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Modern changes in the teaching paradigm of medical and social disciplines: evidence-based practice

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Abstract. *Evidence-based practice is an integral part of medical and social sciences and has become a key component of clinical teaching, research, and rehabilitation practices. It is a problem-oriented approach in which scientific evidence is used for clinical reasoning and decision-making.*

The purpose of the work *is to describe and analyze the sense and content of evidence-based practice as a teaching discipline in the medical and social higher education.*

Methods. *We researched and analyzed modern literary sources regarding the specifics of the implementation of evidence-based practice and objectively proved the necessity of teaching students of medical and social specialties to use modern tools of clinical reasoning, effective search and application of scientific information in daily routine practice.*

Results*. Modern information search technologies for the implementation of scientific evidence practice require additional skills of evaluation of the obtained data by a specialist. Scientists recommend using the CRAAP method for critically understanding the variety of published data and effectively implementing them into daily routine practice.*

For effective implementation of evidence-based practice, students of medical and social specialties should be taught to use the so-called model 5 «A»: «Ask», «Acquire, Access», «Appraise», «Apply», «Assess, Audit». The last stage consists from

evaluating the effectiveness of the therapy plan and evidence-based practice process going through 3 «R»: Revise, Review, Reflect. Also, it is crucial important to be able to correctly navigate the levels of evidence of published scientific research.

Despite the challenges and shortcomings of evidence-based practice the main advantages of its providing include the possibility of specialists maintaining consistently high standards of quality and safety in medical practice, speeding up the process of implementing the results of clinical research into practice. It should also be noted the potential for significantly reducing health care costs, improving the results of patient therapy, increasing the ability and competitiveness of medical and social workers and their satisfaction with work.

Conclusion. *Knowledge translation strategies are critical to support evidence-based practice to bridge the gap between research, evidence, and clinical practice.*

With the development of science, specialists during continuous professional training have access to scientific data that can help in aspects such as prevention, improving the results of interventions and the quality of the patients` life.

Health and social care professionals need to know how to generate, share, and apply proven scientific data in evidence-based practice. This knowledge and skills of their use should be taught in the relevant disciplines at the stages of primary and higher education of medical and social specialists.

Keywords: *education of the medical and social professionals, evidence-based practice, scientific research, problem-oriented approach.*

Сучасні зміни парадигми викладання медико-соціальних дисциплін: практика, заснована на доказах

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Анотація. *Практика, що ґрунтується на доказах, є невід'ємною частиною медичних і соціальних наук і стала ключовим компонентом*

клінічного навчання, досліджень і практики реабілітації. Це проблемно-орієнтований підхід, у якому наукові дані використовуються для клінічного обґрунтування та прийняття рішень.

Мета роботи – *описати та проаналізувати сенс і зміст науково-доказової практики як навчальної дисципліни у освітніх закладах медико-соціальної спеціалізації.*

Методи*. Ми дослідили та проаналізували сучасні літературні джерела щодо особливостей впровадження практики, заснованої на доказах та предметно довели необхідність навчання студентів медико-соціальних спеціальностей використанню сучасних інструментів клінічного мислення, ефективного пошуку та застосування наукової інформації у щоденній рутинній практиці.*

Результати. *Сучасні інформаційно-пошукові технології для реалізації науково-доказової практики вимагають додаткових навичок оцінки фахівцем отриманих даних. Вчені рекомендують використовувати метод CRAAP для критичного розуміння різноманітності опублікованих даних і ефективного впровадження їх у щоденну рутинну практику.*

Для ефективного впровадження науково-орієнтованої практики студентів медико-соціальних спеціальностей необхідно навчити використовувати так звану модель 5 «А»: «Запитати», «Здобути, отримати доступ», «Оцінити», «Застосувати», «Оцінити, Аудит». Останній етап складається з оцінки ефективності плану інтервенцій та науково-обґрунтованого процесу практики, що проходить через 3 «R»: Revise (оцінити), Review (переглянути), Reflect (поміркувати). Крім того, надзвичайно важливо вміти правильно орієнтуватися в рівнях доказовості опублікованих наукових досліджень.

Незважаючи на виклики і недоліки науково-доказової практики, головними перевагами її забезпечення є можливість підтримки спеціалістами незмінно високих стандартів якості та безпеки втручань, прискорення процесу впровадження результатів клінічних досліджень у практику. Слід також відзначити потенціал суттєвого зниження витрат на охорону здоров'я, покращення результатів терапії пацієнтів, підвищення професійних властивостей та конкурентоспроможності медичних і соціальних працівників та їх задоволеності роботою.

Висновки. *Стратегії трансляції знань мають вирішальне значення для впровадження та реалізації практики, що ґрунтується на доказах, щоб подолати розрив між дослідженнями, доказами та клінічною реальністю. З розвитком науки фахівці під час безперервного професійного навчання отримують доступ до наукових даних, які можуть допомогти в таких аспектах, як профілактика, покращення результатів втручань та якості життя пацієнтів.*

Фахівці з охорони здоров'я та соціального забезпечення повинні знати, як генерувати, ділитися та застосовувати перевірені наукові дані в науково-доказовій практиці. Ці знання та навички їх використання мають викладатися у відповідних дисциплінах на різних етапах освіти спеціалістів медико-соціального профілю.

Ключові слова: *освіта медико-соціальних фахівців, науково-доказова практика, наукові дослідження, проблемно-орієнтований підхід.*

Introduction. Evidence-based practice is an integral part of medical and social sciences and has become a key component of clinical teaching, research, and rehabilitation practices. It is a problem-oriented approach in which scientific evidence is used for clinical reasoning and decision-making [1].

Medical and social disciplines taught in higher education institutions, above all, should be methodically based on scientific material that has a modern scientific evidence base. But an equally important goal is to teach future specialists to acquire new knowledge and skills in the process of continuous professional development using proven information for their daily evidence-based practice [2].

Literature review. In 1996, Sackett et al. defined evidence-based practice: «Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research» [3].

With the passage of time and as a result of the explosive development of information consumption and the burden on specialists, there was a need to involve scientific knowledge as part of the clinical decision-making process. However, this modification of medico-social management has become one of the biggest criticisms of evidence-based practice - scientific research has become more important than the preferences and circumstances of the patient. Therefore, in this context, it should be noted that scientific research is only one of several components that form a decision-making model. The later definition in which Sackett et al. described evidence-based practice was «the integration of the best scientific evidence with the patient's clinical experience and values» [3, 4].

The initial model of the evidence-based practice encompassed three overlapping areas [4]:

- clinical experience
- scientific evidence
- patient preferences

Figure 1. Initial model of the evidence-based practice [4].

Later, a gradual change of this paradigm took place with the inclusion of such components as the influence of the environment and organizational context in the system of scientific and evidence-based practice for greater involvement of various medical and social disciplines.

Revised evidence-based practice model (Figure 2) has a multydisciplinary perspective. This system incorporates each discipline's most important advances with attempting of remaining disadvantages. The model is grounded in an ecological framework and emphasizes shared decision making. Both the level of the medical-social care and total health maintenance can be influenced by intervening also at the educational, interpersonal, organizational, community, and public policy levels [4].

The model's new external frame contains organizational factors and environment to modify a cultural context that modulates the acceptability of an intervention, its feasibility, and the balance between fidelity and adaptation which is important for its effective implementation.

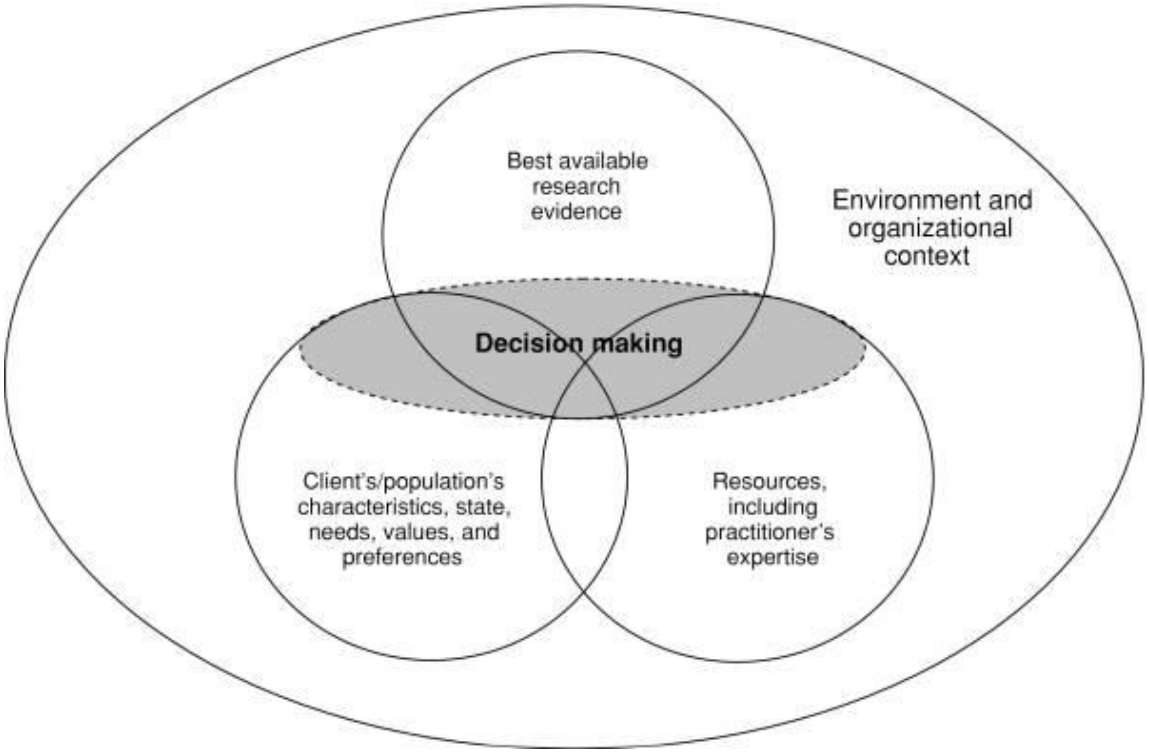

Figure 2. Modified model of the evidence-based practice [4].

The definition of evidence-based practice has evolved over time. Along with integrating research, clinical experience, values and the patient's circumstances, the health care professional also needs to «take into account the characteristics of the local and wider context of practice» [1]. Thus, it is not only about the scientific research, but also about the skills, education and experience of the specialist as well as about the patient and his values, circumstances, preferences and health status. In addition, the medical or social worker must take into account the availability of resources, politics, cultural and socioeconomic factors in the decision-making process. In other words, the decision-making process requires judgment and skill, as well as science and logic [5]. This whole process of integrating all these factors is known as clinical reasoning. When a healthcare specialist is able to incorporate all of these areas to make decisions about a person's providing, evidence-based practice is in place [5].

Highlighting previously unresolved parts of the overall problem. Despite the sufficient experience of applying evidence-based practice, there is still bias and non-acceptance of this model among medical and social professionals. Unfortunately, a large part of specialists do not know the principles of critical evaluation of publications, they are afraid of the difficulty of mastering such skills; in most cases, a quick and easy answer in the form of practical recommendations with unambiguous and simple solutions is preferred. Practical activities based on evidence require additional time and effort, which can be perceived by a specialist as a «distraction» from the main activity.

There are also many clinical situations for which there is insufficient scientific evidence. And finally, many professionals do not have sufficient motivation to change their habits and traditions.

These facts make it necessary to introduce the teaching of the discipline «Evidence-based Practice» at various stages of the professional education of medical and social specialists in order to acquire new skills by future specialists, primarily the ability to identify a problem, search for and conduct a critical analysis of scientific information, apply the evidence found to specific patient. The application of new skills and abilities implies a mandatory change in one's own clinical activity.

Formulation of the goals of the article (statement task).

The goal of the work is to describe and analyze the sense and content of evidence-based practice as a teaching discipline in the medical and social higher education.

The work is aimed at improving the professional training of future medical and social specialists, providing them with important scientific and methodological knowledge and professional skills for the effective implementation of evidence-based practice.

The relevance of the research is determined by the growing demands for the quality of medical and social practical activities and the need to adapt specialists to modern challenges and technological changes.

Objectives of the study:

1. To substantiate and investigate modern methods of assessing the validity and scientific level of published information for the decision-making process.

2. To substantiate and investigate effective methods of working with the patient when formulating a clinical question in the decision-making process.

3. Describe and assess the challenges, benefits, and prospects for implementing evidence-based practice.

Results. Modern information search technologies for the implementation of scientific evidence practice require additional skills of evaluation of the obtained data by a specialist [6]. Scientists recommend using the CRAAP method for critically understanding the variety of published data and effectively implementing them into daily routine practice (Figure 3).

The CRAAP (Currency, Relevance, Authority, Accuracy, and Purpose) test was created by Sarah Blakeslee and her team of librarians at California State University, Chico (CSU Chico) to assess the credibility of sources across academic fields. The test provides a list of questions to ask yourself when deciding whether or not a source is reliable and credible enough to use in academic research paper or evidence-based practice.

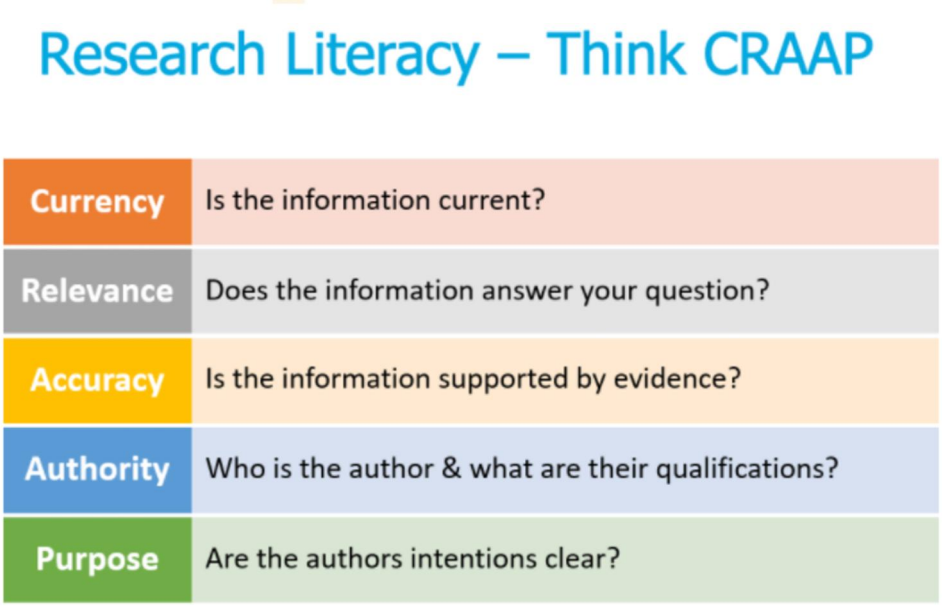

Figure 3. CRAAP method [6].

The CRAAP test is only one method for evaluating content and a first-line examination of the current information, it is also called vertical reading [6].

For effective implementation of evidence-based practice, students of medical and social specialties should be taught to use the so-called model 5 "A".

1. «Ask». This step consists of the determining the person's needs in formulating a clinical question. Assessment content includes patient`s interview, history taking, physical examination taking into account the patient's needs, values, context, preferences and beliefs. This information is used to formulate a clinical question to be answered in the clinical decision-making process.

2. «Acquire, Access». Next step consists of the definition of sources of knowledge and creating a search strategy to choose which databases and which type of resources to use in the follow decision-making process.

3. «Appraise». At the next level of decision-making the assessment of the quality of knowledge resources (CRAAP test) should be provided, clinical checklists

have to be prepared and methodological assessment of information quality will be conducted.

4. «Apply». This step includes interactive discussing the possible options with the patient, drawing up an intervention plan and its realization.

5. «Assess, Audit». The last stage consists from evaluating the effectiveness of the therapy plan and evidence-based practice process going through 3 «R»: Revise, Review, Reflect [5, 7].

These stages are closely related to each other, and in order to achieve an optimal result, it is sometimes necessary to move from one step to another in different directions.

Specialists usually define a generally accepted list of terms used in evidence-based practice.

Empirically supported treatments. This term can be defined as «a therapy or intervention whose efficacy or effectiveness is supported by a specific type of research» for one specific disorder/condition/population [8].

Best practice means «strategies, approaches, or interventions that have been proven (through research and expertise) to be effective, efficient, sustainable, and/or transferable, and that reliably lead to a desired outcome» [2].

Research informed practice can be conducted if decision-making is done by «conscientious, clear, and judicious use of the best available evidence from multiple sources to increase the likelihood of a favorable outcome.»[9]. It does not encompass the patient's preferences, values, context, and clinical expertise.

For the effective implementation of scientific evidence-based practice, a specialist must correctly navigate the levels of evidence of published scientific research. Figure 4 presents a hierarchically constructed diagram of various studies taking into account the level of reliability and evidence regarding the possibility of using medical and social specialists in the evidence-based practice.

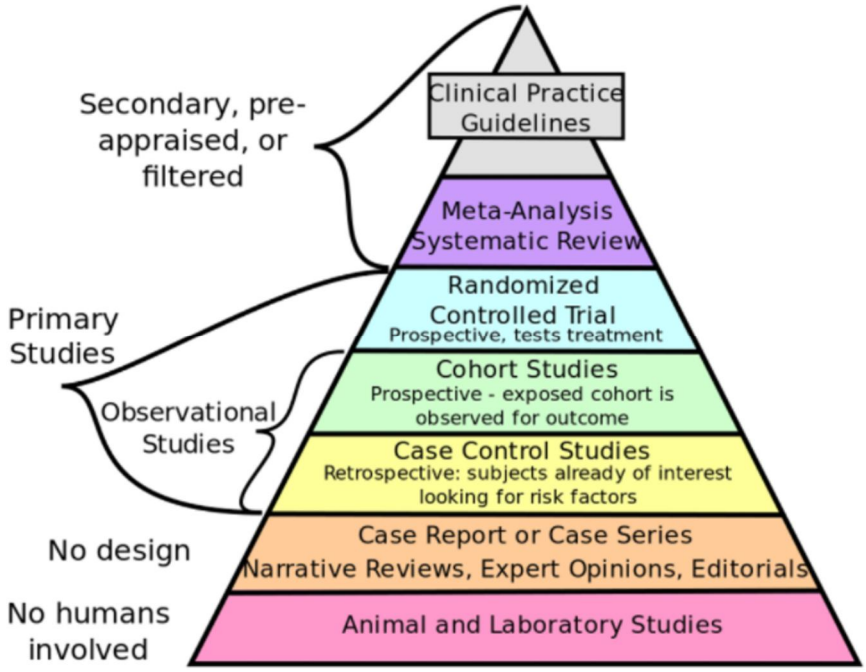

Figure 4. Hierarchies of research designs and levels of scientific evidence.

Despite the worldwide proven effectiveness of evidence-based practice, there remain some challenges and apprehensions about its implementation, especially among young professionals and, not surprisingly, experienced and confident gurus in the profession.

Challenges to evidence-based practice.

Among the challenges and shortcomings of evidence-based practice, the lack of time to find and apply the best available evidence is often indicated - this is associated with a high workload due to a large number of patients, a lack of quality studies available for all conditions and cases. Also, it is difficult for specialists to find the necessary resources among a large number of sources or access to resources is limited technically or organizationally [10].

Lack of administrative support or lack of critical evaluation skills may be the reasons for unsatisfactory results of implementation of evidence-based practices. In

addition, there is also a lack of examples of evidence-based practices regularly implemented or organizations promoting a culture of evidence-based practice [11, 12].

This widespread rigidity and some resistance to the comprehensive implementation of evidence-based practice determines the urgent need to introduce the training of the specified scientific disciplines at the stages of pre-higher and higher education of relevant medical and social specialists.

The main theses regarding the persuasive *advantages of evidence-based practice* include the possibility of specialists maintaining consistently high standards of quality and safety in medical practice, speeding up the process of implementing the results of clinical research into practice. It should also be noted the potential for significantly reducing health care costs, improving the results of patient therapy, increasing the ability and competitiveness of medical and social workers and their satisfaction with work [5, 13].

Evidence-based practice, in addition to the best available scientific evidence, also includes personal experience, the skills of the specialist, the patient's situation and values (for example, the availability of social support or the patient's financial capacity) and the conditions in which the clinical specialist conducts his practice (for example, limiting access time to the patient or facility resources). The process of integrating information obtained from all the specified components into practical activity is called clinical thinking. Thus, only when a specialist takes into account the information obtained from the above-listed sources to make a clinical decision can it be said that he is acting in accordance with evidence-based practice [14, 15].

Conclusions.

Evidence-based practice is based on the concept of *knowledge translation,* which is defined as a dynamic and iterative process involving professionals and patients in the synthesis, dissemination, exchange and ethical application of knowledge to

improve health through the development of tools, manuals, practical recommendations and decision-making algorithms.

Knowledge translation strategies are critical to support evidence-based practice to bridge the gap between research, evidence, and clinical practice.

With the development of science, specialists during continuous professional training have access to scientific data that can help in aspects such as prevention, improving the results of interventions and the quality of the patients` life.

Health and social care professionals need to know how to generate, share, and apply proven scientific data in evidence-based practice. This knowledge and skills of their use should be taught in the relevant disciplines at the stages of primary and higher education of medical and social specialists.

References.

1. Dusin J., Melanson A., Mische-Lawson L. Evidence-based practice models and frameworks in the healthcare setting: a scoping review. *BMJ Open*. 2023. Vol. 13(5):e071188. doi: 10.1136/bmjopen-2022-071188

2. Fauci A.J., D'Angelo D., Coclite D., [et all.] Exploring the definition and methodology of "best practice" in the health care literature: a scoping review protocol. *JBI Evidence Synthesis*. 2023. Vol. 21(10). P. 2134-2141.

3. Sackett D.L., Rosenberg W.M., Gray J.M., [et all.] Evidence based medicine: what it is and what it isn't. *BMJ*. 1996. Vol. 312(7023). P. 71-72.

4. Satterfield J.M., Spring B., Brownson R.C., [et all.] Toward a transdisciplinary model of evidence-based practice. *Milbank Q*. 2009. Vol. 87(2). P. 368-390. doi: 10.1111/j.1468-0009.2009.00561.x.

5. Hoffmann T., Bennett S., Del Mar C. Evidence-based practice across the health professions. *Elsevier Health Sciences*; 2023.

6. Esparrago-Kalidas A. J. The Effectiveness of CRAAP Test in Evaluating Credibility of Sources. *Education, International Journal Of Tesol*. 2021. Vol. 1(2). P. 1-14. doi: 10.11250/ijte.01.02.001.

7. Brettle A. Implementing evidence-based practice: A guide for radiographers. *Radiography (Lond).* 2020. Vol. 26 Suppl 2. P. S37-S41. doi: 10.1016/j.radi.2020.05.013.

8. Drisko J.W., Friedman A. Let's clearly distinguish evidence-based practice and empirically supported treatments. *Smith College Studies in Social Work*. 2019. Vol. 89(3-4). P. 264-281.

9. Barends E. A Reader's Guide to Evidence-Based Management. *Controlling & Management Review*. 2016. Vol. 60(1). P. 36-40. doi: 10.1007/s12176-015-0648-1.

10. Greenhalgh T, Howick J, Maskrey N. Evidence Based Medicine Renaissance Group. Evidence based medicine: a movement in crisis? *BMJ*. 2014. Vol. 348. P. g3725. doi: 10.1136/bmj.g3725.

11. Naghibi D., Mohammadzadeh S., Azami-Aghdash S. Barriers to evidence-based practice in health system: a systematic review. *Evidence Based Care*. 2021. Vol. 11(2). P. 74-82.

12. Ibikunle P.O., Onwuakagba I.U., Maduka E.U., [et all.] Perceived barriers to evidence-based practice in stroke management among physiotherapists in a developing country. *Journal of Evaluation in Clinical Practice*. 2021. Vol. 27(2). P. 291-306.

13. Connor L., Dean J., McNett M., [et all.] Evidence-based practice improves patient outcomes and healthcare system return on investment: Findings from a scoping review. *Worldviews on Evidence-Based Nursing.* 2023. Vol. 20(1). P. 6-15.

14. Kerr H., Rainey D. Addressing the current challenges of adopting evidence-based practice in nursing. *British Journal of Nursing*. 2021. Vol. 30(16). P. 970-974.

15. Paci M., Faedda G., Ugolini A., [et all.] Barriers to evidence-based practice implementation in physiotherapy: a systematic review and meta-analysis. *International Journal for Quality in Health Care*. 2021. Vol. 33(2). P. mzab093.