participants referred to the need for more adequate patient preparation for surgery, as insufficient preparation may lead to negative repercussions in the postoperative period.

[...] patients [...] should be better prepared [for] the clinical aspects, right? [...] they come to our service taking some medications for their comorbidities, like hypertension or diabetes, but if these aren't properly managed [...] it can affect the outcome of their postoperative recovery and the quality of the graft. (A2)

[...] the preoperative preparation is still lacking. [...] sometimes the patient arrives having eaten, or takes medications that they shouldn't have. (T1)

[...] patients from other units [...] go through these pre-anesthetic evaluations [...], but here I don't see that [...] assessment happening. (T3)

[...] maybe regarding the patients' preparation [...]. (A1)

And many patients wait a long time on the waiting list, and when they finally get here, because of insufficient preoperative preparation, the surgery has to be canceled. (N2)

The rigorous verification of corneal identification was highlighted as a weakness:

[...] identifying the cornea, because sometimes it's done during the same shift [...] as the numbering confirmation of the cornea [...]. (N1)

Infrastructure was also identified as a weakness, particularly with respect to insufficient material resources:

[...] inadequate materials [...] the materials that aren't available in the room [...]. (S1)

[...] so that the surgeon can properly handle the cornea and then perform the trephination and use it. (S4)

One participant mentioned that postoperative follow-up and access to healthcare are sometimes areas of weakness:

[...] the patient leaves the transplant [and] doesn't have follow-up care outside, because sometimes, [...] they're patients from out of town. (T9)

The need for multidisciplinary training and capacity building for the team involved in corneal transplantation became evident:

[...] I think [...] having multidisciplinary training is important, right. (A7)

[...] exactly, training the staff [...]. (S1)

[...] I believe [...] there aren't enough courses [...] for training [...], I'd like [...] there were more. (T2)

[...] professional training [...] courses [...] lectures [...] participation [...] improvements to the service [...]. (N1)

However, it is noteworthy that these weaknesses are perceived as limited in scope, as the service is already well-structured:

[...] overall, there are very few weaknesses. It's already a well-organized service. (A1)

#### Category 4: Participant suggestions

Among the suggestions, the need to implement preoperative nursing consultations was highlighted, with the aim of better preparing patients for surgery. The importance of creating a specific outpatient clinic for postoperative transplant follow-up was also emphasized, where patients and their families could receive guidance on care and medication use:

[...] and I think there should be more attention from nursing — the nurse's assessment of the patient — right? (T6)

[...] it's an outpatient surgery, but the nursing consultation would be something essential. (T7)

[...] a postoperative transplant outpatient clinic should be created [...] where patients and their families [...] would be instructed [...] on care and medications [...]. (A2)

## DISCUSSION

The nurse is responsible for monitoring and supporting the patient, as well as coordinating nursing services in conjunction with the multidisciplinary team, directly contributing to the quality of care and the optimization of clinical outcomes, particularly in complex procedures such as corneal transplantation<sup>10,11</sup>. In this context, understanding the perceptions of professionals and recipients regarding the care provided is essential for identifying strengths and gaps in care, thereby supporting the development of strategies that enhance clinical practice and promote safer, more humanized, and more effective care.

In the present study, it was evident that the nursing team operates across all stages of the perioperative process, performing actions such as patient assessment and preparation for surgery, guidance on preoperative fasting, medication-related care, and the collection of clinical information, including allergies and comorbidities, as well as postoperative instruction. The care practices identified were aligned with the guidelines of the Brazilian Association of Surgical Center, Anesthetic Recovery, and Sterile Processing Department Nurses (SOBECC)<sup>12</sup>, which emphasize the importance of qualified nursing practice and the adoption of measures focused on patient safety, prevention of complications, and humanized care. This alignment reflects the consolidation of care standards, the nursing team's commitment to evidence-based protocols, and the pursuit of clinical excellence, thereby contributing to improved health outcomes and to the satisfaction of patients and their families<sup>12</sup>.

The nurse plays an essential role in the context of ophthalmic surgery, providing perioperative care and guidance that strengthens bonds of trust, promotes safety, and contributes to the prevention of complications<sup>13</sup>. In the preoperative phase, considered crucial, responsibilities include conducting thorough clinical assessments, preparing the patient, and coordinating preoperative care<sup>12,13</sup>.

In the intraoperative context, the SOBECC guidelines emphasize the importance of integrated patient care, from entry into the operating room to transfer to the post-anesthesia recovery area<sup>12</sup>. At this stage, the nursing team performs functions such as preparing the operating room, assisting the anesthesiologist, circulating the room, performing surgical instrumentation, and ensuring proper patient positioning, among other care activities, which were also evidenced in the results of this study<sup>11,13</sup>.

Promoting patient safety in the perioperative period is fundamental and requires multidisciplinary practices that ensure excellence in care<sup>14</sup>. The findings of this study highlighted the relevance of the safe surgery protocol, including patient identification, laterality confirmation, and application of the checklist as a strategy to prevent adverse events, in line with the recommendations of the World Health Organization<sup>15</sup>, which advises the use of the checklist for the standardization of procedures, promotion of effective communication, and reduction of complications. Thus, the actions identified reflect the adoption of international guidelines aimed at improving the safety and quality of care<sup>15</sup>.

Also noteworthy was the statement by a physician who recognized the importance of adherence to and correct application of the checklist. Although there was no explicit mention of the nursing staff, in the context studied, the formal execution of this instrument is the responsibility of nursing, as recommended by the safe surgery protocol<sup>15</sup>.

The safety practices, welcoming environment, and humanized care, combined with the team's competence and the quality of perioperative care, were identified as strengths, consistent with the literature emphasizing the importance of safe, humanized, and high-quality care during the perioperative period<sup>12,14</sup>.

In the postoperative context, continuous patient monitoring is recommended, with attention to post-anesthetic conditions and clinical progression. Ongoing observation is essential to ensure safety and well-being and to promote adequate recovery — elements also evidenced in the findings of this study<sup>12,14</sup>.

The results indicated weaknesses in patient preparation for surgery, underscoring the need to enhance preoperative guidance, which is essential for reducing anxiety and promoting postoperative recovery<sup>14</sup>. Within this context, the nurse assumes a central role in the early identification of complications and in the humanization of care, contributing to improved visual and functional outcomes in corneal transplantation<sup>16</sup>. This role can be strengthened through the implementation of preoperative nursing consultations, either in person or via telehealth<sup>17</sup>. Additionally, for patients residing far from the transplant center, coordination by the nurse with the primary care team during the transition of care represents a relevant strategy to increase safety, reduce uncertainty, and support a more effective recovery<sup>17,18</sup>.

Preoperative nursing consultation is an important strategy for improving care, particularly for patients residing in remote areas, as it enables clarification of questions and guidance regarding surgical preparation. The findings of this study indicated that, although this practice was not implemented in the observed context, it was identified as a fundamental need in both the preoperative and postoperative periods. Therefore, its adoption may represent a significant advance in perioperative care and should be considered in practical recommendations and future research aimed at strengthening nursing care.

Another aspect to be considered concerns the training of health professionals, which continues to address the

topic of donation and transplantation in a limited manner, given that it is a specialized subject and that national curricular guidelines prioritize generalist training<sup>19</sup>. Advancements in this area tend to occur through continuing education programs. The lack of more comprehensive training may result in weaknesses in perioperative care, as evidenced in the findings of this study.

The need for greater rigor in verifying the identification of corneal tissue intended for transplantation was identified as a weakness, underscoring the importance of checking the documents issued by the State Transplant Center (*Centro Estadual de Transplantes – CET*) to ensure patient safety and prevent adverse events<sup>20</sup>. The primary weakness, however, concerned the lack of adequate infrastructure, particularly in relation to the quantity and quality of surgical materials and instruments. The safe performance of procedures requires sufficient supplies, appropriately processed and maintained in suitable conditions for use<sup>12,16</sup>. In this regard, biovigilance studies indicate that failures in processes, communication, and infrastructure may contribute to the occurrence of adverse events<sup>12,16</sup>.

The findings of this study support the development of improvement strategies in other health services and reinforce the relevance of the nurse's role in corneal transplantation, the most frequently performed transplant procedure in Brazil. Among the limitations, the specific regional scope stands out, given the delimited focus on the studied population, which may affect the representativeness of the results due to cultural factors. Additionally, the short interview duration with surgeons and anesthesiologists, constrained by these professionals' availability, may have introduced bias. The absence of transcript validation by the interviewees represents another limitation to be considered. It is recommended that future research employ larger samples, diverse methodological approaches, and multicenter designs to strengthen the validity and generalizability of the findings.

## CONCLUSION

This study sought to understand the perceptions of health-care professionals and patients regarding perioperative care in corneal transplantation at a university hospital in Northeast Brazil. The results indicated that care is delivered by a qualified multidisciplinary team, grounded in

## FUNDING

None.

## CONFLICT OF INTERESTS

The authors declare there is no conflict of interests.

## AUTHORS' CONTRIBUTIONS

GNSRS: Project administration, Formal analysis, Conceptualization, Data curation, Investigation, Methodology, Funding acquisition, Resources, Writing – original draft, Writing – review & editing, Software, Supervision, Validation, Visualization. BCP: Writing – original draft, Writing – review & editing, Validation, Visualization. CFST: Writing – original draft, Writing – review & editing, Validation, Visualization. FAASS: Writing – review & editing, Validation, Visualization. KPM: Writing – review & editing, Validation, Visualization. PT: Project administration, Formal analysis, Conceptualization, Data curation, Investigation, Methodology, Funding acquisition, Resources, Writing – original draft, Writing – review & editing, Software, Supervision, Validation, Visualization.

practices of safety, welcoming, and humanized care. Among the aspects of care highlighted were adherence to the safe surgery protocol, accurate identification of the patient and corneal tissue, monitoring of vital signs, and the instructions provided before and after the procedure. Strengths included the technical preparation of the nursing team, the standardization of processes, and the commitment to patient safety. Conversely, the main weaknesses were associated with the limited availability and inadequate quality of surgical instruments, as well as the need to strengthen preoperative instructions, particularly for patients residing in regions distant from the transplant center.

The findings reinforce the importance of continuous professional development for professionals involved in transplantation. The implementation of preoperative nursing consultations, conducted either in person or remotely, emerges as a promising strategy to improve patients' preoperative preparation, reduce the risk of postoperative complications, strengthen surgical safety, and promote better care outcomes. Additionally, strengthening institutional protocols focused on the transition of care in coordination with primary care, as well as increasing investments in infrastructure and adequate surgical instruments, is recommended. Future studies may evaluate the effectiveness of these interventions and further examine the role of nurses in improving perioperative care within the context of corneal transplantation.

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