

PERIPHERAL VENOUS PUNCTURE AND CONTRAST IN RADIOLOGICAL EXAMS: SOCIAL REPRESENTATIONS ANCHORED IN NEUMAN'S STRESSORS

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ABSTRACT

Objective: to discuss the social representations about peripheral venipuncture and the use of contrast media of people submitted to radiological examinations, referring to stressor concept.

Method: this is qualitative research, outlined in the procedural approach of the Social Representation Theory, carried out with 57 users undergoing computed tomography and magnetic resonance imaging at a university hospital in Juiz de Fora, Minas Gerais, Brazil. In-depth individual interviews triggered by guiding questions were conducted in January 2019. The contents of the interviews were fully transcribed and content analysis was carried out in three stages (pre-analysis, material exploration and treatment/interpretation of results). We established thematic analysis based on the dimensions and representational origins, which made it possible to discuss the findings anchored in the concepts of stressors, allowing the identification of three categories based on intrapersonal, interpersonal and transpersonal stressors.

Results: puncture and examination were represented by individual, group, professional and therapeutic environment experiences, classified into the following categories: itinerary and conceptions on puncture and contrasted examinations based on intrapersonal stressors; shared relationships on puncture and examination, based on interpersonal stressors; and experiences in the therapeutic environment of a diagnostic imaging service, based on transpersonal stressors.

Conclusion: the social representations were signified by examination, results and impacts on life, portraying stressors based on images/feelings of doubt and positive behaviors rationally justified, which explain human responses to reified content, enabling the restructuring of health care and nursing.

DESCRIPTORS: Radiologic and imaging nursing. Catheterization, peripheral. Contrast media. Imaging diagnosis. Psychology, social. Nursing theory.

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PUNÇÃO VENOSA PERIFÉRICA E CONTRASTE NOS EXAMES RADIOLÓGICOS: REPRESENTAÇÕES SOCIAIS ANCORADAS NOS ESTRESSORES DE NEUMAN

RESUMO

Objetivo: discutir as representações sociais sobre a punção venosa periférica e o uso de meios de contraste de pessoas submetidas a exames radiológicos, referenciando-se no conceito de estressores.

Método: pesquisa qualitativa, delineada na abordagem processual da Teoria das Representações Sociais, realizada com 57 usuários submetidos a exames de Tomografia Computadorizada e Ressonância Magnética em um Hospital Universitário de Juiz de Fora, Minas Gerais, Brasil. Realizaram-se entrevistas individuais em profundidade desencadeadas por questões norteadoras em janeiro de 2019. Os conteúdos das entrevistas foram transcritos na íntegra e realizou-se análise de conteúdo em três etapas (pré-análise, exploração do material e tratamento/interpretação dos resultados). A análise temático-categorial estabelecida a partir das dimensões e origens representacionais possibilitou a discussão dos achados ancorada nos conceitos de estressores, permitindo a identificação de três categorias baseadas nos estressores intrapessoais, interpessoais e transpessoais.

Resultados: a punção e o exame foram representados pelas vivências individuais, grupais, com profissionais e ambiente terapêutico, classificados nas categorias: itinerário e concepções sobre punção e exames contrastados, com base em estressores intrapessoais; relações compartilhadas sobre a punção e o exame, fundamentadas em estressores interpessoais e vivências no ambiente terapêutico de um serviço de diagnóstico por imagem, a partir dos estressores transpessoais.

Conclusão: as representações sociais foram significadas por exame, resultado e impactos na vida, retratando estressores alicerçados em imagens/sentimentos de dúvida e comportamentos positivos justificados racionalmente, que explicitam respostas humanas a conteúdos reificados, possibilitando a reestruturação do cuidado em saúde e em enfermagem.

DESCRITORES: Enfermagem radiológica e de imagem. Cateterismo periférico. Meios de contraste. Diagnóstico por imagem. Psicologia social. Teoria de enfermagem.

PUNCIÓN VENOSA PERIFÉRICA Y CONTRASTE EN EXÁMENES RADIOLÓGICOS: REPRESENTACIONES SOCIALES ANCLADAS EN LOS ESTRESORES DE NEUMAN

RESUMEN

Objetivo: discutir las representaciones sociales sobre la venopunción periférica y el uso de medios de contraste en personas sometidas a exámenes radiológicos, refiriéndose al concepto de estresores.

Método: investigación cualitativa, enmarcada en el enfoque procedimental de la Teoría de las Representaciones Sociales, realizada con 57 usuarios sometidos a tomografía computarizada y resonancia magnética en un hospital universitario de Juiz de Fora, Minas Gerais, Brasil. Se realizaron entrevistas individuales en profundidad desencadenadas por preguntas orientadoras en enero de 2019. Los contenidos de las entrevistas se transcribieron íntegramente y se realizó un análisis de contenido en tres etapas (preanálisis, exploración del material y tratamiento/interpretación de los resultados). El análisis de contenido temático-categorial establecido a partir de las dimensiones y orígenes representacionales permitió discutir los hallazgos anclados en los conceptos de estresores, permitiendo la identificación de tres categorías a partir de estresores intrapersonales, interpersonales y transpersonales.

Resultados: la punción y el examen fueron representados por las experiencias individuales y grupales, con los profesionales y el ambiente terapéutico, clasificados en las categorías: itinerario y concepciones sobre punción y exámenes contrastados, a partir de estresores intrapersonales; relaciones compartidas sobre punción y examen, basadas en estresores interpersonales; y experiencias en el ambiente terapéutico de un servicio de diagnóstico por imagen, basado en estresores transpersonales.

Conclusión: las representaciones sociales fueron significadas por el examen, los resultados y los impactos en la vida, retratando estresores a partir de imágenes/sentimientos de duda y comportamientos positivos justificados racionalmente, que explican las respuestas humanas a los contenidos cosificados, posibilitando la reestructuración de los cuidados de salud y enfermería.

DESCRITORES: Enfermería radiológica y de imágenes. Cateterismo periférico. Medios de contraste. Diagnóstico por imagen. Psicología social. Teoría de enfermería.



INTRODUCTION

Technological advances in radiological examinations, such as magnetic resonance imaging (MRI) and computed tomography (CT), add precision to diagnoses and therapeutic interventions, contributing to survival and increased life expectancy in the population¹. In situations where precise and conclusive images are required, contrast media administration by different routes is indicated, with the intravascular (IV) route being the most used².

However, the use of contrast media can trigger local and/or systemic adverse reactions, manifested in an acute or late manner, which require health action in the correction of undesirable consequences. The early identification of these manifestations eliminates or minimizes possible damage, ensuring a better prognosis, which is one of the duties of nurses in their work in radiological nursing.

Regarding local adverse reactions, the fact that contrast media are administered by the IV route, causing chemical contact with the blood vessel intima, allows the occurrence of extravasation of its irritating content to adjacent tissues and structures and can cause chemical phlebitis³⁻⁵.

Local adverse reactions originating from several factors may alter, eventually or circumstantially, a person's venous network, their health conditions and clinical management of puncture sites where intravascular catheters (IVC) are used in the infusions³⁻⁸. Therefore, these are events that influence people's health care and experiences. Usually, the nursing team selects the IVC placement site, as well as performs the procedure and identifies adverse reactions for decision-making with the execution of appropriate actions in care management in the context of radiological nursing. This context is a factor that justifies the need for insertion of nursing professionals in radiological environments in which there is the use of contrast media^{4,9} and refers to the process of peripheral venipuncture (PVP), which requires knowledge, skills and attitudes for therapeutic decision-making¹⁰⁻¹³.

Monitoring people and the entire process by nurses aims to prevent risk situations, intervene in cases of complications in a therapeutic way, structuring the process based on adequate theoretical support to guide work performance from a scientific perspective, and achieve interpersonal interaction with puncture users, in order to support them in their singularities and human responses triggered by the moment they experience^{4,9-11}.

In referencing nursing theory, risk and complication experiences can be configured as stressful situations, according to Neuman Systems Model¹⁴. Stressors are conceived as intrapersonal (from the individuals themselves), interpersonal (from relationships between people) and transpersonal (from the socio-environmental context) stimuli that trigger tensions that destabilize the individuals' energy system (flexible, defense and resistance lines) from physiological, psychological, sociocultural, developmental and spiritual variables, characterizing illness¹⁴.

Thus, identifying stressors enables a re-reading of human beings' responses when their veins are punctured for contrast-enhanced tests. By experiencing the performance of radiological examinations in the same imaging sector and dealing with possible situations or circumstances that are considered stressful, it is possible to characterize the person as part of a socially constituted group. Thus, people, after this procedure, are able to elaborate and socially share knowledge/information, behaviors/attitudes, values/affections and objects/images, portraying their experiences as members of this group¹⁵. In this context, a sociological theory is relevant to describe and explain aspects not addressed with nursing theory, the Social Representation Theory (SRT).

The SRT makes it possible to explain how the values, practices and ideas of a socially constituted group are articulated and consolidated in a social reality, constructing the representation of a given object¹⁵⁻¹⁷. In this investigation, the social representations (SR) in focus are from people whose veins were punctured to perform contrast radiological examinations.

It is noteworthy that there is evidence that, in different social groups, people have peculiar conceptions about the PVP process, which can be permeated by feelings and behaviors in which unfavorable/negative perceptions about the procedure predominate^{11,18-19}. Feelings and behaviors can represent human reactions in the PVP condition to perform radiological examinations, which are still little explored and on which there is a gap in knowledge, addressed in the present study. Thus, this study aimed to discuss SR about peripheral venous puncture and the use of contrast media in people undergoing radiological examinations, referring to stressor concept.

METHOD

This is qualitative research, outlined in the SRT procedural approach¹⁵⁻¹⁷ and discussion of the findings anchored in Neuman Systems Model's stressor concepts¹⁴. We used the Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) and Consolidated Criteria for Reporting Qualitative Research (COREQ)²⁰.

The research was conducted at a diagnostic imaging unit of a university hospital in the state of Minas Gerais, Brazil, where CT and MRI exams are performed by prior appointment, via a unified system of regulation of the Unified Health System (*Sistema Único de Saúde*). On average, 600 exams are performed monthly.

Sampling by typicality, composed of people who had their blood vessels punctured for the use of contrast media for CT and/or MRI, with recruitment by individual invitation when entering the research setting in January 2019.

Users were registered at the unit's reception in the institution's electronic system and then directed to the nursing team, which collected their history (with emphasis on previous pathological history, current health conditions, fasting required to perform examination and history of allergies) and, in the case of use of contrast media, PVP was performed for its administration.

We included people aged ≥ 18 years, with a level of cognition compatible with that required by the in-depth procedural approach and punctured vessel(s) in the unit for contrast media administration. We excluded people who had life-threatening complications during examination and those who were hospitalized during data collection. These criteria aimed to reduce the possible influence of the hospitalization process on participant perception/cognition for the in-depth interview. There was a loss of three eligible, two refusals to participate and one for hospitalization.

The data collection instrument was structured in: 1) Sociodemographic characterization; 2) In-depth individual interview from the guiding question: "Tell me about your experience in performing the venipuncture and the examination using contrast and what you know about another person who has performed the same exam"; and 3) Field diary.

Data collection took place in two stages: in the first, while users were waiting for examination, an individual approach was carried out by a researcher who explained the objectives, potential risks and benefits of their participation in the investigation, and their acquiescence was documented by signing the Informed Consent Form, in addition to sociodemographic data collection. The second stage occurred after examination, through individual in-depth interviews, with records of the researcher's impressions and complementary information in a field diary.

We used Open Data Kit 2.0 to record sociodemographic variables (first stage) and contents from the interviews were fully recorded with audio recording (second stage). The average duration of data collection per participant was 30 minutes, operated by a previously trained researcher to approach the interviewees, based on an institutional protocol. It is worth mentioning that this approach took place after extension activities were carried out in the sector, a fact that provided appropriation of the dynamics and additional resources to identify the profile and ability to approach potential participants.

Data from sociodemographic characterization were transferred to IBM SPSS Statistics, version 26, undergoing descriptive statistical analysis. Discursive contents, after fully transcribed, were treated in NVivo Pro 11[®], using the three stages of content analysis (pre-analysis, material exploration and treatment/interpretation of results)²¹.

The thematic-category analysis was established, a priori, from the dimensions (behavioral/attitudinal, cognitive/informational, value/affective and objective/imagination) and representational origins¹⁵ so that the categories reflected the emerging stressors (intrapersonal, interpersonal and transpersonal)¹⁴. To confirm the theoretical density of collected contents and ensure the existence of categorical consistency, we used the values emitted by the software regarding Pearson's correlation as parameters, adopting values ≥ 0.70 (variability from 0.7 to 0.9)

All ethical-legal requirements for research involving human beings were met, and the project was approved by the institution's Research Ethics Committee. Participant anonymity was guaranteed by the use of an alphanumeric code composed of one letter and three digits (e001 to e557).

RESULTS

Fifty-seven people participated in the research, of which 35 (61.4%) were female, 17 (29.8%) were aged between 48 and 58 years and had a median of 56 years (standard deviation ± 14.9), 29 (50.9%) were self-declared white, 25 (43.9%) were married and 24 (42.1%) had 12 years or more of schooling and a median of 8 years (standard deviation ± 4.5).

From the thematic-category content analysis, three categories were identified, being portrayed the representational contents and the categories emerged by theoretical densification through dendrogram and circle graph (Figure 1).

The categories are: 1) Itinerary and conceptions on puncture and contrast examinations; 2) Shared relationships on peripheral puncture and contrasted examinations; and 3) Experiences in the therapeutic environment of a diagnostic imaging service. Fragments of participants' speeches are exemplified according to the representational dimensions (Chart 1) and the origin of representations, identifying intrapersonal, interpersonal and transpersonal stressors (Chart 2).

We recorded in field diary manifestations that may be signs of stressors, such as repeated attempts at successful PVP, waiting time for the examination and noise coming from the MRI equipment.

DISCUSSION

The sociodemographic characterization allows a better understanding of the studied population to better understand their experiences and reports. The SRT, being used for explanatory purposes, makes it possible to approach SR aligned with values, practices and ideas contained in the qualitative evidence obtained and which constituted the three categories.

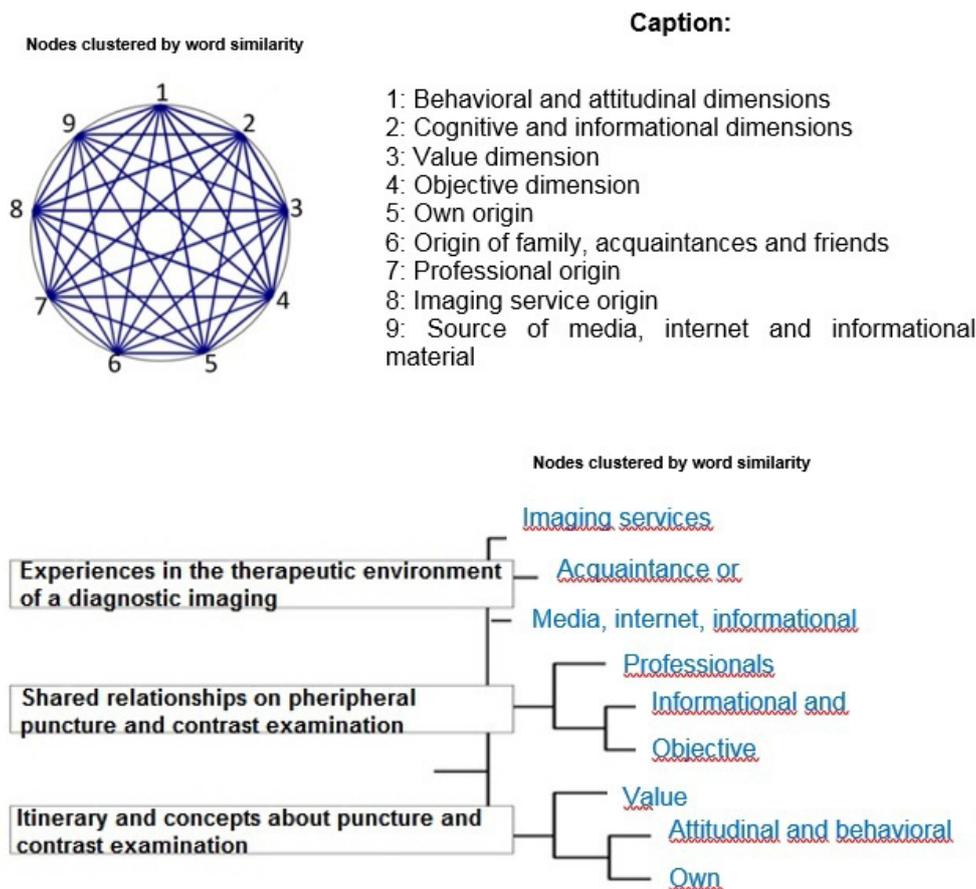


Figure 1 – Dendrogram and circle graph of representational contents. Juiz de Fora, MG, Brazil, 2019. Source: NVivo Pro11.

Category 1, itinerary and conceptions on puncture and contrast examinations, was portrayed by affective and emotional conditions of apprehension, nervousness, dread and fear in all categorical dimensions. Specifically in the cognitive and informational dimension, a self-perception of having thin veins and difficult to puncture predominated. In the value dimension, judgment about the vein quality for the act of puncture predominated. In the objective dimension, needle, vein and examination were mentioned as representational objects linked to the investigated theme whose origins were their own and were anchored in pain and fear of the unknown.

The affective and emotional conditions verified are aligned with the results of other studies. A qualitative study carried out in a radiological clinic in which participants were asked about how they dealt with the fact that they needed to undergo tests, brought reports of anxiety, nervousness and fear in the moments prior to their performance. They related to the way people deal with the process of coping with the examination, especially when its operationalization was unknown²².

In the Systems Model¹⁴, the human being, when interacting with the external and internal environment, seeks to adjust to achieve harmony and balance in the face of factors that act as stressors. A stressor can be divided into intrapersonal, interpersonal, and extrapersonal categories. Stressors are able to influence the person when they break their “lines of defense” and “lines of resistance”, penetrating the central personal system (core) and causing a response²³.

Chart 1 – Fragments of discourses exemplifying the categories according to representational dimensions. Juiz de Fora, MG, Brazil, 2019.

Fragments of speeches			
	1. Itinerary and conceptions on puncture and contrast examinations	2. Shared relationships on peripheral puncture and contrast examinations	3. Experiences in the therapeutic environment of an imaging diagnostic service
Dimensions	<p>Behavioral and attitudinal: <i>We are nervous, concerned, afraid (e502). I was never afraid of a needle (e514). There is a contrast that, although I have taken it before, it still scares me out a little bit (e530).</i></p> <p>Cognitive and informational: <i>I am not afraid of needles [...] my wife, just seeing a needle, she faints [...] her veins are very thin (e508). I don't know the examination, I never did it, then we get nervous (e502).</i></p> <p>Value: <i>My veins are good for puncturing (e508). Ah! Terrible, pure panic (puncture) [...] before doing (puncture), my God, it's terrible. [...] If I had known it was, I forgot that... CT requires the use of contrast, because, honestly, if I had remembered, it I would not have come (e020).</i></p> <p>Objective: <i>I'm terrified of doing something that I know will cause me pain (e502). I do not like to watch, just to think that I will have to feel the needle entering my vein ... (e534).</i></p>	<p>Behavioral and attitudinal: <i>I ask the girl (professional) to give me a lot of attention, because I easily break down (e007). I keep watching to see if the person won't get the wrong vein, so as not to hurt me (e505). I'm afraid something will happen due to the use of contrast and I'm closed inside (e533).</i></p> <p>Cognitive and informational: <i>Many times, people faint, you know? Several symptoms (contrast) (e508). It seems to increase or lighten the image (contrast), for them (professionals) to be sure of the diagnosis (e015).</i></p> <p>Value: <i>We are more nervous about not knowing, because if someone explained to us how the contrast and the examination is, I think at least I would be calmer and would not be so afraid (e502). The bad thing is only when it is by hand (puncture) (e526). I like that they use this vein here (e533).</i></p> <p>Objective: <i>All of them, the nurses, all nice people. They help a lot. First God, then the class is very cool, right? (e006). When the needle is stuck, I am afraid it will get out of the vein (e529). I think it depends on the professional who will do it, there are some who talk, calm me down, now there are others who do not (e534).</i></p>	<p>Behavioral and attitudinal: <i>I've always been curious. I keep looking and all (e520). I am more anxious for the result (exam) (e504). I only think about finishing soon (puncture) [...] anxious to be able to do (exam), to be able to see what will happen, we are in that expectation, right? (e019).</i></p> <p>Cognitive and informational: <i>I have faith that the result will be positive [...] from it I will know whether or not my treatment was effective (e534). They (professionals) speak, "Do not move, you cannot move". Then, they put us inside the machine (e018).</i></p> <p>Value: <i>A lot of noise there (exam), Jesus! It makes noise all the time, a lot of noise! (e009). Because a result can come from there, sometimes unpleasant (e511). By the time you injected it (contrast), it hurts a lot, it hurts a lot, lucky me that it goes away soon. [...] I was dying to finish and get out of there (e520). I felt suffocated in the examination room [...] horrible is the word that defines it (the contrast) (e526). This examination I'm going to take is very important (e532).</i></p> <p>Objective: <i>They put us inside a machine (e020). I am more concerned about the result (e504). The examination is fine, but now it looks like I'm going to have to use a contrast, that's the problem, I've never used contrast (e515).</i></p>

Chart 2 – Fragments of discourses exemplifying the categories according to representational origins, identifying stressors. Juiz de Fora, MG, Brazil, 2019.

Fragments of speeches			
	1. Itinerary and conceptions on puncture and contrast examinations	2. Shared relationships on peripheral puncture and contrast examinations	3. Experiences in the therapeutic environment of an imaging diagnostic service
	Intrapersonal stressor	Interpersonal stressor	Transpersonal stressor
Origin and stressors	<p>Own: <i>I'm afraid (e502). I get anxious, nervous, you know? (e530). I keep thinking before if I'm going to be very anxious inside, if I'm going to start freaking out, if I'm going to start shaking, you know? (e507). When nurses came to use my vein, I was very anxious (e536). It was fine, both outside and inside. All fine! (e537). I forgot that... CT requires the use of contrast, because, honestly, if I had remembered, I would not have come (e020).</i></p>	<p>Family: <i>My cousin passed away taking this examination. She had a cardiac arrest at the time she applied contrast (e530). My sister, they went to use her vein and her hand swelled like a ball (e507). Her arms (mother) usually turn purple (e508). My mother's throat already closed and we took her to the hospital. She took medicine in the vein to cut the effect and was hospitalized. So, every time she needs to take this exam, she is hospitalized. She and my brother are allergic (e504).</i></p> <p>Acquaintances, neighbors, friends: <i>I know other people who are very terrified of that machine (e520). I have colleagues who are very afraid of puncture (e514). Many people say that the examination is bad (e519).</i></p> <p>Professional: <i>If you had listened to me, you wouldn't have had to keep making holes in my grandson, right? (e533). The professional has to be patient to look for it (vein). It makes me nervous. I feel agonized (e534).</i></p>	<p>Media, internet and informational materials: <i>I search on the internet to find out about the examination [...]. I went to look for information (e015). I think, in the general population, through informational materials. There is not much. Or the internet itself, a means of communication in general to inform about how and why the examination is (e016).</i></p> <p>Imaging service: <i>I don't like the "sticking" of needles (e501). There is a contrast that, although I have taken it before, it still scares me out a little bit (e530). I get a little anxious during preparation, when professionals are there (e535). Because we stay in a place alone, locked, you know? (e513). To carry out this exam, it is when we are inside and we have to hold our breath, hold our breath, you know? [...] The contrast site feels very painful afterwards (e532). I am more insecure about the result [...] We are a little apprehensive because the result will decide the course of my life (e511).</i></p>

Thus, representations about the risk of using contrast media can act as a harmful stressor, breaking a person's lines of defense and generating fear as a response. On the other hand, fear can be the stressor itself and collaborate in the production of unwanted responses, such as excessive vigilance to anticipate painful events, for instance. Anxiety, nervousness and fear, preceding the procedure, can be ways to deal with the process of coping with the examination, especially when its operation is unknown²².

Lack of knowledge about the test performed, PVP and the use of contrast media can be considered stressors that destabilized the participants' energy system. An influence of these elements on participants' emotional and/or physical health was identified in the interviews, manifested by the activation of the sympathetic nervous system (tachycardia, tachypnea, sweating, apprehension, anxiety and others), whose origin comes from intrapersonal, interpersonal and transpersonal stressors.

In the value/affective dimension, the existence of veins considered "good" was mentioned, linking them to the fact that the infusion of contrast media requires the use of large caliber veins, which support a high flow of infusion/second in bolus, an essential condition for improving image definition. The layperson's appropriation of the concept of having a vein profile available to be punctured justifies some factors, such as users undergoing multiple punctures until the "ideal vein" is obtained, loss of IVC and reporting of pain at the puncture site³⁻⁵.

The report of personal expectation (faith) for believing that venipuncture and use of contrast media to perform examination would go well, since both were necessary, was a positive representation linked to the represented object. Religiosity/spirituality is considered relevant and helps in the search for the personal balance necessary for people to live with their health status and accept it to the point of justifying the need to perform the procedure, since they are integrated in the normative of the dynamics of having diagnosis and define the therapeutic approach²⁴.

In the objective dimension, needle, vein and examination were mentioned as representational objects linked to the investigated theme whose origins were their own and were anchored in pain and fear of the unknown. Doubt about how the radiological examination is performed can be considered a harmful stressor as it generates the responses of concern and anxiety, being confused with the question about the possible outcome of examination. These findings were supported by data from other investigations^{11,19,22}.

The contents of representational dimensions portrayed refer to justifying and normative functions¹⁷, since it is desired that people who perform examinations using contrast media behave cooperatively during examination (normative function) and insecurity behaviors are justified by values and prior knowledge about what will happen and how examination will be, portraying the difficulty of people in dealing with the operationalization of the diagnostic procedure (justifying function). Therefore, it is necessary that people undergoing radiological examinations are monitored therapeutically, to ensure success in coping with these situations experienced as stressful¹⁴.

Harmful stressors of intrapersonal origin verified in this research align with the forms of personal coping based on prejudices, knowledge and value systems that can be modified by structured educational actions, based on guidelines, clarification of doubts and encouragement to user cooperation to healthy practices and diagnostic interventions and compliance with them¹³⁻¹⁴.

Such situations are considered by the psyche as challenging and stressful, activating participants' comprehensive system, requiring nurses' therapeutic action on flexible and/or normal defense lines. The therapeutic action magnitude and the results will depend on the extent of the stressor and its perception by users. Nursing interventions aim at stabilizing the energy system, returning to physiological, psychological, sociocultural and developmental balance and well-being state motivation (health conception), favoring the process of energy reconstitution of the system¹³⁻¹⁴.

Category 2, shared relationships on peripheral puncture and contrasted examinations, identified that most professionals adopt welcoming and humanization attitudes that were perceived by participants, maintaining dialogue and being available when requested (behavioral/attitudinal and objective dimensions). However, effective guidelines and clarification of doubts regarding the dynamics of performing examination and procedures to be performed are not identified, due to reports of increased nervousness and lack of knowledge of what will happen to perform the examination. Furthermore, puncture observation by users stands out, verbalizing a preference for a particular vein and following a possible professional error (value and behavioral/attitudinal dimensions).

Evidence points to user perception of content related to imaging exams, such as prior preparation, venipuncture and their impressions of discomfort, environment description, devices used in the examination, body positioning and the need to remain still during the procedure²². These are implicit normative conditions¹⁶ in the successful performance of radiological exams and, because they are reified contents, they need to be addressed by professionals in simple language, understandable by the people undergoing the examination¹.

In this context, the explanation about the examination and the technical procedures performed by health professionals to users and their companions is a light technological tool, which favors resilience, reinforcing a person's lines of defense. Correct and adequate information minimizes the harmful stress of doubt and can be shared at the time of the dialogic encounter. Such a fact is able to provide a humanized welcome and a state of safety and well-being to those who will undergo technical procedures²⁴.

Anxiety, as a stressor, can be minimized by the professional attitude of making oneself available and identifying oneself as a reference in the health team to which users can turn. This is a primary prevention nursing action, which welcomes and favors the reestablishment of flexible lines of defense¹³⁻¹⁴.

Stressful conditions of interpersonal origin were captured in social interactions, derived from contact with family members, companions, colleagues/acquaintances, during socialization in the home or out-of-hospital environment, or during contact with people in the waiting room environment. All of these, in some way, expressed their representations, expressing previous experiences, sharing information or issuing opinions and personal expectations about puncture and examination procedures, contact with examination equipment, use of contrast media and the environment where they are served (reception and examination room).

Interpersonal relationships can generate conditions that trigger personality displacement and, consequently, the use of defense mechanisms, such as denial, transference and anger. These are mechanisms capable of compromising the interpersonal assessment, relationship and communication processes. Thus, the very sharing of some SR in the environment of relationships could be an interpersonal stressor.

The debate stimulated in waiting rooms about PVP, the use of contrast media and performing the examination itself, as an intervention of the nursing team in partnership with the multidisciplinary team, can produce a therapeutic environment of exchange and clarification of collective doubts. A therapeutic environment would favor the opening and maintenance of the individuals' energy system in a receptive condition to the point of reducing the occurrence of communication noises and assisting in the assimilation of therapeutic approaches that favor the energy system stabilization¹⁴.

Category 3, experiences in the therapeutic environment of a diagnostic imaging service, highlighted the difficulty of keeping still during the examination, the noise emitted by the MRI equipment, as well as its structure that triggers a feeling of suffocation and claustrophobia in the person, in addition to the need for the use of contrast media to be understood by participants as an indication of the severity of their diagnosis or the ineffectiveness of their treatment.

The need to face an impactful situation can generate reactions expressed by defense mechanisms, such as fear and anxiety, in patients. Therefore, health professionals should welcome them with the use of therapeutic communication aimed at identifying the defense mechanisms used by these people to assist in their forms of coping^{8-9,14}.

In addition to a more comprehensive reception, the spiritual and religious dimensions can be worked for the benefit of a person who needs to cope with. An integrative review on how people use religiosity/spirituality as a form of personal coping in situations of suffering and/or disease treatment identified that this is an anchoring resource used for structuring coping and dealing with conflicting feelings accessed in times of stress, fear and changes in health status. In these cases, religion, faith and spirituality worked as a defense strategy, favoring the understanding of the existential moment and the acceptance of the health-disease state²⁵.

The values presented in this category had a dubious connotation. On the positive side, participants attributed importance to the accurate result of the tests performed; and, in the negative aspect, they referred to noise in the examination room, pain during PVP, contrast media administration and fear about the possibility of an unfavorable result in their exams.

There is evidence that people who undergo routine examinations for the purpose of monitoring their diagnoses experience negative feelings regarding the examination and fear about the possible outcome of examination, in order to negatively value such an experience. A study identified that, in the group of people submitted to radiological exams, the reactions that were manifested through fear and anxiety behaviors on some occasions or with some organic symptomatology (algia, tremor, and sweating) occurred in response to a possible negative test result²⁶.

The representational objects identified in this category were linked to the PVP procedure, CT or MRI equipment, contrast media used, noise and behaviors that involve the adoption of radiation protection measures, being considered transpersonal stressors.

The MRI equipment noise, the controlled environment with the need to comply with measures in relation to radiological protection and safety in the MRI environment, in addition to the recommendation to restrict movement during the examination, they are unavoidable transpersonal stressors to the examination¹. Therefore, it is up to nurses to sensitize users before and after the examination, aiming at the adoption of healthy coping strategies and behaviors of collaboration and understanding of what they will experience in the examination¹⁴.

Pain is linked to the need to have a punctured vein and subordinate to possible puncture. In two investigations outlined in SRT, it was possible to discuss the influence of nursing professionals' training and competence required for PVP operationalization. There were occasions when there was difficulty and lack of knowledge to carry out the examination, indicating the need to update professionals through the search for different technologies to be inserted into work practice, in addition to periodic training, made possible through educational practices^{10-11,26-29}.

The social subject's interaction with the environment is structured from the socially accessed and shared SR, whose contents are capable of affecting their energy system to the point of unbalance, being conceived as part of their subconscious or conscious reality. Therefore, a person's reaction is unique and portrays a personal way of reacting to the environment. It may also come from an initial event to which she was exposed or from objectification in the face of repeated exposure to a situation, with reactions apprehended by contact with socially shared and apprehended behaviors and information^{14,17}.

In this sense, performing an unknown test, which involves performing procedures that were not expected by people, such as venipuncture, the use of contrast media, in addition to the expectation regarding the test result, can cause an imbalance in their energy system and generate manifestations

that were gathered throughout life. These may refer to situations in which they resemble in some point of view or refer to some archetype that was accessed from sensations or situations considered stressful¹³⁻¹⁴.

A limitation of this investigation is the fact that the SRT approach is applicable only to a studied social group, without the possibility of extrapolating the results to other realities.

CONCLUSION

The present investigation made it possible to understand that users who underwent radiological examinations and who had their veins punctured for the use of contrast media signified this event from the examination and its result, from the doubt about its success and the impact on their lifestyle. They make a re-reading based on their experiences, shared facts, information accessed in the user-professional relationship for which coping strategies were established.

Collective contents that justify the energy system instability and its impact on flexible, normal or resistance lines of defense and that were originated from intrapersonal, interpersonal and transpersonal stressors shared with the social group were found. Such contents were based on feelings and images of negative connotation and expression of doubt, allied to behaviors of positive connotation, linked to coping based on knowledge of the reason for the examination and the expectation of its result, which is why they should be monitored therapeutically.

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NOTES

ORIGIN OF THE ARTICLE

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There is no conflict of interest.

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