

# Stress factors for patients undergoing cardiac surgery

Cristiane Franca Lisboa Gois<sup>1</sup>  
Olga Maimoni Aguillar<sup>2</sup>  
Valmira dos Santos<sup>3</sup>  
Eliaana Ofelia Llapa Rodríguez<sup>4</sup>

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### Abstract

**Objective.** To describe the stress factors related to cardiac surgery and to the environment in an Intensive Care Unit (ICU). **Methodology.** Exploratory, descriptive and qualitative study based on the statements of patients undergoing cardiac surgery. The data was collected through semi-structured interviews and reviewed using thematic content analysis. **Results.** Four categories emerged: 1) Surgical experience: overcoming fear; 2) the ICU environment and the postoperative period: a difficult experience; 3) unpleasant experiences: thirst, intubation and pain; and 4) relationship with health care professionals: impersonality, professional presence representing safety and comfort, orientation and information representing safety and clarification. **Conclusion.** Two groups of stress factors were identified: the intra personal (thirst, pain and others) and extra personal related to the environment.

**Key words:** thoracic surgery; postoperative period; stress, psychological; intensive care units.

## Factores estresantes para el paciente sometido a cirugía cardíaca

### Resumen

**Objetivo.** Describir los factores estresantes relacionados con la cirugía cardíaca y al ambiente en una unidad de cuidados intensivos (UCI). **Metodología.** Estudio exploratorio, descriptivo, cualitativo de las narrativas de pacientes sometidos a cirugía cardíaca. Mediante entrevistas semiestructuradas se recolectaron los datos y se revisó el contenido por análisis temático. **Resultados.** Emergieron cuatro categorías: 1) experiencia quirúrgica: el miedo como algo ya superado; 2) el ambiente de la UCI y el postoperatorio: experiencia difícil; 3) experiencias desagradables: sed, entubación y dolor; y 4) relaciones con profesionales de salud: impersonalidad, presencia profesional que significa seguridad y confort, orientación y formación significado de seguridad y mayores informaciones. **Conclusión.** Fueron identificados dos grupos de factores estresantes: los intrapersonales (sed, dolor, entre otros) y extra-personales, relacionados con el ambiente.

1 RN, Ph.D, Professor, Universidade Federal de Sergipe -UFS-, São Cristóvão, Brazil.  
email: cristianeftg@hotmail.com

2 RN, Ph.D, Professor, Universidade de São Paulo, Ribeirão Preto, Brazil.  
email: olgamaimoni@gmail.com

3 RN, Ph.D, Professor, Faculdade de Sergipe, Aracaju, Brazil.  
email: valkatita@hotmail.com

4. RN, Ph.D, Professor, -UFS-, São Cristóvão, Brazil.  
email: elianaofelia@gmail.com

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**Palabras clave:** cirugía torácica; período postoperatorio; estrés psicológico; unidades de cuidados intensivos.

## Fatores estressantes para o paciente submetido a cirurgia cardíaca

### ■ Resumo ■

**Objetivo.** Descrever os fatores estressantes relacionados a cirurgia cardíaca e ao ambiente numa unidade de tratamentos intensivos (UTI). **Metodologia.** Estudo exploratório, descritivo, qualitativo das narrativas de pacientes submetidos a cirurgia cardíaca. Os dados foram coletados através de entrevistas semiestruturadas e se revisou o conteúdo por análise temática. **Resultados.** Emergiram quatro categorias: 1) experiência cirúrgica: o medo como algo já superado; 2) o ambiente da UTI e o pós-operatório: experiência difícil; 3) experiências desagradáveis: sede, intubação e dor; e 4) relações com profissionais de saúde: impessoalidade, presença profissional que significa segurança e conforto, orientação e formação significado de segurança e maiores informações. **Conclusão.** Foram identificados dois grupos de fatores estressantes: os intrapessoais (sede, dor, entre outros) e extra-pessoais, relacionados com o ambiente.

**Palavras chave:** cirurgia torácica; período pós-operatório; estresse psicológico; unidades de terapia intensiva.

## Introduction

Due to the increase of life expectancy in the last few years within the heart valve surgery and coronary artery bypass graft field,<sup>1,2</sup> several studies have allowed a better knowledge in relation to the changes that occur with patients undergoing cardiac surgery. Among these changes, sleep quality<sup>3</sup> and postoperative stress can be highlighted.<sup>4,5</sup>

Patients' experience during their stay in Intensive Care Units (ICUs) after cardiac surgery has also been investigated and emphasis has been given to the stereotyped view of the unit, due to the negative perception of the environment, the importance of the nurse figure, the feeling of pain<sup>6</sup>, the importance of family support and the value of their visit,<sup>7</sup> and the cardiac surgery experience reported by patients six months after the surgery.<sup>8</sup> Other studies approached outcome indicators like quality of life,<sup>9,10</sup> and its evaluation has revealed improvements in quality of life after hospitalization and surgery.

Hospitalization, in itself, is a stressful event and is often reported as a traumatic experience. In addition, there is the surgery and the knowledge

of spending time in ICU. In a phenomenological study,<sup>11</sup> patients experienced the ICU stay as a life experience beyond their control, and that feelings of impotence and fear of the unknown caused experiences of deep impact never experienced before. According to a systematic review, evidence was found that these experiences have a strong potential for trauma.<sup>12</sup>

The cardiac surgery and the postoperative period are significant and unique events for patients, as the heart has a very strong meaning in keeping a healthy life, and patients and their families experience emotional distress due to the threat to life, to the future and to the restructured routine.<sup>13</sup> As with other patients who have major surgery, those who have cardiac surgery are also referred to the intensive care unit, where they have different experiences that are seen as sources of stress.<sup>14</sup> In spite of these studies, however, only a few have been directed to the investigation of patients' statements in relation to the surgery and their stay in a specialized postoperative unit, and aimed at increasing the knowledge about the sources of stress.

The concept of stress, which was used for the first time in the health care field by Hans Selye, is designated as the set of reactions initiated by a stimulus perceived as being threatening to the homeostasis, to a situation that demands some effort to adapt to.<sup>15</sup> The nurse theorists Betty Newman and Jean Watson<sup>16</sup> recognize the influences of the sources that generate or stimulate stress. The first one created a theoretical model based on a multidimensional view of individuals who are in constant exposure to stress caused by environmental factors, amongst them the intrapersonal ones. According to this model, the interventions aim to reduce the stress factors and the adverse conditions that are potential or real in any medical situation.

In Watson's view, stress is an important factor as it causes disharmony, affects health and leads to illness. The understanding of people's perceptions about their situation helps the nurse to prepare a plan to relieve the stress related to the surgical event.<sup>16</sup> Therefore, due to the limited knowledge about the patients' subjective perception of the cardiac surgery and their stay in ICU, the present study aims to: investigate the stress factors related to cardiac surgery and to the ICU's environment through the patients' statements.

## Methodology

The present is an exploratory and descriptive study, using a qualitative approach, with the purpose of identifying the stress factors related to cardiac surgery and to the ICU's environment through patients' statements. The study was undertaken at the surgical clinical nursing department of the Hospital das Clínicas de Ribeirão Preto (HCRP), where patients are sent to after discharge from the Postoperative Thoracic and Cardiovascular Surgery Unit.

Data collection began after the project was approved by the Hospital's Ethics Committee. Thus, the study follows the guidelines and rules that cover research involving human beings found in the Helsinki Resolution (1989), which National Health Council Resolution 196/96 is based on.

The subjects of the study were patients who had cardiac surgery and stayed at ICU, and were later transferred to the surgical clinic. The following selection criteria were established: to be over 18 years of age, to be conscious and instructed, and to agree to participate in the study. Based on these criteria, the sample object of this study was formed by eight adult patients who had had coronary artery bypass graft or heart valve surgery. There was no refusal in participating in the study. The potential patients were invited to participate in the study. Initially, the objectives and the research conduction were presented, followed by the Informed Consent Term (ICT). After agreement, the participants and the researcher signed the ICT. The non-identification of the patients in the results of this investigation was assured to them. In order to ensure their anonymity, they were identified by the word "patient", followed by the corresponding number (for example: patient 1).

With the purpose of better understanding the contextual reality of each patient, a document with two sections was used. One, containing the items: gender, age, marital status, educational level; items about the patients' medical information and average period at ICU. The other section contained the following guiding question: "I would like you to tell me about your experience undergoing cardiac surgery and staying at ICU after surgery. How would you describe it?" This question was created without the inclusion of the terms stress, stress causing or stress factors with the intention to avoid affecting the answers.

The adopted method was semi-structured interviews using the statement technic. All the participants in the study were interviewed by one of the researchers. The interviews were recorded. The sample number was chosen using the information saturation technic. When the content of the patients' statements were combined and presented repetitions, the data collection was ended.<sup>17</sup> The interviews were fully transcribed and the recordings were preserved to allow paralinguistic information.<sup>18</sup>

The data was analyzed through thematic content analysis.<sup>18</sup> The stages were as follows: a) the fluent reading of the interviews, aiming to familiarize

with their contents and to understand the reality of each patient; b) statements' classification, emphasizing the significant parts; c) reclassifying the various parts into large categories, adding the statements' variations in relation to the same theme. At the end of the analysis, analytical categories emerged.

## Results

Concerning the eight patients studied, their age varied between 25 and 73 years, six were male and seven were married or lived with a partner. In relation to their educational level, five had not completed primary school, two had completed it and one was illiterate. As for the types of surgery, four had coronary artery bypass graft surgery and four had heart valve correction surgery. Only one patient had postoperative complications but this fact was not relevant for the data analysis. In relation to the patients' stay at ICU, it was noted that the average period of stay was 49 hours.

The patients' statements resulted in the identification of four analytical categories: surgical experience: overcoming fear; ICU environment and postoperative period: difficult experience; unpleasant experience: thirst, tube and pain; the relationship with health care professionals: impersonality, professional presence representing safety and comfort; and orientation and information representing safety and clarification.

**Surgical experience: the overcome fear.** The surgical experience meant to some patients the last resource, a necessary and high risk procedure: *I had been trying to unblock the veins another way but as there was no success... to change to a technic that is the surgery* (patient 4). *In the condition I was in... then the medication was not working... the remedy was the surgery* (patient 7). *I would describe it as a high risk surgery* (patient 4). *I have done other surgeries, but not like this one (pause) not the same as this one* (patient 5). The perception of positive result, easing or suppressing the feeling of fear related to the postoperative period, was realized through

some of the participants' statements: *we really fear it* (patient 2). *I am satisfied, the fear, that thing, it seems that I have buried it somewhere... if I had to do it again, I would* (patient 6).

**ICU environment and the postoperative period: hard experience.** According to their experience, the ICU and the cardiac surgery postoperative period are considered by some patients as an isolating, difficult period: *we are isolated, without any family member around* (patient 1). *The recovery is the hard part, it is not easy, we need to have willpower* (patient 3). *The hardest part is to stay there those three days* (patient 7). Some patients mentioned the restriction state, the decreased mobility and the dependence they experienced: *the only thing I really have to complain about is having to stay laying down for too long, you cannot stand up, cannot go out, cannot do anything...* (patient 2). *We want to come to the nursing department quickly because here we have freedom* (patient 3). *My back was burning because you are in the same position for many hours* (patient 6). *Up here is a lot better because you are able to move, to walk, to go there, to come back, to go to the toilet...*(patient 8). The noise made by the medical equipment and the professionals, not being able to sleep and having no notion of time were also identified: *there is some equipment there that beeps a lot... I could not sleep* (patient 1). *The phone ringing disturbs you... right when you are dozing off it rings very loudly* (patient 2). *When I felt like sleeping, that noise of people... I did not sleep at all* (patient 7). *What a strange place... you do not know if it is day or night* (patient 5).

**Unpleasant experience: thirst, tube and pain.** Thirst was a very stressful factor to some patients: *thirsty, you are a lot...it is very difficult* (patient 1). *You almost die of thirst* (patient 2). *The hard part is the thirst, you get so thirsty that if you see someone washing the floors... you hear that water noise, that thing, you feel like jumping in there* (patient 6). *I almost died of thirst* (patient 7).

The endotracheal cannula was an unpleasant and very stressful experience: *you start waking up, waking up, feeling something in your throat* (patient 6). *I thought I was going to die, that*

*thing in my mouth...that hose, I panicked* (patient 8). The tube removal had a negative effect: *I woke up... the tube was being removed...they told me to be calm and that it would not hurt... I felt a lot of pain at the time* (patient 2). *After the surgery, the tube removal... I found it really bad* (patient 3).

Pain was a symptom referred to by the patients and it was related to the surgical incision, the nausea and the long period spent in bed: *pain in the chest, that pain was too strong* (patient 8). *The only thing that bothered me was the vomiting... because after you start, you avoid it and feel nauseous*, and then you feel that intense pain (patient 5). *It was a back pain which felt like a bone being pulled away from inside* (patient 2).

**The relationship with the health care professionals: impersonality, professional presence representing safety and comfort, orientation and information representing safety and clarification.** The impersonality in relation to the health care professionals was a factor extracted from some patients' statements while they referred to the care received from the members of the health team: *they took me to the surgical center...they treat us very well* (patient 1). *The guy who does the anesthesia talked to me, there were two guys... I do not remember their names* (patient 2).

The non-identification of the health care professionals by their names was a common factor amongst some of the patients interviewed. The impersonality might be explained by the fact that this study was developed in a teaching hospital and this was apparent in the patients' statements when they referred to the care received, because at teaching hospitals the patient is constantly approached by various professionals, professors and students and this makes it hard to remember their names.

Although the members of the health team were not identified by their names, their presence gave the patients safety and comfort: *they do not leave you for a minute* (patient 1). *There is one nurse for each person, that nurse is always alert* (patient 2). *The physiotherapist has been helping me a lot* (patient 3). *The nurses and the doctors are our friends, therefore I felt safe* (patient 5).

The orientation and information provided the knowledge of what was going to happen according to the plan: *I remembered everything that was planned by the cardiac team* (patient 4). On the other hand, even though being informed and advised about the postoperative period, other patients presented contradictory statements: *I think it is tense for us not knowing what is going to happen* (patient 1). *The biggest difficulty is the unknown* (patient 3). These conflicting statements are possibly justified by the exposure to high levels of stress.

## Discussion

**Surgical experience: overcoming fear.** It was noted that some patients showed the feeling of "accomplished stage", as if they felt that the worst was over. The fear was a feeling more connected to the pre-operative period, when they referred to the tension related to the time prior to the surgery.

**ICU environment and the postoperative period: hard experience.** The results coincide with national and international literature, which considers the ICU stay the most difficult period for the patient because they find themselves in a new situation, surrounded by equipment and exposed to noise,<sup>19-22</sup> factors that caused stress and emotional change.<sup>23</sup> The lack of awareness of day and night was identified in a study developed in Brazil with patients who had cardiac surgery and stayed at the ICU in the postoperative period.<sup>6</sup> In the authors' opinion, having no notion of time is a more complex issue than could have initially been imagined and means "the deprivation of what this temporal structure symbolically means, or in other words, a way of reorganizing, restructuring and recognizing themselves towards life".<sup>6</sup>

**Unpleasant experience: thirst, tube and pain.** During the first hours of the cardiac surgery's postoperative period, strict hydric control is kept in order to minimize the risks of complications resulting from the excess of liquid into the extracellular space. On the other hand, patients feel violated with the limitation of liquid ingestion,

which can drive them desperate as they do not understand or accept this control. Other studies have identified thirst as a stress factor for patients in ICU. A study undertaken in Spain using a qualitative approach has identified thirst as an anxiety-causing factor for patients in the first 24 hours after having cardiac surgery.<sup>24</sup> Another study developed with Jordanian patients who stayed at ICUs, using the scale "Care Unit Environmental Stressor Scale" identified thirst as one of the most stressful factors.<sup>23</sup> Such results confirm Newman's understandings regarding deprivation as a stressful factor.<sup>16</sup>

In the present study, the endotracheal cannula appeared to be an unpleasant and very stressful experience. The results are in line with the literature. Research undertaken in Brazil and in other countries with patients who were subject to intubation in an ICU showed that the presence of an endotracheal tube is one of the most stressful factors for the patients.<sup>19-21,23,25-27</sup>

According to some authors, one explanation for the stress the endotracheal tube caused in patients would be its inhalation, as the tube needs to be inhaled regularly in order to keep the airways cleared during the intubation period.<sup>27</sup> Pain was a symptom referred to by the patients and is related to the surgical incision, to the nausea and to the long period spent in bed, in line with other studies. A research developed with patients undergoing cardiac surgery related the pain symptom to various factors, such as the surgical-anesthetic procedure, the psychological state of the patient and the ICU environment<sup>28</sup>. In another study, the pain referred to by the patients was analyzed as a subjective symptom, impossible to be predicted beforehand and which can be associated to the undertaken procedures and physical discomfort.<sup>6</sup> In any event, the pain referred to by these patients can be perceived as an internal stress factor.

**The relationship with the health care professionals: impersonality, professional presence representing safety and comfort, orientation and information representing safety and clarification.** The non-identification of the health care professionals by their names was a common factor amongst some of the patients interviewed. The impersonality

might be explained by the fact that this study was developed in a university owned hospital and this was apparent in the patients' statements when they referred to the care received, because at university owned hospitals the patient is constantly approached by various professionals, professors and students and this makes it hard to remember their names.

The cardiac surgery and the stay at ICU are unique events that emotionally weaken the patient. In this sense, knowing that health care professionals who are always present and transmit safety and comfort are taking care of them makes them feel protected. An explanation that meets the results of the present study may be that, during their ICU stay, patients can recede to a childish standard of behavior and to a dependency state because they have to trust strangers to perform simple tasks such as hygiene, feeding or change of position in bed.<sup>19</sup>

In a study undertaken at a teaching hospital in Rio de Janeiro with patients who stayed at ICUs, the patients showed satisfaction with the ICU nurses' care delivery and the stress factors that affected them were of physical and environmental origin.<sup>29</sup>

## Final considerations

The patients, in their statements, considered the surgery as a stage to be accomplished, as it was the only option for the health state they were in. The fear was present in the pre-operative period and the patients referred to this feeling as expected for someone who is undergoing a surgical intervention like the cardiac surgery. This fear can be considered as a potentially stressful factor.

Thirst, the endotracheal tube and the pain were frequently mentioned and the authors considered them potentially stressful factors. It is believed that strategic measures could reduce the stress the oral hydric control and endotracheal tube, tube removal and pain cause. Through the identified stress factors, nurses can intervene by using intervention techniques in order to relieve patients' pain and to promote an environment in which it is possible to rest, with less luminosity, noise and the least possible interruption. Through the statements two large groups of stress

factors could be identified: intrapersonal and extrapersonal. The intrapersonal ones were: thirst, pain, sleep deprivation, reduced mobility, the tube and no notion of time. The most significant extrapersonal stress factors were related to the environment: different noises and luminosity. It should be emphasized that, when the patients expressed these factors, they were accompanied by expressions and vocal intonations that revealed that these were highly stressful factors.

Therefore, based on the patients' statements, the results of the present study allowed the understanding of stressful situations, which can be predicted in the nursing care planning in this sector, aiming to reduce the impact of these stress factors. Based on the above, this study provides support for the improvement of nursing practice at the study unit, with a view to promoting care that takes into account the needs of cardiac surgery patients, and also reduces the impact of potentially stressful factors detected and their negative effects on patients' homeostasis and recovery.

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