Patients knowledge about ultrasound, computed tomography and magnetic resonance

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Purpose

With the evolution of imaging techniques, the influx of patients to radiology departments for performing diagnostic examinations has been increasing. The technological development allows a better diagnosis in a short time, but also has consequences such as ionizing radiation, in radiology's case. Patients who use health services require a higher level of information from health professionals and, it's also recognized that they don't have enough information about the procedures used in the health care institutions.

The communication between radiographers and patients is one of the most important aspects when conducting any medical procedure. The medical practice acts area associated with a moral and ethical context therefore is expected that the radiographers perform the stipulated procedures always pondering the values and decisions depending on the patient. The evaluation of the health care services by the patient is directly associated with the communication skills of the radiographer that performs the examination. The patient psychological adaptation to the disease can be positively influenced by radiographer based on proper and customized communication, making the symptoms and the disease acceptance and the relationship with the radiographer much different.

Radiology Departments play a huge part in patient's diagnosis and treatment, due to the vast range of examinations it provides and their accuracy in detecting pathology, speeding up the diagnostic process, resulting in better levels of care.

This research aims to study the level of patients' knowledge about ultrasound (US), computed tomography (CT) and magnetic resonance imaging (MRI).

Specific objectives of this study were:

- Evaluate patient's search for information prior to the examination;
- Evaluate patient's understanding of general aspects about the examination;
- Correlate patient's level of knowledge with attitude towards the examination;
- Correlate factors such as age and academic level with knowledge about the examination.
Methods and materials

A quantitative, descriptive and non-experimental study was performed to access the level of knowledge.

A self-applied questionnaire developed by Chesson, Mckenzie and Mathers (2001) in UK was validated for the Portuguese population with permission of the authors and assigned to 143 outpatients who performed US (55), CT (48) and MRI (40) examinations between two healthcare providers (public and private sector).

The questionnaire was divided in two sections: one for the demographics characteristics and another one composed by questions related to the examinations. The second section included 15 main questions related to general aspects of the examinations, were the patients could answer "True", "False" or "Don't Know" and were interpreted and statistically analysed through descriptive statistics, Phi and Cramer’s V tests. The same questionnaire was applied to the three modalities so that it could be compared posteriorly with the study "What do patients know about ultrasound, CT and MRI?" from Chesson, Mckenzie, & Mathers (2001).

Statistics were analysed using the Statistical Package for the Social Sciences V.17 (SPSS V.17).
Results

Ultrasound:
Concerning Ultrasound, the study analysis shows us that most of the participants were reasonably informed about the procedure with positive results regarding the presence of the healthcare professional in the room, use of a transducer to perform the scan, communication with the healthcare professional and that they will be awake during it. Despite 43.6% of the sample knew that there was no ionizing radiation involved, 36.4% did not know if radiation would be used to perform the scan, as well as 50.9% do not know if contrast media is required whilst scanning.

Computed Tomography:
Regarding CT scanning, positive results were observed in questions regarding the presence of the healthcare professional in the room, breathing instructions, noise produced by the equipment, fasting requirements, use of contrast media and removal of metallic items prior to the scan. Lower results were observed regarding the use of ionizing radiation, where 56.3% of the participants do not know if radiation was involved and communication with the professional where 85.4% state that they will not be able to communicate.

Magnetic Resonance Imaging
As far as MRI scanning, more than half of the participants knew that the professional is not present in the scanning room while scanning, that the table will move throughout the scan, they will be awake whilst the scan is being performed, that there will be possible breathing instructions and that no metal items are allowed in the scanning area. 56.3% of the participants don't know if ionizing radiation will be used and 41.7% stated that Ionizing radiation is used during the scan, reflecting lack of knowledge in this area.

General results suggest that only 22,4% of the patients indicated they sought information about the type of examination they had been referred for and 63,6% had performed US, CT or MRI examinations before. Considering the three mentioned techniques, patients answered more accurately to questions related to situations experienced during the examination (darkness of the examination room, presence of the radiographer in the examination room and viewing images on a monitor) than items related to specific issues (use of ionizing radiation, use of contrast media, preparations and respiratory instructions).
Fig. 1

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Fig. 2

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Conclusion

It is possible to conclude that, generally, patients are minimally informed about general aspects regarding each scan/examination. However, when it comes to Ionizing radiation, preparation prior to the scan and specific technical details, the participants seem to be a bit less knowledgeable.

As a side observation, some of the demographic factors like schooling, previous experience and search for information influenced participant's knowledge about the three modalities studied.

As a final reflection, whilst patient's information about imaging techniques is growing, is still necessary to diffuse and educate the general population about them, enabling the patient to become more active and involved in clinical information/decisions.

**Take-home message:** Patients were not well informed regarding these examinations, especially relating to specific issues. Since this could have implications in the information-giving strategies, it becomes necessary to raise awareness and educate patients, allowing the social development of information on this topic as well as radiographer intervention in the exam procedure.
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Fig. 4

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References


