

Reducing cardiac catheterization-related anxiety: acceptability of a complex intervention

Redução da ansiedade relacionada ao cateterismo cardíaco: aceitabilidade de intervenção complexa
 Reducción de la ansiedad relacionada con el cateterismo cardíaco: aceptabilidad de intervención compleja

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Abstract

Objective: To analyze the acceptability of people undergoing unscheduled cardiac catheterization about a complex nursing intervention (CI) to reduce anxiety.

Methods: This is a qualitative and evaluative study of the acceptability of 15 participants who underwent cardiac catheterization regarding a nursing CI. Data collection was carried out in the emergency unit of a highly complex hospital in the city of São Paulo, specialized in cardiology. Participants had a diagnosis of Acute Coronary Syndrome and received the CI, consisting of a musical and educational component, called Education and Music Intervention to Reduce Anxiety (EMIRA). Data were collected from September to October 2021, and participants underwent a semi-structured interview. The guiding questions of the interview were elaborated based on Kazdin. The interviews were recorded and transcribed for Bardin's content analysis. To analyze EMIRA participants' representations of Everyday Life's theoretical contribution was used.

Results: Acceptability analysis in relation to EMIRA allowed identifying three categories: *EMIRA complex intervention: new experience that helps to understand cardiac catheterization*; *Complex EMIRA intervention: an experience that generates satisfaction*; and *EMIRA complex intervention: an anxiety-relieving experience*. Participants reported feelings of calm, relief, tranquility, satisfaction, and recommended using EMIRA.

Conclusion: Participants' experience with EMIRA was positive, suggesting good acceptability of CI by people awaiting unscheduled catheterization in the emergency unit.

Resumo

Objetivo: Analisar a aceitabilidade de pessoas submetidas ao cateterismo cardíaco não programado acerca de uma intervenção complexa (IC) de enfermagem para reduzir a ansiedade.

Métodos: Estudo qualitativo e avaliativo da aceitabilidade de 15 participantes submetidos ao cateterismo cardíaco acerca de uma IC de enfermagem. A coleta de dados foi realizada na unidade de emergência de um hospital de alta complexidade da cidade de São Paulo, especializado em cardiologia. Os participantes tinham diagnóstico de Síndrome Coronariana Aguda e receberam a IC, constituída por componente musical e educativo, denominada *Education and Music Intervention to Reduce Anxiety* (EMIRA). Os dados foram coletados no período de setembro a outubro de 2021, e os participantes foram submetidos à entrevista semiestruturada. As perguntas norteadoras da entrevista foram elaboradas com base em Kazdin. As entrevistas foram gravadas e transcritas para análise de conteúdo de Bardin. Para analisar a aceitabilidade dos participantes da EMIRA, utilizou-se o aporte teórico das Representações Cotidianas.

Resultados: A análise da aceitabilidade em relação à EMIRA permitiu a identificação de três categorias: *Intervenção complexa EMIRA: nova experiência que ajuda a entender o cateterismo cardíaco*; *Intervenção*

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complexa EMIRA: uma experiência que gera satisfação; e Intervenção complexa EMIRA: uma experiência que alivia a ansiedade. Os participantes relataram sensações de calma, alívio, tranquilidade, satisfação, e recomendaram o uso da EMIRA.

Conclusão: A experiência dos participantes com a EMIRA foi positiva, sugerindo boa aceitabilidade da IC por pessoas aguardando a realização do cateterismo não programado na unidade de emergência.

Resumen

Objetivo: Analizar la aceptabilidad de una intervención compleja (IC) de enfermería para reducir la ansiedad de personas sometidas a un cateterismo cardíaco no programado.

Métodos: Estudio cualitativo y evaluativo de aceptabilidad de una IC de enfermería en 15 participantes sometidos a un cateterismo cardíaco. La recopilación de datos se realizó en una unidad de emergencia de un hospital de alta complejidad de la ciudad de São Paulo, especializado en cardiología. Los participantes tenían diagnóstico de Síndrome Coronario Agudo y recibieron la IC, que tenía un componente musical y educativo, denominada *Education and Music Intervention to Reduce Anxiety* (EMIRA). Se recopilaron los datos en el período de septiembre a octubre de 2021, y los participantes respondieron una entrevista semiestructurada. Las preguntas orientadoras de la entrevista se elaboraron con base en Kazdin. Las entrevistas fueron grabadas y se transcribieron para el análisis de contenido de Bradin. Para analizar la aceptabilidad de los participantes de la EMIRA, se utilizó el aporte teórico de las representaciones cotidianas.

Resultados: El análisis de aceptabilidad de la intervención EMIRA permitió identificar tres categorías: *Intervención compleja EMIRA: nueva experiencia que ayuda a entender el cateterismo cardíaco*, *Intervención compleja EMIRA: una experiencia que genera satisfacción* e *Intervención compleja EMIRA: una experiencia que calma la ansiedad*. Los participantes relataron sensaciones de calma, alívio, tranquilidad y satisfacción, y recomendaron el uso de la EMIRA.

Conclusión: La experiencia de los participantes con la intervención EMIRA fue positiva, lo que sugiere una buena aceptabilidad de la IC por parte de personas que aguardan la realización de un cateterismo no programado en la unidad de emergencia.

Introduction

Acute Coronary Syndrome (ACS) is a manifestation of sudden onset, due to the rupture of an atherosclerotic plaque that can lead to partial or total obstruction of blood flow to a certain region of the myocardium.^(1,2) ACS treatment can be clinical, surgical or hemodynamic, with cardiac catheterization (CC) being the diagnostic test that aims to analyze the structure and function of the coronary arteries and heart chambers.^(3,4)

Prior to performing the CC, the level of anxiety seems to increase significantly and its incidence may be approximately 35%.⁽⁵⁾ Non-pharmacological interventions have been used alone to reduce anxiety, stabilize physiological parameters and control pain in patients undergoing CC.⁽⁶⁻⁸⁾ Among the interventions, music therapy has been one of the most used, in addition to educational ones.⁽⁶⁻⁹⁾

Anxiety is an emotional reaction to perceived stimuli, such as threat, which, ultimately, has the purpose of preparing individuals to react to a dangerous situation.^(10,11) Thus, it is considered a normal reaction of the organism when it consists of an adaptation response, which is consistent with the intensity of the stimulus that triggers it.

On the other hand, anxiety is considered pathological when its intensity and/or frequency are disproportionate to the stimulus, causing impairments

in individuals' functioning, in different circumstances, such as relationships with other people, academic performance or work.⁽¹²⁾

With regard to age, anxiety seems to increase prior to CC in younger people.⁽¹³⁾ Regarding anxiety about experiencing CC for the first time and a new approach to the procedure in people who had already experienced it, a correlational descriptive study with a quantitative and qualitative research component showed no statistical difference between the two groups.⁽¹⁴⁾

Therefore, this study was carried out with the aim of analyzing the acceptability of a complex intervention (CI) developed to reduce the anxiety of people undergoing unscheduled CC. The guiding question of this study was: how do patients undergoing CI to reduce anxiety receive and accept this proposal?

Methods

This is an exploratory, descriptive, qualitative and evaluative study, which used the COnsolidated criteria for REporting Qualitative research (COREQ) criteria.⁽¹⁵⁾

A CI called Education and Music Intervention to Reduce Anxiety (EMIRA) was built according to Sidani's and Braden's methodological framework.⁽¹⁶⁾

CI are formed by components that have a hierarchy relationship and interact with each other.⁽¹⁶⁾ The authors propose three sequential steps, with specific methodologies to achieve the proposed objectives of a CI: intervention design (understanding the problem, intervention elaboration and intervention theory); intervention implementation and assessment (pilot test, efficacy and effectiveness); and translation of the intervention.⁽¹⁶⁾

CI acceptability is recommended for the second phase of the methodology, which should precede the test of the intervention in pilot studies and clinical trials, since a CI's efficacy or effectiveness depends on its acceptability.⁽¹⁶⁾ Acceptability is defined as participants' experience, perception or attitude towards the intervention as well as their satisfaction. Participants who receive a CI need to believe in the CI, want it, engage in the proposed activities, trust that it will result in benefits for their health and that the CI is appropriate to solve the presented problem.⁽¹⁶⁾

EMIRA was developed to reduce state-anxiety, blood pressure, heart rate, respiratory rate, and chest pain intensity in people awaiting unscheduled CC in the emergency unit. EMIRA is a CI that contains two components, one educational and one musical, and has two therapeutic targets: lack of knowledge about the procedure; and unpleasant feeling of emotional discomfort related to the procedure. The educational component's activities aim to provide perioperative guidelines for the patient, and were based on educational material previously validated by other authors.⁽¹⁷⁾ The musical component consisted of non-genre music, *MusiCure*® 8 Peace,⁽¹⁸⁾ delivered via headphones. EMIRA was administered in a single session before the CC, while patients were still in the emergency room.

To analyze EMIRA participants' acceptability, the theoretical contribution of Representations of Everyday Life (REL) was used, which are based on the process of mobilizing convictions that are transformed into opinions and gain relevant meaning.⁽¹⁹⁾ According to the author, REL are expressions of consciousness that individuals acquire in social relationships; in the case of this study, CC perception and EMIRA addition in this context. Using REL was considered, as

they allow transforming something unknown into something familiar, functioning as a means of interpreting reality about an object or content, simultaneously contributing to the construction of knowledge that can be elaborated and shared.⁽¹⁹⁾ Furthermore, among the REL, there are those that are contradictory, that carry true and illusory elements,⁽¹⁹⁾ in this case, the perspectives of the participants who underwent the CC and received the EMIRA.

The study was carried out in the emergency unit of a public hospital specialized in high complexity cardiopneumology, located in the city of São Paulo, SP, Brazil. The researchers have developed CI extension and research projects in this hospital, and, inserted in the scenario, they are close to the population of this clinical condition, which makes it possible to better understand their experiences.

The population of interest consisted of patients with ACS who underwent unscheduled diagnostic CC. Unscheduled CC refers to a non-elective procedure performed after patient is admitted to the emergency unit.

Fifteen participants aged 18 years or older, literate, hemodynamically stable with or without the use of vasoactive drugs and who were performing CC for the first time or had performed it for more than a year were included. Patients with a diagnosis of psychiatric disorder and use of mood modulators, prescribed or not, were not included. Patients with hearing loss that prevented them from listening to music within the established parameters, those with hemodynamic instability during data collection and those who were interrupted for any reason while offering the musical component of the intervention were excluded. There was no refusal to participate in the study.

Data collection took place from September to October 2021. The interviews were not scheduled. The researcher made a brief personal presentation and clarified the objective and purposes of the research. To ensure privacy, the curtains of the boxes where participants were staying remained closed throughout the interview period.

Sociodemographic and clinical data were collected to characterize the sample. EMIRA was applied before performing the CC. Three to six hours after the end of

the procedure, individual interviews were held, which lasted an average of six minutes. The following guiding questions were applied: tell me how you felt when participating in EMIRA; tell me about the experience and feelings of participating in EMIRA; describe your expectations regarding using this CI for people who are going to undergo CC; tell me your impressions about the favorable aspects for using EMIRA; comment on the aspects that are not favorable for using EMIRA in patients waiting for CC.

The interviews were guided by a set of guiding questions, based on the acceptability attributes suggested by Kazdin,⁽²⁰⁾ and were stopped when the data was repeated. Content was recorded, and the audios were stored in mp3 format, by one of the researchers who had knowledge about the methodological framework and bases for conducting semi-structured interviews.

Content analysis was performed according to Bardin: text skimming and exhaustive reading of content, transformation of content into units, categorization, inference and interpretation.⁽²¹⁾ Each of the interviews was read, identifying common characteristics of the response elements among participants. Subsequently, the simplified representation of raw data for organized data was carried out. The concepts of exhaustiveness, representativeness and pertinence were exercised in the interpretation of participants' speeches, their meanings and representations.

The study was approved by the Research Ethics Committees of the proposing (Process 4,804,611) and co-participant (Process 2,126,485) institutions (CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 47273321.6.3001.0068). Patients who agreed to participate in the study signed the Informed Consent Form. All were informed that their decision to participate or not in the study would not affect their care in the emergency unit.

Results

Participant characterization

Fifteen participants were included in the study. The mean age was 63.4 years, with a standard deviation

(SD) of 12.6 years; 66% (n=10) were male; 66% (n=10) were married; 53% (n=8) had completed elementary school; and 73% (n=11) were doing CC for the first time.

Participant representations

Based on participants' reports, the place they occupy (people with a serious clinical condition, full of symbolism) was taken into account. Speeches' meanings were analyzed from the points of divergence and convergence, with a view to denaturalizing the expressed convictions about CC. From the total corpus of transcribed interviews, three categories emerged that deal with EMIRA acceptability: *Complex intervention EMIRA: new experience that helps to understand catheterization*; *Complex EMIRA intervention: an experience that generates satisfaction*; and *EMIRA complex intervention: an anxiety-relieving experience*. Figure 1 graphically represents the grouping of the most significant and interrelated words referring to the contents brought up in the interviews.

Category I - Complex intervention EMIRA: new experience that helps to understand catheterization

Category I refers to participants' opinion regarding their experience with EMIRA. These manifest that CI produces feelings of calm, relaxation and anxiety relief, security in the context of performing a procedure that has risks, and, often, the negative aspects are more propagated than the positive ones, since ACS and CC bring socially naturalized meanings of imminent death. It is assumed that ACS diagnosed within an emergency service involves tensions between patients, and these reproduce a socially recognized logic: CC is unsafe and I can die. However, it is noticed that, when they opine about the experience with EMIRA, they experienced deregulation of their uncertainties related to the procedure. In the speeches below, this dimension can be seen in relation to the experience and feelings that the clinical condition and test provoked in participants with EMIRA.

It (EMIRA) calms down, gives security and a little peace of mind. (...) that way, you can understand (the exam), I think it's good. (...) (P2)

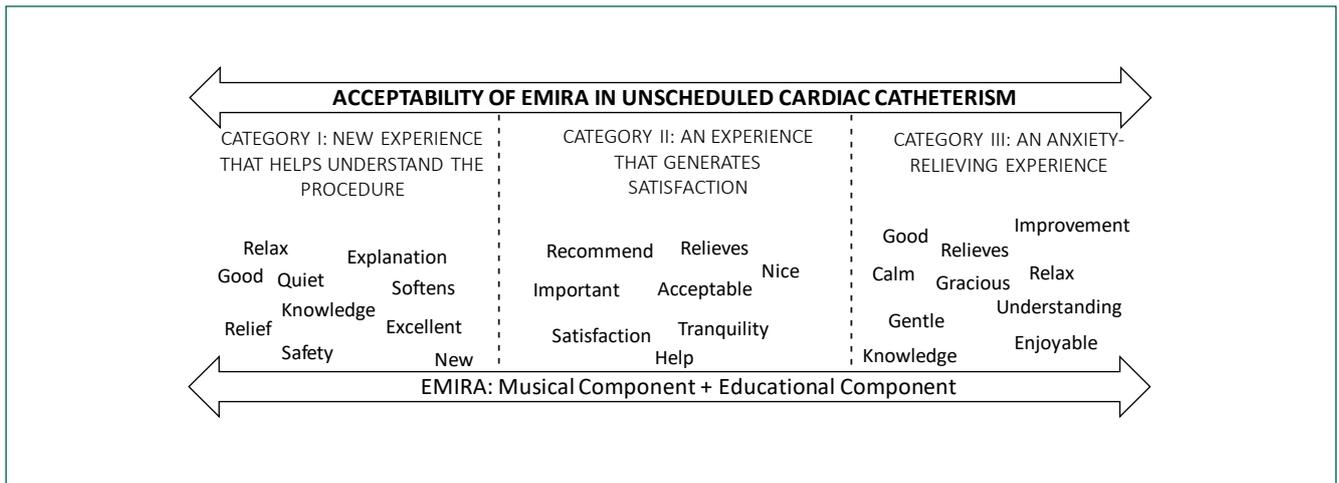


Figure 1. Graphical representation of emerging categories and words about complex intervention acceptability

I enjoyed participating, it was relaxing. (P8)

I liked. (...) I can't explain it, but I loved it. (...) I was more relieved, you know! As I didn't know, I was in doubt, you explained it to me, I thought about what you told me when I was there at the table. (P13)

It is important, because this test is difficult and can lead to death. (P10)

It is not common in emergency services' reality for patients to receive CI such as EMIRA, since in these scenarios, approaches of this nature seem to be unable to coexist. EMIRA, conducted didactically, with an explanation of each step of the procedure, highlights a new experience, in the face of performing an exam that stirs people's imagination.

Category II - Complex EMIRA intervention: an experience that generates satisfaction

Category II represents participants' opinion regarding satisfaction from the experience with EMIRA, since it is well structured and promotes peace of mind. A process of mobilization of convictions is observed, when they recommend that EMIRA be applied to other people awaiting CC.

It has no weak point. I recommend doing this with people. (P12)

I would not change a thing. It's quite acceptable. I was quite satisfied and would keep it that way. (P2)

Music less time. It's been a long time, but I'm very satisfied. (P10)

Although the time of the music is in agreement with the literature, there was an opinion regarding the time of application of the music, which leads to a possible revision of EMIRA.

Category III - EMIRA complex intervention: an anxiety-relieving experience

EMIRA produced relief and helped reduce anxiety in patients undergoing unscheduled CC. The positive effects of this CI on anxiety stand out, especially when patients are unaware of the procedure to which they are going to undergo.

It greatly improves anxiety. Lighten up, it's good. (P4)

It has effects on anxiety. I was relieved, light. (P11)

It has an effect, yes, it helps patients a lot, especially when you are going to do this thing that I did, it takes away the anxiety a lot. It relieves the person more, you don't know, you don't know how it is... (P13)

Given the urgency in carrying out the procedures, the complaint of anxiety during exams such

as CC is often not taken into account. However, the statements of the participants in this study show convictions that it is necessary to transform this reality.

Discussion

This study analyzed EMIRA acceptability applied to patients undergoing unscheduled CC. The results may contribute to the development of acceptable interventions to reduce anxiety in patients undergoing CC.

The profile of participants is similar to data from the Brazilian and world population, with the highest prevalence of ACS observed in males.^(22, 23) This difference between sexes can be explained because, many times, the manifestation of ACS in women is nonspecific and, significantly, they are discharged from hospital without the correct diagnosis.^(23,24)

Among the participants, 73.3% underwent CC for the first time. Despite being one of the most performed exams in the world, CC presents risks of complications associated with previous comorbidities, vascular anatomy, clinical presentation of patients and experience of those who perform the procedure.⁽²⁵⁾

CC, when experienced for the first time, exacerbates symptoms of fear and anxiety.^(13,14) Receiving a CI such as EMIRA represents a possibility of controlling these symptoms, as described in category I. Despite the preconceived idea regarding the “fear of dying” in the face of ACS and CC, studies indicate that it is a safe procedure,^(25,26) with a significant reduction in adverse events over time.⁽²⁷⁾

The great differential of this study focuses on listening to patients in an emergency unit waiting for an unscheduled CC about EMIRA use. The result of EMIRA was positively evidenced by participants, producing feelings of calm, relaxation, relief and greater understanding about the procedure, as indicated in category I. Participants highlighted feelings of satisfaction and recommended that EMIRA be applied to other patients in situations similar, which is consistent with the concept of acceptability proposed in the CI methodological framework.⁽¹⁶⁾

On the other hand, participants were surprised by EMIRA, when they mention in their statements “*I only saw you doing this here*”. This suggests that using EMIRA-like interventions is not common in emergency departments.⁽⁶⁾ It is known that musical interventions within the hospital environment can have different objectives, such as recreation, health promotion and education, and can be an alternative for comprehensive and multidimensional care.^(28,29)

The opportunity to experience musical interventions to reduce anxiety in patients with ACS has been experienced in several countries, as shown by systematic reviews.^(6,8) However, despite being a safe and easy-to-apply intervention, it is not common in the treatment of people with ACS in Brazil.^(29,30) Thus, in category III, participants highlight the positive effects in relation to anxiety relief and reflect that EMIRA can be applied and sustained in clinical practice as another tool for nurses.

An integrative review, which analyzed the use of music as a component of the care process, in articles published in national journals, showed that few studies were published before 2006, showing that music is a recent topic in health care in Brazil.⁽²⁹⁾ The authors identified that nurses are the professionals who most published on this topic and that the effects of music contribute to reducing uncomfortable sensations, increasing sociability of individuals and reducing physical pain.⁽²⁹⁾ Regarding the tempo of the music, it is important to take into account, when applying the EMIRA, participants’ opinion, in addition to their clinical condition, culture, age, gender, since people are heterogeneous, even experiencing a similar procedure, as shown in category II.

Educational interventions related to CC are often used by nurses before, during and after, with the purpose of exposing technical information and clarifying doubts about the procedure.^(31, 32) It cannot be assumed that participants did not know what CC was, as some patients who had already had this experience or had already exchanged experiences with people who had gone through the same experience were included. Even so, participants were able to build new knowledge about CC with EMIRA, as highlighted in category I.

As far as we know, there are no other studies that have assessed the acceptability of people undergoing unscheduled CC about a CI to reduce anxiety, consisting of educational and musical components, which makes it difficult to compare these results with the literature. Thus, the present study adds new knowledge and, as it is an unprecedented experience, where participants expressed satisfaction, it is suggested that EMIRA be studied in terms of its efficacy and effectiveness in future studies.

The limitations of this study lie in the fact that data collection was carried out in the emergency unit, an environment in which it was not possible to control the brightness and excessive noise, which can increase anxiety and interfere with patients' experience in relation to the intervention. The level of satisfaction may be a reflection of the distraction provided by EMIRA rather than a result of the intervention components. Participants' lack of experience with similar interventions may also have interfered with the intervention acceptability.

Conclusion

Patients awaiting unscheduled cardiac catheterization in the emergency unit stated that EMIRA is a new experience that contributed to improving understanding of cardiac catheterization and reducing anxiety, generating satisfaction with the complex intervention. In this regard, the results suggest good acceptability of patients in relation to EMIRA.

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Collaborations

Batista LC, Nóbrega MPSS, Salvetti MG and Butcher RCGS contributed to the study design, data analysis and interpretation, article writing, rel-

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