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ORIGINAL ARTICLE

EDUCATIONAL TECHNOLOGY IN HEALTH FOR USERS OF HEMODYNAMICS ON CORONARY ANGIOGRAPHY EXAM: DESCRIPTIVE STUDY

TECNOLOGIA EDUCATIVA EM SAÚDE PARA USUÁRIOS DA HEMODINÂMICA SOBRE O EXAME CINEANGIOCORONARIOGRAFIA: ESTUDO DESCRITIVO

TECNOLOGÍA EDUCATIVA EN SALUD PARA LOS USUARIOS DE LA HEMODINÁMICA EN EL EXAMEN DE ANGIOGRAFÍA CORONARIA: ESTUDIO DESCRIPTIVO

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ABSTRACT

Objective: to develop educational technology from the representations of the subjects on the examination of coronary angiographies. **Method:** descriptive, exploratory study with a qualitative approach. The scenario was the hemodynamics service of a university hospital in Rio de Janeiro/RJ. The subjects were 20 patients seen in this unit. The data was analyzed and interpreted from the triangulation of the findings, the light of thematic content analysis. **Results:** revealed that users are unaware of the purpose of the examination, but have some information about it and associate it with death. **Conclusion:** educational technologies are tools that can complement the practice of nurses, promoting adherence, reduction of fear, stress and anxiety, in order to favor the user-nurse interaction. **Descriptors:** Educational Technology; Health Education; Nursing Care; Cardiac Catheterization; Humanization of Assistance.

RESUMO

Objetivo: elaborar tecnologia educativa a partir das representações dos sujeitos acerca do exame de cineangiocoronariografia. **Método:** estudo descritivo-exploratório, com abordagem qualitativa. O cenário foi o serviço de hemodinâmica de um hospital universitário no Rio de Janeiro/RJ. Os sujeitos foram 20 usuários atendidos nesta unidade. Os dados foram analisados e interpretados a partir da triangulação dos achados, à luz da análise de conteúdo temática. **Resultados:** revelaram que usuários desconhecem a finalidade do exame, mas possuem alguma informação sobre ele e o associam à morte. **Conclusão:** as tecnologias educativas são ferramentas que poderão complementar a práxis do enfermeiro, promovendo a adesão, a redução do medo, do estresse e da ansiedade, de forma a favorecer a interação usuário-enfermeiro. **Descritores:** Tecnologia Educacional; Educação em Saúde; Cuidados de Enfermagem; Cateterismo Cardíaco; Humanização da Assistência.

RESUMEN

Objetivo: desarrollar tecnología educativa de las representaciones de los sujetos sobre el examen de angiografía coronaria. **Método:** estudio descriptivo exploratorio con un enfoque cualitativo. El escenario fue el servicio de hemodinámico de un hospital universitario en Río de Janeiro/RJ. Los sujetos fueron 20 usuarios servidos en esta unidad. Los datos fueron analizados e interpretados de la triangulación de los resultados, a la luz del análisis de contenido temático. **Resultados:** revelaron que los usuarios no son conscientes del propósito del examen, pero tienen algo de información sobre él y lo asocian a la muerte. **Conclusión:** las tecnologías educativas son herramientas que pueden complementar la práctica de la enfermería, promoviendo la adhesión, la interacción entre usuario y enfermero. **Descriptores:** Tecnología Educativa; Educación para la Salud; Cuidados de Enfermería; Cateterismo Cardíaco; Humanización de la Atención.

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INTRODUCTION

The development of this booklet is associated with the education of nurses and qualified assistance to be given to the user who is looking for resoluteness in their health issues, with regard to the prevention and treatment of cardiovascular diseases.

The heart is considered a vital organ. For some it is seen as the center of emotions and life. It is an organ composed of cardiac muscle, arteries, veins, valves and electrical system that controls heart rate. Thus, presenting a health problem in the heart has a meaning of threat to life, the individual is considered a constant risk.

In recent decades, several diagnostic tools have been developed to detect diseases that affect the heart. Among the possible tests that are performed, there is the coronary angiography that allows visualization of the vasculature and heart structure. The benefits of this examination are the exact definition of the user's heart condition and obtaining information consistently for choosing the best therapeutic option.¹

Coronary artery disease is a health problem with high prevalence, especially in large cities and reaches the older population in Brazil and worldwide. Changing this reality is combined with the changes in lifestyle with a view to reducing the impact of the disease and improving the quality of life of the user.²⁻³ The nurse's role in guidance, teaching, assessment and monitoring grounded in reliable data, allowing proper care of user.⁴

On the day of the tour it seemed that the tests were suspended by the lack of user information and also by the degree of stress, fear and anxiety.⁵ So, some questions guided the research on the representations that users undergoing coronary angiography had with the examination are:

1. What is the profile of users seen at HD service at APUH indicating the coronary angiography exam?
2. What are the social representations of users who will undergo coronary angiography about the exam?
3. What strategies can be used to meet the needs for information and guidance on the examination of coronary angiographies?

The object of this study is to show social representations of users served in APUH HD on the coronary angiography, involving fear and anxiety attributed to the risk of death during the course of this invasive procedure in the heart. It is understood that the user, like any human being, expresses their views, presents

their theories and has an answer to all problems, which can be positive or not.

The concept of social representation designates a specific form of knowledge, knowledge of common sense, which is socially elaborated and shared, taking a practical view and contributing to the construction of a common reality to a social setting.⁶

The knowledge that is estimated for the user needs to meet their needs for guidance in relation to coronary angiography as well as health promotion areas highlighted by them.

In this perspective educational technologies are tools used by nurses that can complement their practice in assistance to be provided by the Hemodynamic user.⁷ The guidelines can be performed by nurses through strategies that promote adhesion, reduction of fear, stress and anxiety, in order to favor the user-nurse interaction. It is necessary to promote space for the therapeutic process of care, where health professionals contribute effectively in the care process, using their scientific skills and knowledge associated with printing technologies that are useful encouragements of democratization of knowledge, been contributing to closer practice and theory.⁷⁻⁸

OBJECTIVES

- Develop educational technology from the representations of the subjects on the examination of coronary angiographies;
- To characterize the profile of users of the Hemodynamics APUH service that will be submitted to a coronary angiography;
- describe the social representations of users concerning the examination of coronary angiographies;
- Develop educational booklets from the strategies chosen to meet the information needs and guidance on the examination of coronary angiographies.

THEORETICAL REFERENCES

In HD laboratories invasive procedures occur that allow for heart and arterial hemodynamic studies. It aims to carry out diagnosis and treatment of heart disease and artery diseases. Coronary angiography is an invasive cardiac examination which constitutes the introduction of thin catheters in the arteries by puncturing or dissection of a vein or peripheral artery and radiological contrast administration. It enables the diagnosis by measuring the pressure and pressure gradients also the treatment of heart valve stenosis, coronary ischemia, by mechanical obstruction of vessels or introducing stents. Yet it provides the non-

surgical treatment of some aortic aneurysms. It consists of a low risk procedure with rare complications (less than 1%).⁹

The Coronary Artery Disease (CAD) is due to many factors and do not have a single cause. Several inherited factors associated with risk

factors will contribute to the development of CAD (Figure 1). They relate to arteriosclerotic or atherosclerotic changes of the coronary arteries that nourish the heart, or rather the myocardial.¹⁰

Risk factors for CAD	
INHERITED	BEHAVIORAL
Advanced age	Smoking
Male gender	Sedentary Lifestyle
Diabetes Mellitus	Obesity
Increases in the level of lipids	Competitive, Aggressive personality
Genetic Pre-disposition	High fat diet
HAS	

Figure 1. Risk factors for CAD.

They can remain unchanged for long periods, being diagnosed until middle age or in old age, however, vascular changes may have begun long before that. Affecting men earlier than women (10 to 15 years before). Although affected earlier in postmenopausal women, the incidence among women becomes like the men.⁹⁻¹⁰

CAD may remain undiagnosed in situations of rest and even sedentary life, but for situations where you need a greater supply of oxygen to the myocardium, such as emotional stress and exercise, compromised coronary arteries fail to do it properly. The myocardium becomes ischemic, or starved of oxygen, occurring manifestations of CAD such as angina pectoris, which is chest pain in the cardiac source.⁹⁻¹⁰

Treatment generally first will always be directed to the changes in lifestyle, such as quitting smoking, losing weight, managing stress and exercise. Drugs and non-surgical therapies are indicated when the change in lifestyle does not occur adequately.⁹⁻¹⁰

Fear and anxiety are commonly frequent emotional conditions in patients undergoing health care. Occurring as symptoms of various diseases and also as stress or psychiatric disturbance.¹¹

The Theory of Social Representations considers that the present is not basically the repetition or reproduction of the same state, but their understanding or description of lack of information, words and notions for their understanding. Interpretations or seizures contexts are given according to the beliefs, values, experiences, social class, religion and culture of each subject, i.e., related to common sense knowledge lived and presented or, if they do this in their daily lives.¹²

Social relations are considered essential and results of creative human activity, emotional and rational, can be learned through daily life, the experience and common sense explanation. Wanted to

investigate the meanings of human relations, where actions are influenced by emotions and/or feelings touched upon in the face of situations experienced in day-to-day. It presents guiding ideas that facilitate a conception of the world, of life and of mankind.¹²

METHOD

This article was extracted from the dissertation, presented on 30th of July 2014, the Nursing Care Professional Master's Program at Aurora Afonso Costa Nursing School, from Universidade Federal Fluminense - MPEA / EEAAC / UFF, Niterói, Rio de Janeiro, Brazil .

To carry out this descriptive exploratory study we chose the qualitative approach, using the intervention research. Who cares to explain the intricacies of social relationships considered essential and result of creative human activities, emotional and rational, which can be learned through daily life, the experience and the common sense explanation.¹³

The setting was the Catheterization Laboratory of the University Hospital, linked to the Federal Fluminense University, which is the unit in Niterói responsible for the health care of greater complexity.

The subjects were users who sought the hemodynamics service marking and the exam that agreed to participate in the study, from October to December 2013. Considering the resolution 466/12 of the National Health Council, the project was submitted for consideration to the Ethics Committee of the Federal Fluminense University, under opinion N° 429165. Inclusion criteria were: members of both sexes, aged greater than or equal to 18 who would take the exam, and attended outpatient or admitted that they were under medical care and the exclusion were submitted to examination users in urgent or mentally compromised states.

The production data consisted of questions with multiple choice alternatives and open questions applied during the user's admission to the care facility or in the hospital. The instrument for the production of data included the sociocultural profile of the subjects. To record the interviews were recorded and transcribed for later analysis. Data saturation was the criterion for stopping data collection. The data was analyzed and interpreted from the triangulation of the findings, the light of thematic content analysis.

The proposal for the design and printing of the booklet was based on the practice of the nurse in the search results and the use of the theoretical framework of the study. The following steps were followed:

1. Literature search made consultation and literature material selection on coronary angiography according to the needs of guidelines outlined in the field of research, from the representations of users, including text support, taken from textbooks, books and scientific papers;
2. Easy to understand text elaboration, based on scientific concepts, defining the concepts that were developed in the booklet;
3. Creation of drafts of illustrations;
4. Conceptual Review of the primer;
5. Semifinal Art, accentuating the lines of the illustrations;
6. Return the primer for users and nurses in the Hemodynamics department for the assessment of technology built by questionnaire;
7. Final art with the points raised and evaluated by users and nurses.

RESULTS

The content of the interviews was grouped into three thematic categories. They emerged from the reading of the material in relation to the purpose, perception and symbolism given by the user to take and the information needs and guidance thereof. The categories were broken down as follows:

- Category 1 - Purpose of coronary angiography: diagnosis or treatment;
- Category 2 - Angiography: A perceived risk/perceived as the symbolism of death;
- Category 3 - information users need on coronary angiography.

The association expressed by users may be noticed as the diagnostic test to being done with the issue of treatment. It is clear there are doubts regarding the use of general anesthesia, the operating room and the name

of the exam. They express the notion of a large invasive procedure. Even saying they ignore what the exam itself is, they have some notion of what it is. Express doubts, use sentences with the words 'said', 'spoke', 'I find it', demonstrating that they wanted to know what it was or how the examination was conducted.

It is noticed that when questioned about what they know about the exam a few know the procedures and sought this information through other people of their friendship. This statement is externalized when using the speeches: they said, they talked, they say, I hear, from what I hear.

Lack of information/guidance regarding the procedure to be performed for some of the respondents are supplied by alternative searches on the internet. The ways in which they revealed the search for clarification of what would be the examination, is noted that it was not professional or someone properly trained. Because of this, the question remains whether what is taking place is a treatment or a diagnostic test.

Through the speeches of users, it can be seen that they have questions related to pre, trans and post-procedure that were not remedied by the environment in which they obtained the information.

The need for guidelines mentioned by users undergoing coronary angiography that emerged in the study were: the diagnosis and prognosis; the possibility of healing and patency of the arteries; the presence of pain; the duration of the examination; risks with anesthesia, with the contrast and the examination itself; as the test is performed; if the team is prepared; if there is possibility of normal life after the examination; if smoking, fat and sugar are related to their current condition.

Coronary angiography is experienced in different ways by the users. The answers provided by them shelter in their universe, a connotation that goes beyond simply performing the procedure.

DISCUSSION

Assuming that they are performing the examination mostly for the first time, power would misinterpret that would be devoid of knowledge about the exam. Social representations assume that everyone has a pre-theoretical knowledge and have a popular everyday knowing that experienced what opinion they heard. This strand emphasizes the significance of the experience that second can reverse the prospect of leaving privilege

medical perspective as the only legitimate standard of comparison and passing, also legitimize the perspective of the patient. Thus, it enables the confrontation between meaning, (social) experience and (personal) sense given to it by the individual.¹²

The individual carries a range of popular knowledge, more effectively, images, myths, values and meanings, i.e. social representations that will in either situation reveal the search for meaning and significance that marks human existence in the world.¹²

In this context, the information comes, allowing you to establish close relations and differences; negotiations and acceptance; interactions with everything and everyone. You cannot think that the other is an empty mind, the other has in itself some knowledge. On the contrary, the nurse needs to perform educational practices that have the attitude of being open to know the reality of the other, pay attention to the world views present in the framework of the mentality of each individual. This reality will be enunciated from a word, a sentence or several sentences, involving itself in dialogical elements.¹⁴

Studies show that the information/guidelines when applied by holders of scientific knowledge professionals using available strategies and technologies, and creativity, users can generate the greater assimilation of what the examination is and also minimize anxiety and insecurity.¹⁵

In the light of RS, we can say that social subjects elaborate explanations of the socially relevant objects and they help them to communicate and act on the issues that shape

the day-to-day.¹⁶ They will somehow express knowledge, practices and attitudes in order to explain the different ways in which the subjects will handle the objects, in this case, with the coronary angiography examination.¹⁶⁻¹⁷

In this approach, the social representations anchored in what is heard with the information from the internet and professionals end up giving the user some ways to address their questions for the exam.

Health professionals would therefore be the means by which the information should be passed on to users more clearly, as they hold within it the knowledge required to perform coronary angiographies, or have knowledge of the subject and the risks to which the user may be exposed. It is necessary to point out that communication in nursing is through guidance and facts for assistance occurred with the client to help in solving problems, as well as customer orientation and family about treatment, conduct or procedures, and words that demonstrate warmth and support.¹⁸

Based on the responses evidenced by the users, the flow chart below shows the representations that they show the examination centered on death (Figure 2). For them, death not only summarizes the process of dying itself, but also in all symbolic deaths that may arise in the event of diagnostic confirmation.

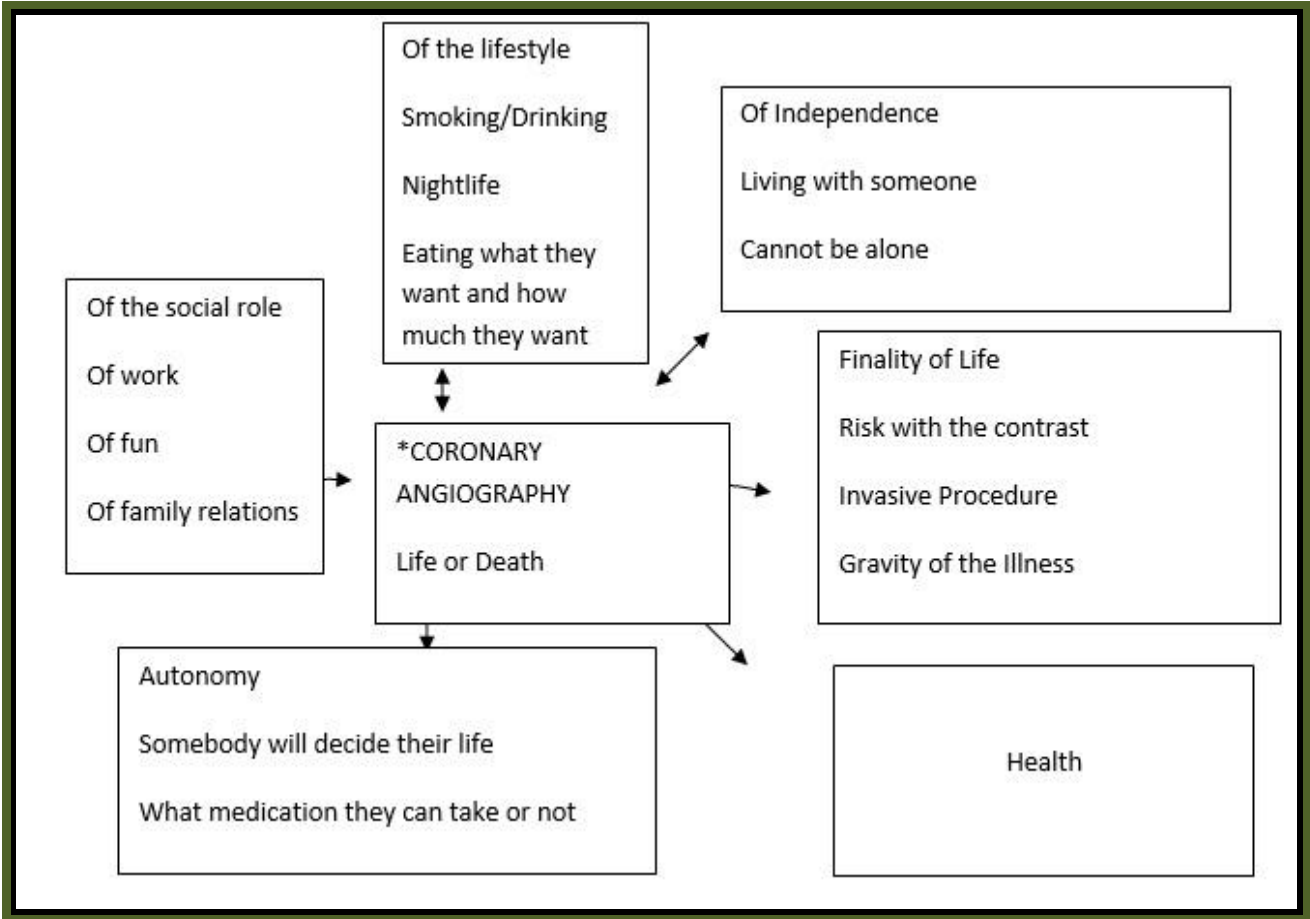


Figure 2. Symbolism in Coronary Angiographies (CAT)

The RS in the process of training will be structured in the image and meaning. In the heart, vital organ which afforded life or death is generated, the user stabilizes the anchoring, i.e. the image of the heart organ with all the commitment that might result in disease diagnosis process. By common sense having any disease in this organ generates physical and emotional instability, since it involves the unknown mystery, not familiar.¹⁹

The purpose of all representation is to transform it into something familiar. Everyone wants to feel at home, treading on familiar and safe ground, safe from any risk. When this does not happen, as in the examination, which what will be accomplished within the heart is not known, there are feelings of anxiety and fear.¹⁹

The objectification evidenced by user submitted to coronary angiography is linked to the "unblocking" of their arteries and veins, allowing the solution to their health problem.

It is felt that the possibility of limiting their activities, their autonomy, their family role and also fear and anxiety about the expected outcome generates a symbolic mourning in the loss of health, self-sufficiency and independence.

The experiences in the course of their lives through surveys of family and friends, the disease itself, contributes to the onset of fear, anxiety and stress.¹⁹ Studies show that users scheduled for any invasive diagnostic test associated with chronic disease have the

same concerns: anxiety related to the threat of physical integrity and well-being, as well as the implications arising from diagnostic the results.^{11,20}

Fear and anxiety will be related to the immediate effects of the disease and treatment, with the removal of reaction imposed by the changing roles with the pre-existing social and psychological problems. When it comes to role reversal, it is understood that the one who gave the support will need to be supported.

The diseases that affect the heart can bring the user to need a radical change of life, confirmed from the results of the tests. This without taking into account that death often is not thought of consciously. Frequently, this fear is not expressed by words.²⁰ This experience is a multidimensional and complex phenomenon that involves not only the physical events, but also the psychological and social factors in learning processes that people acquire through family and cultural learning.²¹

The difficulties in adapting to the limitations that may be caused by the disease may also cause the user the fear of pain and dying.^{20,22}

Anxiety is a state of alert that takes the individual to seek outlets and alternatives to rehearse coping actions or escape. When you think of something frightening, the brain receives a message warning you that you need to defend the body then prepares to face the

situation. This is called a readiness and preservation mechanism, i.e. fight response, coping or leakage. All animals including humans possess in nature such mechanism.²³

The difficulties presented today in civilization evolved faster than the changes in the human body itself. It has an efficient mechanism to address situations of physical risk, but little or nothing when no relation to the difficulties involving emotional states or concerns with health, with work, with the relationship, i.e. everyday situations that generate anxiety, but does not require an answer as fight or flight. In fact, these situations are centered on worrisome thoughts, drivers, preventive and fearful.²³

In fact, fantasy is more than acting. Objectively, this middle path between the fight and flight, develops around what is called negative anxiety. Human imagination creates situations that often lead to situations where the confrontation can be prepared in eager search for information that will leave a more stressed user or otherwise those who choose to know nothing, preferring unpredictability, which will also lead to stress.²³

Each time you move to a situation that concerns what the individual is experiencing, even in fantasy, what frightens you, that causes insecurity and apprehension. The brain does not distinguish whether this situation presented is real or not. It receives the impressions that the individual is feeling and mobilizes the whole body to act accordingly, that is, an adrenaline rush is triggered in the bloodstream and consequently with it all the physical effort is felt along with the resulting symptoms in this action: sweating, muscle tension, tachycardia etc. This is often an unconscious form.²³

The social representations identified by the user as a form of practical knowledge will guide the actions to be managed on assistance and influences performed these actions need to be informed by highlighted representations. So the word order is not to educate, but lead to reflect, make transparent what was opaque aimed at emphasizing the creative aspects of individual thought. Therefore, attention should be paid to a second point, which needs to be taken into account, is not the experience, but rather the meaning, personal sense that it gives the individual.¹⁴

Thus, the process of caring requires growth and engagement will take place regardless of the possibility of a cure. Care is interactive, so the nurse to overcome or open the door to the user establishes a personal relationship.

Health professionals who hold in their practice consciousness to transform their environment by using their efforts evidently affect the practice and the physical space, turning it.²⁴

Many of the users who come to Hemodynamics for performing coronary angiographies are unaware of both the examination itself as well as the existence of pathologies related to it, 15 however, construct meaning from experiences by others or themselves.¹⁹

The knowledge that is estimated for the user needs to meet its guidance needs relating to coronary angiography and also in health promotion areas highlighted for them. Remember that the user now receives information from all sides, after all the Internet and mass media also carry out this activity. It is important that the guidelines are focused on the needs pointed out by them, without focusing on concepts and giving more emphasis on relationships. Hence the importance of involving them in the process, since knowledge is not something definite or finished. All day there is something to learn.²⁵

In the context of Nursing, technologies are being produced, validated and evaluated. Check up studies and focused strategies for strengthening educational technologies that are useful encouragements, the democratization of knowledge, contributing to approach practice and theory.⁷

It highlights the need for training of the educational process, in which one contemplates a progressive and shared education with society in the democratic process. Educational technologies aim to contribute to the teaching-learning proposal ongoing and/or reflective process on educational technologies targeting the students, technical professionals and teachers for the use of a global language validation of educational technologies in order to provide the democratization of knowledge.⁷

The educational booklet can be considered as a product of assistive technologies, which includes the construction of knowledge resulting technical-scientific investigations, applications of theories and everyday experience of professionals and clients, constituting therefore a set of actions systematized, procedural and instrumental to the provision of quality care to the human being in all its dimensions.^{8,12}

The assistive technology (AT) should enable interactional dimensions that allow professionals to use the senses to the choice and implementation of assistance to (re) discover the sensitivity, solidarity, love, ethics

and respect for self and the other (customer). The AT has the support purpose, to maintain and promote the process of people's lives in "health and disease situations" ²⁴. When it comes to educational practice, it must be taken into consideration that the professional is committed to encourage the user to co-account for their health care, their health production. Would be here trying to understand and prevent risk behaviors such as smoking, eating inappropriate foods and lead a sedentary life.¹⁴

The program guidelines may not be a packet serving to any group. It is necessary first of all to consider the differences between social groups and interact with the existing practical knowledge, in this case the customer submitted to coronary angiography.²⁴ They should not be built evenly in position and thought, but using similarities and differences, for serving content requires a whole range of beliefs, values and social norms that mark the different existing cultures, as well as personal and symbolic contexts, integrating it all in a social reality.^{17,24}

CONCLUSION

Educational technologies are tools that complement the practice nurses should be using to promote user-nurse interaction. Qualified assistance based on information needs, highlighted by the user, creating spaces that promote the therapeutic process of care where they prioritize dialogue and listening, demonstrating to users that their concerns are taken seriously can reduce stress anxiety and fear. Many of the users admitted to a hospital for performing therapeutic procedures carry with them myths and imaginary ideas that often do not correspond to what is real indeed, but that affect their way of thinking. At some point, they will need information about the interventions that will be implemented and carry out the procedure to be submitted.

It is an initiative that aims to extend the relationship between health professionals and users; professionals from each other and thus with the community, leading to the enhancement of human dimensions and subjective, present in health care, seeking the quality and efficiency of services provided, as well as offering decent service to the population.

The research MPEA through the knowledge produced in the light of the theoretical framework of the Theory of Social Representations allowed the construction of educational technology, from the

representations aligned in the study analysis process. The choice of this educational practice was given because it was considered that the acquisition of illustrative material, with guided guidance on the needs raised in the survey conducted would be easily accepted and handled, and are always available for the withdrawal of user questions because when talking in health education it is necessary to stress that all efforts need to be focused on to prevent, promote and restore health.

Within the nursing skills health education becomes a short field importance to social development, contributing with the educational practices to the expansion of knowledge. It also allows the interdisciplinary approach, paying up assistance by proximity to the user and professional, in order to create to ensure the humanization of care. Thus knowledge sharing, dialogue and listening are being contemplated, and putting into practice what the UHS advocates.

The implementation of an educational technology will assist in the user's chance to be fully complied with, with resoluteness and humanization, enabling adherence to examination and health education, contributing to the comprehensiveness of care-educate.

The importance of this study is to provide the user's HD service appropriate guidance based on their health information needs, with emphasis on the examination of coronary angiography. Also, the instrument developed as a product of this research will serve as subsidy for nursing professionals who work in this service when they realize their guidelines. It will allow the user to have at hand a source of knowledge that will make them feel at home and allow, as far as possible, to better seize what was asked on the exam. Contributions will be: reducing the level of stress, fear and anxiety of users before the exam, improvement in quality of life from the sharing of knowledge between professionals and users, improved user-professional relationships, promoting the formation of the bond between them, clarification of users about the promotion, prevention and recovery of health, consolidation of public policies in UHS related to user participation and humanization, and non-communicable chronic diseases and approach of care, research and teaching.

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