

Application of evidence based healthcare as measure of quality and safety improvement

Primjena zdravstvene njege zasnovane na dokazima u cilju unapređenja kvalitete i sigurnosti zdravstvenih usluga

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Abstract

Uvod: Svjetska zdravstvena organizacija navodi da je zdravstvena njega zapravo znanost i umijeće koje zahtijeva puno razumijevanja te praktičnu primjenu specifičnih znanja i vještina koje se temelje na istraživanjima, a izvedene su iz bioloških, društvenih, humanističkih znanosti i menadžmenta.

Ciljevi istraživanja: Osnovni je cilj istraživanja utvrditi u kojoj mjeri medicinske sestre / medicinski tehničari implementiraju proces zdravstvene njege temeljen na znanstvenim i stručnim dokazima te dokazima iz kliničke prakse.

Metode istraživanja: Istraživanje je kvantitativno, deskriptivno, presječno i komparativno. Za istraživanje je korišten upitnik kreiran na temelju pregleda stručne i znanstvene literature te dokaza iz prakse.

Rezultati: Analiza znanja o značenju zdravstvene njege temeljene na dokazima pokazuje da je 140 ispitanika (61,4 %) odgovorilo točno na ovo pitanje „Pružanje zdravstvene njege na osnovu naučnih istraživanja, stručne literature i dobre prakse.“ Gotovo 80 % ispitanika, njih 181, točno je odgovorilo da zdravstvenu njegu temeljenu na dokazima trebaju pružiti medicinske sestre / medicinski tehničari svih razina obrazovanja koji rade u procesu zdravstvene njege.

Zaključak: Rezultati ovog istraživanja govore u prilog činjenici da medicinske sestre / medicinski tehničari implementiraju proces zdravstvene njege koji se temelji na znanstvenim i stručnim dokazima te dokazima iz kliničke prakse. Navedeno potvrđuje podatak da zdravstvenu njegu temeljenu na dokazima primjenjuje u potpunosti ili djelomično ukupno 221 ispitanik, odnosno 96,6 % ispitanika.

Ključne riječi: zdravstvena njega temeljena na dokazima, kvaliteta, sigurnost, zdravstvene usluge

Kratak naslov: Improving quality through evidence-based care

Sažetak

Introduction: The World Health Organization states that health care is a science and art that requires a lot of understanding and practical application of knowledge and skills that are specific and based on research derived from biological, social, and humanistic sciences, and management.

Aim: The main goal of this study is to determine the extent to which nurses implement the health care process based on scientific and professional evidence and evidence from clinical practice.

Materials and methods: The study is quantitative, descriptive, cross-sectional, and comparative. The author's questionnaire was created based on a review of professional and scientific literature and evidence from practice was used for the research.

Results: Analysis of knowledge about the meaning of evidence-based health care shows that 140 (61.4%) respondents answered correctly to this question "Providing health care based on scientific research, professional literature, and good practice". Almost 80% of respondents (181) correctly answered that evidence-based health care should be provided by nurse technicians of all levels of education who work in the health care process.

Conclusion: The results of this research support the statement that nurses-technicians implement the health care process based on scientific and expert evidence, evidence from clinical practice, and this is supported by the fact that evidence-based health care is applied fully or partially by 221, or 96,6%, of respondents.

Keywords: Evidence-based health care, quality, safety, health services

Short title: Unapređenje kvaliteta kroz njegu zasnovanu na dokazima

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Introduction

Health care encompasses a set of knowledge, methods, and skills based on evidence and practice based on which a

holistic approach is taken to an individual or group in promoting health, preventing disease, and treating and alleviating suffering.

One of the world's most recognized and well-known definitions of health care was given by the American nurse, theoretician, and lecturer, Virginia Henderson: „The unique role of a nurse is to help an individual, sick or healthy, in performing activities that contribute to health, healing or a peaceful death, which he would do without the help of others if he had the necessary strength, will and knowledge“ [1].

The general care of the patient implies the provision of adequate conditions adapted to the needs of the person, which contributes to a faster recovery. Conditions for general care are met according to the categorization of patients according to the type of health care. To meet the needs of all patients in the hospital, it is necessary to meet the minimum standard for general care.

Definition „Health is a state of complete mental, physical and social well-being, not just the absence of disease and infirmity“ by WHO from 1948 includes, in addition to physiological, sociological and psychological homeostasis. However, the definition also has a utopian character, because a small number of people, or almost no one, could say they are healthy. For these reasons, the biomedical model was extended, apart from physiological homeostasis, to other components: physical balance, physiological and emotional balance, cultural and social balance, and mental and philosophical balance [2].

Another important theory on which nursing models are based is humanism. Humanism is connected with existentialism as a philosophical direction. Humanism is based on the value of the human being, existence, and quality of life.

Through development through science and practice, nurses and technicians gain greater professional independence. Nurses represent very important and irreplaceable pillar of healthcare, and due to their diverse roles, they represent the largest group of professionals in the healthcare system [3].

One of the basic prerequisites for the progress of nursing as a profession is the continuous education of nurses, which includes lifelong education and personal development, professional development, and the provision of quality health care.

Patient satisfaction is one of the main indicators of the quality of healthcare provided. The concept of patient satisfaction is defined by the degree to which requirements are met [4].

Evidence-based medicine is an approach to the practice of medicine aimed at improving and evaluating patient care. This requires judicious integration of the best research evidence with patient values to inform healthcare decisions.

This method helps doctors and nurses to make the correct diagnosis, design the best test plan, choose the best treatment and disease prevention methods, and develop guidelines for large groups of patients with the same disease [5].

A useful starting point may be to define what constitutes evidence-based practice at the most basic level. Evidence-based practice applies a scientific, data-driven approach to patient care decisions. It requires practitioners to criti-

cally evaluate evidence and methodically gather information about events. Evidence-based practice formalizes and standardizes best clinical practices, policies, and procedures to optimize outcomes and effectiveness throughout the patient care cycle.

The goal of evidence-based practice is to rapidly incorporate the best available research, supplemented by personal experience and patient preferences, into clinical practice. By doing so, clinicians can improve the quality of care they provide and improve patient outcomes [6].

There are numerous benefits to using evidence-based practice in health care for both providers and patients. Some examples include:

- Evidence-based practice helps care providers stay current. Clinical protocols are constantly changing based on new research findings. Evidence-based approach helps providers stay abreast of emerging modalities.
- Promotes better clinical decision-making. Evidence-based practice can guide providers through weighing different types of information and help them analyze the information appropriately to ensure they are making the most informed decisions on behalf of their patients.
- Promotes the patient's recovery. Evidence-based health care increases the expediency with which patients are diagnosed, receive treatment, and begin their recovery.
- Evidence-based health care enables better risk reduction. An evidence-based approach helps providers more carefully consider the risks associated with possible treatment pathways [7].

Aim

The goal of this research study is to show the importance of providing and implementing health care based on scientific and professional evidence.

Materials and methods

This study included 228 nurses and technicians from the Federation of Bosnia and Herzegovina, employed in health institutions of different levels of health care.

The study is quantitative, descriptive, cross-sectional, and comparative. The author's questionnaire was created based on a review of professional and scientific literature and evidence from practice is used for the research. After completing the pilot study on a sample of 20 respondents, the internal consistency of the questionnaire was calculated, and with the Chrombach alpha = 0.854, the questionnaire can be considered valid for use in the study. The questionnaire was available to the respondents in the electronic version of „Google Forms“. The protection of the respondent's identity and professional data related to the organization is guaranteed (the name of the organization is not highlighted on the questionnaire). It is impossible to find out the identity of the respondents from the answers received. The research does not require the financial costs and investments of the researcher.

The results are presented in tables and charts by the number of cases, percentages, arithmetic mean with standard deviation, and range of values. Testing of correlation relationships is performed using Spearman's rank correlation test. The results were considered statistically significant at the confidence level of 95% or with $p < 0.05$. The analysis was performed using the statistical package IBM Statistics SPSS v 25.0.

Results

The largest number of surveyed staff is employed in the Clinical Center of the University of Sarajevo (141 or 61.8%), followed by the General Hospital „Prim. Ph.D. Abdulah Nakaš“ Sarajevo (25 or 11.0%), and in the Health Centers of the Canton of Sarajevo (19 or 8.3%). A greater number of respondents are female (196 or 86.0%) compared to male (32 or 14.0%). The largest number of respondents are between 37-45 years (90 or 39.5%), then between 46-55 years (57 or 25.0%), and between 26-36 years (52 or 22.8%).

Analysis of knowledge about the meaning of evidence-based health care shows that 140 or 61.4% of respondents answered correctly to this question „Providing health care based on scientific research, professional literature, and good practice“.

Analysis of the level of perceived knowledge about conducting research in health care shows that only 17 (7.5%) respondents state that they believe they did not acquire enough knowledge about conducting research in health care within the framework of formal education.

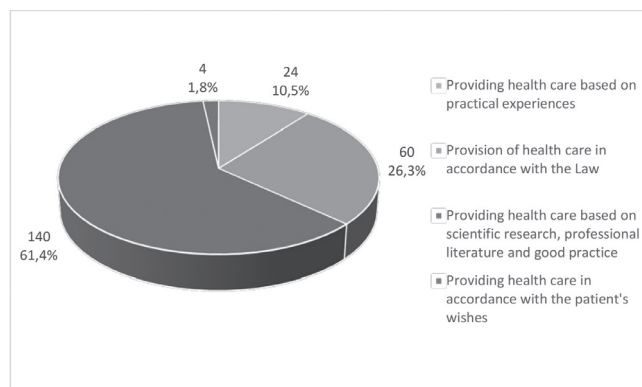


FIGURE 1. Analysis of knowledge about the meaning of evidence-based health care

Analysis of opinions on the need for scientific evidence for the health care process shows that 122 respondents (53.5%) completely agree, and 90 (39.5%) partially agree with this statement. Only 16 (7.0%) respondents disagree with this statement.

Almost 80% of the respondents, 181 (79.4%), correctly answered that evidence-based health care should be provided by nurse and technicians of all levels of education who work in the health care process. The analysis of opinions on the reasons for the importance of research for health care shows that the largest number of respondents, 135 (59.2%), believe that research is important for the safety and quality of health care.

TABLE 1. Analysis of perceived knowledge about conducting research in health care

		N	%
Did you acquire enough knowledge about conducting research in health care as part of your formal education?	Yes	94	41.4
	Partially	116	51.1
	No	17	7.5
Do you think that the health care process needs scientific evidence?	Yes	122	53.5
	Partially	90	39.5
	No	16	7.0
Evidence-based health care should be provided by:	Graduated nurses	28	12.3
	Masters of Health Care	7	3.1
	Doctors of health sciences	4	1.8
	Secondary nurses	8	3.5
	Nurse and technicians of all levels of education who work in the health care process	181	79.4
Healthcare research is important for:	For the safety and quality of health care	135	59.2
	In order to prevent risks in practice	7	3.1
	It is important because it strengthens the nursing profession	21	9.2
	Because that is how experiences of good practice are exchanged	22	9.6
	All of the above	41	18.0
	Its not important at all	2	.9
Total		228	100.0

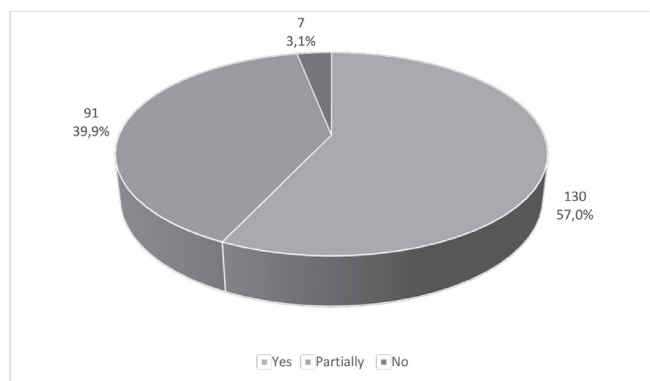


FIGURE 2. Analysis of the application of evidence-based health care in daily practice

Evidence-based healthcare is fully applied by 130 (57.0%) respondents, partially by 91 (39.9%), and only 7 (3.1%) state they do not apply evidence-based healthcare in their everyday practice.

As the most common limitations for the use of evidence-based health care 94 respondents (41.2%) stated lack of theoretical and practical knowledge, then lack of time (78 or 34.2%), and lack of management support (67 or 29.4%).

The most common materials used by nurses and technicians for research, are previous experiences of colleagues, which were presented orally in 102, or 44.7% of cases.

Of the total number of respondents, 98 (43.6%) always research for better health care as part of their daily work in the institution.

As the reasons for not doing the research, the respondents most often cite lack of time for research (32 or 14.0%).

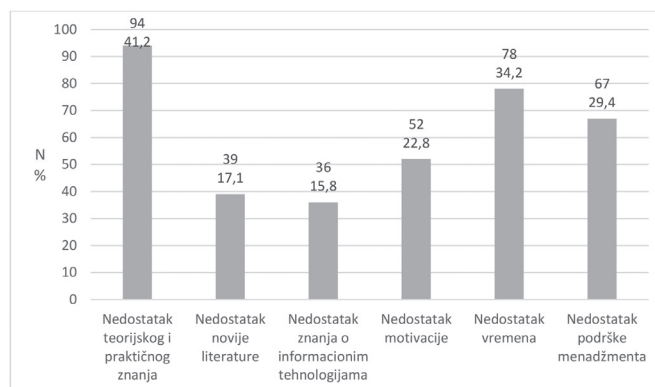


FIGURE 3. Analysis of limitations to the implementation of evidence-based health care

The largest number of respondents, 87 or 38.5%, record good practice results only in health care documentation and do not show them publicly, and 85 or 37.6% respondents do not record and do not show the results of good practice.

Only 4 or 1.8% of the respondents stated that the practice had achievements or results that became a standard in health care.

A comparison of knowledge about the meaning of evidence-based health care according to professional education shows a statistically significant influence of professional education ($p < 0.05$) in the sense that respondents with a higher education level answered this question more often correctly compared to respondents with lower education. Professional training shows a significant impact on the most common areas of research in health care in terms

TABLE 2. Overview of materials used by nurse and technicians for research

		N	%
Research materials	Books	78	34.2
	Brochures, leaflets and guides	63	27.6
	Scientific papers published in domestic journals	42	18.4
	Scientific papers published in foreign journals and electronic databases	64	28.1
	I do not use the above	9	3.9
	Previous experiences of colleagues presented orally	102	44.7
As part of your daily work at the institution, do you research for better healthcare?	Yes	98	43.6
	Partially	95	42.2
	No	32	14.2
Reasons	I don't have time to research	32	14.0
	I don't know the research method very well	7	3.1
	I have no institutional support	17	7.5
	There are big administrative barriers (informed consent, ethics committee, etc.)	16	7.0
	Patients are not ready to cooperate	9	3.9
Total		228	100.0

Table 3. Overview of the practice of recording good practice results

		N	%
Are you recording the good results of your practice and to whom is it visible?	Yes, I show results at internal lectures	24	10,6
	Yes, I present the results through the publication of scientific and professional papers in domestic and foreign journals	14	6,2
	Yes, I present results at Symposia and Congresses	10	4,4
	I record results in health care records, but do not display publicly	87	38,5
	I do not record or present	85	37,6
	I am not interested in displaying the results of care	6	2,7
In your practice, did you have nurse and technicians used for research?	Yes	4	1,8
	Partially	51	22,6
	No	171	75,7

of greater involvement in research by respondents with a higher degree of education. Likewise, respondents with a higher degree of education tend to more often record the results of a good clinical practice that they later use in their work, as well as the more frequent application of scientific achievements or results that have become a standard in health care.

No influence of the sociodemographic variables, including gender, age, and working experience on knowledge about the meaning of evidence-based health care, nor any other variable testing evidence-based health was recorded.

Discussion

The largest number of respondents believe that health care based on evidence implies the provision of health care based on scientific research, professional literature, and good practice (140 or 61.4%), followed by the provision of health care in accordance with the Law (60 or 26, 3%) and the provision of health care based on practical experiences (24 or 10.5%).

Respondents in most cases believe that scientific evidence is needed for the health care process (122 or 53.5%), and partially (90 or 39.5%), and those who do not believe that the health care process should be based on scientific evidence (16 or 7.0%). Most respondents believe that evidence-based health care should be provided by nurses of all levels of education who work in the health care process (181 or 79.4%).

As the most common reasons for the importance of research in the health care process, the respondents state the following: safety and quality of health care (135 or 59.2%), exchange of experiences of good practice (22 or 9.6%), strengthening the nursing profession (21 or 9, 2%), preventing risks in healthcare (7 or 3.1%), and all of the above (41 or 18.0%).

It is important to point out that almost half of the respondents from the total sample state that evidence-based health care is applied in daily practice (130 or 57.0%).

The most common areas of research in health care mentioned by the respondents are information on patient treatment (126 or 55.3%), information on the application of

practical skills (75 or 32.9%), information on new technologies in health care (64 or 28, 1%), information on risk prevention in healthcare (51 or 22.4%), information on nursing diagnoses (40 or 17.5%).

Raković I. (2018) in the study „Nursing based on evidence - obstacles to implementation in practice” says that evidence-based nursing means the integration of knowledge and skills by which nurses make clinical decisions based on the best available scientific evidence, their clinical experience, the patient’s wishes and attitudes, and within the framework of available opportunities. The main obstacles to the application of evidence-based health care in practice are lack of theoretical and practical knowledge in the field of health care, lack of knowledge in the field of scientific work and scientific research, inability to access databases, lack of time/burden with routine work at the workplace, lack of scientific magazines, lack of interest of management structures in the work organization, lack of knowledge in the field of informatics and lack of motivation [8].

Tepšić M. and colleagues (2019) in their work on the topic „The importance of evidence-based research and practice for patient safety and the quality of health care”, showed how the need for sustainable improvement of patient safety and the quality of care is getting bigger and bigger. One of the fundamental steps in achieving and maintaining that improvement is for healthcare institutions to become continuously learning organizations [5].

Merćep I. (2002) researched the topic of „Evidence-based medicine”. One of the important conceptions of evidence-based medicine is the hierarchy in the evaluation of the evidence-based on which decision is made, which means that before making a decision it is important to evaluate the value of the evidence. According to this conception, the most valuable evidence, for example, the effectiveness of a particular therapeutic agent results from the results of a multicenter, randomized, comparative, controlled clinical trial. The evidence of the lowest value is based on studies of physiological functions and observation of clinicians [9].

Good doctors apply their clinical observation and experience with the best scientific evidence from the medical literature. Without monitoring new medical developments, tre-

atment can become outdated, and sometimes to the detriment of the patient. Evidence-based medicine downplays the value of intuition, unsystematic clinical experience, and pathophysiology as a sufficient basis for making clinical decisions. It emphasizes the value of evidence obtained through clinical research.

The author Kalauz S. (2013) researched „Evidence-based health care theory and its application in clinical practice“. Scientific evidence in medical practice cannot be used as a „recipe book“ applicable to every patient and in all situations. That's not in line with the highly emphasized individualized approach to patient care. Good care requires the integration of the best scientific evidence. Scientific evidence can inform, but it can never replace the clinical expertise of an expert, which includes the patient's clinical condition, preferences, attitudes and values, and all other factors that influence treatment. Good healthcare professionals use both: their clinical expertise AND available scientific evidence“. Therefore, it should be emphasized that theory and practice are not incompatible and that one complements the other. Clinical expertise, experience, and an individualized and holistic approach to the patient with the application of the best available scientific evidence are the foundation of the professional excellence of every healthcare worker [10].

Conclusion

The results of this study indicate that nurses implement the health care process based on scientific and professional evidence, and evidence from clinical practice, and that is supported by the fact that evidence-based health care is applied fully or partially by 221 or 96.6 % of respondents.

Analysis of the level of perceived knowledge about conducting research in health care shows that only 17 or 7.5% of respondents state that they believe that they did not acquire enough knowledge about conducting research in health care within the framework of formal education. Of the total number of respondents, 94, or 41.4%, believe that they have acquired sufficient knowledge and 116, or 51.1%, that they have partially acquired knowledge, which indicates that nurses of all levels of education have good knowledge of evidence-based health care.

This study also showed that nurses have a positive attitude regarding the application of evidence-based health care.

Respondents listed the lack of time, knowledge, databases, and literature as the main difficulties for adequate implementation of evidence-based health care.

Authors declare no conflict of interest.

Nema sukoba interesa.

References / Literatura

- [1] Petrović M, Krivokapić Z. Menadžment kvalitetom usluga. Pobjeda a. d. Podgorica. 2007.
- [2] Ivanuša A, Železnik D. Standardi aktivne zdravstvene njege. 2. Doprunjeno izdanje. Maribor. 2008.
- [3] Belas Horvat V, Kos M. Dekubitus kao glavni indikator kvalitete zdravstvene njege na naurološkom odjelu. Acta medica Croatica [internet]. 2016 [pristupljeno 31. 5. 2024.] 70 (Suplement 1): 17–23. Dostupno na: <https://hrcak.srce.hr/167867>
- [4] Lee, D. Implementation of quality programs in health care organizations. Service Business. 6. 2012. <https://doi.org/10.1007/s11628-012-0141-2>. 2012.
- [5] Tepšić M. Važnost istraživanja i prakse utemeljene na dokazima za sigurnost bolesnika i kvalitetu zdravstvene njege. Zdravstveni glasnik [internet]. 2019 [pristupljeno 31. 5. 2024.] 5 (2): 95-101. <https://doi.org/10.47960/2303-8616.2019.10.95>
- [6] Paušek D. Kvaliteta zdravstvene zaštite kroz razine zdravstva – rizik primopredaje bolesnika. Medix. 2010. <https://www.medix.hr/kvaliteta-zdravstvene-zastite-kroz-razine-zdravstva---rizik-primopredaje-bolesnika>
- [7] Donaldson L. Evidence-based health care, by J A Muir Gray. BMJ. 314. 615-615. 1997. <https://doi.org/10.1136/bmj.314.7080.615a>.
- [8] Raković I. Sestrinstvo utemeljeno na dokazima – prepreke za primjenu u praksi. Diplomski rad. Sveučilište u Zagrebu, Medicinski fakultet. 2018.
- [9] Merćep I. Medicina zasnovana na dokazima. Medicus [Internet]. 2002 [pristupljeno 31. 5. 2024.] 11 (1_Farmakologija):113–114. Dostupno na: <https://hrcak.srce.hr/19956>
- [10] Kalauz S. Teorija zdravstvene njege utemeljene na dokazima i njezina primjena u kliničkoj praksi. 6. Međunarodni kongres HDMSARISTA. 2013.