

# Sustainable Development in the Training and Professional Competence of Nurses in Intensive Care Structures

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**Abstract:** Intensive care is a specific diagnostic and treatment process for patients with disruption of critical vital functions and/or patients expected to have decompensation in vital functions in the immediate future. The application of intensive treatment and care for life-saving situations is based on an orderly system, with its diverse aspects regulated and developed. The objective of the completed study is discovering the need for improving competence of nurses employed in intensive care structures. A documentary method, a sociological method (questionnaire) and a graphic method for visual illustration of the deliverables have been employed in the study. The object of the study is 246 nurses, employed in intensive care clinics/units. Results and discussion. More than half of nurses (54.47%) are satisfied by their professional realization in intensive treatment structures. For 84.55% of nurses, extra knowledge is important, 67.48% of nurses consider they have the qualification necessary to work, almost half have never been part of a postgraduate training. Conclusions. Nurses employed in intensive care structures have extensive length of service and experience. More than half have high self-assessment marks for professional qualification. Only half of nurses have completed post-graduate training to improve their professional qualification in the scope of intensive care.

## 1 INTRODUCTION

Intensive care is a specific diagnostic and treatment process for patients with critical disruption of vital functions and/or for patients expected to have decompensation in those functions over a period in the immediate future. Presently, the application of intensive treatment and intensive care for life-saving conditions is based on an orderly system, which is regulated and developed in detail in all of its versatile aspects. The regulated scope of professional competence defines the particular professional activities that people practicing regulated professions can exercise in medical establishments.

The legal framework for training and operations of healthcare professionals in Bulgaria includes a series of laws and regulatory provisions that govern the qualification and the professional realization of nurses. Within the framework of the higher medical education, the education process for the ‘Nurse’ specialty is directed toward establishing and developing professional competencies, as a set of

knowledge, skills, conduct and habits for the students in that specialty. A multi-aspect and diverse training is provided, which contains actions and handling procedures, which are learned as part of their theoretical and practical studies. The training includes learning behavior algorithms for providing first aid and applying resuscitation measures in case of particular diseases and/or life-threatening situations, consistent with the existing standards and proven practices. Depending on adequate actions of medical specialists, possible complications and adverse outcomes for patients may be significantly reduced or prevented.

Within the context of the European Qualification Framework (EQF) for lifelong learning, knowledge is detailed as theoretical and/or factual. Skills are classified as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and use of methods, materials, tools and instruments). Competence is defined as the proven ability to use knowledge, skills and personal, social and/or methodological resources in vocational situations, in the areas of professional

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and personal development, and abilities are described in view of the degree of taking responsibility and independence (European Qualification Framework for Lifelong Learning (EQF), 2009).

Intensive care is a set of care encompassing the complete treatment and diagnostic area, consistent with the pathology, condition, and personal needs of the patient. The treatment of critically ill patients requires a high level of professional preparation of nurses, development of habits and skills for clinical observation, analysis of the patient condition and application of an individual approach in their conduct. The organization and management of care in intensive structures are extremely complex to understand, analyze and model, due to the specifics of the object and the subject of their activity, and are dependent on the intensive scientific, information, technological and practical progress of the specialty.

State-of-the-art methods to ensure good quality of safe intensive care are based on proven rules for good nurse practices in diagnostics and treatment. The wide-ranging use of invasive procedures and multiple treatment in intensive clinics/departments expose patients to increased risk of complications (Bjork et al., 2007). The efficiency of the conducted tests, manipulations and procedures is directly dependent on the qualification and professional skills of nurses in specialized structures. Acquiring autonomous functions in practice of intensive care is a long process of uninterrupted training for development of professional qualities.

The post-graduate training in the healthcare system defines lifelong qualification after acquiring rights to practice the profession, in the form of courses, individual training, programs for obtaining professional qualification to exercise certain legal capacity, as well as remote training programs. Healthcare professionals, who are employed in specialized treatment structures, are given an opportunity to gain clinical specialty in Anesthesiology and Intensive Care, under Ordinance 1/22.01.2015 of the Ministry of Health. Training consists of gaining theoretical knowledge and practical skills in the respective sector of medical science and practice. The professional training of nurses employed in specialized intensive care structures has to be properly conducted, in full compliance with the regulatory requirements for

application of special resuscitation activities, including procedures employed in cases of force majeure, natural disasters, industrial accidents, traffic accidents, instances of fire, or due to other reasons.

The study conducted has an objective of establishing the need of improving the professional competence of nurses working in intensive care structures.

## 2 MATERIAL AND METHODS

A documentary method, a sociological method (questionnaire) and a graphic method to provide visual illustration of the results have been employed in the study. The objects of the study are 246 nurses employed in clinics/intensive care units (CCU/ICU) of University and Multi-Profile Hospitals for Active Treatment in the territory of the country – Sofia, Yambol, Smolyan, Lom, Montana, Varna. The study has been conducted over the period between February and April in 2020.

## 3 RESULTS

The age characteristics of the interviewed nurses shows that the highest relative share (40.21%) is the group of nurses between 51 and 60 years of age, with the nurses age 41-50 years of age ranked second, followed by the interviewed nurses between 31 and 40 years of age (21.65%). The lowest relative share of 2.06% is the share of nurses between 20 and 30 years of age.

For length of service of nurses in specialized treatment structures, results show a high level of diversity. The largest relative share (31.71%) is the share of interviewed nurses with length of service ranging between 11 and 20 years, 20.73% with length of service between 6 and 10 years, and 19.92% of nurses with a period between 1 and 5 years of length of service (table 1). With the long-standing experience in the nurse vocation, the standard approaches, and practices for good quality of care in the intensive care process are affirmed, and the control over their application diminishes the risk of additional patient complications.

Table 1: General labor and professional experience in intensive care structures.

years	Total duration of employment		Professional employment in ICUs	
	Number	Relative share in %	Number	Relative share in %
1-5 years	17	6.91	49	19.92
6-10 years	14	5.69	51	20.73
11-20 years	54	21.95	78	31.71
21-30 years	89	36.18	43	17.48
31-40 years	62	25.20	24	9.76
More than 40 years	10	4.07	1	0.41
Total	246	100	246	100

Regarding the education and qualification level (EQL) of medical specialists, results show almost half (44.31%) have college education, 15.04% of them hold the degree “specialist”, 12.20% of them have a bachelor’s degree in Healthcare. 11.79% of the respondents have a bachelor’s degree in Healthcare Management, and 8.54% of the respondents have a master’s degree in Healthcare Management. This high level of diversity as regards to EQL of education is consistent with the duration of employment and age characteristics of the examined individuals (figure 1).

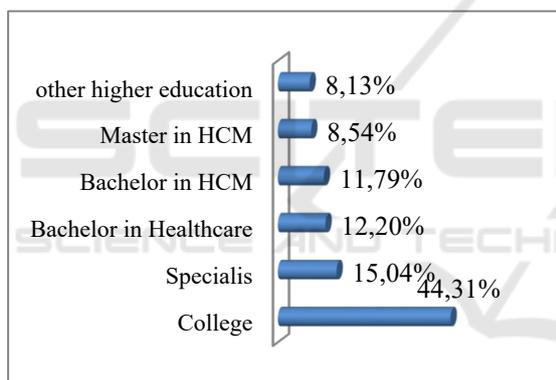


Figure 1: Allocation according to the education and qualification degree of training.

The specialty “Healthcare Management” with EQL Bachelor and Master is a requirement for the individuals in a managerial role – Head or Senior Nurse. Although nurses with other higher education degrees (8.13%) of the respondents exist, they continue to exercise their profession, possibly due to various incentives.

The success of a particular activity depends on a series of subjective and objective factors (Tsvetkova et al., 2011). Some people are satisfied with certain factors and not satisfied with others, which shows that measuring job satisfaction of the workers cannot be unambiguous (Vasilev, 2010). The results show that 54.47% of the respondent nurses are fully satisfied with their professional realization, 37.80% are only

partially satisfied with their professional realization, and 7.72% remain unsatisfied with work in intensive structures. Professional satisfaction is not only a result, but also a factor, which impacts the efficiency of the completed work and a prerequisite for turnover of nurse staff (figure 2).

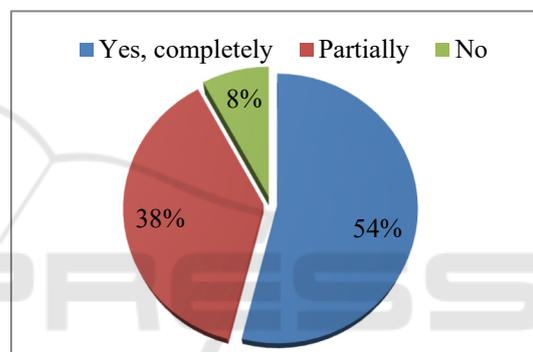


Figure 2: Level of satisfaction with the professional realization in intensive structures.

We have examined the self-assessment of the respondent specialists as regards to their professional qualification for operation in intensive structures. A significant relative share (67.48%) of the respondents consider that they have the qualification required to work, 26.83% of them indicate that they “only partially” have the qualification required to work, and 5.69% answer negatively. The results of the answers received can be attributed to the age characteristics of experts and the indicated professional experience in specialized treatment structures.

Nurses in intensive care units need to be trained in specific techniques of cardiopulmonary resuscitation and how to deal with emergency conditions related to disruptions in vital organs and systems in the treatment process. A significant portion (84.55%) of the respondents indicate that the work in intensive structures require additional knowledge and expensed scope of professional skills, and the smaller relative portion (0.81%) are the ones, for which this is not necessary (figure 3).

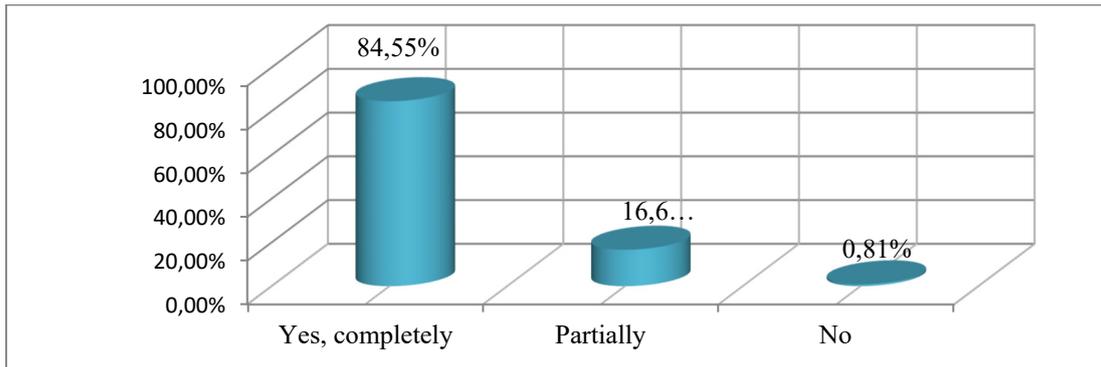


Figure 3: Need of acquiring additional knowledge and skills.

Improving professional competencies is a prerequisite for achieving high standards of intensive care, but this also requires providing opportunities and easy access to continuing education. Regarding completed courses for post-graduate training in the area of intensive care, the results show that 50.41% of the respondents have participated once for the last five years, 45.93% of them have not participated at all, and only 3.66% of the nurses have indicated that they have participated twice (figure 4).

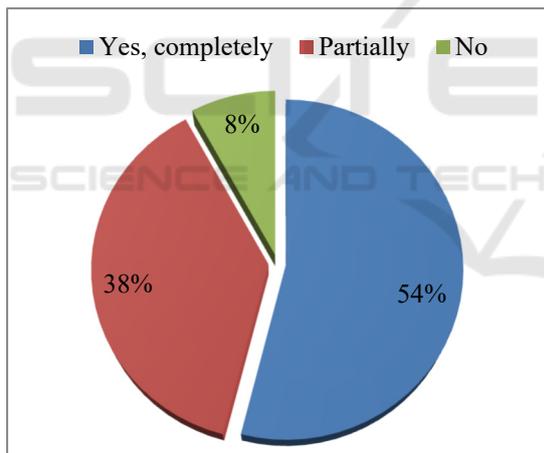


Figure 4: Participation in post-graduate education for professional competence.

The professional development of high-quality staff potential creates a serious requirement for nurses to constantly update their knowledge and skills, in order to respond to novelties in medical practice. This process has to be supported by easy access to life-long learning opportunities (Aleksandrova, 2010). The results show that a significant portion (89.43%) of the studied individuals do not have clinical or non-clinical specialties in the direction “Healthcare” under the Ordinance for Acquiring a Specialty in the Healthcare System. Only 10.57% of the respondents

give a positive response, and 8.54% of them indicate a specialty in Anesthesiology and Intensive Care, 1.63% of them indicate specialty in Hospital Hygiene, and only 0.41% of them “Surgical and wound-dressing techniques”.

#### 4 DISCUSSION

The age characteristics of the respondent nurses (n=246) is in a wide range. The highest relative share (40.21%) is the group of individuals from 51 to 60 years of age, followed by the group between 41 and 50 years of age (36.08%). Data shows aging contingent of personnel that works in specialized treatment structures. Regarding the length of service of the respondent nurses, 39.24% are individuals with a length of service from 21 to 30 years, followed by individuals with length of service from 31 to 40 years (27.85%). The established length of employment and professional experience provides grounds to assume that the respondent specialists are familiar with the organization of work, the standard approaches and practices for high-quality care in the process of intensive care.

The analysis of the results as regards to education shows a high level of diversity in education and qualification degree of respondents, which is the result of the conducted reforms in the area of professional and university education of nurses over the years. The highest relative share of 44.31% are nurses with college education, which matches the age characteristics and length of service of the respondents.

Measuring the employment-related satisfaction levels of employed individuals cannot be unambiguous and depends on a series of subjective and objective factors of the work environment. Professional satisfaction is not only a result, but also

a factor, which impacts the efficiency of the exercised work and a prerequisite for turnover of nurse staff. The analysis of the results shows that a little more than a half (54.47%) of the respondent nurses are fully satisfied with their professional realization in intensive treatment structures.

Given the market economy conditions and a shift in social and economic attitudes in the health system, the role and personal contribution of nurses are factors for the storage, life and health of patients in the treatment process. This is a reference to both the levels of professional qualification with the available knowledge and skills and the personal properties, reflected in the communication process and dedication in the performance of obligations in their official capacity. It is established that the operation in intensive structures requires additional knowledge and an expanded scope of professional skills for a significant portion (84.55%) of nurses, and 67.48% of them have indicated that they have the requisite qualification to work in intensive care units. The long-standing length of service and experience of nurses is the prerequisite for their self-assessment regarding their professional qualification.

The specifics of the medical activity in the intensive care structures requires an overall and consistent quality policy, which encompasses the technology, organization of work, labor conditions and the training of all employees, at various levels in the work process. This shall necessitate provision of the necessary organization, staff and financial resources for implementation of the staff training programs. The analysis of the results indicates that over the course of the last five years, only about half (50.41%) of the respondent nurses have participated at once in a post-graduate training on the topic, and 45.93% of them have not participated in such training at all. Only 8.54% of the respondent nurses have acquired a degree in Anesthesiology and Intensive Care. The results confirm the existing need of training and improving the professional qualification of nurses in sync with the updated and state-of-the-art setting for the work environment in intensive care units.

## 5 FINDINGS

1. Nurses working in intensive care units have a long length of service and experience, which is a prerequisite for their high level of self-assessment as regards to their professional qualification.

2. More than fifty percent of nurses (54.47%) are fully satisfied by their professional realization in intensive treatment structures.

3. A significant share (84.55%) of nurses assesses the importance of the additional training and acquiring a larger volume of knowledge in the area of intensive care.

4. Only half the nurses have completed post-graduate training, and only 8.54% of them have completed a major in Anesthesiology and Intensive Care.

## 6 CONCLUSION

Current prerequisites for development of healthcare on a global scale creates a high requirement threshold toward the professional conduct of medical professionals and quality of healthcare. Nurses acquiring and improving professional competence depends on multiple factors – education, professional experience, and interests, and also the legal framework in the context of a nurse's practice. Determining the roles in the treatment process and the scope of the nurse vocation shall reflect what distinguishes and puts an emphasis on the multi-disciplinary nature of intensive care.

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