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COMPUTER AND INFORMATION LITERACY – A TOOL FOR ACHIEVING THE POWER OF NURSING PROFESSIONALISM IN GENERAL HOSPITALS

Abstract

According to Weber (1999), power is the probability of achieving a desired goal through social relations and is not necessarily related to coercion. There are several types of power, including the power of professionalism, which refers to the possession of certain knowledge, skills and competences. In this context, nursing holds the power of professionalism in relation to healthcare because it possesses specific knowledge, skills and competencies. Computer and information literacy can be a tool to increase this power by providing better patient care. This paper will examine whether computer and information literacy increases the efficiency and effectiveness of nursing, to what extent it reduces and speeds up the administrative work, whether nurses and technicians are satisfied with the formal education they have received in this context, what are the existing curricula like, and what else could be included to improve them. A self-assessment questionnaire regarding computer and information literacy was used for the purposes of this paper, which also includes an review of the available literature and an analysis of the existing secondary school and university curricula. The research showed that computer and information literacy helps achieve the power of professionalism. Also, the results indicate that it is necessary to introduce new content into the curricula related to computer and information literacy, and practice lifelong learning in this area.

Keywords: computer and information literacy, curricula, lifelong learning, nursing, power

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Introduction

According to M. Weber's definition, power is the probability of carrying out one's will in a social relationship despite the resistance of others, regardless of what this probability is based on. The application of the power of professionalism in nursing in general hospitals in the Republic of Croatia will be discussed below, bearing in mind the social relationship (health worker-patient) and the probability of materializing one's will in this social relationship based on knowledge, competences and skills. Computer and information literacy of healthcare workers (Hoffman, 2020; Špiranec, Banek Zorica, 2018; Eisenberg, 2008) implies the practical application of the knowledge and skills related to the use of information and communication technologies (ICT) that were learned in the course of one's education. It is the basis for effective communication with patients and the basis of successful communication of information to stakeholders in the healthcare system. If the level of communication is satisfactory, as a result of the knowledge and skills of health professionals, professional standards in the field of health care can be achieved. Computer literacy means knowledge of ICT, while information literacy means the application of ICT when recognizing important information, accessing it, processing it, storing it, structuring it (putting information in relation to each other) and sharing information with others. This paper focuses specifically on computer and information literacy in the context of creating the power of professionalism in the field of nursing. The objectives of the research were (Marković, 2021):

- to determine to what extent the power of professionalism is related to the information literacy of nurses in general hospitals in the Republic of Croatia, and whether the increase in the level of information literacy influences the reduction of the amount of administrative work in favour of health care
- to conduct an analysis of curricula and programs at all levels of formal education of nurses in the field of computer and information literacy in the Republic of Croatia in order to determine the actual situation related to the acquisition of the power of professionalism in computer and information literacy.

Bearing in mind the objectives of the research, the following hypotheses were formulated:

1. Information literacy enables nurses to gain the power of professionalism in providing quality health care through shortening administration.

2. Increasing the power of professionalism through information literacy of nurses is achieved by adapting nursing curricula and ensuring lifelong education in this area.

Through the research, the hypotheses were examined by studying the literature and conducting a survey related to the fulfilment of information literacy standards, and a survey by which nurses self-assessed their own computer and information knowledge. Below is an overview of the methodology, followed by a description of the research, a presentation of the results, and the discussion. The conclusions drawn from the research are presented in the end.

Methodology

The research spanned several phases (Marković, 2021):

- The basic research terminology and the questions for the self-assessment of knowledge and skills related to information literacy were identified through the analysis of literature related to computer and information literacy (Abunadi, 2018; Association of Higher Education and Research Libraries, 2013; Australian and New Zealand Institute for Information Literacy Adelaide , 2004).
- The analysis of the curricula provided a picture of the knowledge and skills related to computer and information literacy. The analysis determined which content related to computer and information literacy is included (Croatian Chamber of Nurses, 2017; Domitrović, 2016; Directive 2005/36/EC; Directive 2013/55/EU; Association of Higher Education and Research Libraries, 2013).
- A detailed study of information literacy models and standards was conducted. With the development of the process of information literacy, numerous models and standards that aimed to explain or interpret information literacy were distinguished (Working group of SCONUL for information literacy, 2018; Croatian Chamber

of Nurses, 2017; Domitrović, 2016; Bolek, Kokles et al., 2016; Association of College and Research Libraries, 2013; Adelaide Australian and New Zealand Institute for Information Literacy, 2004). Mandatory content of professional development curricula and programs in information literacy was suggested, building upon the analysis of curricula and the answers obtained in the surveys. By studying the model of information literacy, a theoretical framework based on scientific work was defined in all segment of the research (Špiranec, Banek Zorica, 2018; Abunadi, 2018; Project "The New Literacy Set" 2015-2017. EU Project" Erasmus +", 2016; Meuleenmester, 2015; Association of Faculty and Research Libraries, 2013; Nursing in Croatia towards EU accession, 2011; Lloyd, 2010) in ordered to define the level of information literacy which could be raised to increase the power of professionalism in the field of nursing.

Research, results and discussion

The research was performed in the second half of 2020, and resulted in the following findings (Marković, 2021):

Survey analysis focused on computer and information literacy standards in nursing

Since the Republic of Croatia does not have its own standard related to information literacy, the Computer and Information Literacy Standards developed by the Association of Higher Education and Research Libraries (ACRL – Association) were used for the questionnaire of College and Research Library) – "Task Force on Information Literacy Standards for Nursing," 2013 (ACRL, 2013). It consists of five groups of indicators (ibid) related to the outcome on the basis of which the level of information literacy can be measured, namely: the ability to define the need for information, the ability to effectively collect the necessary information, the choice of research methods and the application of search strategies, the ability to critically evaluate information and sources information, the effectiveness of using information to achieve goals, how much the nurse

understands ethical, legal and socio-economic issues related to information and communication technology.

Sixty-nine ward nurses and their substitutes filled in the questionnaire. The aim of the questionnaire was to get the respondents to assess their own computer knowledge. The surveys were distributed to heads of departments, following the assumption that due to their job description, they mostly deal with administrative work and use ICT (they possess certain IT skills). The structure of respondents according to qualifications was as follows: 31 respondents with secondary education, 25 with higher education and 13 with university education.

The scale for evaluation was as follows: 1-33% respondents are not computer and information literate; 34-66% respondents are partially computer and information literate; 67-100% respondents are computer and information literate. Observing the criteria of age, professional qualifications, job complexity and self-assessment of IT knowledge, the results presented below were obtained.

Table 1. Fulfilment of the information standard literacy

| Criterion	Group	Compliance with standards (%)	Number of respondents	The result
Age	20-29	54.98	17	partially
	30-39	42.72	18	partially
	40-49	29,16	16	insufficiently
	50 and more	17.33	18	insufficiently
Qualifications	Secondary school qualifications	29.83	31	insufficiently
	Two-year university qualifications	37.66	25	partially
	Four-year university qualifications	39.18	13	partially
Complexity of business	HIGH	41.14	18	partially
	SECONDARY	26.67	51	insufficiently
Self-assessment of knowledge	BELOW AVERAGE	12.98	7	insufficiently
	AVERAGE	39.37	15	partially
	ABOVE AVERAGE	28.99	27	insufficiently

Source: author's research

Table 1 shows the results of meeting information literacy standards according to age, professional training, job complexity and self-assessment of ICT knowledge. The obtained results (ibid) confirm that faster changes are necessary in the process of formal education, because no age group has a sufficient level of computer and information literacy. The relationship between the age of the respondents and computer and information literacy is as expected. Younger respondents are more computer and information literate because the application of information and communication technology comes natural to them (they have always used it), while the older respondents do not possess a sufficient level of literacy because ICT was not included in their education process. Regarding the professional qualifications, it is evident that the level of computer and information literacy increases with the level of education, i.e. professional qualifications. This result is expected, because nurses with higher professional education do more administrative tasks for which they have to master ICT. The greater the complexity of work, the greater the need for specific knowledge and skills. The complexity of the job correlates with professional training. As a rule, a higher professional qualification goes hand in hand with greater complexity of the work, and nurses who do more complex jobs meet the standards to a greater extent (they have a higher level of computer and information literacy). The results of knowledge self-assessment show that nurses overestimate their ICT knowledge. Namely, it is evident that the respondents who believe that they have an above-average knowledge of ICT barely pass the threshold of sufficient literacy, while those who believe that they have average knowledge actually do not have a sufficient level of computer and information literacy. The obtained results prove that the research on computer and information literacy in the field of nursing is justified, because no results were obtained according to any criteria that would show that the respondents had a sufficient level of computer and information literacy. Moreover, research shows that even in those cases where they have a partial level of literacy, they barely exceed the 30% threshold.

Survey analysis aimed at self-assessment of information literacy

The results of the research on information literacy according to literacy standards in nursing justify further research regarding the level of

information literacy of nurses with regard to age, level of education, job complexity and self-assessment of ICT knowledge. The above is necessary in order to identify problematic areas of literacy and to propose activities to improve literacy (and thereby increase the power of professionalism in the field of nursing). The research was conducted by a questionnaire in four general hospitals in the Republic of Croatia (Marković, 2021). The survey was conducted in a Google form. Nurses participating in the survey had secondary school qualifications (254), two-year university qualifications (194) and four-year university qualifications (114). The answers to the survey confirm the hypotheses, as evidenced by the data presented below. Answering the question *Do you use a computer at work,* 98.2% respondents said yes, and 1.8% said no.
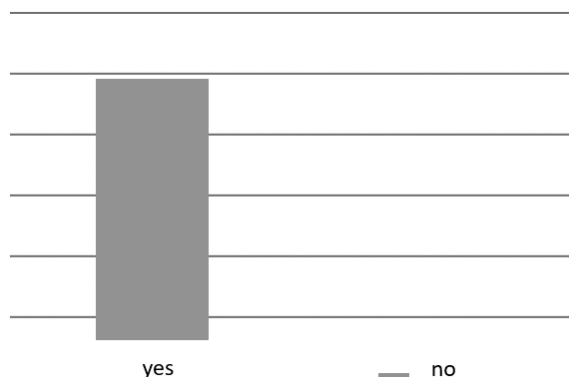
Graph 1. Do you use a computer at work?
Source: Author's research

Answering the question *How do you assess the complexity of your job,* 0.8% respondents said "low", 47.8% said "medium", and 51.3% said "high". Answering the question *How do you assess your IT knowledge,* 7.1% said "below average", 79.4% said "average", and 13.5% said "above average". Answering the question *If you use a computer, do you spend too much time on administration compared to providing health care,* 49.7% respondents partially or completely agreed with the statement, whereas 16.3% were undecided.
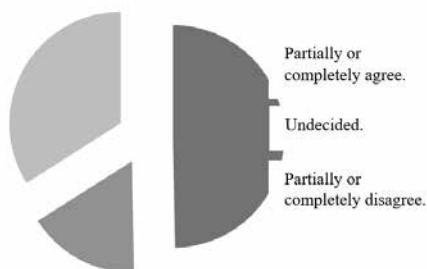
*Graph 2. If you use a computer, do you spend too much time on
administration compared to health care?
Source: Author's research*

Only 26.9 % respondents completely or partially agreed with the statement *Does knowing how to work with the hospital information system leave
you more time to work with patients.* Answering the question *Does the automation of business processes speed up your administration (writing nursing
documentation, patient records, conducting therapy),* only 19.4% respondents partially or completely agreed with the statement. Answering the
question *Do you think that you need continuous education in the field of application of information and communication technology,* 77.7% respondents
said *yes*, and 22.3% said *no*.

*Graph 3. Do you think that you need continuous education in the field
of information and communication technology application?
Source: Author's research*

Answering the question *Do you think that the knowledge in the field of information literacy that you acquired through formal vocational high school and/or higher education is sufficient to perform your job,* respondents answered negatively, stating that they believe that they did not get enough knowledge about information literacy during their formal education.

All the answers point to the need to increase the power of professionalism related to the use of ICT and computer and information literacy, either through formal education or through lifelong learning.

Analysis of nursing education in the Republic of Croatia (curricula and programs)

The second hypothesis was confirmed by the analysis of the national guidelines that are required for defining the curriculum (Marković, 2021). The analysis resulted in a recommendation for a concrete curriculum regarding the improvement of the level of information literacy. The quality of curricula and programs in secondary, higher and high education institutions for nurses was evaluated according to the following criteria: European Computer Driving License (ECDL), i.e. knowledge of office tools, e-mail and the internet for computer literacy; compliance of curricula with national guidelines; and the number of hours in subjects related to computer and information literacy against the total number of hours.

The analysis of the curricula of four secondary schools and higher education institutions resulted in the following findings: there are subjects dealing with computers in the above levels of education for nurses, and they are in line with the national guidelines (generally the content is too technically oriented and does not fit the needs of the nurses in their daily work); nursing schools do not have guidelines and therefore specific curricula are not uniform; in all three levels of education, elements of information literacy are completely missing or there are only elements of them.

Due to the lack of subjects related to information literacy, the author recommends introducing information literacy content into the education system based on the so-called ACRL (Association of College and Research Library) standard, either as a separate subject or as an interdisciplinary course, in order to increase the professional power of nurses in the field of information literacy. By introducing content related to information literacy (Rašidović, 2019), pupils and students would be trained for

independent learning and knowledge-building using distributed sources of information. At the end of the courses, the participants are expected to acquire the competence to independently access and browse information sources of analogue, digital and virtual origin in any form and format. Learners should be able to find, process, evaluate, study and manage relevant information. They should be able to analyze information, synthesize, organize, interpret and present it in order to responsibly create new knowledge through studying for tests, writing essays, presenting and submitting seminars and final papers. Therefore, they would increase their professional power related to information literacy.

Conclusion

The study of the sources revealed that information literacy implies the following skills: searching for information, advanced searching for information, organizing information, understanding text, using information, analyzing and creating graphs, evaluating information, creating structural information, creating online information, usability of information, intellectual property, data protection, and the use of social networks. The aforementioned knowledge is conducive to increasing the power of professionalism in nurses, which will lead to better healthcare, reduced consumption of unnecessary medical material and drugs, minimization of damage caused by incorrect treatment, improved focus on the patient, and follow-up possibilities and improvement of the quality of health care. Evidence for the statement that computer and information literacy of nurses increases the power of professionalism is provided through the research of information literacy standards as well as through the self-assessment of computer and information literacy of nurses. The results of the aforementioned research show that nurses do not meet all standards of information literacy, that they spend too much time on administrative tasks, and that they have not learned information literacy skills in course of their formal education (which was determined by a study of specific curricula in four secondary and higher education institutions). Therefore, they do not have sufficient power of professionalism in the segment of computer and information literacy. In order to realize the power of professionalism in the segment of computer and information literacy, it is necessary to: introduce a teaching program related to information literacy as a separate subject

or as an interdisciplinary course; for nurses who did not have a subject related to computer literacy in their formal education, it is necessary to introduce lifelong learning courses in the subject area; it is also crucial to improve the existing curricula in computer literacy. The research presented in this paper confirms the set hypotheses. Namely, if nurses increase the power of professionalism in the computer and information literacy segment, they will be more efficient in administrative work and have more time to provide healthcare. In addition, the conducted surveys related to the fulfilment of information literacy standards and the self-assessment of computer and information knowledge confirm the insufficient level of development of the power of professionalism in the segment of computer and information literacy through formal education, and stress the need for lifelong education.

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