

# Procedures involving child surgery in the peroperative period: Scoping review

**RESUMO** | Objetivo: identificar os componentes necessários ao entendimento da criança quanto aos procedimentos e etapas que irá se deparar durante o período perioperatório. Método: revisão sistemática do tipo Revisão de Escopo. A busca foi realizada nas bases de dados: Sistema Latino-Americano e do Caribe de Informação em Ciências da Saúde (LILAC's), Scientific Eletronic Online (SciELO), SCOPUS, WEB OF SCIENCE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Base de Dados de Enfermagem (BDENF), com recorte temporal de 10 anos (2010 – 2019). Resultados: foram selecionados 16 estudos que descreviam as etapas da cirurgia, divididos em três: pré-operatório, intraoperatório e pós-operatório. Os estudos descreviam as etapas, os procedimentos e os materiais utilizados no centro cirúrgico, que poderiam ser percebidos pela criança. Conclusões: o objetivo foi alcançado e essas informações poderão ser exploradas para construção de materiais educativos voltados à orientação de crianças para o procedimento cirúrgico ou guiar profissionais e familiares.

**Descritores:** Centro Cirúrgico; Enfermagem; Tecnologia.

**ABSTRACT** | Objective: To identify the components necessary for the child's understanding of the procedures and steps that will be encountered during the perioperative period. Method: systematic review of the Scoping Review. The search was performed on the databases: Latin American and Caribbean Health Sciences Information System (LILAC's), Scientific Electronic Online (SciELO), SCOPUS, WEB OF SCIENCE, Cumulative Index for Nursing and Allied Health Literature (CINAHL), Nursing Database (BDENF), with a 10-year time frame (2010 - 2019). Results: 16 studies were selected that described the stages of surgery, divided into three: preoperative, intraoperative and postoperative. The studies described the steps, procedures and materials used in the operating room, which could be perceived by the child. Conclusions: the objective was achieved and this information can be used to build educational materials aimed at guiding children for the surgical procedure or guiding professionals and family members.

**Keywords:** Surgicenters; Nursing; Technology.

**RESUMEN** | Objetivo: identificar los componentes necesarios para la comprensión del niño de los procedimientos y pasos que se encontrarán durante el período perioperatorio. Método: revisión sistemática del tipo Scoping Review. La búsqueda se realizó en las siguientes bases de datos: Sistema de Información de Ciencias de la Salud de América Latina y el Caribe (LILAC's), Scientific Electronic Online (SciELO), SCOPUS, WEB OF SCIENCE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Base de Datos de Enfermería (BDENF), con un horizonte temporal de 10 años (2010 – 2019). Resultados: Se seleccionaron 16 estudios que describían las etapas de la cirugía, divididos en tres: preoperatorio, intraoperatorio y posoperatorio. Los estudios describieron los pasos, procedimientos y materiales utilizados en el quirófano, que podrían ser percibidos por el niño. Conclusiones: el objetivo fue alcanzado y esa información puede ser utilizada para la construcción de materiales educativos destinados a orientar a los niños para el procedimiento quirúrgico o orientar a los profesionales y familiares.

**Palabras claves:** Centro Quirúrgico; Enfermería; Tecnología.

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## INTRODUCTION

Hospitalization and the performance of invasive procedures such as surgery and the lack of knowledge of the hospital procedures that surround it are capable of generating negative feelings, especially when the patient is a child, such as bad mood, fear, problems with eating or sleeping, worry, insecurity, apathy, agitation, anxiety, sadness, guilt, and stress.<sup>(1,2)</sup>

In addition, preoperative anxiety can cause, most often in children aged

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between 2 and 5 years, pediatric emergency delirium, characterized by the state of waking up from anesthesia with inconsolable and restless behavior.<sup>(3)</sup>

However, studies show that it is possible to reduce these effects through guidelines aimed at clarifying the procedures and interventions to be submitted. In this way, it is possible to make the child feel safer, providing their understanding of the situation they are experiencing and, consequently, promoting greater tranquility and a lower level of fear and anxiety.<sup>(4-6)</sup>

There are many ways to transmit information about the surgical process: verbally, through activities with paper and coloring materials; medical and hospital materials such as cotton, syringe, needle, equipment, mask, glove, cap, shoe, among others; videos among others<sup>(4,5)</sup> or use of digital technologies in health.<sup>(3,7-9)</sup>

Although several technologies are being created with the aim of assisting in the treatment and self-care of patients, they are not always approved by them, as they do not present attractive, interactive and useful content.<sup>(10)</sup>

Therefore, aiming at the benefits of guidance for a surgical procedure and the construction of content that is attractive to children, this study aims to identify the content that will be part of a technology applied to the care of children who will undergo a surgical procedure, presenting components necessary for the child's understanding of the procedures and steps that will be encountered during the perioperative period.

Therefore, based on the objective of the study, the following question was determined: What are the necessary components for the child's understanding of the procedures and steps that he will encounter during the perioperative period?

## METHOD

To carry out this study, we used a

systematic review of the Scope Review type, through the scoping study or scoping literature reviews. The Scope Review strategy, guided by the recommendations of the JBI Institute Reviewer's Manual, consists of a systematic, exploratory review aimed at mapping, in scientific production, relevant studies in a given area. It has a comprehensive



In addition, preoperative anxiety can cause, most often in children aged between 2 and 5 years, pediatric emergency delirium, characterized by the state of waking up from anesthesia with inconsolable and restless behavior.



approach, as it works with a broad search strategy and less rigor in the quality of studies, and scientific productions can be included, including dissertations and theses that are configured as research that addresses the topic of this study.<sup>(11)</sup>

For this study we applied the PCC strategy that represents a mnemonic

for Population, Concept and Context, being defined as: P – children up to 12 years old<sup>12</sup>; C – procedures involving surgery; C – perioperative period. In addition, the objectives, inclusion criteria and methods were specified in a protocol validated by experts.<sup>(11)</sup>

The search was carried out in the following databases: Latin American and Caribbean Health Sciences Information System (LILAC's), Scientific Electronic Online (SciELO), PUS, WEB OF SCIENCE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Nursing Database (BDNF).

The descriptors in Portuguese, English and Spanish were considered: child, educational technology, surgery and games and toys. A time limit was established for studies published in the last 10 years, from 2010 to October 31st, 2019.

The inclusion criteria for this scope review were: Studies that present the components necessary for the child's understanding of the procedures and stages that will be submitted in the perioperative period, which may be primary studies (Experience reports; Case report; Case studies and case and control studies; Cohort study; Randomized controlled clinical trial; Reflection studies) or secondary (Non-systematic reviews; Systematic reviews; Meta-analysis; Guides ("Guidelines"; Manuals; Books) among others that may respond to the purpose of this study; Studies published in full in English, Portuguese and Spanish.

The studies found were evaluated by two readers and the choice of articles was initially made by reading the titles and abstracts and after the selection, the complete reading of the material.

## RESULTS

Figure 1 below presents the search steps and the results found in each of them. In addition, four studies found through the references or even by the

manual search of the authors were included, this action being allowed by the Scoping Review type. Finally, a total of 16 studies that mention the stages of the surgical process were included in this review.

Among the selected studies, three were about experience reports of children who had undergone a surgical procedure, allowing a greater approximation with the objectives of this study. (13-15)

Of the other studies, eight were related to the use of playful strategies aimed at preparing children for the surgical procedure, including: therapeutic play, presentation of surgical materials and videos, visit to the operating room, and demonstrate positive results regarding the reduction of preoperative anxiety. (16-24)

The other three studies showed the positive effects caused by the child's distraction through the use of playful strategies such as games, cartoons and the use of their favorite toys during the preoperative period. (25-27)

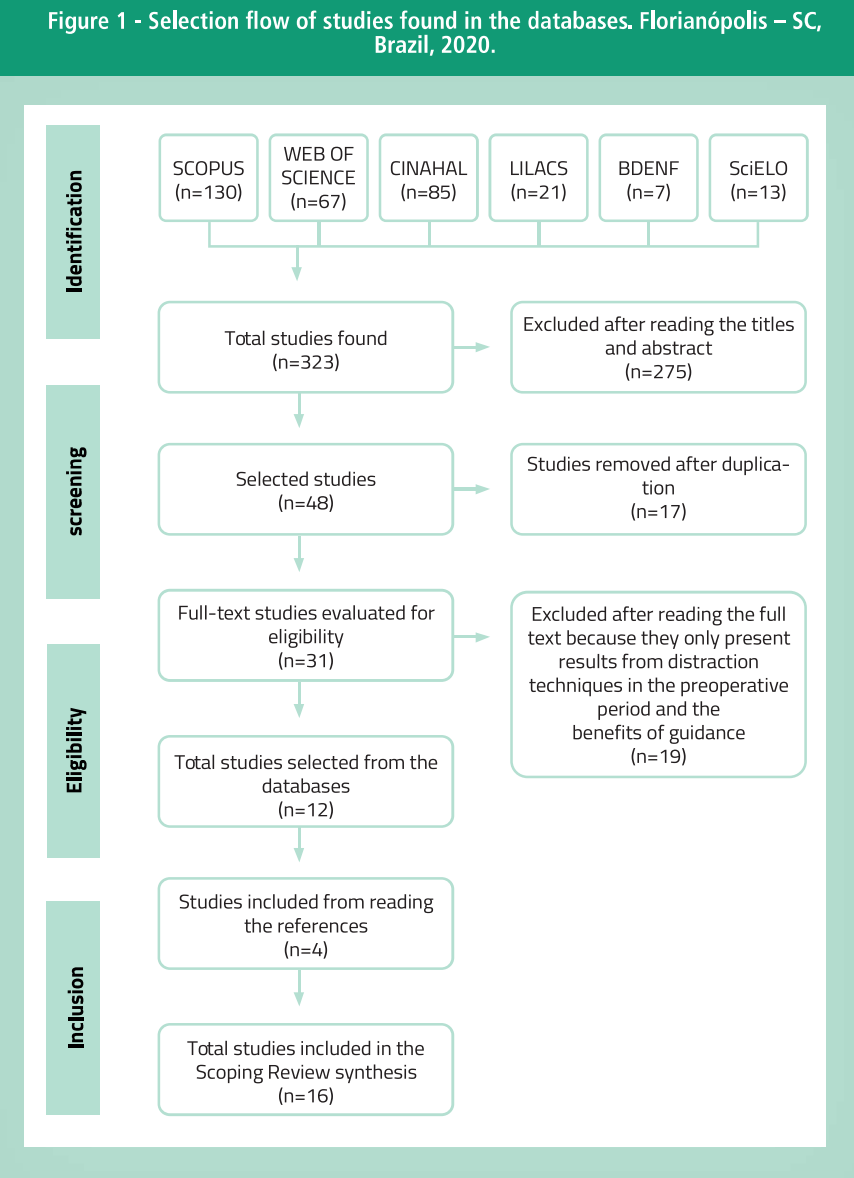
One of the studies sought to identify the reaction of children after 14 days of surgery, through the use of materials and equipment used during surgery, evaluating negative reactions that could indicate possible trauma. (28)

The surgical process involves a series of procedures and steps and all of them need to be clarified so that they do not become traumatic memories after the surgical process.

**Perioperative stages and the components and processes perceived by the child**

According to the studies, we divided the perioperative period into three phases: preoperative, intraoperative and postoperative as described in the image below.

To better explain the steps of this process, we will discuss each of them below.



Source: Developed by researchers, 2020.

**Preoperative**

The preoperative period begins when the child is admitted to the hospital, at this stage the child is sent to the hospital room where the first preparation and care procedures prior to surgery will be performed. Afterwards, she goes to the pre-anesthetic room or directly to the operating room. (13,21,24-26,30)

Transport to the pre-anesthetic room takes place with the child lying on a

transport stretcher. (15, 27) However, one of the studies showed that it can happen in a playful way, like in a toy car, where the child can be transported sitting. (25)

The preoperative period is also characterized by fasting, which is guided during the consultation with the anesthesiologist, considering that, in most cases, it is necessary for the patient to go without food for a period of time to ensure safety during anesthetic induction. (13,15,17,18, 24)



During this period, before entering the operating room, pre-anesthetic medication is administered, commonly used Midazolam®. <sup>(15,17,18,21,25,28)</sup>

To enter the operating room, it is necessary to wear appropriate clothing, including: cap, mask, shoe, surgical clothes for the nursing team, medical team and for the child. <sup>(13,16-18,21,22, 28)</sup>

### Intraoperative

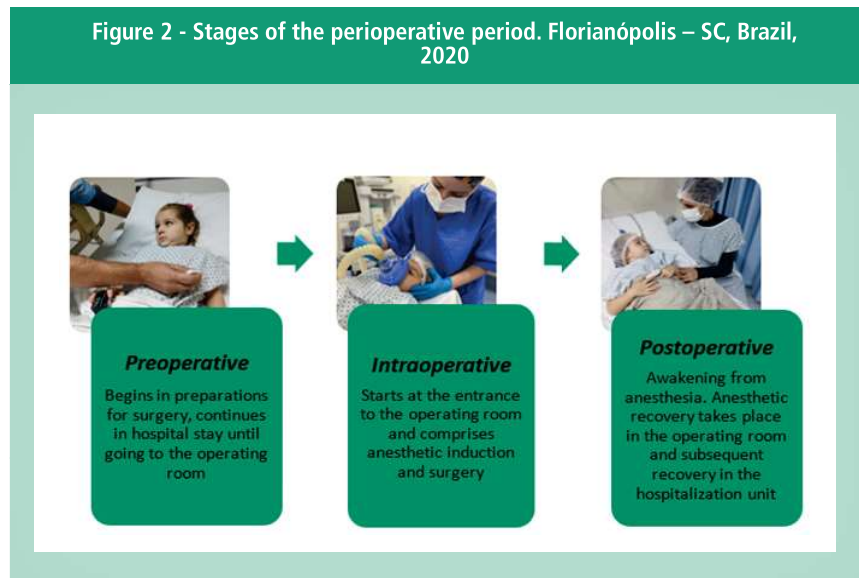
The intraoperative period occurs in the operating room and is characterized by the anesthetic and surgical act, where the presence of parents or guardians may <sup>(17, 21, 26)</sup> or may not <sup>(14,18,25)</sup> be allowed depending on the rules of each institution.

Upon admission of the child to the operating room, important information about the patient is checked, such as: identification through the identification bracelet and medical record; the demarcation of the place to be operated on, the consent form, fasting, allergies and the use of medication. After admission, she is taken to the operating room accompanied by the surgical team. <sup>(17,24,26,27)</sup>

The operating room must be equipped with materials and equipment to perform the surgery safely, including a team trained to perform it. In addition, during this period, the child is involved by the fear of surgery and the unknown, by the presence of unknown people such as the nursing and medical team (anesthetist and surgeon). <sup>(13,15,17,19,21,27)</sup>

It is at this stage that equipment and objects that are part of the operating room are also perceived, including: operating table, monitoring equipment, surgical focus, needles, syringes, serum, IV set, stethoscope, cotton, tape, glove, thermometer, surgical mask, oxygen catheter, electrocardiogram electrodes, laryngoscope and surgical instruments. <sup>(13,15-17,20, 21,22,24,26-28)</sup>

In addition, at this time anesthetic induction takes place. After the child is admitted to the operating room, the



Source: Developed by researchers, 2020.

child is positioned, lying on the operating table, and vital signs are monitored using electrodes, electrocardiogram, sphygmomanometer for blood pressure and pulse oximetry. The anesthesiologist performs anesthetic induction, using oxygen and an inhalation mask, administering anesthetic drugs intravenously and, finally, orotracheal intubation. At this moment, the presence of a breathing tube and equipment for anesthesia are perceived, being referred by the children as the moment when they sleep for the surgery to take place. <sup>(13,17-21,23-28)</sup>

The surgical procedure takes place after anesthesia and can be presented to children in a simple way, which results in its easy understanding, for example, tonsil or hernia cut, adenoid scraping or other surgery as indicated by each one. <sup>(16,22,23)</sup>

At the end of the surgery, anesthesia awakens and the child is referred to the next stage, the postoperative period, in the anesthesia recovery unit. <sup>(17,21,30)</sup>

### Postoperative

The postoperative period takes place after the surgery and in the post-anesthetic recovery room, attached

to the operating room. At this time, the presence of a companion is allowed. <sup>(13,17,24)</sup>

This period is also characterized by the presence of postoperative pain and administration of analgesics to relieve it. <sup>(13,15,24)</sup> Some children recall being agitated and/or drowsy after surgery. <sup>(15)</sup>

After recovery from anesthesia, the child will be discharged from anesthesia and may be referred to the inpatient room or to hospital discharge according to the therapeutic plan. Some reports of children indicate that they remember being in the hospital room, mainly lying in bed recovering from the surgery. <sup>(14, 16,21,23,30)</sup>

The application of dressings, when necessary, also occurs in the postoperative period. <sup>(16,22-24)</sup>

### DISCUSSION

The studies found describe the process and procedures that occur during the perioperative period. Some of these were performed with children aged between 3 and 14 years and the most commonly performed surgeries are: tonsillectomy, adenoidectomy, surgical treatment of inguinal and umbilical her-

nia and postectomy. <sup>(13,-18,20-26,28,29)</sup>

Most studies presented the steps and procedures that occur during surgery and are derived from guidance plans aimed at children who were about to undergo a surgical procedure. These aimed to verify the children's anxiety level by comparing those who received routine care and those who received guidance related to the surgery. Thus, it is observed that children who receive guidance about the surgery have a reduction in the level of anxiety and stress generated by the surgery. <sup>(16-24,30)</sup>

These results corroborate other studies that show a significant reduction in anxiety in children who undergo interventions for preoperative preparation as a therapeutic game, aimed at guiding procedures to be experienced during the perioperative period. In addition, children become more collaborative and react in ways that are more accepting. <sup>(31, 32)</sup>

Knowing that preoperative guidance can bring benefits in terms of reducing anxiety and stress, it is necessary that the information be as reliable as possible, taking into account the child's age and ability to understand so that he is not surprised in a negative and unexpected way. <sup>(31)</sup> In addition, the search for knowledge can sometimes come from the child himself. <sup>(15)</sup>

However, the lack of information causes fear, anxiety, depression, stress and anxiety. Contrary to this information, some parents believe that by not providing information, they are avoiding the child's stress, or believing that it would be better for the child to

find out only on the day of the surgery, through the nursing team or the doctor. <sup>(33)</sup>

Taking into account the fact that the teaching of information is important, it is noted that some of them may vary according to the institution in which the surgery will be performed and, therefore, it is necessary to be attentive and adjust the guidelines according to the respective institutions.

Examples of these particularities are access permission from parents or another family member until the child enters the operating room <sup>(17, 21, 26, 30)</sup> or not <sup>(14, 18, 25)</sup>, administration of pre-anesthetic medication, commonly Midazolam®, is a sedative, sleep-inducing agent, reduces preoperative anxiety and pediatric emergency delirium <sup>(35)</sup> and comes in oral syrup. <sup>(15,17,18,21,25,28,29)</sup>

This is an important point that must be taken into account when building technologies for the preoperative preparation of children in order to minimize the stress of surgery and separation from parents <sup>(34)</sup>, in this way, the information must be presented impartially, clearly and as close as possible to reality so as not to generate further anguish for the child.

In addition, the operating room has very specific space and routines, follows the pre, trans and postoperative flow and is generally guided by the Surgical Safety Checklist. <sup>(36)</sup>

## CONCLUSION

The preoperative guidelines provided to the child allow the reduction of

the level of anxiety and stress generated by the surgery. Here we identify the components necessary for the child's understanding of the procedures and steps that he will come across during the perioperative period, which are divided into: preoperative, intraoperative and postoperative with specific characteristics for each of them.

The information about the surgery must be passed on clearly, taking into account the age and understanding of each one. For this, means are essential where family members can seek correct and reliable information, as well as sources where children themselves can identify with the topic, such as applications and digital games.

For the construction of a device aimed at guidance for the perioperative period, it must contain, in addition to objects and materials that the child may encounter in a surgical center, content that explores the surgery to be performed.

This study may imply research in order to be explored for the construction of educational materials aimed at guiding children to the surgical procedure, such as books, folders and even digital technologies.

In practice, this material can be used to guide the information that will be provided to children who will undergo surgical procedures, as it is possible to identify all phases of the perioperative period, and can be adapted according to the reality of each institution.

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