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Evolution of Teaching Radiology on Medical Students

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Summary

Ionizing radiation is widely used in the field of medicine both for diagnosis and treatment. So, Understanding the principles of radiation safety and how to apply them in clinical practice is critical for medical and paramedical staff The study was conducted to assess the knowledge of nursing staff about ionizing radiation and protection from ionizing radiation during the diagnostic and therapeutic examination. In this study, a quantitative descriptive approach and a comprehensive review of previous studies were followed in order to emphasize the importance of teaching medical physics and ionizing radiation science because of its extremely important impact on the nursing staff working in medical institutions and radiological examination centers of both types, diagnostic and therapeutic. Through this study, we noticed that the paramedical staff's knowledge of physics and technology was not sufficient, and from our point of view, it does not meet the needs of healthcare institutions that require a deep understanding of tools and equipment that depend on the principles and laws of physics.

We also expect that the nursing staff's lack of knowledge of the physical foundations and laws that are used may have a negative impact on the patients' condition in clinical practice. Thus, there is a need to improve nursing students' knowledge of physics by changing the way biophysics is taught in the nursing curriculum.

Keywords: Biophysics, Physics, Technology.

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Introduction

The education system is based on suggesting the lowest level of information needed by the nursing staff in the country; Education at least to bachelor's requirements [1]. At the same time, biophysics is defined as one of the core scientific subjects of theoretical and technical higher education for nursing professionals and public care administrators [2], depends on the graduate.

The nursing study program is based on biophysics, being a compulsory subject that precedes the clinical practical part, which is a scientific subject that precedes all clinical subjects [2, 3]. However, the prevailing belief among nursing students is that biophysics courses are too difficult and unnecessary. Students are often unaware of the importance of this science, and they are not always able and willing to accept the reasons for its inclusion in the school curriculum. In this research, we use a deep analysis of the reality of previous studies in which a test was done to assess the physics and technical knowledge of the nursing staff.

The process of determining the amount of knowledge of biophysics that nurses work with and their ability to apply this knowledge in the practice of health care. It Includes biophysics taught in the first year of a bachelor's degree in nursing, and in eleven missions carried out by nurses in medical institutions.

It covers three subject areas where physics is relevant to nursing as follows:

A. Medication administration - through procedures focused on:

1. Reading and measuring to determine the correct amount of medication,
2. Knowing the physical properties of drugs (activator, solution) that may affect the dosage.

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B. Detection of vital signs - and procedures followed are:

1. Know the physical factors and methods of measurement and accuracy,
2. The ability to evaluate the measured accuracy.

C. Know the duties of the nurse at the work site assigned to him, which are of vital importance for the correct and safe treatment of patients.

The fact that all tasks focus on the activities performed by nurses in health care institutions. In our opinion, the nursing staff can deliver results good by applying knowledge while performing duties. Performance may be poor as a result of the lack of understanding of (biological) physics in the stages of education or when the practical side of physics is not sufficient in the secondary stage of school [4-6].

Our teaching experience indicates that if the students apply elementary knowledge of physics in solving questions, they can get better results not only in theoretical questions but also in nursing practice. A lack of skill in physics was identified in the questions but also in reading calibrated scales and the correct use of units. Referring to the units of measurement, we note that their importance is concentrated when the nurse works in countries that use different physical units for SI units (in Britain, for example) [4].

On the other hand, the science of dosage is related to drugs and the consideration of units for doses and the different conversions between them [7]. Where the same active substance can be different in different solvents according to doses. It is possible that the reason for this result is the fact that there is a lack of information during the study of nursing science, which confirms the need to pay attention to the practical side during the study and the performance of procedures and applications for the implementation of health care in the nursing staff. Applications of the

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principles of physics with the properties of liquid medicines, noting that they are not mentioned in recent research and studies.

While it is one of the most important knowledge affecting the performance of the nursing kit. Also, measuring blood pressure and obtaining information from the patient's temperature chart, is included in the basic nursing activities, and in general it is a process used in all hospital departments.

However, it has been found that many nurses suffer from defects in their knowledge of the correct way to measure blood pressure, and their ability to effectively make use of the patient's body temperature and coordinate the information in records.

The literature also includes examples of nursing students working in clinical fields and studies have confirmed them having a low level of knowledge using pulse oximetry, as well as the use of alarms and identifying factors that can affect the results of the examination [8]. Stethoscopes are used routinely in almost all areas of healthcare institutions. However, the task focuses on the way that the tools are employed, and on material principles with the required quality (determine the material basis) by a much lower percentage than required. This indicates that nurses have a defect in their knowledge of physics and common tools used in nursing practice. This confirms the need to follow practical methods using "trial and error" methods [9].

These vulnerabilities can also be described in technical knowledge, it is a lack of qualification of the nursing staff [10-12]. New nurses must work with medical tools and devices. In order for them to be sufficiently aware of their instructions, and they often have problems with technical skills [13], the researchers also dealt with the frankness of some graduates with the inability to solve nursing problems upon

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graduation [9,14], and our findings show that it remains a related problem great importance nowadays.

The problems identified by the present work can be mitigated by changing the method used in teaching biophysics in nursing courses and curricula. It should not only involve solving nursing problems. However, they can serve as a basis for explaining (biological) physical principles. To include concepts of physics required in nursing practice using elementary ideas and minimal mathematics [4, 15]. Health care practice should include training in technology and technical skills in the continuing education of nursing staff [13].

Conclusion

The concept of nursing includes the use of tools so that the nurse is able to control and measure without errors in order to prevent harm to patients' health. This requires a certain level of knowledge of physics and technical skills. Through our study, it was found that the nursing staff did not have sufficient knowledge of physics, measurement theories, and the tools they use.

They are also unable to solve typical problems in nursing and their use of the equipment is limited only to biophysics learned in the early years of the game Diploma and Bachelor's degree. There is reason to fear that if the pathogen does not have it comprehensive proficiency in physics and the required skills nowadays, there will be a risk of frequent errors in nursing practice.

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