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REVIJA ZBORNICE ZDRAVSTVENE IN BABIŠKE NEGE SLOVENIJE -
ZVEZE STROKOVNIH DRUŠTEV MEDICINSKIH SESTER, BABIC IN ZDRAVSTVENIH TEHNIKOV SLOVENIJE

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OBZORNIK ZDRAVSTVENE NEGE

NAMEN IN CILJI

Obzornik zdravstvene nege (Obzor Zdrav Neg) objavlja izvirne in pregledne znanstvene članke na področjih zdravstvene in babiške nege ter interdisciplinarnih tem v zdravstvenih vedah. Cilj revije je, da članki v svojih znanstvenih, teoretičnih in filozofskih izhodiščih kot eksperimentalne, neeksperimentalne in kvalitativne raziskave ter pregledi literature prispevajo k razvoju znanstvene discipline, ustvarjanju novega znanja ter redefiniciji obstoječega znanja. Revija sprejema članke, ki so znotraj omenjenih strokovnih področij usmerjeni v ključne dimenzije razvoja, kot so teoretični koncepti in modeli, etika, filozofija, klinično delo, krepitev zdravja, razvoj prakse in zahtevnejših oblik dela, izobraževanje, raziskovanje, na dokazih podprto delo, medpoklicno sodelovanje, menedžment, kakovost in varnost v zdravstvu, zdravstvena politika idr.

Revija pomembno prispeva k profesionalizaciji zdravstvene nege in babištva ter drugih zdravstvenih ved v Sloveniji in mednarodnem okviru, zlasti v državah Balkana ter širše centralne in vzhodnoevropske regije, ki jih povezujejo skupne značilnosti razvoja zdravstvene in babiške nege v postsocialističnih državah.

Revija ima vzpostavljene mednarodne standarde na področju publiciranja, mednarodni uredniški odbor, širok nabor recenzentov in je prosto dostopna v e-obliki. Članki v Obzorniku zdravstvene nege so recenzirani s tremi zunanjimi anonimnimi recenzijami. Revija objavlja članke v slovenščini in angleščini in izhaja štirikrat letno.

Zgodovina revije kaže na njeno pomembnost za razvoj zdravstvene in babiške nege na področju Balkana, saj izhaja od leta 1967, ko je izšla prva številka Zdravstvenega obzornika (ISSN 0350-9516), strokovnega glasila medicinskih sester in zdravstvenih tehnikov, ki se je leta 1994 preimenovalo v Obzornik zdravstvene nege. Kot predhodnica Zdravstvenega obzornika je od leta 1954 do 1961 izhajalo strokovnoinformacijsko glasilo Medicinska sestra na terenu (ISSN 2232-5654) v izdaji Centralnega higienskega zavoda v Ljubljani.

Obzornik zdravstvene nege indeksirajo: CINAHL (Cumulative Index to Nursing and Allied Health Literature), ProQuest (ProQuest Online Information Service), Crossref (Digital Object Identifier (DOI) Registration Agency), COBIB.SI (Vzajemna bibliografsko-kataložna baza podatkov), Biomedicina Slovenica, dLib.si (Digitalna knjižnica Slovenije), ERIH PLUS (European Reference Index for the Humanities and the Social Sciences), DOAJ (Directory of Open Access Journals), J-GATE, Index Copernicus International, Sherpa Romeo, SCILIT.

SLOVENIAN NURSING REVIEW

AIMS AND SCOPE

Published in the Slovenian Nursing Review (Slov Nurs Rev) are the original and review scientific and professional articles in the field of nursing, midwifery and other interdisciplinary health sciences. The articles published aim to explore the developmental paradigms of the relevant fields in accordance with their scientific, theoretical and philosophical bases, which are reflected in the experimental and non-experimental research, qualitative studies and reviews. These publications contribute to the development of the scientific discipline, create new knowledge and redefine the current knowledge bases. The review publishes the articles which focus on key developmental dimensions of the above disciplines, such as theoretical concepts, models, ethics and philosophy, clinical practice, health promotion, the development of practice and more demanding modes of health care delivery, education, research, evidence-based practice, interdisciplinary cooperation, management, quality and safety, health policy and others.

The Slovenian Nursing Review significantly contributes towards the professional development of nursing, midwifery and other health sciences in Slovenia and worldwide, especially in the Balkans and the countries of the Central and Eastern Europe, which share common characteristics of nursing and midwifery development of post-socialist countries.

The Slovenian Nursing Review follows the international standards in the field of publishing and is managed by the international editorial board and a critical selection of reviewers. All published articles are available also in the electronic form. Before publication, the articles in this quarterly periodical are triple-blind peer reviewed. Some original scientific articles are published in the English language.

The history of the magazine clearly demonstrates its impact on the development of nursing and midwifery in the Balkan area. In 1967 the first issue of the professional periodical of the nurses and nursing technicians Health Review (Slovenian title: Zdravstveni obzornik, ISSN 0350-9516) was published. From 1994 it bears the title The Slovenian Nursing Review. As a precursor to Zdravstveni obzornik, professional-informational periodical entitled a Community Nurse (Slovenian title: Medicinska sestra na terenu, ISSN 2232-5654) was published by the Central Institute of Hygiene in Ljubljana, in the years 1954 to 1961.

The Slovenian Nursing Review is indexed in CINAHL (Cumulative Index to Nursing and Allied Health Literature), ProQuest (ProQuest Online Information Service), Crossref (Digital Object Identifier (DOI) Registration Agency), COBIB.SI (Slovenian union bibliographic/catalogue database), Biomedicina Slovenica, dLib.si (The Digital Library of Slovenia), ERIH PLUS (European Reference Index for the Humanities and the Social Sciences), DOAJ (Directory of Open Access Journals), J-GATE, Index Copernicus International, Sherpa Romeo, SCILIT.

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Editorial/Uvodnik

International cooperation in nursing leadership

Mednarodno sodelovanje v vodenju zdravstvene nege

Dejan Doberšek[1, 2, *]

In a period of rapid and numerous changes, diverse values, and the coexistence of multiple generations in the same workplace setting, nurse leaders face an increasingly complex range of demands. However, when entering the international professional arena, it becomes clear that, although organisational structures may differ, similar issues arise everywhere, such as staff shortages, increasingly complex patient care, professional autonomy, quality and safety, managerial responsibility, and sustainability of the working environment. However, certain commonalities persist regardless of the country or organisational context of nursing practice. This makes it difficult to discuss the future of the profession without serious consideration of nursing leadership.

Nursing leadership should not be understood solely in terms of administrative or hierarchical roles, but as a discipline that significantly influences the quality of care, safety, organisational outcomes, and the professional development of staff (Losty et al., 2026; Sayyed et al., 2025). International experience shows that developing leadership in nursing is a long-term process requiring systematic investment in education and training, as well as the involvement of leaders in organisational management (Koto-Shimada et al., 2023). International cooperation is therefore not a peripheral activity, but a means of broadening professional perspectives, comparing different practices and gaining a clearer understanding of one's own system. This is also confirmed by reflections on work within the leadership structures of professional associations. Erstad et al. (2024) emphasise that such a role benefits not only the individual leader, but also has positive effects on the home organisation and the wider profession. It is not merely about forming professional connections, but about strengthening the ability to collaborate, think critically, and engage in clear written and oral communication. Through such work, leaders learn about best practices and gain new perspectives, which they can apply to organisational development and more reflective leadership practices upon returning to their home institution.

The European Nurse Directors Association (ENDA) is a professional European organisation that brings together nursing leadership and management, strengthening professional dialogue at the European level. Slovenia's active involvement in its activities enables the integration of its professional perspectives and examples of good practice into the wider European network. ENDA fulfils its mission by bringing together nursing leaders from various European countries to share expertise and experience, participate in professional events, influence education and continuing professional development, develop common quality standards, collaborate in research projects, and thereby ensure the contribution of nurse directors to policy-making processes (ENDA, n. d.). Such international engagement is valuable for Slovenia, not as a search for answers elsewhere in Europe, but as a means of contributing our own experiences and insights. International collaboration is particularly valuable when it enables participants to listen, compare, and contribute, rather than functioning as a one-way exchange. International collaboration programmes in ENDA follow a similar pattern, with value attributed not only to shared nursing experiences but also to a broader understanding of different healthcare systems. Furthermore, such collaboration reinforces the importance of effective communication and fosters cultural humility, which is essential for working in international professional settings (Gingerich et al., 2024). In its Code of Ethics, ENDA emphasises that those in nursing leadership roles must act with personal integrity and transparency,

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and promote a culture of personal and professional responsibility grounded in trust and mutual respect. It further highlights the importance of cultivating a healthy and sustainable working environment, supporting mentoring and leadership development, and strengthening professional values and nursing identity (ENDA, 2024).

This emphasis is closely linked to nurses' professional identity. Pullen & Schroeder (2025) define professional identity as a dimension of nursing that not only provides the profession with internal support but also shapes its standing and recognition in relation to other health professions. This emphasis carries significant implications for professional development, as it invites reflection on how nursing is positioned within the broader professional landscape and how it is recognised. It is therefore not enough for nursing to merely exist within the system. It is crucial that it also carries influence, that its voice is heard, and that it is able to make decisions regarding the quality of care and the long-term direction of its development. In this context, Lang & Nash (2023) point out that leadership does not emerge spontaneously. Where training for leadership roles is insufficient, and where support and opportunities for development are lacking, more is expected of leaders than the system actually enables them to achieve. It is therefore essential to understand leadership as a discipline that must be learned and developed systematically, through both mentoring and experience. This highlights a crucial aspect of autonomy, which cannot be meaningfully addressed without serious reflection on leadership.

If we understand leadership as a professional field that must be learned, systematically developed, and supported by the creation of appropriate conditions, then autonomy cannot be viewed merely as a buzzword or a symbol of prestige, but as one of the fundamental prerequisites for mature and effective leadership. A meta-analytical review of support for autonomy in the workplace shows that such a leadership approach is based on the leader's ability to understand employees' perspectives and to allow them adequate opportunities to participate, take initiative, and make responsible decisions, while communicating in an informative rather than controlling manner (Slemp et al., 2018). The broader literature on management also emphasises that perceived autonomy enables leaders to integrate diverse leadership approaches more easily and to link their role more purposefully to organisational goals (Grøn et al., 2024). For nursing, this is a particularly sensitive aspect of leadership, as leaders often bear considerable responsibility but do not always have sufficient influence over the conditions in which they are expected to fulfil it. Much attention has been devoted to nursing leadership, primarily focusing on the importance of relationships, the working environment, staff retention and recruitment, mentoring, and communication. However, far less attention is paid to the acknowledgement that leadership practice in nursing is still too frequently treated as an extension of clinical professional work, rather than as an independent professional field requiring its own knowledge, appropriate training and, above all, time.

Gaps persist in formal leadership training, alongside insufficient development opportunities and the need for a more systematic approach to building leadership competencies and succession planning (Lang & Nash, 2023). Moreover, while expectations of leaders are rising, many enter this role ill-prepared, facing increasing staffing and organisational pressures that further add to their workload (Losty et al., 2026). This is another reason why there is growing recognition that leadership development is not sufficiently effective if it remains detached from the actual work culture and daily practice (Cable et al., 2024). In this context, international collaboration holds significant developmental value, as it not only facilitates comparisons between systems, but also offers a broader perspective on leadership, a better understanding of diverse professional environments, and a clearer awareness of what is truly crucial for the future of nursing (Gingerich et al., 2024). The international platform thus raises a fundamental professional question: what kind of nursing do we wish to develop, and what kind of leadership can support this? However, its impact is most enduring when it transcends mere symbolic connectivity and contributes to the development of leadership, further education, and the conditions in which the profession can actually fulfil its professional commitment (Koto-Shimada et al., 2023).

In this regard, international cooperation is one of the means by which nursing leadership is genuinely developed. Participation in leadership roles within professional associations helps cultivate skills that leaders then apply within their own organisations and beyond. This represents an investment in the development of leadership, maturity, greater professional breadth, and the capacity of nursing to shape its future direction more clearly (Erstad et al., 2024). It seems that today the issue is no longer so much a lack of understanding of the importance of leadership, but rather that it is still not given sufficient professional weight in daily professional practice. Amid the many day-to-day challenges, it is still too often pushed into the background, even though it should be regarded as one of the central areas of nursing development. The future will therefore depend not on the profession speaking out more loudly, but on greater professional clarity and a willingness to position the leadership role appropriately. This is precisely why international collaboration can be seen as one of the key contexts in which leadership maturity and the future directions of the profession are being shaped today.

Slovenian translation/Prevod v slovenščino

V času mnogih in hitrih sprememb, različnih vrednot ter sobivanja več generacij v istem delovnem okolju se vodje v zdravstveni negi srečujejo z zelo raznolikimi zahtevami. Ko vstopamo v mednarodni strokovni prostor, pa nam hitro postane jasno, da se načini organiziranosti med seboj sicer razlikujejo, vendar se povsod odpirajo sorodna vprašanja, kot so pomanjkanje kadra, vse večja zahtevnost obravnave, strokovna avtonomija, kakovost in varnost, odgovornost vodij, vzdržnost delovnega okolja itd. Ostajajo pa skupne točke ne glede na državo ali organizacijo, v kateri delujemo. Prav zato je danes težko govoriti o prihodnosti profesije brez resnega premisleka o vodenju.

Vodenja v zdravstvu ni mogoče razumeti zgolj kot administrativne ali hierarhične vloge, temveč kot stroko, ki pomembno vpliva na kakovost oskrbe, varnost, organizacijske izide in profesionalni razvoj zaposlenih (Losty et al., 2026; Sayyed et al., 2025). Mednarodne izkušnje kažejo, da je razvoj voditeljstva v zdravstveni negi dolgoročen proces, ki zahteva sistematično vlaganje v izobraževanje in usposabljanje ter vključevanje vodij v upravljanje (Koto-Shimada et al., 2023). Mednarodno sodelovanje zato ni obrobna dejavnost, temveč eden od načinov, kako širimo strokovni pogled, primerjamo različne prakse in jasneje razumemo lasten sistem. To potrjuje tudi razmislek o delu v vodstvenih strukturah strokovnih združenj. Erstad et al. (2024) poudarjajo, da takšna vloga ne koristi le posameznemu vodji, temveč se njeni učinki prenašajo tudi v domačo organizacijo in širšo profesijo. Pri tem ne gre zgolj za pridobivanje novih poznanstev, ampak za obliko razvoja, v kateri se krepijo sposobnost sodelovanja, prav tako kritično mišljenje ter jasna pisna in ustna komunikacija. Vodje skozi takšno delo spoznavajo dobre prakse in pridobivajo nove poglede, ki jih lahko po vrnitvi v domače okolje preoblikujejo v razvoj in bolj premišljeno vodenje.

European Nurse Directors Association (v nadaljevanju ENDA) je evropska strokovna organizacija, ki povezuje vodstveni kader zdravstvene nege ter krepi strokovni dialog na evropski ravni. V njenem delovanju ima aktivno vlogo tudi Slovenija, kar odpira možnost, da se strokovni pogledi in primeri dobre prakse vključujejo v širše evropsko stičišče. ENDA svoje poslanstvo gradi na povezovanju vodij zdravstvene nege iz različnih evropskih držav, na izmenjavi izkušenj, sodelovanju na strokovnih dogodkih, vplivu na izobraževanje in nadaljnje usposabljanje, razvoju skupnih standardov kakovosti, sodelovanju v raziskovalnih projektih ter prispevku managementa v zdravstveni negi k procesu političnega odločanja (ENDA, n. d.). Takšna mednarodna vključenost je pomembna za Slovenijo, ne zato, ker bi v evropskem prostoru zgolj iskali odgovore drugje, temveč zato, ker vanj prinašamo tudi lastne izkušnje. Mednarodno povezovanje je dragoceno predvsem tedaj, ko ni enosmerno, ampak ko znamo poslušati, primerjati in tudi prispevati. Podobno kažejo tudi programi mednarodnega sodelovanja v izobraževanju vodij, kjer se kot posebej dragocene ne izkažejo le skupne izkušnje zdravstvene nege, temveč tudi širše razumevanje različnih zdravstvenih sistemov. Ob tem takšno sodelovanje krepi pomen učinkovite komunikacije in spodbuja kulturno ponižnost, ki je za delo v mednarodnem strokovnem prostoru nujna (Gingerich et al., 2024). ENDA v svojem kodeksu etike poudarja, da morajo nosilci vodstvenih vlog v zdravstveni negi delovati z osebno integriteto, izjemno poštenostjo ter zaupanjem in medsebojnim spoštovanjem ustvarjati kulturo osebne in profesionalne odgovornosti. Izpostavlja tudi skrb za zdravo in vzdržno delovno okolje, podporo mentorstvu in razvoj voditeljstva, pa tudi krepitev profesionalnih vrednot in identitete zdravstvene nege (ENDA, 2024).

Tak razmislek se tesno povezuje tudi s profesionalno identiteto zdravstvene nege. Pullen & Schroeder (2025) profesionalno identiteto razumeta kot tisto razsežnost zdravstvene nege, ki stroki ne daje le notranje opore, temveč vpliva tudi na njen položaj in težo v odnosu do drugih zdravstvenih strok. Ta poudarek ima razvojno vrednost, saj odpira vprašanje, kako je zdravstvena nega v širšem strokovnem prostoru sploh umeščena in kako v njem prepoznana. Zato za zdravstveno nego ni dovolj, da je v sistemu le navzoča. Ključno je, da ima tudi težo, da je njen glas upoštevan in da zmore prevzemati odločitve za kakovost dela ter za dolgoročno smer razvoja profesije. Ob tem Lang & Nash (2023) opozarjata, da se vodenje ne razvije samo od sebe. Če za vodstveno vlogo ni dovolj usposabljanja, predvsem pa podpore in priložnosti za razvoj, potem od vodij pričakujemo več, kot jim v resnici omogočamo. Zato je nujno vodenje razumeti kot stroko, ki se je je treba učiti in ga razvijati načrtno, tako z mentorstvom kot z izkušnjami. Tako se odpre še eno odločilno poglavje avtonomije, ki je brez resnega premisleka o vodenju ni mogoče zares nasloviti.

Če vodenje razumemo kot strokovno področje, ki se ga je treba učiti, ga načrtno razvijati in zanj ustvarjati ustrezne pogoje, potem avtonomije ne moremo obravnavati zgolj kot parole ali simbola prestiža, ampak kot enega od temeljnih pogojev za zrelo in učinkovito vodstveno delovanje. Meta-analitični pregled o podpori avtonomiji v delovnem okolju kaže, da takšen vodstveni pristop temelji na sposobnosti vodje, da razume perspektivo zaposlenih in jim omogoča dovolj prostora za sodelovanje, samoiniciativnost in odgovorno odločanje, pri tem pa komunicira informativno in ne nadzorovalno (Slemp et al., 2018). Tudi širša literatura s področja managementa opozarja, da zaznana avtonomija vodji omogoča, da lažje usklajuje različne smeri vodenja in svojo vlogo bolj smiselno povezuje z organizacijskimi cilji (Grøn et al., 2024). Za zdravstveno nego je to še posebej

občutljiv del vodenja, saj vodja pogosto nosi veliko odgovornost, nima pa vedno enakega vpliva na pogoje, v katerih naj bi jo uresničil. O vodenju v zdravstveni negi govorimo veliko. Predvsem o pomenu odnosov, klime, zadržanja in pridobivanja kadra, mentorstvu, komunikaciji in še bi lahko naštevali. Mnogo manj pa smo pripravljeni priznati, da je vodstvena praksa v zdravstveni negi še vedno prepogosto obravnavana kot podaljšek klinično strokovnega dela, ne pa kot samostojno strokovno področje, ki zahteva lastno znanje, ustrezno usposabljanje in predvsem čas.

Na področju vodenja ostajajo vrzeli v formalnem usposabljanju, pri tem pa primanjkuje razvojnih priložnosti in bolj sistematičnega grajenja vodstvenih kompetenc ter nasledstva (Lang & Nash, 2023). Hkrati pa se pričakovanja do vodij povečujejo, številni pa ob vse večjih kadrovskih in organizacijskih pritiskih, ki dodatno povečujejo njihovo obremenitev, v to vlogo vstopajo premalo pripravljeni (Losty et al., 2026). Tudi zato je vse večje spoznanje, da razvoj voditeljstva ni dovolj učinkovit, če ostaja ločen od dejanske delovne kulture in vsakodnevne prakse (Cable et al., 2024). Pri tem ima mednarodno sodelovanje pomembno razvojno vrednost, saj ne prinaša le primerjave med sistemi, ampak tudi širši pogled na vodenje, boljše razumevanje različnih strokovnih okolij in jasnejše zavedanje o tem, kaj je za prihodnost zdravstvene nege v resnici ključno (Gingerich et al., 2024). Mednarodna platforma tako postavlja bistveno strokovno vprašanje, kakšno zdravstveno nego želimo razvijati in kakšno upravljanje jo pri tem lahko podpre. Dolgoročni učinek pa ima predvsem tedaj, ko ne ostane le pri simbolni povezanosti, ampak prispeva k razvoju voditeljstva, dodatnega izobraževanja ter pogojev, v katerih lahko stroka svojo strokovno zavezo tudi dejansko uresničuje (Koto-Shimada et al., 2023).

V tem smislu je mednarodno sodelovanje eden od načinov, kako se vodenje v zdravstveni negi zares gradi. Vključevanje v vodstvene vloge strokovnih združenj razvija veščine, ki jih vodja prenaša tudi v svojo organizacijo in širše. Gre za razvojno naložbo v zrelost vodenja, v večjo strokovno širino in v sposobnost, da zdravstvena nega jasneje oblikuje svoje prihodnje usmeritve (Erstad et al., 2024). Zdi se, da danes ne gre več toliko za to, da bi nam manjkalo razumevanje o pomenu vodenja, ampak bolj za to, da mu v vsakdanjem delu še vedno ne uspemo dati dovolj strokovne teže. Ob številnih vsakodnevnih izzivih še vedno ostaja prepogosto potisnjeno v ozadje, čeprav bi moralo biti obravnavano kot eno od osrednjih področij razvoja zdravstvene nege. Prihodnost zato ne bo odvisna od večje glasnosti stroke, ampak od večje strokovne jasnosti in od pripravljenosti, da vodstveno funkcijo postavimo tja, kamor sodi. Prav zato je mogoče mednarodno sodelovanje razumeti kot enega ključnih prostorov, kjer se danes oblikujejo voditeljska zrelost in naše lastne usmeritve.

Conflict of interest

The author confirms that there are no conflict of interest./Avtor izjavlja, da ni nasprotja interestov.

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Original scientific article/Izvirni znanstveni članek

Nurses' knowledge and attitudes regarding nursing care for patients following open-heart surgery

Znanje in odnos medicinskih sester do zdravstvene nege pacientov po operaciji na odprtem srcu

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Key words: nurses'; knowledge; attitude; opem-heart surgery; postoperative care

Ključne besede: medicinske sestre; znanje; stališča; operacija na odprtem srcu; pooperativna oskrba

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ABSTRACT

Introduction: Open-heart surgery requires complex postoperative monitoring and prompt nursing interventions to prevent complications, reduce morbidity, and support recovery. However, in some settings, nurses' knowledge of evidence-based perioperative cardiac care may be insufficient. This study aims to assess nurses' knowledge and attitudes regarding postoperative open-heart surgery care and examine their associations with nurses' demographic characteristics.

Methods: A descriptive cross-sectional study was conducted among 50 intensive care unit nurses at AL-Nasiriyah Heart Centre in Iraq. Participants were recruited using purposive sampling. Data were collected from 25 June to 21 August 2023 using a self-administered questionnaire covering participants' demographic characteristics, knowledge, and attitudes regarding postoperative open-heart surgery nursing care. Content validity was assessed by seven experts. Internal consistency was satisfactory, with Cronbach's alpha coefficients of 0.78 for knowledge and 0.82 for attitude. Data were analysed using descriptive statistics and ordinal regression with SPSS version 23 and Excel 2010.

Results: The mean knowledge score was 3.01 ± 1.18, indicating generally poor knowledge, with 58.0% of nurses classified as having poor knowledge. The mean attitude score was 24.03 ± 16.62, indicating a moderate attitude. No statistically significant associations were found between nurses' demographic characteristics and knowledge or attitude scores.

Discussion and conclusion: Nurses demonstrated limited knowledge and a moderate attitude towards postoperative open-heart surgery nursing care. Ongoing education is recommended to improve evidence-based postoperative cardiac nursing care.

IZVLEČEK

Uvod: Operacija na odprtem srcu zahteva kompleksno pooperativno spremljanje in pravočasne zdravstveno-negovalne intervencije za preprečevanje zapletov, zmanjšanje obolevnosti ter podporo okrevanju. Vendar pa je v nekaterih okoljih znanje medicinskih sester o na dokazih temelječi perioperativni zdravstveni negi lahko nezadostno. Namen te raziskave je bil oceniti znanje in stališča medicinskih sester glede pooperativne zdravstvene nege po operaciji na odprtem srcu ter preučiti povezave med njimi in demografskimi značilnostmi medicinskih sester.

Metode: Izvedena je bila opisna presečna raziskava med 50 medicinskimi sestrami na oddelku intenzivne terapije v Kardiološkem centru AL-Nasiriyah v Iraku. Udeleženci so bili vključeni z namenskim vzorčenjem. Podatki so bili zbrani med 25. junijem in 21. avgustom 2023 s pomočjo vprašalnika, ki je zajemal demografske značilnosti udeležencev ter njihovo znanje in stališča glede zdravstvene nege po operaciji na odprtem srcu. Vsebinsko veljavnost je ocenilo sedem strokovnjakov. Notranja konsistentnost je bila zadovoljiva, saj je Cronbachov alfa koeficient znašal 0,78 za znanje in 0,82 za stališča. Podatki so bili analizirani z opisno statistiko in ordinalno regresijo z uporabo programov SPSS ver. 23 in Excel 2010.

Rezultati: Povprečna ocena znanja je znašala 3,01 ± 1,18, kar kaže na splošno slabo znanje; 58,0 % medicinskih sester je bilo razvrščenih v skupino s slabim znanjem. Povprečna ocena stališč je znašala 24,03 ± 16,62, kar kaže na zmerno izražena stališča. Statistično značilnih povezav med demografskimi značilnostmi medicinskih sester ter ocenami znanja ali stališč ni bilo ugotovljenih.

Diskusija in zaključek: Medicinske sestre so pokazale omejeno znanje in zmerno izražena stališča glede zdravstvene nege po operaciji na odprtem srcu. Za izboljšanje na dokazih temelječe pooperativne zdravstvene nege se priporoča stalno izobraževanje.

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Introduction

Coronary heart disease (CHD) is a common cardiovascular disorder characterised by the accumulation of atherosclerotic plaques within the arterial lumen. The resulting obstruction of blood flow leads to reduced oxygen supply to the myocardium. CHD is the primary aetiology of significant morbidity and mortality in the United States and worldwide (Shahjehan et al., 2024). It is estimated that by 2030, CHD will remain the most common cause of global mortality (Mousa & Mansour, 2020). Worldwide, about 63% of deaths resulting from chronic illness are related to cardiovascular disease (Rad et al., 2021). Cardiovascular disease can be treated surgically, pharmacologically, and through lifestyle changes such as not smoking, following a healthy diet, and engaging in regular exercise. Surgical treatment has increased in popularity despite being the most challenging treatment modality and showing a higher mortality rate in 2016, along with a greater prevalence of comorbidities (Lisboa Cordeiro et al., 2020).

One of the most important therapeutic strategies for cardiac disorders is open-heart surgery. Interventions such as heart transplantation, correction of congenital or acquired structural defects, myocardial revascularisation, and the use of implantable medical devices often require open-heart surgery. However, it is important to note that not every clinical scenario necessitates such surgical intervention; for example, certain valve repairs or replacements may now be performed using fewer invasive methods, including transcatheter procedures (Senst et al., 2022). Open-heart surgery involves opening the chest, and operating on the heart's muscles, valves, arteries, and other structures. This is a major procedure that requires hospitalisation, generally with a minimum postoperative hospital stay of one week (El-Gafour et al., 2021). Open-heart surgery includes cardiac valve procedures, aortic procedures, and coronary artery bypass graft (CABG) surgery (Abdel Sabour Gad et al., 2019). In high-income countries, an average overall cardiac surgical volume of 123.2 procedures per 100,000 individuals annually has been observed (36.7 CABG, 30.8 valvular surgeries, 7.9 congenital interventions). The unadjusted annual volume benchmarks per 100,000 individuals for low- and middle-income countries are as follows: 61.6 cardiac surgical procedures, 18.3 CABG, 15.4 valvular surgical interventions, and 4.0 congenital heart surgeries (Vervoort et al., 2024).

A nurse's role is to support continuity of care so that patients can focus on achieving better outcomes at lower cost, while maintaining patient safety and adhering to the highest standards of care (Ljungholm et al., 2022). Postoperative management of cardiac surgery patients can be challenging, as haemodynamic instability, arrhythmias, bleeding, infection, and respiratory dysfunction can develop or change rapidly (Battniji, 2019).

Postoperative nursing care following open-heart surgery requires continuous monitoring to prevent complications. This includes regular assessment of vital signs, particularly arterial blood pressure and peripheral pulses, continuous ECG monitoring, and evaluation of cardiac enzymes. Urine output, chest drainage, and body temperature must be closely monitored. Mechanical ventilation is maintained until independent breathing is achieved, and fluid and electrolyte balance is carefully managed. Pain control is essential during the first 24 to 72 hours, with monitoring for side effects. Daily weight and signs of haemorrhage are also important indicators during recovery (Dressler, 2022).

The primary purpose of this study was to address regional gaps in the scientific literature. According to Elateif (2017), nurses caring for cardiac patients require a solid theoretical foundation in the principles of cardiac patient care. This study is important both regionally and globally, as it addresses a significant gap in the literature on nurses' knowledge and attitudes towards postoperative care following open-heart surgery — an area critical to improving patient outcomes and enhancing the quality of cardiovascular care. Therefore, the main objective of this study was to evaluate nurses' knowledge and attitudes regarding postoperative open-heart surgery nursing care.

Aims and objectives

The purpose of the study was to evaluate nurses' knowledge and attitudes regarding patient care after open-heart surgery. Its specific aims were to: (1) assess the level of nurses' knowledge; (2) assess the level of nurses' attitudes; and (3) explore the relationship between knowledge and attitude scores and relevant demographic characteristics.

What are nurses' knowledge levels and attitudes regarding nursing care for patients following open-heart surgery, and how are these associated with their demographic characteristics?

Method

A quantitative descriptive cross-sectional design was used. The study was conducted at AL-Nasiriyah Heart Centre, Iraq, a specialised heart centre providing care for adult patients requiring cardiac surgery and intensive postoperative management. This design was selected as it enabled the description of nurses' attitudes and current levels of knowledge, and allowed examination of associations with demographic variables at a single point in time.

Description of the research instrument

Data were collected using a researcher-developed questionnaire, with items constructed on the basis

of a comprehensive review of clinical guidelines and the existing literature on post-cardiac surgery nursing care (e.g. Dressler, 2022). This self-administered questionnaire comprised two parts. The first part included demographic questions on age, gender, education level, years of nursing experience, and years of experience at the heart centre. The second part was divided into two domains. The knowledge domain consisted of 10 multiple-choice questions related to postoperative nursing care following open-heart surgery. Correct answers were assigned 1 point, and incorrect answers 0 points, yielding total scores ranging from 0 to 10. The authors classified scores of 1–3 as poor knowledge, 4–6 as moderate knowledge, and 7–10 as good knowledge. The attitude domain comprised 14 items covering key aspects of postoperative nursing care, such as electrocardiographic monitoring, airway maintenance, and other routine postoperative interventions. A three-point response format was used, and total attitude scores were classified as poor (1–14), moderate (15–28), or good (29–42). A panel of seven experts evaluated content validity. Reliability testing showed acceptable internal consistency, with Cronbach's alpha values of 0.78 for the knowledge domain and 0.82 for the attitude domain.

Description of the research sample

The target population consisted of nurses working in the AL-Nasiriyah Heart Centre intensive care unit. A non-probability purposive sampling method was used to select nurses directly involved in postoperative care following open-heart surgery. A total of 50 nurses participated in the study. Inclusion criteria were employment in the ICU, willingness to participate in the study, and possession of one of the following educational qualifications: nursing middle school, nursing institute, college of nursing, or postgraduate nursing education. Nurses working outside the ICU and those who declined to participate were excluded. All questionnaires distributed were returned and analysed, resulting in a 100% response rate.

Description of the research procedure and data analysis

Data collection was conducted from 25 June to 21 August 2023. Eligible nurses were informed of the purpose of the study and invited to participate voluntarily. After informed consent was obtained, the questionnaire was administered at the study site. Data were analysed using SPSS version 23 and Excel 2010. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarise the variables. Ordinal regression analysis was performed to examine the association between demographic characteristics and the knowledge and attitude outcomes. Statistical significance was set at $p < 0.05$.

Results

All 50 participants completed the questionnaire, resulting in a 100% response rate. The mean age of participants was 26.82 ± 3.02 years, with the majority (39 participants, 78.0%) aged 25–30 years. In terms of gender distribution, 39 participants (78.0%) were female and 11 (22.0%) were male. Educational levels varied, with 22 participants (44.0%) holding a degree from the College of Nursing. Most participants had 4–6

Table 1: *Nurses' demographic characteristics*

Variables	***Categories (n = 50)***	***n***	***%***
Age (year)	*< 25*	*7*	*14.0*
	25–30	*39*	*78.0*
	31–35	*2*	*4.0*
	> 35	*2*	*4.0*
	Mean ± SD	*26.82 ± 3.02*	
Gender	*Male*	*11*	*22.0*
	Female	*39*	*78.0*
Level of education	*Nursing middle school*	*5*	*10.0*
	Nursing institute	*18*	*36.0*
	College of nursing	*22*	*44.0*
	Postgraduate	*5*	*10.0*
Years of experience in nursing	*1–3 years*	*2*	*4.0*
	4–6 years	*26*	*52.0*
	7–10 years	*22*	*44.0*
Years of experience at the heart centre	*1–3 years*	*1*	*2.0*
	4–6 years	*32*	*64.0*
	7–10 years	*17*	*34.0*

Legend: n – sample size; % – percentage; SD – standard deviation

years of nursing experience (26 participants, 52.0%) and experience at the Heart Centre (32 participants, 64.0%). These characteristics are presented in Table 1.

The mean knowledge score was 3.01 ± 1.18, indicating a poor overall level of knowledge, and the attitude was moderate, with a mean score of 24.03 ± 16.62, as shown in Table 2.

All 50 respondents (100%) consistently placed the patient on the monitor, monitored vital signs, ensured cannula patency, administered prescribed medications, and used aseptic techniques when changing dressings. Additionally, 45 respondents (90%) monitored ECG for cardiac arrhythmias, and 46 respondents (92%) monitored arterial blood gases. A total of 31 respondents (62%) monitored heart enzymes, while 40 respondents (80%) monitored the colour of the lips, limbs, and nails for signs of bluishness. Mechanical ventilation was maintained by 44 respondents (88%) until the patient could breathe independently. Deep breathing and coughing exercises were encouraged by 31 respondents (62%), and fluid balance was maintained by all 50 respondents (100%). Pain levels were monitored by 22 respondents (44%), and signs of infection by 30 respondents (60%), as shown in Table 3.

Knowledge assessment revealed significant gaps: 29 respondents (58.0%) incorrectly answered how often blood pressure should be measured post-operatively, and 41 respondents (82.0%) did not know the correct frequency 24 hours after surgery. Only 8 respondents (16.0%) correctly identified the preferred peripheral artery for pulse measurement. A total of 41 respondents (82.0%) answered the urine output measurement frequency question incorrectly, and 36 respondents (72.0%) did not know the expected chest tube drainage amount. Notifying the doctor about weight increase was correctly answered by 11 respondents (22.0%). Overall, 24 respondents (48.0%) provided correct responses for temperature measurement, while only 8 respondents (16.0%) knew the proper head positioning post-surgery. ECG frequency was known by 12 respondents (24.0%), and 34 respondents (68.0%) correctly answered the frequency of monitoring body fluids, as shown in Table 4.

Ordinal regression analysis found no statistically significant associations between demographic variables and knowledge or attitude scores. For both outcomes, all reported p-values were greater than 0.05, as shown in Table 5.

Table 2: *Distribution of nurses' knowledge and attitudes regarding nursing care for patients after open-heart surgery*

Category	*Level*	*n*	*%*
Knowledge	*Poor*	*29*	*58.0*
	Moderate	*20*	*40.0*
	Good	*1*	*2.0*
	Mean ± SD	*3.01 ± 1.18*	

Legend: n – number; % – percentage; SD – standard deviation

Table 3: *Frequency and percentage of nurses' responses to attitude questions on postoperative nursing care*

Attitude questions	*Yes*		*No*		*No answer*	
	F	*%*	*F*	*%*	*F*	*%*
I place the patient on the monitor.	50	100.0	0	0.0	0	0.0
I monitor the patient's vital signs.	50	100.0	0	0.0	0	0.0
I ensure patency of the cannula.	50	100.0	0	0.0	0	0.0
I monitor the ECG to detect any cardiac arrhythmia.	45	90.0	2	4.0	3	6.0
I monitor heart enzyme levels.	31	62.0	16	32.0	3	6.0
I monitor the colour of the lips, limbs, and nails to ensure there is no bluish discolouration of the skin.	40	80.0	8	16.0	2	4.0
I maintain mechanical ventilation until the patient can breathe independently.	44	88.0	0	0.0	6	12.0
I monitor arterial blood gases.	46	92.0	4	8.0	0	0.0
I maintain the patient's airway health by teaching the patient deep-breathing and coughing exercises.	31	62.0	17	34.0	2	4.0
I maintain fluid balance by administering the prescribed fluids.	50	100.0	0	0.0	0	0.0
I administer the prescribed medications.	50	100.0	0	0.0	0	0.0
I monitor the patient's pain level.	22	44.0	26	52.0	2	4.0
I monitor for signs of infection.	30	60.0	18	36.0	2	4.0
I use aseptic technique when changing the dressing.	50	100.0	0	0.0	0	0.0

Legend: % – percentage; F – frequency

Table 4: *Frequency and percentage of correct and incorrect responses to knowledge questions on postoperative nursing care*

Knowledge questions	Incorrect answer		Correct answer	
	F	%	F	%
How often should blood pressure be measured after the patient leaves the operating room until their condition stabilises?	29	58.0	21	42.0
How often should blood pressure be measured 24 hours after surgery?	41	82.0	9	18.0
Which peripheral artery is preferred for measuring the pulse after surgery?	42	84.0	8	16.0
How often should urine output be measured?	41	82.0	9	18.0
What is the expected amount of chest tube drainage 4–6 hours after surgery?	36	72.0	14	28.0
At what weight increase within one week post-surgery should the doctor be notified?	39	78.0	11	22.0
How often should temperature be measured after surgery?	26	52.0	24	48.0
At what angle should the nurse position the patient's head four hours after surgery?	42	84.0	8	16.0
How often should an ECG be performed after surgery?	38	76.0	12	24.0
How often should the nurse monitor body fluids after surgery?	16	32.0	34	68.0

Legend: % – percentage; F – frequency

Table 5: *Ordinal regression of factors affecting nurses' knowledge and attitude scores regarding nursing care for patients after open-heart surgery*

Variables	Knowledge				Attitude			
			95% CI				95% CI	
	Estimate	p-value	LB	UB	Estimate	p-value	LB	UB
Age								
<25	–0.43	0.81	–3.39	3.07	–3.33	0.15	–7.90	1.24
25–30	–0.17	0.92	–3.54	3.20	–2.77	0.22	–7.21	1.67
31–35	–2.22	0.60	–4.22	3.63	–3.22	0.64	–6.34	1.39
>35	0[a]	–	–	–	0[a]	–	–	–
Gender								
Male	–1.16	0.13	–3.39	1.08	–0.71	0.50	–2.79	1.37
Female	0[a]	–	–	–	0[a]	–	–	–
Level of education								
Nursing middle school	1.01	0.46	–1.69	3.71	–0.20	0.91	–3.71	3.30
Nursing institute	0.45	0.72	–2.02	2.29	–1.90	0.24	–5.07	1.27
College of Nursing	–0.84	0.42	–2.88	1.12	–0.69	0.63	–3.45	2.08
Postgraduate	0[a]	–	–	–	0[a]	–	–	–
Years of experience in nursing								
1–3 years	0.76	0.42	–2.22	4.23	–0.18	0.93	–3.85	3.50
4–6 years	0.70	0.59	–1.83	3.23	0.77	0.52	–1.58	3.50
7–10	0[a]	–	–	–	0[a]	–	–	–
Years of experience at the heart centre								
1–3 years	2.24	0.43	–3.33	7.81	1.21	0.71	–5.05	7.45
4–6 years	0.05	0.97	–2.69	2.78	–1.57	0.24	–4.17	1.04
7–10 years	0[a]	–	–	–	0[a]	–	–	–

Legend: LB – lower bound; UP – upper bound. Significance was set at $p < 0.05$.

Discussion

This study aimed to assess nurses' knowledge and attitudes regarding nursing care after open-heart surgery and to examine the relationships between these variables and nurses' demographic characteristics. The results showed that approximately 58.0% of participants had poor knowledge of postoperative open-heart surgery, while 72.0% had a moderate attitude towards nursing care after open-heart surgery. This suggests that, although nurses are generally aware of the importance of postoperative care, they may need to strengthen areas where their confidence, motivation, or perceptions could be improved through further training or support.

In Iraq, nursing care for patients after open-heart surgery is included in the undergraduate curriculum. Despite this, the overall mean knowledge score of 3.01 ± 1.18 indicates a generally poor level of knowledge among nurses, although a subset of participants demonstrated moderate knowledge. The discrepancy between nurses' positive attitudes and their limited knowledge suggests that, while nurses are willing to provide quality care, they may not have retained critical knowledge from their training or may lack opportunities for ongoing professional development in postoperative open-heart surgery care.

This variability highlights the need for targeted educational interventions that specifically address identified knowledge deficits while reinforcing nurses' existing competencies. It may also indicate a gap between the theoretical content delivered in the undergraduate curriculum and nurses' current retained knowledge, suggesting that the information was either insufficiently emphasised during training or inadequately reinforced in clinical practice. This result is consistent with a study conducted in Egypt (Mohamed et al., 2020), which found that nurses had a positive attitude towards postoperative nursing care. In contrast, El-Gafour et al. (2021) found that nurses had an unsatisfactory level of knowledge regarding postoperative nursing care. Similarly, Elateif (2017) reported that nurses had a low level of knowledge before the training programme. The findings indicate a potential gap in nursing education or professional development in Iraq, particularly in postoperative care for critically ill patients. Efforts should be made to strengthen nursing curricula or provide ongoing training to ensure nurses are equipped with the necessary knowledge to match their positive attitudes.

Regarding demographic characteristics, the majority of participants (78.0%) were aged 25–30 years, consistent with Elateif's (2017) findings. Due to the demanding nature of the work, many health agencies prefer to employ younger nurses in critical care units. The majority of the participants were female and held a Bachelor's degree in nursing, consistent with Omran's (2020) study. Most participants had 4–6 years of experience both in nursing and at the Heart Centre, in contrast to an Egyptian study where the majority had less than 2 years of experience (51.9%) (Sharaf Eldeen et al., 2022).

The results indicate no significant relationship between nurses' age, gender, educational level, or years of experience and their knowledge and attitude scores. The lack of significant relationships between demographic factors and nurses' knowledge or attitudes may indicate that factors such as age and experience do not play a major role in determining competency in this area, suggesting that specialised training programmes may be necessary to enhance knowledge across all groups. These findings align with Elateif (2017), who reported no significant relationship between nurses' age and knowledge, but contrast with Sharaf Eldeen et al. (2022), who found significant associations between demographic characteristics and knowledge scores.

This study has several limitations. The small sample size limits the generalisability of the results. Additionally, the single-centre design limits the applicability of the findings to other settings or countries. The cross-sectional nature of the study prevents causal conclusions about the relationship between demographic factors and nurses' knowledge or attitudes. Furthermore, the use of a self-report questionnaire may introduce social desirability bias.

Despite these limitations, the findings suggest that healthcare institutions should implement structured, ongoing training programmes for ICU nurses to bridge the gap between theoretical knowledge and clinical practice in postoperative open-heart surgery care. Nurse educators should reassess how postoperative cardiac surgery content is delivered and reinforced within undergraduate nursing curricula. To fully understand the phenomenon under investigation, further research with larger, multi-centre, and multi-country samples is recommended.

Conclusion

This study revealed substantial knowledge gaps and moderate attitudes among ICU nurses regarding postoperative open-heart surgery nursing care. No statistically significant associations were found between nurses' knowledge scores and their sociodemographic characteristics. Undergraduate nursing curricula should emphasise care for patients undergoing open-heart surgery to improve nurses' knowledge and attitudes regarding their postoperative care. Continuing professional education is essential for maintaining and enhancing nurses' cardiac surgery care competencies throughout their careers.

Conflict of interest

None to declare.

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Ethical approval

The relevant institutional authorities, including the Thi-Qar Health Department and AL-Nasiriyah Heart Centre, granted permission to conduct the study. Participation was voluntary and anonymous. Participants were informed of their right to withdraw at any time without consequences. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Author contributions

Both authors contributed equally to the conception of the study, data collection and analysis, interpretation of the results, and preparation and revision of the manuscript.

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The role of nursing in maintaining adolescent mental well-being: A mixed-methods study

Vloga zdravstvene nege pri krepitvi duševnega blagostanja mladostnikov: raziskava mešanih metod

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Key words: mental wellness; primary school students; secondary school students; health care

Ključne besede: duševno dobro počutje; osnovnošolci; srednješolci; zdravstvena nega

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ABSTRACT

Introduction: Adolescents' mental well-being depends on the level of social support they receive from their family, peers, teachers, and healthcare professionals. Although nurses are often the first to recognise distress and provide support, their role in promoting adolescent mental health is often under-researched. This study examines the influence of social support on adolescent mental well-being, with particular emphasis on the role of nurses.

Methods: A mixed methods approach was used. The quantitative part of the research involved the KIDSCREEN-27 and WEMWBS questionnaires administered to a randomly selected sample of 2,972 adolescents from primary and secondary schools in Slovenia. The qualitative part of the research involved a focus group with adolescents.

Results: The findings indicate a significant positive correlation between adolescents' mental well-being and social support. Primary school adolescents identified parents as the most important individuals for their mental well-being, while secondary school adolescents placed greater importance on friends. Adolescents recognised nurses as trustworthy individuals who listen, offer advice, provide reassurance, and contribute to a sense of security and acceptance through their professional knowledge.

Discussion and conclusion: The results confirm that nursing is an important part of the social support network for adolescents. Nurses, through their educational, therapeutic, and supportive roles, significantly contribute to strengthening mental health. Involving nurses in preventive and supportive programmes for adolescents is essential to developing a holistic approach to mental health.

IZVLEČEK

Uvod: Duševno blagostanje mladostnikov je odvisno od ravni socialne podpore, ki jo prejemajo od družine, vrstnikov, učiteljev in zdravstvene nege. Vloga medicinskih sester pri krepitvi duševnega zdravja mladostnikov je pogosto premalo raziskana, čeprav so prav medicinske sestre pogosto prve, ki prepoznajo stisko in nudijo podporo. Ta raziskava preučuje vpliv socialne podpore na duševno blagostanje mladostnikov, s posebnim poudarkom na vlogi zdravstvene nege.

Metode: Uporabljen je bil način raziskav mešanih metod. Kvantitativni del raziskave je vključeval uporabo vprašalnikov KIDSCREEN-27 in WEMWBS na priložnostnem vzorcu 2.972-ih mladostnikov iz osnovnih in srednjih šol v Sloveniji. Kvalitativni del raziskave je vključeval dve fokusni skupini z mladostniki.

Rezultati: Ugotovitve kažejo na pomembno pozitivno korelacijo med duševnim blagostanjem mladostnikov in socialno podporo. Mladostniki v osnovnih šolah so kot najpomembnejše osebe za njihovo duševno blagostanje izpostavili starše, medtem ko so mladostniki v srednjih šolah večji pomen pripisali prijateljem. Medicinske sestre so mladostniki prepoznali kot zaupanja vredne osebe, ki jih poslušajo in pomirjajo, jim svetujejo in s strokovnim znanjem prispevajo k občutku varnosti ter sprejetosti.

Diskusija in zaključek: Rezultati potrjujejo, da je zdravstvena nega pomemben del člen v mreži socialne podpore mladostnikov. Medicinske sestre s svojo vzgojno, terapevtsko in podporno vlogo pomembno prispevajo h krepitvi duševnega zdravja. Vključevanje medicinskih sester v preventivne in podporne programe za mladostnike je ključno za razvoj celostnega pristopa k duševnemu zdravju.

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Introduction

Mental well-being, also referred to as psychological or emotional well-being, is defined as a dynamic process in which individual circumstances interact with psychological capabilities to meet psychological needs and generate positive emotions (MacKean, 2011). According to the US National Institute for Health (2019), mental health encompasses emotional, psychological, and social well-being. The Government Office for Science (2008, p. 10) describes mental well-being as "a state in which the individual can develop their potential, work productively and creatively, build strong and positive relationships with others, and contribute to their community."

Adolescents' mental well-being represents a growing global concern (World Health Organization [WHO], 2023). Adolescence is a critical developmental stage characterised by significant psychological, physical, and emotional changes (Loheide-Niesmann et al., 2021). Although these changes are a normal part of development, they can predispose adolescents to various mental health challenges. This critical developmental stage requires targeted efforts to strengthen mental resilience, given its lasting implications for adult life. A study by Mallya et al. (2023) found that approximately a quarter of adolescents in Karnataka, India, are affected by depression, anxiety, and stress, highlighting the significant burden of mental health issues in this age group. The rising prevalence of mental health disorders among adolescents presents substantial challenges for global education and healthcare systems. Consequently, providers are seeking effective methods to promote positive mental health (O'Reilly et al., 2019).

In a cohort study involving 1,174 adults aged 19 to 20 years conducted in Canada in 2020, those who perceived higher levels of social support reported fewer mental health problems. These results suggest that perceived social support may serve as a protective factor against mental health issues during the transition from adolescence to adulthood, even for individuals who experienced mental health problems during adolescence. Leveraging social support in prevention and treatment strategies may help mitigate mental health symptoms during this critical transition period (Scardera et al., 2020). As adolescents enter their teenage years, they become less dependent on their parents for support and increasingly seek support from their peers. Findings across different time frames and settings consistently underscore the beneficial impact of peer support for adolescents with mental health care needs (Roach, 2018). As the primary setting where young people spend most of their time outside the home, schools play a pivotal role in the provision of mental health support for adolescents (Ali et al., 2019). García-Carrión et al. (2019) suggested that schools and communities can implement strategies to promote supportive interactions among various stakeholders, including teachers, parents, community members, and other professionals. Another study conducted in 2018 among male adolescents in Australia indicates that sports could be a promising and engaging way to support mental health. Adolescents recognise the need for clubs, parents, and coaches to develop greater understanding of mental health and seek strategies for offering assistance (Swann et al., 2018).

The role of nursing in supporting adolescents' mental health has become increasingly important over the past decade, as nurses represent a key part of the system for early identification and management of mental health problems. A substantial body of international research confirms that nurses can make a significant contribution to maintaining adolescents' mental well-being by building trust, implementing preventive activities, providing health education, and collaborating with teachers and parents (Granrud et al., 2019; McAllister, 2019). In Slovenia, a significant step towards a systemic approach to strengthening adolescents' mental health was the establishment of the network of Health Education Centres (Zdravstvenovzgojni centri, ZVC). In 2002, a national network of ZVCs was formed, introducing organised prevention and health education within primary health care. Between 2013 and 2016, as part of the project "For Better Health and Reduced Health Inequalities – Together for Health," this network was upgraded and transformed into Health Promotion Centres (Centri za krepitev zdravja, CKZ), which operate in community and primary healthcare settings. CKZs also include mental health counselling units, where nurses and other professionals deliver health education and preventive activities aimed at various target groups, including adolescents. Additionally, the National Mental Health Programme 2018–2028 (Maučec Zakotnik & Drnovšek, 2021) and the MIRA Programme envisaged the establishment of 25 Centres for Adult Mental Health (CDZO) and 27 Centres for Child and Adolescent Mental Health (CDZOM). The establishment of these centres marks a significant advancement in community-based and outpatient care, as they operate on the principle of multidisciplinary collaboration, involving a range of professionals, including psychiatrists, clinical psychologists, social workers, occupational therapists, speech therapists, and nurses. The role of nurses within these centres is well recognised and includes health education, counselling, monitoring of adolescents and their families, as well as participation in planning and implementing interventions to improve mental health. Despite the existing network of supportive structures, there remains a lack of research in Slovenia systematically exploring how adolescents perceive the role of nursing in promoting mental well-being. This study is therefore crucial for developing evidence-based practices that would enable nursing to assume

a more visible and effective role in the mental health support system for adolescents.

Despite the high prevalence of mental health issues among adolescents, many fail to receive the necessary help due to stigma, lack of resources, and insufficient knowledge among healthcare providers about the specific needs of this age group. Although the role of nurses in promoting adolescent mental health is well researched internationally, there is no comparable empirical research in Slovenia. Existing professional and scientific literature only addresses adolescent mental disorders, adolescent mental health, and the role of nurses in health promotion as separate thematic areas. This indicates a clear research gap, which the present study seeks to fill.

Aims and objectives

This study examines the relationship between social support and adolescent mental well-being. It also aims to identify the role of nursing in supporting adolescent mental well-being.

Methods

The study was guided by the paradigm of pragmatism, which supports both quantitative and qualitative approaches and is commonly associated with mixed-methods research designs (Polit & Beck, 2017). The complexity of the research problem required the integration of both approaches to provide a comprehensive answer. This study employed a mixed-methods approach (Chiang-Hanisko et al., 2016). A sequential explanatory design was adopted, in which the initial quantitative research was followed by a qualitative phase to clarify the quantitative results (Newman & Ramilo, 2010).

Description of the research instrument

The questionnaire comprised four sections: social support (KIDSCREEN-27), mental well-being (WEMWBS), support from healthcare and nursing, and demographic data. Psychometric testing was conducted to establish the validity of the chosen questionnaires for the adolescent population.

a) KIDSCREEN-27

The KIDSCREEN-27 was developed between 2001 and 2004 and funded by the European Commission (Ravens-Sieberer et al., 2007). It comprises five sections: physical activity and health, general well-being and emotions, family and leisure, friends, and school and learning. Each item is rated on a five-point Likert scale ranging from 1 ("not at all") to 5 ("very much"). The questionnaire has been validated and used in various countries and settings (Andersen et al., 2015; Baydur et al., 2016; Farias Júnior et al., 2017; Vrkić, 2018). In Slovenia, the KIDSCREEN-27 has been validated among adolescents attending primary and secondary schools through a six-step analytical procedure (descriptive statistics, Mokken scale analysis, parametric item response theory, factor analysis, classical test theory, and total subscale scores) to assess the psychometric properties of the scale (Dima, 2018). The results showed good psychometric properties of the KIDSCREEN-27 questionnaire, with high internal consistency (Cronbach's $\alpha = 0.93$; Guttman's $\lambda 6 = 0.95$; McDonald's $\omega = 0.93$) and an appropriate factor structure (*CFI* = 0.847; *TLI* = 0.862; *RMSEA* = 0.072; $p < 0.001$), confirming that the questionnaire is suitable for use among Slovenian adolescents for collecting data on social support.

b) WEMWBS

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was developed in Scotland in 2006 and has been validated for adolescents in various countries (Clarke et al., 2011; Ringdal et al., 2018) and across different populations and settings (Bartram et al., 2011, 2013; Bass et al., 2016; Fung, 2019). The questionnaire comprises 14 items measuring positive mental health and well-being over the past two weeks, using a five-point Likert scale ranging from "none of the time" to "all of the time". Before employing the questionnaire, it was registered on the official website of the project. A translated version of the questionnaire (Cilar, 2017) was used, following the authors' translation guidelines. The total score is calculated as the sum of all responses (Wright & McKeown, 2018). The questionnaire was validated using Dima's (2018) six-step analysis. The Slovenian version of the WEMWBS questionnaire demonstrated good validity and reliability (Cronbach's $\alpha = 0.89$; $\lambda 6 = 0.89$; $\omega = 0.89$) and a good fit to the single-factor model (*CFI* = 0.907; *TLI* = 0.890; *RMSEA* = 0.086; $p < 0.001$), and we therefore recommend it for further use in research on the mental well-being of adolescents.

Description of the research sample and data collection

The main inclusion criterion for the quantitative part of the study was adolescents between 10 and 19 years of age (WHO, 2014). The population was selected through a systematic review, analysis, and synthesis of the literature. Random sampling was used to include all available adolescents from 22 primary schools (5% of all primary schools) and 12 secondary schools (5% of all secondary schools) in Slovenia. This method was chosen to represent adolescent characteristics within the broader adolescent population, ensuring each adolescent had an equal probability of being selected. Sampling was performed using a computer

programme. The sample size was calculated based on data from the Statistical Office of the Republic of Slovenia (2017), which indicated 176,898 enrolled primary school adolescents and 74,021 secondary school adolescents in the 2016/2017 school year. The final number of participants was determined by the total adolescent population, confidence level, and margin of error (Qualtrics, 2018), resulting in 384 adolescents. The sample size was increased to mitigate the risk of attrition and dropout. Students under 10 or over 19 years of age and those not in the education system were excluded. Survey questionnaires were distributed to 3,860 primary and 3,107 secondary school adolescents who consented to participate in the study (in their classrooms). The research involved primary (5th to 9th grade) and secondary school adolescents (1st to 4th grade).

For the qualitative part of the research, theoretical sampling was used to gain a comprehensive understanding of the studied concept. Theoretical sampling is typically used in the grounded theory method (GTM) to support theory development throughout the research process (Strauss & Corbin, 1998). Primary and secondary schools included in the quantitative part of the study were invited to participate in the qualitative part. Focus group interview samples with primary school and secondary school adolescents were chosen by school principals. The focus groups included 16 adolescents (eight from primary and eight from secondary schools) who consented to participate. Recruitment for the focus groups was based on theoretical sampling. The focus groups were conducted in educational institutions.

Description of research procedure and data analysis

The pilot phase of the study was conducted in the first half of 2019, followed by the main data collection in the second half of 2019. The qualitative phase, involving focus groups, took place at the beginning of 2020.

In the quantitative phase, the survey method was used to collect data, yielding insights into adolescents' mental well-being and their opinions on support from family, friends, teachers, and RNs. Data analysis included descriptive and inferential statistics (Polit & Beck, 2017). Only fully completed questionnaires were included in the quantitative analysis. Questionnaires with more than 50.0% missing data were excluded, while those with less than 50.0% missing values were imputed using the missForest function (Stekhoven, 2016). Psychometric testing of both scales was conducted to ensure the validity of the instruments measuring adolescents' mental well-being and social support, following the six-step protocol by Dima (2018). Test results are reported in accordance with established statistical reporting guidelines. The data were analysed using the R programming language and visualised using tables. Results interpretation was based on a statistical significance level set at $\alpha = 0.05$ (Žnidaršič, 2013). The open-ended question was analysed using Latent Dirichlet Allocation (LDA), a method used in topic modelling to cluster text documents (Pietsch & Lessmann, 2018). Sentiment analysis, defined as "the task of finding the opinions of authors about specific entities" (Feldman, 2013), was performed using the RQDA package (Huang, 2014).

Data collection involved focus groups with selected participants to gain deeper insights into adolescents' perceptions of mental well-being and social support. The GTM included semi-structured interviews with focus groups following the steps proposed by Corbin & Strauss (2008). These included line-by-line coding, open coding, axial coding, and theoretical coding to develop theoretical propositions and identify the central (core) category. The outcome was a comprehensive conceptual description (verification) (Corbin & Strauss, 2008). The qualitative data were analysed manually. The focus groups were moderated by the principal investigator, who attended all sessions. Each session was audio-recorded and concurrently documented in written notes. The recordings were then fully transcribed by the principal investigator. To ensure the credibility and reliability of the qualitative analysis, the transcripts were independently coded by two researchers, and any discrepancies were discussed until consensus was reached. This procedure enhanced the analytical rigour and trustworthiness of the qualitative findings.

Results

Quantitative research

The quantitative part of the research included 2,972 adolescents. Detailed demographic characteristics of the sample are presented in Table 1.

The results show that mental well-being varies according to the age of adolescents ($r(2965) = –0.239$, $p < 0.001$), with younger adolescents exhibiting better mental well-being than older ones. There are also gender differences ($t(2566.4) = –5.089$, $p < 0.001$), with boys ($M = 53.60$; $SD = 9.22$) achieving higher

Table 1: *Sample characteristics of the quantitative phase*

Variable	***PS (n = 1489) M (SD)***	***SS (n = 1483) M (SD)***
Age	12.2 (1.5)	16.4 (1.3)
Gender	n (%)	n (%)
Female	768 (51.6%)	911 (66.8%)
Male	721 (48.4%)	452 (33.2%)

Legend: M – mean value; n – number; SD – standard deviation; PS – primary school adolescents; SS – secondary school adolescents

levels of mental well-being than girls (M = 51.65; SD = 9.15). Moreover, mental well-being among adolescents varies by school year ($r(2965) = -0.277$, $p < 0.001$), which is consistent with the observation that mental well-being decreases with age. Adolescent mental well-being is positively correlated with social support (r = 0.624). The mean score for social support for primary school adolescents was 106.04 (SD = 18.07), while for secondary school adolescents, it was 96.34 (SD = 17.37). Adolescents' family support is positively correlated with their mental well-being ($r(2965)$ = 0.469, $p < 0.05$).

Open-ended question in the quantitative part of the research

Adolescents were asked to share their views on the role of nurses in supporting adolescents' mental well-being. In total, 1,467 adolescents (52.56%) responded to the open-ended question regarding the nurse's role in this context. A word cloud was created to analyse the data. Figure 1 highlights the most frequently used words identified in participant responses.

The responses were analysed using Latent Dirichlet Allocation (LDA) with Gibbs sampling. Following an initial review of the results, the number of topics (k) was determined based on the most common answers, specifically those with 100 or more occurrences. Topics are presented as codes and synthesised into subcategories and main categories (Table 2).

Table 2 presents the stemmed forms of words to facilitate the grouping of different variations of the same word. The most common words are divided into seven topics. Three categories and seven subcategories with associated codes were created.

Individual person-centred care

One category focuses on individual person-centred care. Adolescents describe nurses' roles as offering advice and understanding, as well as showing interest in them. Adolescents said the nurse's role is "to advise us as much as possible." They also stated: "She understands and respects their opinion and feelings," and: "You can ask her whatever you are interested in, and she will try to answer your question as much as possible. You should not be ashamed to ask what interests you." The next subcategory refers to an individual approach to caring for adolescents and patients. Adolescents pointed out that it is important for nurses to "talk to the person individually." They stated that the nurse "finds a disease, talks to a patient about mental health," and

Figure 1: *Nurses role in maintaining adolescents' mental well-being – word cloud*

Table 2: *Synthesis of data from the open-ended question on adolescents' perceptions of nurses' role in maintaining adolescents' mental well-being*

Categories	*Subcategories*	*Codes*					
Individual person-directed care	Individual approach to care for adolescents and patients	adolesc	advic	give	patient	talk	individu
	Person directed care	advis	person	direct	understand	live	interest
Educational role of a nurse	Nurses' professional knowledge	know	grow	doctor	encourag	assist	import
	The important role of a nurses	role	import	play	big	explain	physic
Therapeutic interpersonal relations	Problem-based communication	problem	Feel	people	convers	opinion	tri
	Educational and therapeutic role of a nurses	talk	nurs	life	explain	give	answer
	Nurses' relationship with adolescent in correlation with their mental well-being	mental	health	adolesc	trust	explain	inform

"takes care of patients of all ages and if she does a good job, the patient also feels well."

Educational role of nurses

These findings relate to the category of nurses' professional knowledge. Adolescents believe that a nurse "has the knowledge that can help an adolescent." One adolescent added: "Because she has more experience and knowledge, she can advise us wisely and help us in our decisions, as we young people often find ourselves in situations where we do not know how to go forward." They also stated that the nurse has an important role, as "we can rely on her professional opinion." They see the nurse as someone who assists patients, adolescents, and physicians. Another subcategory highlights the important role of nurses in supporting adolescents' mental well-being. Adolescents stated that "the nurse plays an important role as she affects the adolescent and can help them with problems." Another adolescent stated that "she has quite an important role as she can advise them" and that "the nurse has a big role to play." Adolescents also added: "She plays a big role because you cannot always talk to your parents about these things," and: "You can easily talk to your nurse about things that you cannot with your parents."

Therapeutic interpersonal relations

This category refers to the educational and therapeutic role of nurses. Nurses engage with adolescents through interpersonal relationships, providing useful information and explanations. Many adolescents emphasised that the nurse's role is to talk with them, and address their concerns: "To talk and take action as needed," "To talk to adolescents and try to help them if they have a problem," and "She is ready to talk to adolescents and explain to them why they feel as they do." Nurses also offer advice, as adolescents stated: "To make us aware of a good and healthy lifestyle," and "suggest a healthy life (sports activities…)." A good interpersonal relationship based on mutual trust is crucial as adolescents noted: "We can trust her; she answers so that she is good for us as she knows a lot about adolescent problems." The nurse has "a calming and therapeutic role." Problem-based communication between adolescents and nurses was identified as the fourth topic. It is important that adolescents can express their opinions or concerns and discuss them with a nurse, as they pointed out: "She can change our opinions, reflections and actions," and, "She can change our opinions and certain things and make it easier for us to grow up."

The final subcategory focuses on nurses' relationship with adolescents in relation to their mental well-being, which must be individual and based on trust. A nurse plays an important role in supporting adolescents' mental well-being, "as she is a person we can trust and know that she will not tell anyone, she will make things easier for us." An adolescent added: "I think that she should individually devote herself to the patient (individual), offer them at least five minutes more time, and listen to them. Of course, it is also important for the patient to believe that she is trying to foster a loving, trusting relationship. I think that there is too little talk about mental health, and many exclude people with mental illness from society, saying they are 'dangerous, weird'. Which is very wrong."

The responses to this open-ended question highlight the role of nurses in supporting adolescents' mental well-being. Adolescents believe that nurses have specialised expertise in mental health care. It is suggested that nurses should provide personalised, patient-centred care and take on an educational role. Furthermore, establishing therapeutic interpersonal relationships between nurses and adolescents is considered essential.

Qualitative part of the study

In the qualitative part of the study, interviews were conducted with five focus groups. The results of the qualitative data analysis are presented in Table 3.

Table 3: *Main category and subcategories from focus group interviews on the connection between mental well-being and social support*

Main Category	*Subcategories*	*Codes*
Adolescents' mental well-being in relation to interpersonal relations	Important people in interpersonal relationships of adolescents	Relationship with mother; family relationships; parents; family has an influence. Friends are more important; I have two friends.
	The foundation of good interpersonal relationships	Good communication; trust; openness; understanding; support; patience; awareness of difference; positive opinion; honesty; equality; respect.
	RNs play an important role	Help; care; reassure; understand, teach and advise; give hope; speak positively; she is a stranger.

Important people in adolescents' interpersonal relationships

In focus groups, both primary and secondary school adolescents were asked about important people in their lives regarding mental well-being. Primary school adolescents stated that the most important relationship is with family members, especially the mother. When asked about relationships with friends, they responded: "A little less." (PS2) When asked about teachers, they again agreed that family has the greatest effect on their mental well-being, "Most family relationships…" (PS1).

Primary school adolescents also added that friends are those they trust and talk about problems: "I usually talk to a friend first. And even if we all did poorly on the tests, we know that it will be easier for my mother to understand, but if I do poorly, she is a little angrier." (PS1). On the other hand, secondary school adolescents pointed out that family has an impact, but not as significant as friends: "But since family is only biologically connected, it's nothing, it's literally nothing, does not mean anything. I have a friend, two friends, that's how it is for me." (SS2) Regarding adolescents' mental well-being impacted by social support, SS6 stated that an adolescent must process problems with oneself first: "It's best to deal with yourself first. To be aware of yourself. No, basically by being aware of your acts. You have to process it yourself."

The foundation of good interpersonal relationships

When discussing good interpersonal relationships, secondary school adolescents stated that such relationship should be based on the following principles: good communication, trust, openness, understanding, support, patience, awareness of differences, positive opinion, honesty, equality, and respect.

When asked about their relationships with teachers, adolescents emphasised the importance of mutual respect: "They must have respect for each other" (PS1), and noted that it depends on the teacher's opinion: "It kind of depends on what they think of us." (PS4). As described, adolescents' mental well-being is closely related to their relationships with others.

Registered nurses play an important role

Both primary and secondary school adolescents were asked about the role of nurses. Adolescents stated that nurses talk with adolescents (all primary school adolescents), offer help (all primary school adolescents), provide care (PS4), comfort (PS5), understanding, information and advice (PS4), hope (PS7), and speak positively (PS5). They also emphasised that nurses have the necessary knowledge and that in certain situations it is easier to talk to a nurse than to a friend: "But sometimes it's also easier because she cannot criticise you, because she doesn't know you." (SS3).

Discussion

The findings of this study indicate that adolescents' mental well-being is significantly related to the support provided by their social environment. Adolescents who report greater perceived support tend to exhibit better mental well-being. In addition, adolescents recognised nurses as individuals who can significantly contribute to strengthening their mental well-being. They noted that nurses talk to them, understand them, reassure them, teach and advise them, and that their positive and encouraging approach gives them hope and a sense of security. Interestingly, some adolescents highlighted that in certain situations it is easier to talk to a nurse than to a friend or family member, which confirms the high level of trust and acceptance this professional group enjoys among adolescents. These results are consistent with numerous international studies confirming the importance of social support for adolescent mental health. For example, Alshammari et al. (2021) conducted a quantitative study among 1,200 high school students in Jordan, in which they found that higher levels of perceived social support significantly predicted better mental health and lower levels of depressive symptoms. The authors

emphasised that both family and peer support function as protective factors during adolescence. Similarly, a study by Acoba et al. (2024), conducted among 800 high school students in the Philippines, demonstrated that social support acts as an indirect factor between stress and mental health, with higher perceived support reducing the level of perceived stress, which in turn leads to lower anxiety and depression and more positive emotions. A broader perspective is provided by a systematic review by Cherewick et al. (2024), which analysed 43 studies on early adolescence in different countries (USA, Canada, Kenya, Norway). The authors found that social support significantly contributes to higher self-esteem, greater self-efficacy, and greater life satisfaction, indicating the universal role of supportive relationships in the mental well-being of adolescents, regardless of cultural context.

The role of health professionals, particularly nurses, within the social environment of adolescents is the subject of a growing body of research. Moen & Jacobsen (2022) conducted a qualitative study with 20 school nurses in Norway, finding that nurses work in three key areas: health promotion and prevention, facilitation of dialogue about emotions, and collaboration with other professionals (teachers, psychologists, social workers). The nurses highlighted that adolescents are often willing to disclose their problems to them, as they perceive them as neutral and trustworthy. However, the participants in the study also highlighted the lack of formal support and education in mental health, which limits their potential in the comprehensive treatment of adolescents.

A literature review on the role of school nurses (Jönsson et al., 2017) provides important findings, indicating that despite limited resources and time, their interventions positively affect the reduction of stress, depression, and anxiety symptoms in students. Similarly, Granrud et al. (2019), in the Norwegian context, state that public health nurses often work within demanding organisational frameworks dependent on principals and teachers, which can limit their ability to proactively work with adolescents who need mental health and well-being support. In addition to organisational constraints, numerous studies emphasise the importance of the emotional presence of nurses. Chukwuere (2023) investigated the concept of "presence practice" in adolescent mental health of in the Republic of South Africa. He found that simple presence and the message "I am here for you" significantly strengthen adolescents' sense of safety and trust, which in turn increases their willingness to talk and accept help. This finding is directly consistent with the results of our study, in which adolescents described nurses as individuals who give them hope, reassurance, and encouragement for positive thinking.

The need for greater involvement of nurses in the promotion of adolescent mental health is also highlighted by McAllister (2019), who emphasises that nurses are uniquely positioned to establish contact with adolescents due to their accessibility, empathy, and holistic approach. The author advocates the systemic inclusion of nurses in school and community mental health programmes, as they can significantly contribute to the early identification of mental health problems through preventive and counselling approaches.

All the aforementioned studies and our findings share the view that adolescent mental well-being results from the interwoven functioning of social relationships and professional support. In the future, it would be beneficial to enhance nurses' education in the field of adolescent mental health and well-being, provide appropriate institutional support, and develop programmes that systematically involve nurses in promoting mental well-being and the early recognition of mental distress in adolescents. Abroad, especially in Scandinavian countries, the United Kingdom, the United States, and Australia, nurses are already systematically included in the school environment as key members of multidisciplinary teams. Their role extends beyond basic health care to include counselling, recognition of signs of mental disorders, provision of support in crisis situations, health education, and participation in the development of programmes to strengthen mental health. In Slovenia, such practice has not yet been established to the same extent, as nurses are mostly present in the context of preventive examinations and health education. However, the results of our research clearly show that adolescents recognise nurses as an important source of emotional and professional support, which could form the basis for the development of a school health team model, in which the nurse would act as a liaison between the school system, the family, and health services. Such a model would enable better monitoring of adolescent mental health, facilitate earlier identification of problems, and provide comprehensive support tailored to the needs of individuals and the community.

We conducted a cross-sectional study, which limits the ability to establish causal relationships between the phenomena studied. Nevertheless, mixed-method studies are often cross-sectional by design, aiming to gain diverse perspectives on the researched phenomenon through various methodologies (Zheng, 2015). Furthermore, some schools and participants were initially unresponsive to the research invitation and required two follow-up contacts. Several participants withdrew from the study, necessitating the recruitment of new, randomly selected schools. An important limitation of the study is that the sample did not include adolescents who were excluded from the education system, as participants were recruited through schools. As a result, the study does not capture the experiences of adolescents who are not in school and who are often more vulnerable in terms of

mental health and access to healthcare support. Their exclusion may mean that the results do not reflect the full spectrum of needs of the adolescent population. The WEMWBS is a self-reported questionnaire assessing mental well-being over the past two weeks, while the KIDSCREEN-27 measures social support, which may result in socially desirable responses from participants. Another limitation of the study concerns the imputation of missing data using the missForest method, which is based on statistical prediction of missing values. Although it is one of the most reliable imputation methods, this approach can affect the accuracy of estimates and the variability of results, as it replaces missing data with a model estimate, rather than actual values. Therefore, the results should be interpreted with caution, taking into account the possibility of slight bias or reduced variability in the imputed data. It is also possible that the questionnaires did not fully capture the scope of the research problem. However, the inclusion of an open-ended question in the questionnaire likely enabled participants to express their perceptions more comprehensively. The qualitative component, using focus group interviews, provided additional depth to the understanding of the issue studied. Future research could investigate the reasons for the decline in adolescents' mental well-being with age and other associated factors.

These research limitations should be considered when interpreting the findings. Despite these limitations, the authors maintain that the findings offer reliable and valid insights, contributing to existing knowledge and understanding of adolescents' mental well-being.

Conclusion

From a nursing perspective, the results highlight the crucial role of nurses in supporting adolescent mental health. Nurses in primary care and community health settings can apply these findings into their practice by assessing social support levels, identifying signs of social isolation, and developing individualised care plans that promote connectedness and emotional safety. Preventive and educational interventions, such as family counselling, peer support groups, and workshops on mental well-being, are valuable strategies to enhance adolescents' sense of belonging and psychological resilience. In the educational context, teachers and school counsellors can use these insights to build a supportive school climate where adolescents feel accepted and understood. Implementing health promotion activities and educational programmes that strengthen empathy, communication skills, and mutual respect can improve mental well-being. From a policy and research perspective, this study provides evidence for the importance of integrating social support into national and local strategies for adolescent mental health.

Conflict of interest

The authors declare that no conflicts of interest exist.

Funding

The study received no funding.

Ethical approval

The study was conducted in accordance with the Helsinki-Tokyo Declaration (World Medical Association, 2013) and the Code of Ethics in Nursing in Slovenia (*Kodeks etike v zdravstveni negi Slovenije, 2024*). Before the start of the research (both quantitative and qualitative), ethical approval was obtained from the National Commission for Medical Ethics (No. 0120-313/2019/13). Consent from school principals was obtained for entry into the research environment. Participants invited to the study were informed verbally and in writing about the purpose of the research, confidentiality, anonymity, the voluntary nature of participation, and the possibility of withdrawing at any stage of the research. They were informed that the results would be used exclusively for research purposes. Consent to participate in the research was given by both adolescents and parents.

Author contributions

The authors collaborated in the conceptualisation of the research. The first and second authors were involved in data collection, analysis and interpretation. The third and fourth authors contributed to the methodological design of the study, statistical analysis and synthesis, revised the draft, and finalised the paper. All authors read and approved the final version of the paper.

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Review article/Pregledni znanstveni članek

The role of therapeutic massage in alleviating pain during the active phase of labour: An integrative review

Vloga terapevtske masaže pri lajšanju bolečine v aktivni fazi poroda: integrativni pregled literature

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Key words: pain management; childbirth; massage therapy; non-pharmacological method; labour pain

Ključne besede: obvladovanje bolečine; porod; masaža; porodna bolečina; nefarmakološka metoda

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ABSTRACT

Introduction: Labour pain can be managed using pharmacological and non-pharmacological methods. As non-pharmacological methods, such as massage, do not cause side effects, pregnant women are increasingly interested in giving birth without pharmacological interventions. The aim of this integrative literature review was to investigate the effectiveness of therapeutic massage on relieving labour pain during the active phase of labour.

Methods: An integrative literature review was conducted. The PubMed and ScienceDirect databases were searched in March 2023 using the following combination of Boolean operators and keywords: labour, labor, childbirth, pain, effects, massage, active, active stage, active phase. The results were critically evaluated using the MMAT tool.

Results: Eight randomised controlled studies were included in the review. Six studies identified a reduction in labour pain throughout the active phase of labour, and one study found a reduction in labour pain limited to specific phases of labour. Only one study found no effect of massage on labour pain.

Discussion and conclusion: Direct comparison of research results is limited by the diversity of massage techniques employed. Given the positive effects of massage on the course of labour, it would be beneficial to include it in clinical practice. Further research is needed to provide a more comprehensive assessment of the effects of massage on labour.

IZVLEČEK

Uvod: Porodna bolečina se obvladuje s farmakološkimi in nefarmakološkimi metodami. Nefarmakološke metode, kot je masaža, ne povzročajo stranskih učinkov, zato se je povečalo zanimanje porodnic za njihovo uporabo med porodom. Namen integrativnega pregleda literature je raziskati, ali je terapevtska masaža kot metoda lajšanja porodne bolečine v aktivni fazi poroda učinkovita.

Metode: Izveden je bil integrativni pregled literature. Raziskave smo marca 2023 iskali v bazah PubMed in ScienceDirect. Za iskanje smo uporabili kombinacijo Boolovih operatorjev in ključnih besed, in sicer *labour, labor, childbirth, pain, effects, massage, active, active stage, active phase*. Rezultate smo kritično ovrednotili z orodjem MMAT.

Rezultati: V pregled literature je vključenih osem randomiziranih kontroliranih raziskav. Šest raziskav ugotavlja zmanjšanje porodne bolečine v celotni aktivni fazi, ena pa zmanjšanje porodne bolečine le v enem delu aktivne faze. Le ena izmed raziskav ne ugotavlja vpliva masaže na porodno bolečino.

Diskusija in zaključek: Rezultate pregledanih raziskav je zaradi raznolikosti masažnih tehnik težko popolnoma primerjati. Glede na pozitivne učinke masaže na porodne izide bi bilo pomembno, da se jo vključuje v klinično prakso. V prihodnosti je treba izvesti več raziskav o vplivu masaže na porod.

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Introduction

Labour presents a profound psychological and physiological challenge for women, accompanied not only by joy and happiness, but also by fear, anxiety and pain. Labour pain is among the most severe forms of pain a person can experience in a lifetime. Each woman experiences labour pain differently and with varying intensity. The intensity of pain can be influenced by several factors, such as past experiences, cultural background, emotional state, stress management, and immune system functioning (Smith et al., 2018).

There are various methods of pain management, which can be divided into pharmacological and non-pharmacological approaches. Pharmacological methods include different forms of analgesia, such as inhalation analgesia, opioids, non-opioid medications, and epidural injections of anaesthetics or opioids. Non-pharmacological methods include hypnosis, aromatherapy, acupuncture, acupressure, reflexology, manual techniques, transcutaneous electrical nerve stimulation, massage, and other techniques (Jones et al., 2012).

Massage, which involves manual manipulation of soft tissues, is one of the oldest non-pharmacological methods for managing labour pain. During labour, massage reduces uterine cramps and promotes general relaxation (Karaduman & Akköz Çevik, 2020). It also calms the birthing woman, improves blood flow and tissue oxygenation, reduces anxiety, lowers cortisol, and increases serotonin and dopamine levels (Smith et al., 2018). Massage reduces pain on the basis of the gate control theory. During labour, the uterus contracts and sends pain signals through nerve fibres. However, massage activates other nerve fibres, which inhibit the transmission of these same pain signals. As a result, pain is relieved (Gönenç & Terzioğlu, 2020; Shahbazzadegan & Nikjou, 2022).

While pharmacological methods are effective in relieving labour pain, they can cause side effects in the parturient, such as prolongation of the second stage of labour, difficulty breathing, fever, vomiting, nausea, dizziness, and drowsiness. They may also cause side effects in the foetus. In contrast, non-pharmacological methods do not cause side effects (Hu et al., 2021). This has led to increasing interest among pregnant women in giving birth without pharmacological methods. Therefore, it is important to conduct a literature review to examine the effectiveness of massage as a non-pharmacological method for reducing labour pain.

Aims and objectives

The aim of this literature review was to investigate whether therapeutic massage is effective in relieving labour pain during the active phase of labour. Its objectives were to review the literature in this field and to determine the effectiveness of therapeutic massage for relieving labour pain in the active phase. The PICO (people, intervention, comparison, outcome) research question of the study was: Is therapeutic massage effective as a non-pharmacological method for relieving labour pain during the active phase of labour?

Methods

We conducted an integrative literature review – a research method that synthesises different perspectives to develop a more comprehensive understanding of a phenomenon. An integrative literature review is distinguished by its capacity to incorporate qualitative research, quantitative research, and theoretical literature (Kleiner et al., 2023).

Review methods

In our literature review, we followed the methodological framework of Lubbe et al. (2020). This methodological framework includes five steps: (1) research question, (2) literature search, (3) literature collection and critical appraisal, (4) literature analysis, and (5) presentation. We used the PubMed and ScienceDirect databases for our literature search. The databases were reviewed in March 2023. We used a combination of keywords that resulted in the following search string: ("labour" OR "labor" OR "childbirth") AND pain AND effects AND massage AND (active OR "active stage" OR "active phase"). The inclusion and exclusion criteria applied in the literature review are presented in Table 1.

Table 1: *Inclusion and exclusion criteria used in the literature search*

Inclusion criteria	***Exclusion criteria***
English-language literature	Non-English-language literature
Full text	Abstract only
Freely accessible	Not freely accessible
Published from 2012 onwards	Published before 2012
Relevant to the research question	Irrelevant title, abstract, or intervention
Randomised controlled trials	All other study types
Research conducted on humans	

Results of the review

Using the search string and a time filter, 31 records were retrieved from both databases. After removing duplicates, 28 records were identified. Titles and abstracts were screened for eligibility, and 11 records were excluded based on the inclusion and exclusion criteria. In the final step, the remaining 17 full texts were screened, at which point, nine additional records were excluded. Eight studies were therefore included in the detailed literature analysis. To ensure proper reporting, transparency, and reproducibility of the literature review, the search results are detailed using the PRISMA diagram (Figure 1) (Lubbe et al., 2020).

Quality assessment of sources and data processing description

Assessing the quality of sources is important as it enhances the credibility and rigour of the literature review (Kleiner et al., 2023). To evaluate the methodological quality of the sources, the Mixed

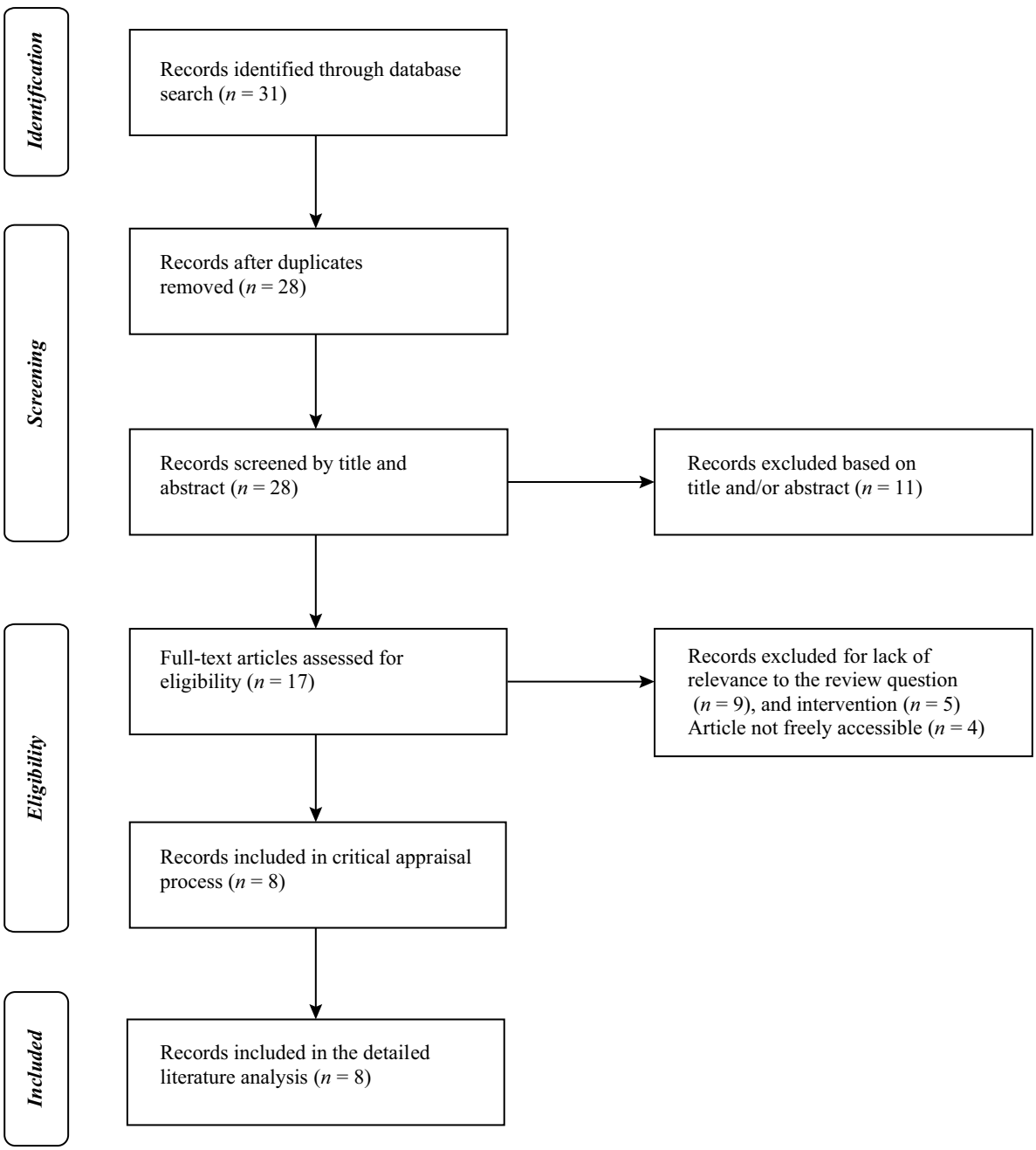

Figure 1: *PRISMA flow diagram (Lubbe et al., 2020)*

Methods Appraisal Tool (MMAT) was used, applying the five criteria listed under the randomised controlled trials category (Hong et al., 2018). The ratings are presented in Table 2. Data were processed by reading the included records in detail and systematically extracting and tabulating the main results and key data by author and year, study purpose, methods, sample, outcomes, and intervention, as shown in Table 2. The results of each study were synthesised, combined, and compared (Lubbe et al., 2020).

Results

We included eight randomised controlled trials in our literature review. The selected studies examined the effects of various types of massage on labour pain. The studies focused on Hoku point ice massage (Dehcheshmeh & Rafiei, 2015), massage (Mortazavi et al., 2012), Court-Type Thai traditional massage (Sananpanichkul et al., 2019), body massage (Gönenc & Terzioğlu, 2020), back massage (Pawale & Salunkhe, 2020), Swedish massage (Eskandari et al., 2022; Maghalian et al., 2022) and Lina Kimber massage protocols (Shahbazzadegan & Nikjou, 2022). Only one study included multiparous women (Sananpanichkul et al., 2019). The studies included pregnant women at a minimum of 37 weeks' gestation (Eskandari et al., 2022; Mortazavi et al., 2012; Sananpanichkul et al., 2019) and at a maximum of 42 weeks' gestation (Dehcheshmeh & Rafiei, 2015; Gönenç & Terzioğlu, 2020; Mortazavi et al., 2012). Other common inclusion criteria were normal pregnancy without medical complications, single-foetus pregnancy, normal foetal development, and initial cervical dilation. However, most studies excluded pregnant women with skin disease or lesions in the treatment area; chronic heart, kidney, or respiratory disease; mental health problems; sensitivity or allergy to the oil used; diabetes; hypertension; high-risk pregnancies; and multiple pregnancies. Dehcheshmeh & Rafiei (2015), Gönenc & Terzioğlu (2020), Maghalian et al. (2022) and Mortazavi et al. (2012) reported excluding participants who gave birth by caesarean section from the analysis. Other studies either included participants who underwent caesarean delivery in the analysis or did not report this information. Two studies excluded participants who required analgesia or other methods of pain relief and labour acceleration (Dehcheshmeh & Rafiei, 2015; Maghalian et al., 2022). Two studies also excluded participants who used pharmacological pain relief methods but allowed the use of oxytocin (Eskandari et al., 2022; Gönenç & Terzioğlu, 2020). Mortazavi et al. (2012) allowed the

Table 2: *Key information on the articles included*

Authors, year, country	*Research design*	*Sample*	*Aim*	*Quality evaluation*
Dehcheshmeh & Rafei, 2015, Iran	Randomised controlled trial	90 women, aged 17–30	To compare the effects of two non-pharmacological methods: music therapy and Hoku point ice massage on labour pain.	***
Eskandari et al., 2022, Iran	Randomised controlled trial	154 women, aged 18–35	To investigate the effects of Swedish massage with and without chamomile oil on labour outcomes.	***
Gönenç & Terzioğlu, 2020, Turkey	Randomised controlled trial	120 women, mean age 23.4	To compare the effects of massage and acupressure on labour pain, labour time, and labour satisfaction.	****
Maghalian et al., 2022, Iran	Randomised controlled trial	90 women, mean age 23.3	To compare the effects of Swedish massage and interferential electrical stimulation on labour pain, labour experience, labour satisfaction, duration of active phase, and side effects.	****
Mortazavi et al., 2012, Iran	Randomised controlled trial	120 women, aged 16–36	To investigate the effects of massage and the birth attendant on pain, anxiety, and labour satisfaction to clarify some aspects of alternative complementary strategy usage.	***
Pawale & Salunkhe, 2020, India	Randomised controlled trial	40 women, aged 18–29	To investigate the effect of back massage on labour pain in the first stage of labour in primiparous women.	****
Sananpanichkul et al., 2019, Thailand	Randomised controlled trial	59 women, most aged 20–34	To investigate the effect of Court-Type Thai traditional massage on the first and second stages of labour and pain in the first stage.	****
Shahbazzadegan & Nikjou, 2022, Iran	Randomised controlled trial	60 women, mean age 23.19±4.86 years in the control group and 24.63±4.08 years in the massage group	To investigate the appropriate cervical dilatation for massage to reduce labour pain and anxiety.	***

*Legend: * – criterion met (one * represents one criterion met; the maximum number of * is five)*

Table 3: *Intervention and results of selected studies*

Authors, year, country	*Intervention (massage-related)*	*Pain measurement tool*	*Findings (effect of massage on pain)*
Dehcheshmeh & Rafei, 2015, Iran	Ice massage at the Hoku point (20 min at cervical dilation of 4, 6 and 8 cm).	VAS	Massage reduces labour pain in the active phase.
Eskandari et al., 2022, Iran	Swedish massage in the active phase (performed every 20 min; each session lasted 10 min).	VAS	Massage reduces labour pain in the active phase. Massage with oil has a significantly greater positive effect on pain reduction than massage without oil.
Gönenç & Terzioğlu, 2020, Turkey	Body massage (30 min at cervical dilation of 3–4, 6–7 and 8–9 cm).	VAS	Massage reduces labour pain in the latent, active and transition phases.
Maghalian et al., 2022, Iran	Swedish massage on T10–L1 and S2–S4 (30–45 min at cervical dilation of 4 and 8–10 cm).	VAS	Massage reduces labour pain in the active phase of labour.
Mortazavi et al., 2012, Iran	Massage (30 min at cervical dilation of 3–4, 5–7 and 8–10 cm).	Self-reported present pain scale	Massage reduces labour pain in the latent, active and deceleration phases.
Pawale & Salunkhe, 2020, India	Back massage (13 massages in the latent phase and 7 massages in the active phase, each lasting 10 min).	VAS	Massage reduces labour pain.
Sananpanichkul et al., 2019, Thailand	Court-Type Thai traditional massage (1 hour in the active phase of labour)	VAS	Massage has no effect on reducing labour pain in the active phase of labour.
Shahbazzadegan & Nikjou, 2022, Iran	Massage according to the Linda Kimber protocol on the T10–S4 area (20 min at cervical dilation of 5, 7 and 9 cm).	Pain ruler	Massage reduces labour pain only at 7 cm of cervical dilatation.

Legend: VAS – visual analogue scale

use of oxytocin, but did not provide information on the use of analgesia. One study allowed the administration of a single dose of pethidine if pain was rated at eight or above on the Visual Analogue Scale (VAS), as well as the administration of oxytocin (Sananpanichkul et al., 2019). Two of the eight studies did not provide data on whether participants who used other methods to relieve labour pain or to augment labour were excluded (Pawale & Salunkhe, 2020; Shahbazzadegan & Nikjou, 2022).

In the study by Mortazavi et al. (2012), participants were divided into two experimental groups and a control group. All groups received conventional treatment during labour. Additionally, the first group received massage, including shoulder massage, back massage, abdominal effleurage, and sacral pressure. The parturients were allowed to choose the massage technique. The authors did not specify whether the massage was administered by a trained professional. In the second experimental group, the intervention consisted of the presence of a caregiver during labour. The findings indicated that, compared to the control group, massage reduced pain in all phases of labour and in the active (cervical dilation of 5–7 cm) and deceleration (cervical dilation of 8–10 cm) phases compared to the second experimental group. The results were statistically significant.

In the study by Dehcheshmeh & Rafiei (2015), participants were divided into two experimental groups and a control group. The first experimental group received music therapy for 30 minutes. The second experimental group received ice massage at the Hoku point. The massage was administered by a researcher with prior experience in this type of massage. After locating the Hoku points on both hands, the massage was performed in a position suitable for the parturient, using ice wrapped in a towel. The intensity of the massage was chosen by the parturient. The control group received conventional treatment during labour. Results showed a statistically significant reduction in labour pain in both experimental groups compared to the control group.

In the study by Sananpanichkul et al. (2019), participants were divided into an experimental and a control group. The experimental group received conventional treatment and Court-Type Thai traditional massage. Massage was administered by a licensed Thai traditional massage practitioner and performed with soft, gentle pressure along specific lines and points on the body, including the leg, back, shoulder, and arm lines. At each point, pressure was held and, after 10–15 seconds, shifted to the next point. The intensity of the massage was adjusted according to muscle resistance. The control group received conventional intrapartum care according to the institutional clinical practice guidelines; however, the authors did not specify which guidelines were followed. The researchers found that pain was not

statistically significantly reduced in the experimental group compared to the control group.

In the study by Gönenç & Terzioğlu (2020), participants were divided into three experimental groups and one control group. The first experimental group received massage of the head, neck, shoulders, arms, back, hands, legs, and feet. The authors did not specify whether the massage was administered by a trained professional. The second experimental group received acupressure using acupressure bands. The third experimental group received both interventions simultaneously, and the control group received conventional treatment during labour. The results showed that the first experimental group experienced a statistically significant reduction in pain compared to the control group in the latent, active, and transition phases. The second experimental group experienced a statistically significant reduction in pain compared to the control group in the active and transition phases.

In the study by Pawale & Salunkhe (2020), the experimental group received back massage using jasmine oil and grape seed oil. The back massage included effleurage and petrissage during the absence of contractions, and obstetrical back rub during contractions. Obstetrical back rub is a massage applied to the area of the back selected by the woman giving birth, using circular movements without lifting the hands from the skin. The researchers did not specify who administered the massage. The control group received only conventional treatment during labour. It was reported that massage had a statistically significant effect on reducing labour pain.

In the study by Eskandari et al. (2022), the first experimental group received Swedish massage with oil, while the second experimental group received Swedish massage without oil. In both groups, the massage was performed by a trained massage therapist. At cervical dilation of 5–8 cm, spinal effleurage and superficial back massage were performed. At cervical dilation of 8–10 cm, petrissage was applied to the lumbar area, back, both sides of the spine, and shoulders, using vibration and pressure on the sacrum. The control group received conventional treatment during labour. The study found that massage statistically significantly reduced pain in the active phase and second stage of labour compared with the control group. The results also showed that massage using chamomile oil had a greater positive effect on labour pain than massage without oil.

In the study by Maghalian et al. (2022), the first experimental group received interferential electrical stimulation during labour. The second experimental group received Swedish massage, including effleurage and petrissage using olive oil. Massage was administered by a researcher with prior massage training. The control group received routine treatment during labour. The results showed that pain was statistically significantly reduced in both experimental groups compared with the control group.

In the study by Shahbazzadegan & Nikjou (2022), the experimental group received massage according to Lind Kimber's protocol. The massage was applied to the T10–S4 area for 20 minutes at a time. The massage was performed without oil, in the position chosen by the mother. It is unclear from the description of the intervention whether the massage was performed by a trained professional. The control group received routine labour management. The results showed that pain was statistically significantly reduced in the experimental group compared to the control group only at cervical dilation of 7 cm.

Discussion

Our integrative literature review included eight randomised controlled trials that primarily examined the effects of massage on labour pain during the active phase of labour. The active phase of labour is defined as starting from cervical dilation of 5 cm (Eskandari et al., 2022). Six of the eight studies concluded that massage is effective for pain relief during the active phase of labour (Dehcheshmeh & Rafei, 2015; Eskandari et al., 2022; Gönenc & Terzioğlu, 2020; Maghalian et al., 2022; Mortazavi et al., 2012; Pawale & Salunkhe, 2020). Shahbazzadegan & Nikjou (2022) concluded that massage reduces pain only at cervical dilation of 7 cm, but not throughout the entire active phase of labour, as reported in other randomised controlled trials. The authors suggest this is due to the characteristics of labour pain, noting no pain reduction at cervical dilation of 5 cm, as this is the early part of labour when pain is milder. They also report no pain reduction at cervical dilation of 9 cm, as this is when pain is more intense during the gradual descent of the foetus. Only the study by Sananpanichkul et al. (2019) found no positive effects of massage on pain. This study was also the only one in which massage was performed as a single, full-hour session, whereas in other studies massage was performed for shorter durations and at multiple intervals. Based on the results of our integrative literature review, we can confirm that massage is effective for pain relief during the active phase of labour. Similar conclusions were reached in a systematic review by Choudhary et al. (2021), which examined the effects of back massage on labour pain. Following a database search that yielded ten articles for inclusion in their literature review, the authors concluded that a reduction in labour pain was reported in nine of the ten articles. A review by Smith et al. (2018) also found significant pain reduction as a result of applying massage during the first stage of labour. However, they note that the evidence was of low quality. On the other hand, the studies included in this review examined different types of massage, making it difficult to directly compare their effects on labour pain, as protocols differed even in factors such as duration and applied pressure. The massage techniques may also have differed in terms of whether the person being

massaged was clothed during the massage (Field, 2016). It is therefore more difficult to confirm with certainty that all types of massage therapy reduce labour pain, or to determine which massage technique is best for reducing labour pain. Nevertheless, the systematic review and meta-analysis by Ranjbaran et al. (2017) compared ten studies that examined the effects of different types of massage, such as effleurage, stroking, superficial stroking, vibration, and ice massage on the Hoku point. They reached a similar conclusion, as their results showed that massage reduces labour pain overall and in the latent, active, and transition phases of labour. One of the selected studies also found that the massage oil used during the massage can have an impact on labour pain (Eskandari et al., 2022). A similar randomised controlled trial examining the difference in labour pain between massage using ginger oil, massage without ginger oil, and a control group also found that massage using ginger oil demonstrated greater positive effects (Azizi et al., 2019). This is due to the calming, relaxing, and analgesic effects of plant oils, which are absorbed through the skin during massage and can relieve pain (Rafii et al., 2020). In particular, massage of the lower back using jasmine, sage, rose, or lavender oil has been found to reduce labour pain (Pawale & Salunkhe, 2020).

This literature review has several limitations, including the above-mentioned difficulty in comparing different types of massage therapy, and the fact that the studies included were mostly conducted in the same country. Additionally, only one study examined the effects of massage on labour pain in multiparous women.

Conclusion

Our integrative literature review demonstrates that massage is effective in relieving labour pain during the active phase of labour. We recommend incorporating massage into clinical practice during labour, at least as a supportive therapy, as it is a non-invasive, affordable, and easily adaptable technique. Further research through randomised controlled studies should be conducted on a more heterogeneous sample of multiparous women and women from different cultural and social backgrounds, as this would facilitate the generalisation of research findings to the wider population. Additionally, it would be beneficial to conduct more literature reviews comparing different massage techniques.

Conflict of interest

The authors confirm that there are no known conflicts of interest associated with this publication.

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Ethical approval

Due to the chosen typology of the article, the research did not require special permission by the Ethics Committee.

Author contributions

Both authors contributed to the conception and design of the paper. The first author conducted the search, analysis, and interpretation of data, drafted and critically reviewed the manuscript, and approved its final version. The second author provided content guidance, critically reviewed the work, and approved the final version.

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Pregledni znanstveni članek/Review article

Izzivi pri opravljanju dolgotrajne oskrbe starejših oseb: vidik izvajalcev formalne in neformalne oskrbe: sistematični pregled literature

Challenges in providing long-term care for older people: The perspective of formal and informal care providers: A systematic review

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Ključne besede: staranje; oskrbovalci; dolgotrajna oskrba; zagotavljanje zdravstvene oskrbe; krhkost

Key words: aging; caregivers; long-term care; delivery of health care; frailty

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IZVLEČEK

Uvod: Staranje prebivalstva in krhkost povečujeta potrebo po dolgotrajni oskrbi ter obremenjujeta zdravstvene in socialne sisteme. Namen pregleda je opredeliti izzive dolgotrajne oskrbe starejših oseb z vidika izvajalcev formalne (zdravstveno osebje) in neformalne oskrbe.

Metode: Izveden je bil sistematični pregled po priporočilih PRISMA. Iskanje je potekalo v bazah CINAHL Ultimate, MEDLINE, SAGE in Web of Science od začetka indeksiranja do marca 2025, brez omejitve leta objave; vključeni so bili izvirni članki v angleščini. Kakovost je bila ocenjena z orodjem JBI, raven dokazov pa razvrščena po Politu in Becku. Podatki so bili analizirani z narativno sintezo po Popayu et al. (kodiranje ugotovitev, tematsko združevanje, primerjava med raziskavami).

Rezultati: Identificirana sta bila 1802 zadetka; po odstranitvi 133 duplikatov je bilo pregledanih 1669 naslovov oziroma povzetkov in 43 celotnih besedil. Vključenih je bilo šest raziskav (pet kvalitativnih – raven 7; ena kvantitativna – raven 4). Ključne teme: nejasne oziroma nasprotujoče si smernice, vrzeli v koordinaciji in prehodih oskrbe, komunikacijske pomanjkljivosti ter visoka čustvena obremenitev neformalnih oskrbovalcev.

Diskusija in zaključek: Potrebni so integrirani modeli oskrbe, izvedljive smernice ter strukturirana podpora neformalnim oskrbovalcem, posebej v prehodu iz bolnišnice na dom.

ABSTRACT

Introduction: An ageing population and increasing frailty are heightening the demand for long-term care, placing additional pressure on health and social systems. The aim of this review was to identify the challenges of long-term care for older people from the perspectives of both formal (healthcare professionals) and informal care providers.

Methods: We conducted a systematic review following the PRISMA guidelines. The literature search was carried out in the CINAHL Ultimate, MEDLINE, SAGE, and Web of Science databases from their inception to March 2025; only original articles in English were included. Quality was assessed using the JBI tool and classified by level of evidence according to Polit and Beck. Data analysis was conducted using narrative synthesis following Popay et al., encompassing the coding of findings, thematic grouping, and comparison between studies.

Results: The search identified 1,802 records; after removing 133 duplicates, 1,669 titles and abstracts and 43 full texts were screened. Six studies were included in the systematic review: five qualitative (level 7), and one quantitative (level 4). The analysis revealed the following key themes: unclear or conflicting guidelines, gaps in coordination and care transitions, communication deficiencies, and a high emotional burden on informal caregivers.

Discussion and conclusion: The findings highlight the need for integrated care models, practical guidelines, and structured support for informal caregivers, particularly during the transition from hospital to home.

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Uvod

Staranje prebivalstva je globalni pojav, za katerega je značilno naraščajoče razmerje starejših oseb (65 let in več) v primerjavi z drugimi starostnimi skupinami. Po podatkih Svetovne zdravstvene organizacije (World Health Organization [WHO], 2022) naj bi do leta 2050 starejši od 65 let predstavljali približno 16 % svetovnega prebivalstva, kar pomeni skoraj 1,5 milijarde ljudi. Ta globalni pojav predstavlja pomemben izziv za zdravstvene in socialne sisteme, saj starajoča se populacija pogosteje živi z različnimi kroničnimi boleznimi, starostnimi spremembami in/ali invalidnostjo, kar pogosto vodi v potrebo po dolgotrajni oskrbi.

Zaradi povečanega povpraševanja po dolgotrajni oskrbi naraščajo tudi finančni in organizacijski pritiski na zdravstvene in socialne sisteme (Allen et al., 2022; Assander et al., 2022). Sočasno se povečujejo pričakovanja glede dostopnosti in kakovosti storitev dolgotrajne oskrbe (Allen et al., 2022). Eden izmed ključnih zdravstvenih problemov, povezanih s staranjem, je sindrom krhkosti, ki je povezan z večjo obolevnostjo, hospitalizacijami, institucionalizacijo, smrtnostjo ter s povečanimi stroški zdravstvenega varstva (Assander et al., 2022; Barbosa et al., 2020; Spasova et al., 2018).

Zaradi povečanega pojava sindroma krhkosti med starejšimi osebami se številne razvite države spopadajo z nujo po reformi sistemov dolgotrajne oskrbe. Te reforme vključujejo spremembe meril upravičenosti, modelov financiranja in organizacije storitev, kar vpliva na obseg in delovanje obstoječih sistemov (Spasova et al., 2018; Ofori-Asenso et al., 2019). Posledično se povečuje potreba po celovitih, na osebo osredotočenih pristopih, ki učinkovito naslavljajo kompleksne potrebe starejših oseb. Dolgotrajna oskrba obsega storitve, namenjene ohranjanju zdravja, dobrega počutja in zaščite posameznika ter vključuje tako formalne kot neformalne oblike dolgotrajne oskrbe (Ahlin et al., 2014; Anderson et al., 2019; Ofori-Asenso et al., 2019). Neformalna oskrba predstavlja pomemben steber dolgotrajne oskrbe v številnih evropskih državah kot tudi po svetu. Po dostopnih podatkih Organizacija za gospodarsko sodelovanje in razvoj (OGSR) (Rocard & Llena-Nozal, 2022) v povprečju 13 % prebivalstva, starejšega od petdeset let, zagotavlja neformalno oskrbo vsaj enkrat tedensko. Delež se med državami razlikuje: v Avstriji in Belgiji presega 20 %, v Latviji znaša približno 6 %, na Slovaškem pa 3 %. Ramovš (2019) navaja, da v Sloveniji družinski in drugi izvajalci neformalne oskrbe nudijo oskrbo kar 75 % oseb, ki zaradi starostne onemoglosti, kroničnih bolezni ali invalidnosti potrebujejo oskrbo, ki je po vsebini primerljiva z vidiki dolgotrajne oskrbe. To predstavlja približno 3 % celotnega prebivalstva, medtem ko zdravstveno osebje v strokovnih programih zdravstvenega in socialnega varstva pokriva preostalih 25 %, kar ustreza približno 1 % prebivalstva (Ramovš, 2019). Navedene razlike med zgoraj omenjenimi državami in znotraj posameznih sistemov odražajo vpliv kulturnih norm, dostopnosti formalnih storitev ter politik podpore izvajalcem neformalne oskrbe (Verbakel, 2018).

Neformalna oskrba je pogosto neplačana, poteka pretežno na domu in jo izvajajo osebe, ki imajo z oskrbovancem praviloma že obstoječ socialni odnos – najpogosteje gre za partnerje, otroke, druge sorodnike, prijatelje ali sosede (Ahlin et al., 2014; Anderson et al., 2019; Assander et al., 2022). OECD (Rocard & Llena-Nozal, 2022) opredeljuje izvajalce neformalne oskrbe kot tiste, ki vsaj eno uro tedensko nudijo pomoč pri temeljnih dnevnih opravilih, medtem ko širša opredelitev vključuje tudi podporna dnevna opravila, ki jih posameznik opravlja vsakodnevno za zagotavljanje osnovnega funkcioniranja.

Hlebec et al. (2014) ugotavljajo, da družinski člani, še posebej otroci in partnerji, opravljajo večino podpornih nalog, pogosto tudi v večjem obsegu kot izvajalci formalne oskrbe, predvsem zdravstveno osebje in drugi strokovni delavci, ki so neposredno vključeni v izvajanje dolgotrajne oskrbe starejših oseb (npr. medicinske sestre, tehniki zdravstvene nege, socialni delavci in drugi strokovnjaki, ki so del multidisciplinarnih timov). Hvalič Touzery (2007) je ugotovila, da največ neformalne oskrbe nudijo hčere, sledijo partnerji in snahe. Podobne trende potrjuje tudi projekt Mapping professional home care (EURHOMAP) v Evropi, pri čemer so Genet et al. (2012) ocenili, da izvajalci neformalne oskrbe v večini držav opravijo približno 60 % vse oskrbe. Treba je poudariti, da v času nastajanja raziskave formalni sistemi dolgotrajne oskrbe v nekaterih državah še niso bili vzpostavljeni. Podatki zato odražajo predvsem razmerje med formalnimi in neformalnimi oblikami oskrbe na domu, ki jih literatura pogosto obravnava kot del dolgotrajne oskrbe, čeprav formalni okviri dolgotrajne oskrbe takrat še niso obstajali. Po podatkih poročila European Commission & Social Protection Committee (2014) je bilo izvajalcev neformalne oskrbe približno dvakrat več kot zdravstvenega osebja, kar kaže na njihovo ključno vlogo pri zagotavljanju dolgotrajne oskrbe starejših oseb.

Na življenja izvajalcev neformalne oskrbe pomembno vpliva dolgotrajna oskrba starejše osebe, saj izvajalci neformalne oskrbe pogosto doživljajo fizične in psihične obremenitve, socialno izolacijo ter omejitve v poklicnem življenju (Anderson et al., 2019; Ofori-Asenso et al., 2019; Spasova et al., 2018). Prehod iz vloge partnerja, otroka ali sorojenca v vlogo oskrbovalca lahko privede do nižje kakovosti življenja, depresije, izgorelosti in bolezni, zlasti ob pomanjkanju ustrezne podpore (Ofori-Asenso et al., 2019; Spasova et al., 2018).

Dolgotrajna oskrba, ki upošteva biološke, psihološke in socialne vidike staranja, je ključna za preprečevanje funkcionalnega upada, invalidnosti in neželenih

zdravstvenih dogodkov med hospitalizacijo in po njej (Allen et al., 2022; Assander et al., 2022; Bindels et al., 2014; Boman et al., 2019). Za učinkovito zagotavljanje kakovostne obravnave morajo biti strokovni delavci v zdravstvenem sistemu ustrezno usposobljeni za izvajanje promocije zdravja, preprečevanja bolezni, okrevanja in rehabilitacije (Allen et al., 2022; Assander et al., 2022). Sistem dolgotrajne oskrbe, kot ga določa ZDOsk-1 (Zakon o dolgotrajni oskrbi), vključuje širši nabor storitev – poleg zdravstvene oskrbe tudi pomoč pri osnovnih in podpornih dnevnih opravilih ter različne socialne storitve. Na osebo osredotočen pristop se je v obeh sistemih izkazal kot ključni element, saj prispeva k boljšim zdravstvenim izidom in večjemu zadovoljstvu tako starejših oseb kot izvajalcev dolgotrajne oskrbe (Allen et al., 2022; Bindels et al., 2014; Boman et al., 2019).

Namen in cilji

Namen pregleda je opredeliti izzive dolgotrajne oskrbe starejših oseb z vidika izvajalcev formalne (zdravstveno osebje) in neformalne oskrbe.

Metode

Metode pregleda

Izveden je bil sistematični pregled literature, ki obsega metodo analize, kompilacije, komparacije in sinteze. Pri pregledu literature smo strogo sledili smernicam The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021).

Za izvedbo pregleda literature smo oblikovali sistematično iskalno strategijo, ki je vključevala ključne besede v angleškem jeziku: »older people«, »care«, »challenges«, »providing«, »nurse« in »informal carers«, skupaj z njihovimi sopomenkami in Boolovimi operatorji (AND/OR). Končni iskalni niz je bil naslednji: (»older adult« OR »older people« OR »elderly« OR »geriatric« OR »older person« OR »aged«) AND (»care« OR »treatment«) AND (»challenges« OR »difficulties« OR »issues«) AND (»providing« OR »deliver« OR »provision«) AND (»nurse« OR »healthcare« OR »informal carers« OR »caregiver«).

Iskali smo zadetke v mednarodnih podatkovnih bazah CINAHL Ultimate, Medline, SAGE in Web of Science. Pri tem smo upoštevali določene iskalne omejitve; vključili smo objavljene raziskovalne članke v angleškem jeziku brez časovne omejitve, ki so se nanašali na raziskovalno tematiko. Kriteriji za vključitev v pregled literature so bili: (1) vključitev zdravstvenega osebja in/ali oskrbovalca, (2) ki nudi dolgotrajno oskrbo (3) starejšim osebam. Dodatno smo vključili članke, ki so obravnavali izzive pri nudenju dolgotrajne oskrbe. Uporabljena je bila kvantitativna, kvalitativna ali mešana metodologija raziskovanja. Izključitveni kriteriji so bili usklajeni s kriteriji za vključitev.

Ocena kakovosti pregleda

Posamezne raziskave smo razvrstili po hierarhiji dokazov po Polit & Beck (2021), ki obsega osem ravni. Prvo raven predstavljajo sistematični pregledi in metaanalize randomiziranih raziskav, sledijo posamezne randomizirane in nerandomizirane raziskave, opazovalne raziskave, kvalitativne raziskave ter na osmi, najnižji ravni strokovna mnenja. Višja raven pomeni večjo raziskovalno relevantnost.

Za presojo metodološke kakovosti izbranih raziskav je bilo uporabljeno standardizirano orodje za kritično ocenjevanje, ki ga je razvil Joanna Briggs Institute (JBI). Ocenjevanje je bilo izvedeno v skladu z vrsto raziskave: za kvalitativne raziskave (Lockwood et al., 2015) je bilo uporabljenih deset ocenjevalnih vprašanj, za presečne deskriptivne raziskave (Moola et al., 2020) pa osem. Vsako raziskavo smo ocenili z uporabo treh možnih odgovorov: »da«, »ne« in »nejasno«. Ocenjevalna vprašanja so zajemala ključne elemente raziskovalnega procesa, kot so jasnost raziskovalne zasnove, skladnost med metodologijo in postopki zbiranja podatkov, obvladovanje motečih dejavnikov, ustrezna predstavitev udeležencev ter etični vidiki raziskave. Po zaključenem ocenjevanju smo za vsako raziskavo izračunali vsoto in odstotek vseh doseženih točk. Na podlagi priporočil avtorjev Camp & Legge (2018) smo raziskave razvrstili v štiri kakovostne kategorije: nizka kakovost (60–69 %), srednja kakovost (70–79 %), visoka kakovost (80–90 %) in odlična kakovost (več kot 90 %). Postopek ocene kakovosti sta neodvisno izvedla dva avtorja. V primeru neskladij ali nejasnosti je bil vključen tretji avtor, ki je pripomogel k razrešitvi nesoglasij in vzpostavitvi soglasja. Podrobni rezultati ocenjevanja so predstavljeni v Tabeli 1.

Opis obdelave podatkov

V tabeli 2 so predstavljene vse raziskave, ki so bile vključene v končno analizo, informacije o avtorjih, raziskovalnem pristopu, namenu in ciljih, vzorcu ter ključnih rezultatih. Pri pridobivanju in sintezi podatkov smo dosledno sledili smernicam za izvajanje narativne sinteze avtorjev Popay et al. (2005). Ta pristop je omogočil celovito razumevanje in interpretacijo ključnih vidikov, predstavljenih v raziskavah, ter identifikacijo vzorcev in povezav med njimi.

Rezultati pregleda

Iz celotnega nabora zadetkov (n = 1802) smo z uporabo programa za citiranje in upravljanje z referencami EndNote 20 identificirali in odstranili podvojene zapise (n = 133). Po tem koraku smo

preostanek zadetkov (n = 1669) uvozili v datoteko Excel 2016, pri čemer sta dva avtorja neodvisno pregledala naslove in povzetke. Izločila sta tiste zadetke, ki niso ustrezali vključitvenim kriterijem (n = 1626).

Na podlagi vključitvenih in izključitvenih kriterijev sta avtorja nato pregledala polno besedilo člankov glede na njihovo primernost (n = 43). Med tem postopkom sta izključila 37 člankov, ki niso ustrezali vključitvenim kriterijem. Po konzultacijah z ostalimi avtorji smo v končno analizo in sintezo vključili šest člankov, od katerih je bilo pet kvalitativne narave (Ahlin et al., 2014, Akgun-Citak et al., 2020, Allen et al., 2022, Gregory et al., 2018, Siegel et al., 2014) in eden kvantitativne narave (Norman et al., 2018). Potek pregleda literature smo podrobno predstavili v diagramu PRISMA (Page et al., 2021) (glej sliko 1).

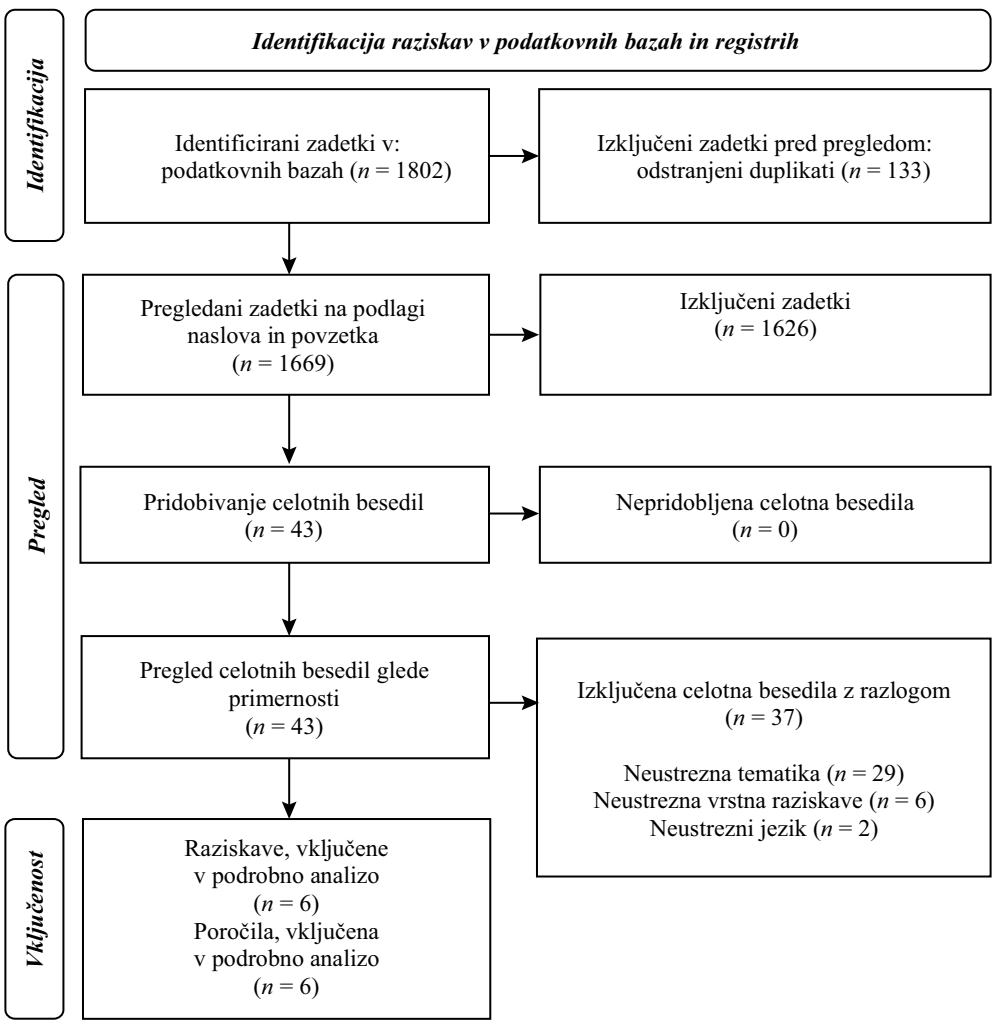
Rezultati

V končno analizo smo vključili šest raziskav, katerih značilnosti, metodološko kakovost in razvrstitev po hierarhiji dokazov predstavljamo v nadaljevanju.

Glede na hierarhijo dokazov po Polit & Beck (2021) je bilo pet raziskav uvrščenih na raven sedem (Ahlin et al., 2014, Akgun-Citak et al., 2020, Allen et al., 2022, Gregory et al., 2018, Siegel et al., 2014), ena pa na raven štiri (Norman et al., 2018).

Vse raziskave so dosegle oceno 80 % (8/10 ali 6/8), kar pomeni visoko metodološko kakovost. Najpogosteje se je kot šibkost izkazalo pomanjkanje jasnosti glede umeščenosti raziskovalca v raziskovalni kontekst in glede vpliva raziskovalca na potek raziskave (tabela 1). Kljub posameznim pomanjkljivostim so vse raziskave zadostile kriterijem za vključitev.

Raziskava Norman et al. (2018) je bila izvedena v Združenih državah Amerike, medtem ko je bila raziskava Ahlin et al. (2014) izvedena na Švedskem. Raziskave Allen et al. (2022), Gregory et al. (2018) in Siegel et al. (2014) so bile izvedene v Avstraliji. Raziskava Akgun-Citak et al. (2020) pa je zajemala podatke iz Turčije, Nizozemske, Italije in Litve. Skupen vzorec, pridobljen iz šestih člankov, zajema



Slika 1: *Prikaz diagrama poteka iskanja virov po priporočilih PRISMA*

Tabela 1: *Kritična ocena vključenih člankov*

Številka vprašanja												
Vključeni članek (n = 6)	***Metoda***	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***Ocenjevana kakovost***
Åhlin et al. (2014)	Kvalitativna raziskava	Y	Y	Y	Y	Y	U	N	Y	Y	Y	8/10 (80 %); Visoka kakovost
Akgun-Citak et al. (2020)	Kvalitativna raziskava	Y	Y	Y	Y	Y	N	U	Y	Y	Y	8/10 (80 %); Visoka kakovost
Allen et al. (2022)	Kvalitativna raziskava	Y	Y	Y	Y	Y	U	N	Y	Y	Y	8/10 (80 %); Visoka kakovost
Gregory et al. (2018)	Kvalitativna raziskava	Y	Y	Y	Y	Y	U	N	Y	Y	Y	8/10 (80 %) Visoka kakovost
Norman et al. (2018)	Presečna deskriptivna raziskava	Y	Y	Y	Y	N	N	Y	Y	—	—	6/8 (80 %) Visoka kakovost
Siegel et al. (2014)	Kvalitativna raziskava	Y	Y	Y	Y	Y	N	N	Y	Y	Y	8/10 (80 %); Visoka kakovost

Legenda: Y – da; N – ne; U – nejasno; Presečna raziskava:1. – Ali so bili kriteriji za vključitev v vzorec jasno opredeljeni?; 2. – Ali so bili udeleženci raziskave in okolje raziskave podrobno opisani?; 3. – Ali je bila izpostavljenost izmerjena veljavno in zanesljivo?; 4. – Ali so bili za merjenje stanja uporabljeni objektivni, standardni kriteriji?; 5. – Ali so bili moteči dejavniki prepoznani?; 6. – Ali so bile navedene strategije za obvladovanje motečih dejavnikov?; 7. – Ali so bili izidi izmerjeni veljavno in zanesljivo?; 8. – Ali je bila uporabljena ustrezna statistična analiza?; Kvalitativna raziskava: 1. – Ali obstaja skladnost med navedeno filozofsko perspektivo in raziskovalno metodologijo?; 2. – Ali obstaja skladnost med raziskovalno metodologijo in raziskovalnim vprašanjem oziroma cilji?; 3. – Ali obstaja skladnost med raziskovalno metodologijo in metodami zbiranja podatkov?; 4. – Ali obstaja skladnost med raziskovalno metodologijo ter prikazom in analizo podatkov?; 5. – Ali obstaja skladnost med raziskovalno metodologijo in interpretacijo rezultatov?; 6. – Ali obstaja izjava, ki raziskovalca umešča v kulturni ali teoretski kontekst?; 7. – Ali je naslovljen vpliv raziskovalca na raziskavo in obratno?; 8. – Ali so udeleženci in njihovi glasovi ustrezno predstavljeni?; 9. – Ali je raziskava skladna z etičnimi merili glede na trenutne standarde oziroma ali v primeru novejših študij obstaja dokaz o etičnem soglasju ustreznega organa?; 10. – Ali sklepi, navedeni v raziskovalnem poročilu, izhajajo iz analize oziroma interpretacije podatkov?

165 predstavnikov zdravstvenega osebja, sedem starejših oseb in 110 izvajalcev neformalne oskrbe. Vse vključene raziskave in njihove značilnosti so prikazane v tabeli 2.

Na podlagi narativne sinteze ugotavljamo, da so izzivi pri zagotavljanju dolgotrajne oskrbe starejših oseb odvisni od dinamičnega odnosa med izvajalci neformalne oskrbe in zdravstvenim osebjem. Ti izzivi niso le logistični ali praktični, temveč so globoko zakoreninjeni v čustvenih, institucionalnih in strukturnih pogojih, ki različno vplivajo na obe strani, vendar imajo prekrivajoče se posledice.

Izvajalci neformalne oskrbe, najpogosteje družinski člani, se spopadajo z nenehnim bremenom, ki vključuje čustvene stiske, socialno izolacijo in fizično izčrpanost. Napredovanje s starostjo povezanih bolezni, zlasti demence in kroničnih obolenj, ustvarja dolgoročne stresne dejavnike, ki pogosto spodkopavajo občutek identitete in dobrega počutja starejše osebe. Čeprav je skrbstveni odnos pogosto utemeljen na ljubezni in dolžnosti, se zaplete v ponavljajoči se krog čustvene utrujenosti. To stanje še okrepi odsotnost institucionalne podpore, zaradi česar imajo starejše osebe občutek, da je njihov prispevek neviden in podcenjen (Akgun-Citak et al., 2020; Gregory et al., 2018).

Številni izvajalci neformalne oskrbe se v to vlogo podajo brez potrebnega znanja ali usposabljanja za obvladovanje vsakodnevne realnosti kompleksne dolgotrajne oskrbe. Izvajalci neformalne oskrbe se soočajo s težavami pri aplikaciji zdravil, pomoči pri osebni higieni, podpori pri gibanju in vedenjskih potrebah. Te težave še povečuje sistem, ki ponuja omejen dostop do svetovanja in finančne pomoči. Izvajalci neformalne oskrbe pogosto ne vedo, kam se obrniti po pomoč ali kako uskladiti različne potrebe osebe, za katero skrbijo (Norman et al., 2018; Siegel et al., 2014).

Zdravstveno osebje sodeluje v dolgotrajni oskrbi, za katero so značilni časovni pritiski, cilji učinkovitosti in omejeni viri. Prehodi iz bolnišnice v domače okolje so še posebej težavni, saj so zanje pogosto značilni hiter odpust, slaba komunikacija in neustrezna priprava za življenje v domačem okolju. Zdravstveno osebje priznava, da ti procesi pogosto ne upoštevajo v celoti pripravljenosti ali zmogljivosti izvajalcev neformalne oskrbe za obvladovanje odgovornosti po odpustu starejših oseb (Allen et al., 2022; Norman et al., 2018). Tako izvajalci neformalne oskrbe kot starejše osebe so pogosto obravnavani kot pasivni prejemniki in ne kot aktivni sodelavci pri načrtovanju dolgotrajne oskrbe. Procesi odločanja so običajno usmerjeni od zgoraj navzdol in jih oblikujejo institucionalne, ne pa individualne potrebe starejših oseb. To zmanjšuje zaupanje in vodi do neusklajenih pričakovanj, kar ustvarja napetosti med zdravstvenim osebjem in izvajalci neformalne oskrbe (Allen et al., 2022; Gregory et al., 2018). Zdravstveno osebje in izvajalci neformalne oskrbe ugotavljajo potrebo po bolj integriranih modelih dolgotrajne oskrbe, ki

Tabela 2: *Karakteristike vključenih raziskav*

Avtor (leto); država	*Namen/cilji raziskave*	*Raziskovalna metodologija*	*Vzorec*	*Glavne ugotovitve*
Ahlin et al. (2014) Švedska	Opisati izkušnje zdravstvenega osebja glede smernic za vsakodnevno oskrbo starejših oseb v domovih za starejše.	Kvalitativna metodologija.	*n* = 12 predstavnikov zdravstvenega osebja.	Raziskava je pokazala, da je zdravstveno osebje v domovih za starejše strokovne smernice pogosto doživljalo kot obremenjujoče in slabo povezane s prakso. Videli so jih kot vsiljene, nadzorne, premalo pojasnjene in težko izvedljive. Pogosto so jim jemale čas za neposredno oskrbo stanovalcev, nekatere pa so si celo nasprotovale, na primer smernice za ravnanje s hrano in smernice za oskrbo, osredotočeno na osebo. Po mnenju osebja številne smernice niso bile praktično uporabne, saj so oteževale delo, ne da bi izboljšale kakovost oskrbe. Pogosto so se znašli v dilemi, ker je bilo upoštevanje smernic v nasprotju s potrebami starejših oseb, zato so se morali zanašati na lastno presojo. To je povzročalo moralni stres, izčrpanost, pri nekaterih tudi izgorelost. Kljub temu je zdravstveno osebje pred strogim formalnim upoštevanjem smernic dosledno dajalo prednost potrebam starejših. Njihova izkušnja je bila, da morajo kakovostno oskrbo zagotavljati ob hkratnem soočanju z zapletenimi, včasih protislovnimi in nepraktičnimi strokovnimi priporočili.
Akgun-Citak et al. (2020) Turčija, Nizozemska, Italija in Litva	Raziskati izkušnje in potrebe izvajalcev neformalne oskrbe v Turčiji, Nizozemski, Italiji in Litvi.	Kvalitativna metodologija.	*n* = 72 izvajalcev neformalne oskrbe (od tega 16 iz Italije, 12 iz Litve, 20 iz Nizozemske in 24 iz Turčije).	Raziskava je pokazala, da se izvajalci neformalne oskrbe starejših oseb s kroničnimi boleznimi v Italiji, Litvi, na Nizozemskem in v Turčiji soočajo z dvema ključnima sklopoma izzivov: z zahtevami same oskrbe in z lastnimi osebnimi potrebami. Med najpogostejšimi težavami so navajali fizično zahtevne naloge oskrbe, obvladovanje vedenjskih in psiholoških simptomov ter soočanje z žalovanjem in izgubo. Ti izzivi so pogosto vodili v čustvene obremenitve, kot so krivda, jeza, žalost in izgorelost, ter pomembno vplivali na njihov življenjski slog, spanje, družabno življenje in družinske odnose. Vsi oskrbovalci so poročali tudi o težavah pri ohranjanju lastnega dobrega počutja, predvsem zaradi čustvene izčrpanosti in pomanjkanja časa zase. V vseh državah se je pokazala stalna potreba po psihološki podpori, krepitvi komunikacijskih spretnosti, zlasti pri oskrbi oseb z demenco, podpori pri nalogah dolgotrajne oskrbe ter prilagoditvah domačega okolja, kot so pomoč pri higieni, preprečevanje padcev in uporaba pripomočkov.
Allen et al. (2022) Avstralija	Raziskati potrebe izvajalcev neformalne oskrbe med prehodom starejših oseb iz bolnišnične v domačo oskrbo.	Kvalitativna metodologija.	*n* = 30 izvajalcev neformalne oskrbe in 30 predstavnikov zdravstvenega osebja.	Izvajalci neformalne oskrbe so poudarili čustvene in logistične izzive ohranjanja družinskih vlog ob prevzemanju skrbstvenih dolžnosti, zlasti v stresnih obdobjih odpusta iz bolnišnice. Pojavilo se je pet ključnih tem podpore: vključevanje izvajalcev neformalne oskrbe v sprejemanje odločitev, dostop do usklajene multidisciplinarne oskrbe, zagotavljanje ustreznega časa odpusta in načrtov oskrbe, ustrezno izobraževanje o zagotavljanju dolgotrajne oskrbe ter dostop do nadaljnjih storitev v skupnosti in pomoč pri navigaciji. Ovire so vključevale premajhno vključenost v načrtovanje odpusta, slabo komunikacijo, neusklajeno nadaljnjo oskrbo v domačem okolju in nezadostno pripravo na dolgotrajno oskrbo, kar je včasih vodilo do ponovnih sprejemov. Zdravstveno osebje se je zavedalo potrebe po vključevanju izvajalcev neformalne oskrbe, vendar so se spopadali s sistemskimi ovirami, kot so časovne omejitve, in velikim številom starejših oseb. Komunikacijo, načrtovanje oskrbe in izobraževanje so opredelili kot ključne, vendar pogosto nedosledno izvajane elemente.

Se nadaljuje

Avtor (leto); država	*Namen/cilji raziskave*	*Raziskovalna metodologija*	*Vzorec*	*Glavne ugotovitve*
Gregory et al. (2018) Avstralija	Raziskovati, kaj je povezano z zagotavljanjem kakovostne zdravstvene oskrbe za starejšo osebo, ki potrebuje podporo za življenje v domačem okolju.	Kvalitativna metodologija.	*n* = 8 izvajalcev neformalne oskrbe, 7 starejših oseb in 11 predstavnikov zdravstvenega osebja.	Raziskava, ki je temeljila na intervjujih s starejšimi osebami, neformalnimi oskrbovalci in zdravstvenim osebjem, je pokazala, da so starejše osebe v zdravstvenem sistemu pogosto obravnavane kot nevidne. Partnerstvo v oskrbi so udeleženci povezovali z enakopravno obravnavo, vključevanjem v odločanje in možnostjo smiselnega prispevka k zdravstvenemu varstvu. Neformalni oskrbovalci so pogosto delovali kot zagovorniki starejših, vendar so jih strokovnjaki pogosto spregledali. Čeprav so bili navedeni tudi primeri dobre prakse, je večina opozorila na sistemske pomanjkljivosti pri spoštovanju osebnosti starejših in njihove pravice do odločanja. Raziskava zato poudarja potrebo po opolnomočenju starejših oseb kot aktivnih partnerjev pri načrtovanju oskrbe, sprejemanju odločitev in oblikovanju storitev.
Norman et al. (2018) Združene države Amerike	Raziskati, kako so socialne potrebe starejših oseb, ki so »vezane« na dom, ocenjene in obravnavane v okviru primarnega zdravstvenega varstva, ter ugotavljanje ovir pri usklajevanju oskrbe na domu.	Kvantitativna metodologija.	*n* = 101 predstavnik zdravstvenega osebja na primarnem nivoju.	Skoraj vse zdravstveno osebje (98 %) je ocenilo potrebe starejših oseb, povezane z vsakodnevnim življenjem (npr. osebna higiena, prehrana, mobilnost), največkrat ob prvem obisku (78 %) in nato redno (88 %). Večina starejših oseb je v zadnjem letu potrebovala storitve, kot so osebna higiena (84 %), aplikacija terapije (40 %) in podpora izvajalcev neformalne oskrbe (38 %). Kljub temu je več kot polovica zdravstvenega osebja (57 %) ocenila, da je koordinacija storitev dolgotrajne oskrbe zahtevna. Najpogostejše ovire so bili stroški za starejše osebe (65 %), pogoji za upravičenost do pomoči (63 %) in težave z zdravstvenim zavarovanjem (60 %). Te ovire so pomenile dodatne obremenitve za zdravstveno osebje in oteževale učinkovito usklajevanje storitev dolgotrajne oskrbe.
Siegel et al. (2014); Avstralija	Raziskati potrebe starejših oseb, odvisnih od pomoči, in raziskati, kako lahko različne rešitve prispevajo k zdravju in kakovosti življenja starejše osebe.	Kvalitativna metodologija.	*n* = 11 predstavnikov zdravstvenega osebja.	Ugotovitve, strukturirane po biopsihosocialnem modelu, kažejo, da lahko podporne tehnologije pozitivno vplivajo na telesne, duševne in socialne razsežnosti zdravja. Udeleženci so poudarili, da si starejše osebe prizadevajo za samostojnost, dostojanstvo in socialno interakcijo ter da lahko rešitve, kot so preprosti pripomočki (ročaji in sistemi za opominjanje), napredne tehnologije (teleoskrba in spremljanje) zadovoljijo te potrebe s povečanjem neodvisnosti in varnosti. Tehnologije, kot so detektorji padcev, dozatorji zdravil, pripomočki za mobilnost in sistemi za klic v sili, so bile ocenjene kot posebej pomembne za podporo vsakdanjemu življenju in izboljšanje učinkovitosti oskrbe v domačem okolju. Koristi so vključevale večjo samostojnost, manjšo izoliranost, boljše upoštevanje režima zdravil in večjo osebno varnost. Vendar so bili izraženi tudi pomisleki glede pretiranega nadzora, morebitnih posegov v zasebnost ter možnih zdravstvenih tveganj zaradi večje izpostavljenosti elektronskim napravam.

Legenda: n – število

priznavajo in podpirajo soodvisnost med formalno in neformalno oskrbo starejše osebe. V praksi bi to zahtevalo prožnejše komunikacijske strategije, celovite programe izobraževanja zdravstvenega osebja in izvajalcev neformalne oskrbe ter vključevanje tehnologij, ki lahko olajšajo vsakodnevno delovno obremenitev ter hkrati izboljšajo nadzor in odzivnost (Norman et al., 2018; Siegel et al., 2014).

Dolgotrajna oskrba mora temeljiti na priznavanju izvajalcev neformalne oskrbe kot enakovrednih partnerjev, ki so podprti s proaktivnim sodelovanjem, prilagojenim usposabljanjem in sistemsko vključitvijo v načrtovanje dolgotrajne oskrbe. Le z reševanjem teh globoko povezanih izzivov se lahko dolgotrajna oskrba starejših oseb premakne k pravičnejšemu in bolj odzivnemu okviru za vse udeležence.

Diskusija

Rezultati pregleda kažejo, da se zdravstveno osebje in izvajalci neformalne oskrbe pri oskrbi starejših oseb v domačem okolju soočajo s številnimi izzivi, ki se nanašajo tako na organizacijo kot tudi na izvedbo dolgotrajne oskrbe. Najpogosteje izpostavljajo pomanjkanje časa, čustveno obremenitev, slabo koordinacijo storitev in nejasne strokovne smernice za izvajanje dolgotrajne oskrbe. Analiza potrjuje, da kakovostna dolgotrajna oskrba presega klasični zdravstveni model in zahteva integriran, celosten ter na osebo osredotočen pristop. Ena izmed osrednjih ugotovitev je potreba po boljši usklajenosti in sodelovanju med zdravstvenim osebjem in izvajalci neformalne oskrbe (Allen et al., 2022; Gregory et al., 2018; Norman et al., 2018). Allen et al. (2022) so ugotovili, da se izvajalci neformalne oskrbe ob prehodu starejših oseb iz bolnišnice v domače okolje pogosto počutijo negotovo in brez zadostne podpore. Hkrati Norman et al. (2018) poudarjajo, da kljub rednim ocenam potreb starejših oseb koordinacijo storitev pogosto otežujejo administrativne in organizacijske ovire ter pomanjkanje informacijske podpore.

Åhlin et al. (2014) ugotavljajo, da so bile smernice za izvajanje dolgotrajne oskrbe pogosto doživljane kot vsiljene, neuporabne v praksi in celo nasprotujoče si, kar je izvajalce neformalne oskrbe postavljalo v položaj moralnega stresa in povečalo tveganje za izgorelost. Ob tem ne gre spregledati, da Gregory et al. (2018) navajajo, da starejše osebe pogosto ostajajo nevidne v procesih odločanja, kar zmanjšuje njihovo avtonomijo in občutek vključenosti.

Siegel et al. (2014) so ugotovili, da lahko telemedicina, senzorni sistemi in drugi digitalni pripomočki izboljšajo varnost, samostojnost in kakovost življenja uporabnikov dolgotrajne oskrbe ter zmanjšajo obremenitev izvajalcev neformalne oskrbe. Kljub temu se je treba zavedati, da tehnologija ne more nadomestiti osebnega stika, temveč ga lahko le dopolnjuje. Ugotovljeno je bilo tudi, da se izvajalci neformalne oskrbe prav tako soočajo z dolgoročnimi posledicami, kot so socialna izolacija, izgorelost, depresija in omejitve v poklicnem življenju (Akgun-Citak et al., 2020; Anderson et al., 2019). Pomanjkanje institucionalne podpore spodbuja občutek, da njihov prispevek ni dovolj prepoznan, kar zmanjšuje trajnost celotnega sistema dolgotrajne oskrbe.

Skupna ugotovitev vseh raziskav je, da dolgotrajna oskrba ni zgolj zdravstveni proces, temveč vključuje tudi socialne, psihološke in etične dimenzije. Načela celostne in na osebo osredotočene obravnave niso le priporočilo, temveč nujen pogoj za zagotavljanje višje kakovosti življenja in dostojanstva v starosti (Allen et al., 2022; Boman et al., 2019). Ob tem je pomembno dodati, da starost sama po sebi še ne pomeni potrebe po dolgotrajni oskrbi, čeprav se verjetnost te potrebe s staranjem povečuje. Za terminološko jasnost smo se oprli na Zakon o dolgotrajni oskrbi (ZDOsk-1), ki določa, da dolgotrajna oskrba vključuje tako zdravstvene kot socialne storitve za osebe, ki zaradi starosti, bolezni ali invalidnosti potrebujejo dolgotrajno podporo.

Pregled je bil omejen na objave v angleškem jeziku, kar pomeni, da so bile lahko izključene relevantne raziskave v drugih jezikih. Časovni okvir vključenih raziskav je razmeroma širok, pri čemer so nekatere raziskave starejše in zato ne odražajo sodobnih pristopov, zlasti pri uporabi digitalnih tehnologij in podpornih pripomočkov v dolgotrajni oskrbi. Ugotovitve je dodatno oteževalo dejstvo, da so raziskave uporabljale različne metodološke pristope, kar zmanjša neposredno primerljivost med njimi. Pri interpretaciji rezultatov je prav tako treba poudariti, da v času izvedbe nekaterih vključenih raziskav formalni sistemi dolgotrajne oskrbe v posameznih državah še niso bili vzpostavljeni. Te raziskave obravnavajo oblike oskrbe starejših oseb, kot so prehodna oskrba, oskrba na domu in institucionalna oskrba, ki so po vsebini primerljive z elementi dolgotrajne oskrbe, vendar jih ni mogoče neposredno enačiti s sistemsko ureditvijo dolgotrajne oskrbe. Zato v članku jasno ločujemo med raziskavami, ki obravnavajo posamezne elemente oskrbe starejših oseb, ter raziskavami, ki obravnavajo dolgotrajno oskrbo kot sistem.

Pomembna omejitev je tudi raznolikost uporabljenih pojmov, saj posamezne raziskave uporabljajo izraze, kot so *home care*, *transitional care* ali *long-term care*, kar lahko vpliva na enotnost interpretacije. Poleg tega so bili vzorci večine raziskav majhni in specifični, pogosto omejeni na posamezne skupine zdravstvenega osebja ali izvajalcev neformalne oskrbe. Zaradi kulturnih in sistemskih razlik med državami ugotovitve tudi niso neposredno prenosljive v slovenski prostor, temveč jih je treba razumeti kot širši okvir izzivov, ki lahko služijo kot dragoceno izhodišče za razpravo o razvoju dolgotrajne oskrbe v Sloveniji.

Na podlagi ugotovitev predlagamo, da je prihodnji razvoj sistemov dolgotrajne oskrbe nujno vezan na naslednje štiri vidike: strukturirano sodelovanje med zdravstvenim osebjem in izvajalci neformalne oskrbe, psihosocialno podporo za oskrbovalce, smiselno uporabo podporne tehnologije kot pomoč človeški oskrbi in dosledno vključevanje starejših oseb kot aktivnih udeležencev v načrtovanje in izvajanje dolgotrajne oskrbe.

Prispevek ima pomembne implikacije tudi za slovenski prostor. Slovenija je z ZDOsk-1 naredila korak k oblikovanju celovitega sistema dolgotrajne oskrbe, ki združuje zdravstvene in socialne storitve ter določa pravice uporabnikov. Rezultati pregleda nakazujejo, da bodo ključni izzivi v implementaciji sistema predvsem zagotavljanje ustrezne psihosocialne podpore izvajalcem neformalne oskrbe, izboljšanje koordinacije med zdravstvenim osebjem in izvajalci socialnih storitev, večja dostopnost podpornih

tehnologij ter aktivno vključevanje uporabnikov dolgotrajne oskrbe v načrtovanje in izvajanje storitev. Ugotovitve pregleda zato dopolnjujejo razumevanje potreb in vrzeli na področju dolgotrajne oskrbe v Sloveniji ter lahko služijo kot podlaga za nadaljnje raziskave in oblikovanje politik.

Zaključek

Naraščajoče potrebe po dolgotrajni oskrbi starejših oseb zaradi staranja prebivalstva predstavljajo pomemben javnozdravstveni in družbeni izziv. Pregled literature kaže, da je kakovostna dolgotrajna oskrba izvedljiva predvsem ob celostnem, interdisciplinarnem in na osebo osredotočenem pristopu, ki vključuje aktivno sodelovanje uporabnikov, izvajalcev neformalne oskrbe ter zdravstvenega osebja. Ključni izzivi, ki slabšajo kakovost oskrbe, so nejasne smernice, razdrobljenost storitev, nezadostna koordinacija med izvajalci ter omejena podpora neformalnim oskrbovalcem. Posledično se povečujejo moralni stres, preobremenjenost in tveganje za izgorelost pri zdravstvenem osebju in neformalnih oskrbovalcih, obenem pa je načelo na osebo osredotočene oskrbe težje uresničljivo.

Slovenska ureditev dolgotrajne oskrbe (ZDOsk-1) je pomemben korak k povezovanju zdravstvenih in socialnih storitev ter k opredelitvi pravic uporabnikov, vendar ostajajo vrzeli pri psihosocialni podpori neformalnim oskrbovalcem, pri učinkoviti koordinaciji storitev, pri dostopnosti podpornih tehnologij ter pri vključevanju uporabnikov v soodločanje. Za nadaljnji razvoj sistema so ključni: sistematična podpora neformalnim oskrbovalcem, okrepljena medresorska koordinacija, premišljena integracija tehnologij kot dopolnilo (ne nadomestilo) človeški oskrbi ter dosledno partnersko vključevanje uporabnikov v načrtovanje in izvajanje oskrbe.

Nasprotje interesov

Avtorji izjavljajo, da ni nasprotja interesov.

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Etika raziskovanja

Za izvedbo raziskave glede na izbrano metodologijo raziskovanja soglasje komisije za etiko ni bilo potrebno./Due to the selected research methodology, no approval by the Ethics Comittee was necessary to conduct the study.

Prispevek avtorjev

Vsi avtorji so sodelovali pri zasnovi, zbiranju, analizi in interpretaciji podatkov ter pisanju in urejanju znanstvenega članka. ML, SK in JČK so sodelovali pri zasnovi in zbiranju podatkov ter pri pripravi prvega osnutka članka in grafičnih prikazov. ML, SSK in JČK so izvedli analizo podatkov in sodelovali pri pregledu ter končnem urejanju besedila. Vsi avtorji so pregledali in potrdili končno različico članka.

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Pregledni znanstveni članek/Review article

Priložnosti na področju trajnostnega razvoja gastrointestinalnih endoskopij: sistematični pregled literature

Opportunities for sustainable development in gastrointestinal endoscopy: A systematic review

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Ključne besede: zelena endoskopija; ogljični odtis; okoljski vpliv

Key words: green endoscopy; carbon footprint; environmental impact

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IZVLEČEK

Uvod: Trajnostni razvoj in prizadevanje za zmanjšanje ogljičnega odtisa v vseh fazah procesa gastrointestinalnih endoskopij sta vplivala na pojav koncepta »zelene endoskopije«. Namen raziskave je preučiti trajnostne strategije v gastrointestinalni endoskopiji in njihovo učinkovitost pri zmanjševanju okoljskega vpliva brez ogrožanja kakovosti zdravstvene obravnave.

Metode: Izveden je bil sistematični pregled znanstvene literature. Iskanje je potekalo v podatkovnih bazah PubMed in ScienceDirect, prek platform ClinicalKey in Wiley Online Library ter spletnega iskalnika Google Scholar. Iskali smo po ključnih besedah v angleščini: *green endoscopy*, *carbon footprint*; *environmental impact*; v slovenščini: zelena endoskopija, ogljični odtis, okoljski vpliv. Vključeni so bili članki, objavljeni med letoma 2018 in 2023, dostopni v slovenskem ali angleškem jeziku in s celotnim besedilom. Podatki so bili obdelani s tematsko kvalitativno analizo.

Rezultati: V končno analizo je bilo vključenih 15 virov. Oblikovanih je bilo pet vsebinskih kategorij: varovanje okolja, oprema in pripomočki, opolnomočenje pacientov, opolnomočenje zaposlenih ter varnost pacientov. Zmanjšanje okoljskega bremena je izvedljivo, vendar le ob sistemskem in večdimenzionalnem pristopu, ki presega zgolj tehnične prilagoditve. Klinična učinkovitost ob tem ni ogrožena, kadar so trajnostni ukrepi implementirani skladno z veljavnimi smernicami in standardi varnosti.

Diskusija in zaključek: Kvalitativna tematska analiza je pokazala, da mora predvsem vodstvo zdravstvenih organizacij in posameznih endoskopskih enot sprejeti hitre in učinkovite ukrepe s ciljem zmanjševanja onesnaženja okolja in sledenja načrtu trajnostnega razvoja. Ob upoštevanju strokovnih smernic je mogoče zmanjševati okoljski odtis ob ohranjanju kakovosti zdravstvene obravnave. Potrebne so nadaljnje empirične raziskave za natančnejšo kvantifikacijo ogljičnega odtisa v posameznih fazah endoskopskega procesa.

ABSTRACT

Introduction: The pursuit of sustainable development and carbon footprint reduction throughout all stages of the gastrointestinal endoscopy process has led to the emergence of the concept of "green endoscopy." The aim of this study was to examine sustainable strategies in gastrointestinal endoscopy and their effectiveness in reducing environmental impact without compromising the quality of health care.

Methods: A systematic review of the scientific literature was conducted. The literature search was performed in the PubMed and ScienceDirect international bibliographic databases, via the ClinicalKey and Wiley Online Library platforms, and Google Scholar. The following keywords were used in English: green endoscopy; carbon footprint; environmental impact; and in Slovenian: zelena endoskopija, ogljični odtis, okoljski vpliv. Articles published between 2018 and 2023, available in Slovenian and English, with full text access, were included in the review. Data were analysed using qualitative thematic analysis.

Results: A total of 15 sources were included in the final analysis. Five content categories were identified: environmental protection, equipment and accessories, patient empowerment, employee empowerment, and patient safety. Although reducing the environmental burden is feasible, it requires a systematic and multidimensional approach that extends beyond mere technical adjustments. Clinical effectiveness is not compromised when sustainable measures are implemented in accordance with relevant guidelines and safety standards.

Discussion and conclusion: Evidence from our qualitative thematic analysis highlights the need for the management of healthcare organisations and individual endoscopy units to take prompt and effective action to reduce environmental pollution and follow a sustainable development plan. By adhering to professional guidelines, it is possible to reduce the environmental footprint while maintaining the quality of health care. Further empirical research is needed to more accurately quantify the carbon footprint across rge individual phases of the endoscopic process.

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Uvod

Zdravstvo pomembno prispeva k podnebnim spremembam in izčrpavanju naravnih virov, saj je odgovorno za približno 4,4 % svetovnega ogljičnega odtisa (Duijvestein et al., 2024; Lenzen et al., 2020; Rao et al., 2025; Ryu et al., 2025). Zdravstveni sistem se tako sooča z dvojnim izzivom: zagotavljati kakovostno zdravstveno oskrbo pacientov ter hkrati zmanjševati emisije toplogrednih plinov in okoljski vpliv svojih dejavnosti (Maida et al., 2024, Ryu et al., 2025). V zadnjih letih je opazen premik k trajnostnim praksam, ki temelji na prepoznavanju potrebe po trajnostno usmerjenih rešitvah v zdravstvu (Menini et al., 2026). Endoskopija predstavlja pomembno okolijsko breme, saj pri posameznem endoskopskem posegu nastane večja količina odpadkov, velika je poraba materialov za enkratno uporabo in energetsko potratne opreme (Rao et al., 2025; Vaccari et al., 2018). S ciljem zmanjševanja odpadkov so se na tem področju izoblikovale strategije, združene pod konceptom »zelena endoskopija« (Rao et al., 2025; Ryu et al., 2025), ki poziva predvsem zdravstvene delavce, da se tudi na področju endoskopije zavzemajo za trajnostno prakso (Maurice et al., 2020). Povprečen endoskopski poseg proizvede namreč kar 3,09 kg odpadkov (Duijvestein et al., 2024; Maida et al., 2024; Rao et al., 2025). Pri dekontaminaciji endoskopa poleg tega porabimo tudi velike količine vode in razkužil (Maurice et al., 2020). Uvedba teh strategij ima tako velik vpliv na varovanje okolja (Menini et al., 2026; Ryu et al., 2025).

Maida et al. (2024) poudarjajo pomen recikliranja, ločevanja odpadkov in ozaveščanja zdravstvenega osebja kot ključne strategije pri zmanjšanju ogljičnega odtisa. Menini et al. (2026) dodatno ugotavljajo, da zdravstveno osebje sicer prepoznava pomen trajnostnih praks, vendar številne endoskopske enote še vedno nimajo ustrezne infrastrukture za učinkovito ravnanje z odpadki, zato se ti pogosto odlagajo na odlagališčih ali kot odpadek iz zdravstva (Rao et al., 2025; Ryu et al., 2025).

Namen in cilji

Namen pregleda literature je sistematično pregledati in sintetizirati znanstvene dokaze o trajnostnih praksah v endoskopiji ter opredeliti strategije, ki prispevajo k zmanjšanju ogljičnega odtisa ob ohranjanju klinične učinkovitosti in varnosti zdravstvene oskrbe pacientov. Na tej podlagi smo zastavili raziskovalno vprašanje: Kako uvedba trajnostnih praks v endoskopiji vpliva na zmanjšanje okoljskega odtisa ob ohranjanju klinične učinkovitosti?

Metode

Metode pregleda

Izveden je bil sistematični pregled znanstvene in strokovne literature v skladu s smernicami PRISMA (Page et al., 2021). Raziskovalno vprašanje je bilo oblikovano po modelu PICOT (Melnyk & Fineout-Overholt, 2019).

Iskanje literature je potekalo v podatkovnih bazah PubMed in ScienceDirect ter prek spletnih platform ClinicalKey, Wiley Online Library in spletnega iskalnika Google Scholar. Uporabljene so bile naslednje ključne besede in njihove kombinacije: *green endoscopy*, *healthcare sustainability*, *medical waste*, *carbon footprint; environmental impact*. Pred začetkom pregleda so bila določena vključitvena in izključitvena merila. V pregled so bili vključeni znanstveni članki s celotnim besedilom, objavljeni med letoma 2018 in 2023, v angleškem in slovenskem jeziku, ki so obravnavali trajnostne prakse v endoskopiji. Izključeni so bili komentarji, kratka poročila, mnenjski članki brez empiričnih dokazov in članki, ki niso neposredno obravnavali trajnostnih praks v endoskopiji. Iskanje literature je potekalo od 10. februarja 2024 do 10. marca 2024.

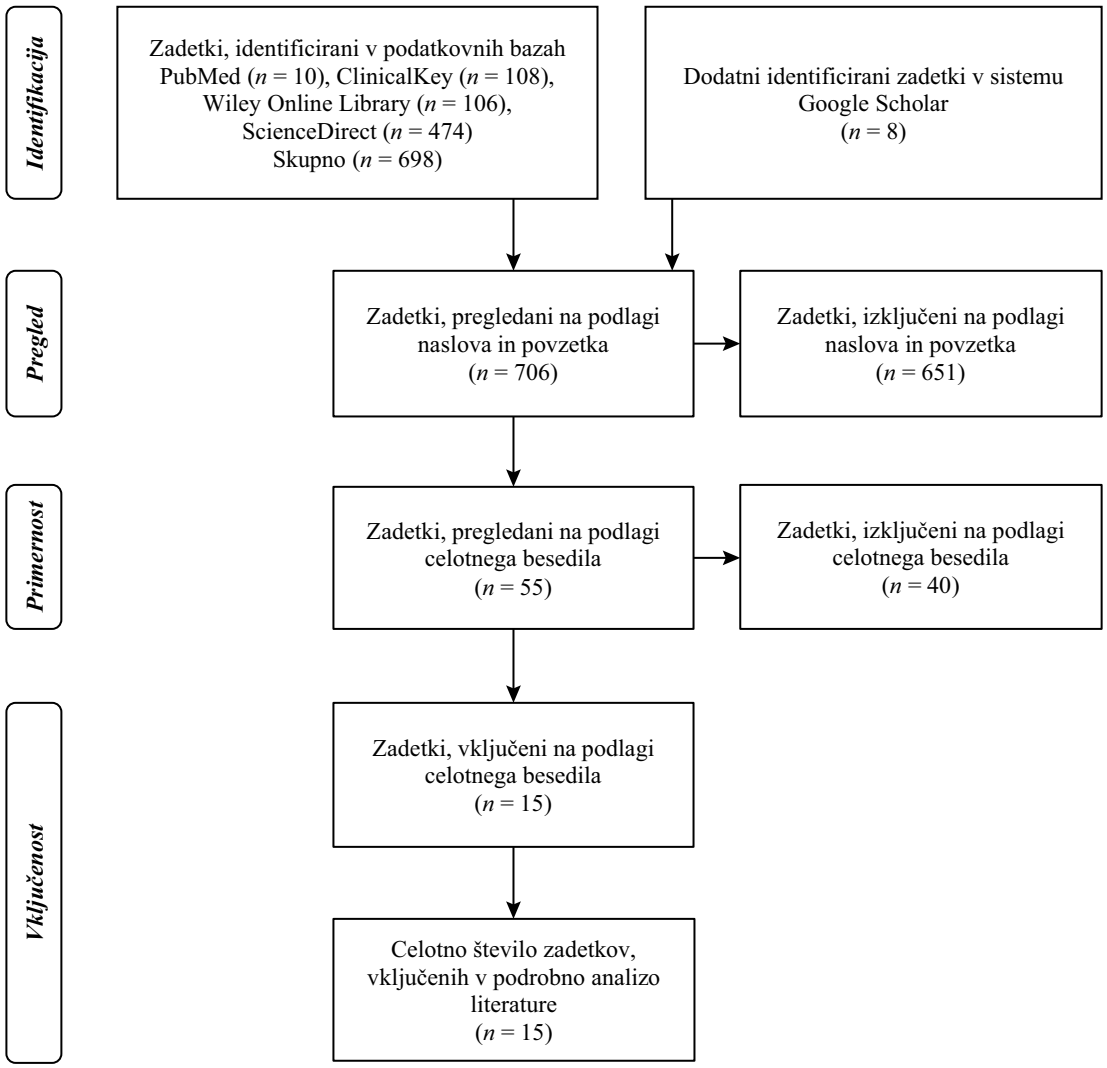
Rezultati pregleda

Identificirane zadetke (n = 706) smo pregledali po naslovu in povzetku ter ocenili ustreznost celotnih besedil. Dodatno smo izločili 651 zadetkov. Pregledali smo 55 polnih besedil; 40 smo jih izločili, tako da je za končno analizo ostalo 15 člankov. Potek pridobivanja relevantne literature je razviden iz Slike 1, pri čemer smo za prikaz pregleda podatkovnih baz uporabili metodo PRISMA (*Preffered Reporing Items for Systematic Review and Meta- Analysis*) (Page et al., 2021).

Ocena kakovosti pregleda

V Tabeli 1 (Sinteza spoznanj pregleda literature) so predstavljeni rezultati raziskav, vključenih v članek. V naši analizi smo izpostavili pet temeljnih kategorij dejavnikov, ki so ključni za razvoj in uveljavitev koncepta »zelena endoskopija«. Rezultati vključenih raziskav so povzeti v Tabeli 1 (Sinteza spoznanj pregleda literature). Prikazan je končni nabor petnajstih raziskav za analizo. Za vrednotenje kakovosti dokazov smo uporabili hierarhijo dokazov po Polit & Beck (2021). Dokaze ene nerandomizirane raziskave – kvazieksperimenta smo uvrstili na raven I. Na raven II smo razvrstili dokaze dveh prospektivnih raziskav, na raven III dokaze dveh presečnih raziskav, na raven IV pa mnenja strokovnjakov in en konsenz strokovnjakov (Delphi metoda), s čimer smo dobili dokaze desetih raziskav. Hierarhija dokazov je pokazala, da je največ vključenih virov razvrščenih na nižje ravni dokazov (ravni III in IV), medtem ko randomiziranih kontroliranih raziskav med vključenimi raziskavami ni bilo (Tabela 1).

Rezultati sistematične tematske integrativne analize kvantitativnih in kvalitativnih podatkov v skladu z



Slika 1: *Rezultati pregleda literature po metodologiji PRISMA*

metodološkimi usmeritvami, ki jih opisujejo Booth et al. (2012), so prikazani v Tabeli 2. Vključene so identificirane teme, kategorije in kode ter avtorji posameznih raziskav. V analizi smo identificirali pet ključnih kategorij dejavnikov, ki pomembno prispevajo k razvoju in uveljavitvi koncepta »zelena endoskopija«.

Rezultati

Izvajanje endoskopij predstavlja pomembno okolijsko breme. Postopki so povezani z visoko porabo energije in vode ter z nastajanjem velikih količin odpadkov. Endoskopija prispeva k podnebnim spremembam ter vpliva na ključne okoljske podsisteme, vključno z rabo sladke vode, rabo tal, onesnaževanjem z aerosoli in zmanjševanjem biotske raznovrstnosti (Desai et al., 2023; Lacroute et al., 2023). Ocena ogljičnega odtisa na vsakih sto endoskopij znaša 1501 kg ekvivalenta ogljikovega dioksida (CO_2) (Desai et al., 2023). Revizije odpadkov so pokazale, da je približno petino nastalih odpadkov možno reciklirati (Cunha Neves et al., 2023; Desai et al., 2023). Kljub temu velik delež plastičnih odpadkov ostaja nereciklabilen. Gayam (2020) navaja, da od 13.500 ton plastičnih odpadkov kar 10.800 ton ni mogoče reciklirati. Poseben izziv predstavlja uporaba endoskopov za enkratno uporabo, ki se je razširila predvsem po epidemiji covida-19. Raziskave kažejo, da se z njihovo uvedbo skupna količina odpadkov poveča za približno 40 % (Namburar et al., 2022; Perisetti et al., 2023). Sistematični pregledi poudarjajo potrebo po celostnem pristopu k zmanjševanju emisij CO_2, ki vključuje kvantificiranje ogljičnega odtisa ter razvoj trajnostnih strategij v endoskopski praksi (Perisetti et al., 2023).

Opolnomočenje pacientov se kaže kot pomemben dejavnik pri zmanjševanju nepotrebnih posegov in

Tabela 1: *Sinteza spoznanj pregleda literature*

Avtor, država	*Vrsta raziskave*	*Namen raziskave*	*Vzorec*	*Glavne ugotovitve*	*Raven dokazov*
Bortoluzzi et al. (2022), Italija	Opisni pregled dokazov.	Osvetliti problematiko ogljičnega odtisa, ki nastaja pri izvajanju endoskopskih postopkov, ter predstaviti možne ukrepe na področju zdravstva za zmanjševanje emisij toplogrednih plinov. Hkrati raziskava izpostavlja pomen trajnostnih pristopov v endoskopiji, ki poleg zmanjševanja okoljskega vpliva lahko prispevajo tudi k izboljšanju rezultatov zdravljenja.	/	Ozavestiti želijo, da lahko podnebne spremembe in ogljični odtis iz enot endoskopije vplivajo na razvoj ukrepov za večji trajnostni razvoj. Bistvena je vključitev vseh: industrije, zdravstva in znanosti.	4
Cunha Neves et al. (2023), Portugalska	Neeksperimentalna kvantitativna metoda – prospektivna raziskava.	Oceniti ogljični odtis odpadkov, ki nastajajo pri delu v endoskopski enoti, ter stroške njihove predelave. Raziskava se osredotoča na reorganizacijo delovanja endoskopske enote z namenom zmanjšanja količine endoskopskih odpadkov in izboljšanja njihove predelave ter s tem zmanjšanja okoljskega vpliva zdravstvene dejavnosti.	535 endoskopij.	Bistvena ugotovitev raziskave je, da ločevanje odpadkov in recikliranje skupaj z izobraževanjem zdravstvenega osebja v endoskopiji bistveno zmanjšajo ogljični odtis odpadkov, ki nastane pri endoskopskih posegih. Rezultati kažejo, da se je povprečna količina odpadkov zmanjšala za 12,9 %; ker se je povečala količina odpadkov, namenjenih za recikliranje, pa se je povprečna količina odpadkov za odlagališče zmanjšala za 41,4 %. Pri odpadkih za recikliranje se je povečala količina papirja in plastičnih odpadkov (p = 0,001).	2
Desai et al. (2023), ZDA	Neeksperimentalna kvantitativna metoda– prospektivna raziskava.	Oceniti ogljični odtis odpadkov in stroške predelave odpadkov z reorganizacijo endoskopske enote za zmanjšanje in predelavo endoskopskih odpadkov.	450 endoskopskih posegov.	V času raziskave je nastalo 1398,6 kg odpadkov (61,6 % jih je končalo na odlagališču odpadkov, 33,3 % je bilo biološko nevarnih odpadkov in 5,1 % ostrih predmetov). V posameznem postopku je nastalo povprečno 3,03 kg odpadkov. Za namen reprocesiranja endoskopa je nastalo 194 litrov odplak dnevno. Skupna poraba energije v endoskopski enoti je bila 277,1 kWh energije na dan. Ocenjeni ogljični odtis za vsakih 100 postopkov endoskopij je bil 1501 kg ekvivalenta ogljikovega dioksida (CO_2). Z ločevanjem odpadkov bi 20 % vseh odpadkov lahko reciklirali.	2
Gayam (2020), ZDA	Kvantitativna metodologija – presečna raziskava.	Izmeriti količino endoskopskih odpadkov ter oceniti nastanek ogljičnega odtisa pri njihovem ravnanju z uporabo spletnih kalkulatorjev za izračun ogljičnega odtisa.	18 milijonov endoskopij.	Rezultati raziskave ugotavljajo, da ena endoskopija proizvede 1,5 kg odpadkov (0,3 kg za recikliranje); enoletna endoskopska dejavnost v ZDA (18 milijonov postopkov) pa 13.500 ton plastičnih odpadkov, od tega jih 10.800 ton ni mogoče reciklirati. Dnevna poraba energije v endoskopski enoti, ki v povprečju znaša 40 postopkov na dan, je sledeča: pralni stroji 24,67 kWh, endoskopski aparati 27,00 kWh, anestezijski aparat 12,00 kWh, osvetlitev prostora 47,88 kWh – skupno 111,55 kWh.	3
Hernandez et al. (2023), ZDA	Opisni pregled dokazov.	Predstaviti sintezo literature o posledicah neustreznih praks v endoskopiji, ki vplivajo na okolje in zdravje ljudi, ter opredeliti možne ukrepe za zmanjšanje okoljskega vpliva endoskopskih postopkov.	/	Endoskopije so velik porabnik energije in vode. V postopku se zadnji dve desetletji uporablja ogromno instrumentov in materiala za enkratno uporabo, ki prispevajo k visokemu ogljičnemu odtisu. Večina odpadkov konča kot komunalni odpadek na deponijah (64 %) ali pa kot biološko nevaren odpadek, ki ga sežgejo (28 %); manj kot 10 % se jih ponovno reciklira. Sprememba prakse v smislu zmanjšanja njenega vpliva na okolje je mogoča. Obstajajo matrike za določanje prednostnih nalog, ki upoštevajo relativno koristnost zmanjšanja emisij ogljika.	4

Se nadaljuje

Avtor, država	*Vrsta raziskave*	*Namen raziskave*	*Vzorec*	*Glavne ugotovitve*	*Raven dokazov*
De Jong et al. (2023), Nizozemska	Opisni pregled dokazov.	Predstaviti izkušnje avtorjev ter trajnostna načela zmanjševanja, ponovne uporabe in recikliranja plastične embalaže pri izvajanju endoskopskih postopkov.	/	V raziskavi so pokazali, da je v postopku endoskopije v povprečju nastalo 0,97 kg odpadkov, pri čemer je določen del odpadkov možno reciklirati; recikliralo se je 9,6 % plastike. Po izvedenem usposabljanju medicinskih sester so po enem letu ponovno spremljali količino odpadkov. Ob vsakem posegu je nastalo 0,89 kg odpadkov; delež plastičnih odpadkov za recikliranje je znašal 8,9 %. Skupna količina emisij CO_2 se je po recikliranju zmanjšala s 4,69 kg na 4,55 kg.	4
Martin-Cabezuelo et al. (2023), ZDA	Dokazi posamezne nerandomizirane raziskave – kvazieksperiment.	Predstaviti uporabo programske opreme openLCA za izračun količine toplogrednih plinov, ki nastanejo zaradi uporabe pripomočkov med endoskopskimi postopki, ter preveriti možnost ocenjevanja emisij s pomočjo različnih analitičnih metod, kot so termogravimetrija, kalorimetrija, infrardeča spektroskopija in elementna analiza.	3 zanke, 2 klipa, 3 kleščice.	Razlike med uporabljenimi pripomočki v endoskopiji so odvisne od materiala za njihovo izdelavo, modela in znamke proizvajalca. Zaradi možnosti reprocesiranja med najbolj »zelene« sodijo zanke, kleščice in klipi. Avtorji priporočajo oznako na embalaži, da se lahko zdravstveni delavci odločajo za tiste, ki so bolj »zeleni«.	1
De Melo et al. (2021), ZDA	Opisni pregled dokazov.	Predstaviti problematiko porabe energije in nastajanja odpadkov ter s tem povezanih stroškov v endoskopskih enotah in izpostaviti možne ukrepe za njihovo zmanjšanje, kot so ustrezno razvrščanje in odlaganje odpadkov, učinkovito čiščenje vode ter uporaba naravne in LED-razsvetljave.	/	Zelena endoskopija je novo področje gastroenterologije, ki bo imela koristi od prihodnjih raziskav na tem področju. Treba bo namreč raziskati, kateri ukrep zagotavlja največ koristi pacientom, zdravnikom, zdravstvenim sistemom in je najučinkovitejši pri zmanjševanju odpadkov in emisij toplogrednih plinov. Članek opisuje ukrepe, ki jih je mogoče izvesti za dosego tega, hkrati pa povečati dobiček za endoskopske enote in zdravstvene sisteme kot take.	4
Namburar et al. (2022), ZDA	Kvantitativna metodologija – presečna raziskava.	Izmeriti količino odpadkov, ki nastanejo med endoskopskimi postopki, ter oceniti vpliv na okolje ob zamenjavi endoskopov za večkratno uporabo (reprocesiranjem) z endoskopi za enkratno uporabo.	178 endoskopov, uporabljenih pri 243 pacientih.	Pri vsaki endoskopiji je nastalo 2 kg odpadkov; 64 % od teh je končalo na odlagališču za odpadke, 28 % je bilo biološko nevarnih odpadkov, 9 % jih je bilo možno reciklirati. Ocena skupnih odpadkov, ustvarjenih med vsemi endoskopskimi posegi, ki se izvajajo v ZDA letno, je 38.000 metričnih ton. Če bi vse endoskopske posege izvajali z endoskopi za enkratno uporabo in upoštevali predelavo, bi se neto masa odpadkov povečala za 40 %.	3
Park & Cha (2023), Južna Koreja	Opisni pregled dokazov.	Ozavestiti strokovno javnost o problematiki neto emisij CO_2, povzročenih s postopki, ter predstaviti strategije za doseganje ničelnih neto emisij CO_2 do leta 2050.	/	Takojšnji ukrepi za zmanjšanje vpliva endoskopije na okolje vključujejo: upoštevanje smernic, izvajanje revizijskih strategij za ugotavljanje ustreznosti endoskopij, izogibanje nepotrebnim postopkom, racionalno uporabo zdravil, digitalizacijo, telemedicino, klinične poti, protokole, ustrezno ravnanje z odpadki in zmanjšanje uporabe naprav za enkratno uporabo. Poleg tega so za zmanjšanje vpliva endoskopij na podnebno krizo potrebni trajnostna infrastruktura za endoskopske enote, ki uporabljajo obnovljivo energijo, in strategija 3R-ravnanja z odpadki (zmanjšanje, ponovna uporaba in recikliranje).	4
Perisetti et al. (2023), ZDA	Integrativni pregled dokazov.	**S** pregledom razpoložljivih dokazov kritično analizirati emisije CO_2, ki nastajajo pri izvajanju endoskopskih postopkov.	/	Avtorji poudarjajo, da je ključnega pomena za trajnostni razvoj endoskopije v prihodnosti merjenje količin emisij CO_2, ki nastanejo na področju endoskopske dejavnosti, in razvoj novih strategij za zmanjšanje teh emisij.	4

Se nadaljuje

Avtor, država	*Vrsta raziskave*	*Namen raziskave*	*Vzorec*	*Glavne ugotovitve*	*Raven dokazov*
Rodriguez de Santiago et al. (2022), EU	Integrativni pregled dokazov.	Ozaveščati o ekološkem odtisu endoskopskih postopkov ter predstaviti strokovna stališča in priporočila za zmanjšanje vpliva endoskopije na okolje. Pri tem so bila predstavljena priporočila, ki jih oblikujeta European Society of Gastrointestinal Endoscopy in European Society of Gastroenterology and Endoscopy Nurses and Associates, namenjena izvajalcem zdravstvenih storitev, pacientom, industriji in oblikovalcem zdravstvenih politik.	/	ESGE in ESGENA priporočata, da se takoj sprejme ukrepe, ki zmanjšujejo vpliv postopkov endoskopije na okolje. Možne strategije so: upoštevanje smernic, vključitev zmanjševanja, ponovne uporabe in recikliranja odpadkov (3R-strategija), ponovna ocena ter zmanjšanje okoljskega in gospodarskega vpliva endoskopov za enkratno uporabo ter zmanjšanje njihove uporabe; vključitev trajnosti v učne načrte in kot kazalnika kakovosti; izvedba visoko kakovostnih raziskav; zdravstvene organizacije naj ocenijo, razkrijejo in revidirajo, kakšen okoljski vpliv ima njihova preskrbovalna veriga; endoskopska praksa do leta 2050 postane praksa z ničelnimi neto emisijami toplogrednih plinov.	4
Sebastian et al. (2023), Velika Britanija	Integrativni pregled dokazov, soglasje strokovnjakov.	Raziskati, kako endoskopija vpliva na okolje. Narejen je bil načrt praktičnih ukrepov, ki spodbujajo trajnost skozi celoten endoskopski proces (pred in med njim ter po njem).	/	Predstavljen je konsenz strokovnjakov glede trajnostne prakse v endoskopiji. K netrajnostni praksi trenutno največ prispevajo: veliko število posegov, več predmetov za enkratno uporabo in uporaba vode med endoskopskim posegom ter dekontaminacija instrumentov. Bistveno je sodelovanje z industrijo, saj ima zdravstveni sistem vzvode, da dobavitelje in proizvajalce spodbudi k inovacijam in spremembam.	4
Siau et al. (2021), Velika Britanija	Opisni pregled dokazov.	Identificirati vire odpadkov, nastalih pri endoskopiji, zagotoviti okvirni model za merjenje ogljičnega odtisa in predlagati korake, ki jih je mogoče izvesti za ublažitev ogljičnega odtisa endoskopije.	/	Endoskopske enote bi morale začeti sprejemati strategije 3R-ravnanja z odpadki (*reduce*, *reuse*, *recycle* – zmanjšanje, ponovna uporaba, recikliranje). Predlagajo taksonomijo trajnostnih posegov, pri čemer je pragmatični pristop, ki vključuje »pregled literature, raziskavo in ponovni izum«, mogoče uporabiti na vseh ravneh – od posameznika do mednarodnih gospodarskih družb –, saj na ta način lahko pripomoremo k zmanjšanju ogljičnega odtisa endoskopije.	4
Siddhi et al. (2021), Velika Britanija	Opisni pregled dokazov.	Raziskati možnosti ter predlagati ukrepe za razvoj trajnostnih pristopov pri izvajanju endoskopskih postopkov.	/	Število endoskopij v zadnjih letih vztrajno narašča. Ker endoskopske enote v svojih procesih uporabljajo večino potrošnega materiala za enkratno uporabo in porabijo veliko energije, prispevajo k emisijam toplogrednih plinov, posebej CO_2 in dušikovega oksida. Zdravstveni delavci se vse bolj zavedajo podnebnih sprememb, vendar mnogi ne prepoznajo svojega deleža pri njihovem zmanjšanju.	4

Tabela 2: *Tematska integrativna analiza kvantitativnih in kvalitativnih podatkov (Booth et al., 2012).*

Kategorija	***Kode***	***Avtorji***
Kategorija 1: dejavniki, ki vplivajo na varovanje okolja.	Matrike za določanje emisij CO_2: sodelovanje med izvajalci zdravstvenih storitev, proizvajalci, oblikovalci politik, trajnostne endoskopije, manjše velikosti in količina embalaže, biorazgradljivi materiali, recikliranje, brezpapirna dokumentacija, zeleni akcijski načrti, izdelki iz trajnostnih virov, zeleni razpisi, varčna razsvetljava, razvoj umetne inteligence za diagnostiko, recikliranje embalaže, telemedicina, neinvazivne metode, zmanjšanje števila nepotrebnih posegov, okolju prijazni pripomočki za čiščenje, spletno izobraževanje, inovacije instrumentov, kazalniki kakovosti, pH nevtralni detergenti, pravilno ločevanje odpadkov, strategija 3R-ravnanja z odpadki (*reduce*, *reuse*, *recycle*).	Bortoluzzi et al., 2022; Cunha Neves et al., 2023; Desai et al., 2023, Gayam, 2020; Hernandez et al., 2023; Jong et al., 2023; de Melo et al., 2021; Martin-Cabezuelo et al., 2023; Naburar et al., 2022; Park & Cha, 2023; Perisetti et al., 2023; Rodriguez de Santiago et al., 2022; Sebastian et al., 2023; Shaji et al., 2023; Siau et al., 2021; Siddhi et al., 2021.
Kategorija 2: oprema in pripomočki.	Osebna varovalna oprema (maske, plašči, predpasniki, rokavice, vizirji, očala), pripomočki za aspiracijo, materiali in pripomočki za enkratno uporabo, električna energija, kleščice, zanke, plastične cevke, biopsijske kleščice, sterilna voda, detergenti, dezinfekcijska sredstva, kontejnerji za odpadke, zdravila, anestezijski plini, brizge, aspiracijske igle, papir.	Bortoluzzi et al., 2022; Cunha Neves et al., 2023; Desai et al., 2023, Gayam, 2020; Hernandez et al., 2023; Jong et al., 2023; de Melo et al., 2021; Martin-Cabezuelo et al., 2023; Naburar et al., 2022; Park & Cha, 2023; Perisetti et al., 2023; Rodriguez de Santiago et al., 2022; Sebastian et al., 2023; Siau et al., 2021; Siddhi et al., 2021; Shaji et al., 2023.
Kategorija 3: opolnomočenje pacientov.	Omejitev količine nepotrebnih preiskav in posegov, spletno izobraževanje o dispepsiji, uporaba telemedicine.	Rodriguez de Santiago et al., 2022; Sebastian et al., 2023.
Kategorija 4: opolnomočenje zaposlenih.	Izobraževanje, prevzemanje odgovornosti, spodbujanje samorefleksije, motiviranje za ločevanje odpadkov, motiviranje sodelavcev, razvoj novih idej, iskanje neinvazivnih alternativ, trajnostni kurikulum, spletno učenje, varnostne vizite, razvoj visokokakovostnih raziskav, gibljivi endoskopi.	Bortoluzzi et al., 2022; Cunha Neves et al., 2023; Desai et al., 2023, Gayam, 2020; Hernandez et al., 2023; Jong et al., 2023; de Melo et al., 2021; Martin-Cabezuelo et al., 2023; Naburar et al., 2022; Park & Cha, 2023; Perisetti et al., 2023; Rodriguez de Santiago et al., 2022; Sebastian et al., 2023; Shaji et al., 2023; Siau et al., 2021; Siddhi et al., 2021.
Kategorija 5: varnost pacientov.	Klinične poti, klinične smernice, postopki preverjanja pacientov na oddelkih, redno izobraževanje zaposlenih, intervencije, podprte z dokazi.	Desai et al., 2023; Rodriguez de Santiago et al., 2022; Sebastian et al., 2023.

Legenda: CO_2 – ogljikov dioksid

posledično okoljskega bremena. Spodbujanje uporabe telemedicine za obravnavo nenujnih simptomov ter uporaba neinvazivnih diagnostičnih metod lahko zmanjšata potrebo po diagnostičnih endoskopijah (Rodriguez de Santiago et al., 2022; Sebastian et al., 2023).

Pomembno je tudi racionalno načrtovanje posegov ob doslednem upoštevanju kliničnih smernic, ki temeljijo na znanstvenih dokazih, saj to omogoča ustrezno selekcijo pacientov in preprečevanje nepotrebnih preiskav (Rodriguez de Santiago et al., 2022). Takšen pristop prispeva k trajnostni obravnavi, ne da bi ogrozil kakovost zdravstvene oskrbe (Cunha Neves et al., 2023).

Pomanjkljivo znanje zdravstvenega osebja o pravilnem ločevanju odpadkov ter pomanjkanje finančnih spodbud predstavljata pomembni oviri pri zmanjševanju emisij CO_2. Raziskave poudarjajo, da je izobraževanje zaposlenih ključni ukrep za izboljšanje trajnostnih praks. Usposabljanje o ločevanju odpadkov se je izkazalo kot učinkovito pri povečanju deleža recikliranih materialov (de Jong et al., 2023).

Po spletnem izobraževanju o obravnavi dispepsije se je v primerjavi s kontrolno skupino število opravljenih gastroskopij zmanjšalo za 40 %, kar kaže na pomen strokovnega znanja pri racionalni uporabi diagnostičnih postopkov. Podobno je izobraževanje zdravstvenih in nezdravstvenih delavcev v raziskavi Cunha et al. (2023) povzročilo skoraj 50-odstotno zmanjšanje količine odpadkov. Avtorji poudarjajo tudi pomen odgovornega ravnanja zaposlenih pri iskanju možnosti za recikliranje in zmanjševanje uporabe plastike za enkratno uporabo.

Izbira opreme in materialov prav tako pomembno vpliva na ogljični odtis endoskopskih postopkov. Raziskave kažejo, da obstajajo razlike v količini emisij CO_2 glede na uporabljene materiale, proizvajalce in modele pripomočkov (Martin-Cabezuelo et al., 2023). Reorganizacija endoskopske enote z uvedbo sistematičnega zmanjševanja, ločevanja in

predelave odpadkov predstavlja učinkovit pristop k zmanjševanju okoljskega vpliva. Dodatno možnost ponuja uvedba t. i. brezpapirne endoskopije, pri kateri uporaba elektronskih sistemov zmanjšuje porabo papirja ter hkrati izboljšuje učinkovitost procesov in nadzor kakovosti (Siddhi et al., 2023).

Trajnostni ukrepi morajo biti implementirani tako, da ne ogrožajo varnosti pacientov. Racionalno načrtovanje endoskopij mora temeljiti na kliničnih smernicah, ki zagotavljajo ustrezno indikacijo za poseg (Rodriguez de Santiago et al., 2022). Zmanjševanje števila nepotrebnih posegov je smiselno le ob ohranjanju visoke ravni varnosti, kakovosti in učinkovitosti zdravstvene obravnave (Rodriguez de Santiago et al., 2022).

Diskusija

Namen pregleda je bil presoditi, ali uvedba trajnostnih praks v endoskopiji omogoča zmanjšanje okoljskega odtisa ob hkratnem ohranjanju klinične učinkovitosti. Sinteza literature kaže, da je zmanjšanje okoljskega bremena izvedljivo, vendar le ob sistemskem in večdimenzionalnem pristopu, ki presega zgolj tehnične prilagoditve. Klinična učinkovitost ob tem ni ogrožena, kadar so trajnostni ukrepi implementirani skladno z veljavnimi smernicami in standardi varnosti. Okoljski vpliv endoskopije je kompleksen in večplasten (Desai et al., 2023).

Ugotovitve pregleda literature potrjujejo, da predstavlja endoskopija pomemben vir okoljskega odtisa z vidika porabe energije, vode in nastajanja odpadkov. Vpliv ne zajema zgolj emisij toplogrednih plinov, temveč posega tudi v druge okoljske podsisteme, kot so raba sladke vode, obremenitev tal, onesnaževanje z aerosoli in vpliv na biotsko raznovrstnost. To kaže, da vprašanje trajnosti v endoskopiji ni zgolj vprašanje zmanjševanja emisij CO_2, temveč širši izziv okoljskega upravljanja zdravstvenih dejavnosti (Desai et al., 2023).

Literatura opozarja, da je eden večjih paradoksov sodobne endoskopije povečana uporaba pripomočkov za enkratno uporabo, zlasti po epidemiji covida-19 (Perisetti et al., 2023; Rodriguez de Santiago et al., 2023). Čeprav pripomočki za enkratno uporabo zmanjšujejo potrebo po reprocesiranju in s tem potencialno tveganje za prenos okužb, analiza življenjskega cikla kaže, da povečujejo skupno količino odpadkov in ogljični odtis (Perisetti et al., 2023). To odpira pomembno strokovno vprašanje ravnotežja med zagotavljanjem varnosti, učinkovitostjo in trajnostjo. Razpoložljivi podatki kažejo, da trajnostni pristopi ne smejo biti obravnavani izolirano, temveč v okviru celostne presoje klinične koristi, varnosti pacientov in okoljskih posledic (Desai et al., 2023).

Pomemben vidik, ki ga izpostavlja več raziskav, je organizacijski in vedenjski dejavnik. Pomanjkljivo znanje zdravstvenega osebja o pravilnem ločevanju odpadkov in odsotnost finančnih spodbud se kažeta kot ključni oviri za zmanjševanje emisij (de Jong et al, 2023). To nakazuje, da tehnološke rešitve same po sebi niso dovolj; trajnost zahteva spremembo kulture delovanja v endoskopskih enotah. Izobraževanje zaposlenih se dosledno izkazuje kot eden najučinkovitejših ukrepov, saj izboljšuje ločevanje odpadkov, povečuje delež recikliranih materialov in zmanjšuje količino mešanih odpadkov. Hkrati se kot pomemben element kaže racionalizacija indikacij za posege (Siddhi et al., 2023). Upoštevanje kliničnih smernic, uporaba telemedicine in neinvazivnih diagnostičnih metod lahko zmanjšajo število nepotrebnih posegov, ne da bi pri tem ogrozili kakovost obravnave (Cunha Neves et al., 2023; Desai et al., 2023; Namburar et al., 2022).

Ugotovitve pregleda so skladne z mednarodnimi prizadevanji za razvoj »zelene endoskopije«, ki poudarja optimizacijo procesov, zmanjševanje porabe virov in digitalizacijo dokumentacije (npr. brezpapirno poslovanje) (Conha et al., 2023). Pomembno spoznanje je, da trajnostni ukrepi pogosto hkrati izboljšujejo organizacijsko učinkovitost in nadzor kakovosti, kar pomeni, da imajo poleg okoljskih tudi sistemske koristi (de Santiago et al., 2022).

Kljub temu je treba poudariti, da je večina razpoložljivih dokazov pridobljena iz nerandomiziranih, opazovalnih ali kvazieksperimentalnih raziskav. To omejuje možnost vzročno-posledičnih zaključkov in zmanjšuje splošno raven dokazov. Poleg tega med raziskavami ni enotnih metodoloških pristopov za merjenje ogljičnega odtisa, kar otežuje neposredno primerjavo rezultatov. Pomanjkanje dolgoročnega spremljanja kliničnih izidov pomeni dodatno raziskovalno vrzel, zlasti pri presoji dolgoročnih učinkov uporabe pripomočkov za enkratno uporabo (Desai et al., 2023).

Med strategijami za ločevanje odpadkov, ki jih je mogoče reciklirati, se je kot uspešno izkazalo usposabljanje zaposlenih (de Jong et al., 2023). Isti avtorji kot pomembno aktivnost izpostavljajo tudi opolnomočenje pacientov. Potem ko so se zaposleni udeležili spletnega izobraževanja o dispepsiji, se je število gastroskopij zmanjšalo za 40 % v primerjavi s kontrolno skupino, ki ni bila deležna izobraževanja. Podobno so ugotovili tudi Siddhi et al. (2023), ki se zavzemajo za ustrezno ločevanje odpadkov in zmanjšanje števila nepotrebnih posegov. Isti avtorji trdijo, da morajo tudi zaposleni zdravstveni delavci z odgovornim ravnanjem iskati možnosti za recikliranje in iskanje novih poti, da zmanjšajo količino odpadkov in porabo plastike za enkratno uporabo. Eden od ukrepov je tudi endoskopija brez papirja, s čimer se zmanjša breme papirologije, z uporabo elektronskih sistemov pa povečajo učinkovitost procesov in nadzor kakovosti. Izobraževanje zdravstvenih delavcev in nezdravstvenih sodelavcev s poudarkom na ločevanju odpadkov je v raziskavi Conha et al. (2023) zmanjšalo količino odpadkov skoraj za polovico. S tem se je povečala količina odpadkov za recikliranje. Temu

pritrjujejo tudi izsledki raziskave Perisetti et al. (2023). Istočasno Conha et al. (2023) spodbujajo paciente k uporabi telemedicine za obravnavo neurgentnih simptomov in uporabi neinvazivnih diagnostičnih metod. Načrtovanje endoskopskih posegov mora biti racionalno in premišljeno, tako da varnost pacientov pri tem ni ogrožena. Pomembno je, da se pri načrtovanju endoskopij opiramo na klinične smernice, ki temeljijo na znanstvenih dokazih, kot poudarjajo de Santiago et al. (2022).

Na podlagi pregleda literature lahko zaključimo, da zmanjševanje okoljskega odtisa endoskopije zahteva večplastni pristop: (1) optimizacijo ravnanja z odpadki, (2) racionalno uporabo materialov in energije, (3) kritično presojo uporabe pripomočkov za enkratno uporabo ter (4) izobraževanje in aktivno vključevanje zdravstvenega osebja in pacientov. Ključno novo spoznanje je, da trajnost ni v nasprotju s klinično učinkovitostjo, temveč jo lahko ob ustrezni implementaciji celo podpira, saj spodbuja racionalno, z dokazi podprto in organizacijsko učinkovito izvajanje posegov.

Pregled literature ima več omejitev, ki jih je treba upoštevati pri interpretaciji rezultatov. Večina vključenih raziskav je temeljila na nerandomiziranih in opazovalnih raziskovalnih dizajnih, zato je skupna raven dokazov relativno nizka, kar predstavlja omejitev pri interpretaciji rezultatov. Poleg tega številne raziskave ne uporabljajo standardiziranih metod za oceno ogljičnega odtisa endoskopskih postopkov, kar otežuje natančno kvantifikacijo in primerjavo rezultatov. Za prihodnje raziskave se kaže potreba po standardiziranih kazalnikih okoljskega vpliva, prospektivnih raziskovalnih načrtih ter vključevanju ekonomskih analiz stroškovne učinkovitosti trajnostnih intervencij. Le tako bo mogoče zagotoviti trdnejšo znanstveno podlago za sistemske spremembe na področju trajnostne endoskopije.

Zaključek

Pomanjkanje številčnih podatkov o količini toplogrednih plinov upočasnjuje razvoj strožje zakonodajne politike za njihovo zmanjšanje. Trenutno nimamo sprejetega soglasja med deležniki, kot so višji in srednji menedžment zdravstvenih organizacij, endoskopsko zdravstveno osebje, proizvajalci medicinskih pripomočkov in opreme, politični odločevalci ter pacienti. Opredelitev okoljskega vpliva endoskopskih postopkov in natančno dokumentiranje sta ukrepa, ki določata kazalnik kakovosti posamezne endoskopske enote. Brez navedenih podatkov smo močno oddaljeni od koncepta, ki ga zagovarja »zelena endoskopija«. Trajnostni razvoj se začne z opolnomočenjem tako zaposlenih kot tudi pacientov. Z opolnomočenjem zaposlenih prispevamo k temu, da zdravstveni delavci pravilno izvajajo postopke, ki ne vplivajo negativno na okolje. Hkrati zaposleni pridobijo možnost pogajanja s proizvajalci opreme in pripomočkov, da se ti v največji možni meri izognejo proizvodnji materialov za enkratno uporabo. Pri pacientih lahko vplivamo na to, da bodo sledili smernicam za izvedbo posegov, ki v določenih primerih pomenijo drugo preiskavo in ne vedno izvedbo endoskopije. Preudarno odločanje o napotitvi pacienta na endoskopski poseg na podlagi smernic, temelječih na dokazih, je varovalka, ki zagotavlja varno zdravstveno obravnavo za paciente in zaposlene.

Nasprotje interesov

Avtorici izjavljata, da ni nasprotja interesov.

Financiranje

Raziskava ni bila finančno podprta.

Etika raziskovanja

Glede na uporabljeno metodologijo raziskovanja pridobitev soglasja etične komisije ni bila potrebna.

Prispevek avtorjev

Obe avtorici sta enakovredno sodelovali pri zasnovi, zbiranju, analizi in interpretaciji podatkov ter pisanju in urejanju znanstvenega članka. Prva avtorica je sodelovala pri zasnovi in zbiranju podatkov ter pri pripravi prvega osnutka članka in grafičnih prikazov. Druga avtorica je izvedla analizo podatkov in sodelovala pri pregledu ter končnem urejanju besedila. Obe avtorici sta pregledali in potrdili končno različico članka.

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NAVODILA AVTORJEM

Splošna navodila

Članek naj bo napisan v slovenskem ali angleškem jeziku, razumljivo in jedrnato. Revija sprejema izvirne znanstvene in pregledne znanstvene članke. Izvirni znanstveni članek, naj bo dolg največ 5000 besed in pregledni znanstveni članek največ 6000 besed, vključno z izvlečkom (slovenskim ali angleškim), tabelami, slikami in referencami. Avtorji naj uporabijo Microsoft Wordovi predlogi, ki sta dostopni na spletni strani uredništva (Naslovna stran in Predloga za izvirni znanstveni/pregledni članek). Vsi članki, ki so uvrščeni v uredniški postopek, so recenzirani s tremi anonimnimi recenzijami. Revija objavlja le izvirna, še neobjavljena znanstvena dela. Za trditve v članku odgovarja avtor oziroma avtorji, če jih je več (v nadaljevanju avtor), zato morajo biti podpisani s celotnim imenom in priimkom. Navesti je potrebno korespondenčnega avtor (s polnim naslovom, telefonsko številko in elektronskim naslovom), ki bo skrbel za komunikacijo z uredništvom in ostalimi avtorji. Avtor mora pri oddaji članka dosledno upoštevati navodila glede standardizirane znanstvene opreme, videza in tipologije dokumentov ter navodila v zvezi z oddajo članka. Članek bo uvrščen v nadaljnjo obravnavo, ko bo pripravljen v skladu z navodili uredništva.

Naslov članka, izvleček, ključne besede, tabele (opisni naslov in legenda) ter slike (opisni naslov oz. podpis in legenda) morajo biti v slovenščini in angleščini, leto velja tudi za angleško pisane članke, le da so v tem primeru naštete enote navedene najprej v angleščini in nato v slovenščini. Skupno število slik in tabel naj bo največ pet. Tabele in slike naj bodo v besedilu članka na ustreznem mestu. Za prikaz rezultatov v tabelah, slikah in besedilu je treba uporabljati statistične simbole, ki jih avtor najde na spletni strani revije, poglavje Navodila. Na vsako tabelo in sliko se mora avtor v besedilu sklicevati. Uporaba sprotnih opomb pod črto ni dovoljena.

Etična načela pri obravnavi pritožb in prizivov

Če uredništvo ugotovi, da rokopis krši avtorske pravice, se rokopis takoj izloči iz uredniškega postopka. Plagiatorstvo ugotavljamo s *Detektorjem podobnih vsebin* (DPV) in *CrossCheck Plagiarizm Detection System*. Avtorji ob oddaji članka podpišejo *Izjavo o avtorstvu* in z njo potrdijo, da noben del prispevka do sedaj ni bil objavljen ali sprejet v objavo kjer koli drugje in v katerem koli jeziku.

V primeru etičnih kršitev se sproži postopek pregleda in razsojanja, ki ga vodi uredniški odbor revije. Na drugi stopnji etičnega presojanja razsodi Častno razsodišče Zbornice Zveze.

V izjemnih primerih lahko uredništvo Obzornika zdravstvene nege, po posvetovanju z avtorjem in uredniškim odborom objavi »popravek« (errata) članka.

Etični nadzor in etika raziskovanja

Avtorji so dolžni podati informacije o etičnih vidikih raziskave. V primeru odobritve raziskave s strani komisije za etiko zapišejo ime komisije za etiko in številko odločbe. V kolikor raziskava ni potrebovala posebnega dovoljenja komisije za etiko, so avtorji to dolžni pojasniti.

Če članek objavlja raziskavo na ljudeh, naj bo v podpoglavju metod *Opis poteka raziskave in obdelave podatkov* razvidno, da je bila raziskava opravljena skladno z načeli Helsinško-Tokijske deklaracije, opisan naj bo postopek pridobivanja dovoljenj za izvedbo raziskave. Eksperimentalne raziskave, opravljene na ljudeh, morajo imeti soglasje komisije za etiko bodisi na ravni ustanove ali več ustanov, kjer se raziskava izvaja, bodisi na nacionalni ravni.

Deljenje podatkov in avtorske pravice

Avtorske pravice so zaščitene s *Creative Commons Attribution CC BY-NC-ND 4.0* licenco.

Avtor na Obzornik zdravstvene nege, Ob železnici 30A, 1000 Ljubljana, prenaša naslednje materialne avtorske pravice: pravico reproduciranja v neomejeni količini, in sicer v vseh poznanih oblikah reproduciranja, kar obsega tudi pravico shranitve in reproduciranja v kakršnikoli elektronski obliki (23. čl. Zakona o avtorski in sorodnih pravicah – v nadaljevanju ZASP); pravico distribuiranja (24. čl. ZASP); pravico dajanja na voljo javnosti vključno z dajanjem na voljo javnosti prek svetovnega spleta oz. računalniške mreže (32.a čl. ZASP); pravico predelave, zlasti za namen prevoda (33. čl. ZASP). Prenos pravic velja za članek v celoti (vključno s slikami, razpredelnicami in morebitnimi prilogami). Prenos je izključen ter prostorsko in časovno neomejen.

Shranjevanje raziskovalnih podatkov

V skladu s smernicami odprte znanosti in zahtevami Javne agencije za znanstvenoraziskovalno in inovacijsko dejavnost Republike Slovenije naj avtorji, kadar je to mogoče, zagotovijo, da so raziskovalni podatki, uporabljeni ali ustvarjeni v raziskavi, shranjeni v ustreznem repozitoriju, ki omogoča trajno dostopnost, citiranje in ponovno uporabo podatkov. Priporočena je uporaba odprtih repozitorijev, kot je Zenodo, ali drugih primerljivih repozitorijev, ki omogočajo dodelitev trajnega identifikatorja (npr. DOI) in dolgoročno hrambo podatkov.

Raziskovalni podatki naj bodo pripravljeni v skladu z načeli FAIR (Findable, Accessible, Interoperable, Reusable). Če podatki zaradi etičnih, pravnih ali drugih utemeljenih razlogov (npr. varstvo osebnih podatkov) ne morejo biti javno dostopni, morajo avtorji v članku navesti omejitve dostopa ter, kjer je mogoče, opis podatkov ali pogoje za njihov dostop.

Citiranje raziskovalnih podatkov

Avtorji morajo ustrezno citirati vse raziskovalne podatke, podatkovne zbirke, programsko opremo, modele ali druge raziskovalne rezultate, ki so bili uporabljeni ali ustvarjeni v okviru raziskave.

Če so raziskovalni podatki javno dostopni v repozitoriju, jih je treba navesti v seznamu virov na koncu članka na enak način kot druge citirane vire. Navedba mora vključevati: avtorja ali ustvarjalca podatkov, leto objave, naslov podatkovnega nabora, ime repozitorija ter trajni identifikator (npr. DOI ali drug PID).

Arhiviranje

Publikacija je del *PKP Preservation Network - LOCKSS*, ki zagotavlja varno in stalno arhiviranje vsebine. Obzornik zdravstvene nege lahko najdemo v Registru THE KEEPERS, repozitoriju OAI-PMH in v Dlib - Digitalni knjižnici Slovenije.

Recenzijski proces

Članki so recenzirani z zunanjo strokovno recenzijo. Recenzije so anonimne.

Članek se uvrsti v uredniški postopek, če izpolnjuje kriterije za objavo. Poslan bo v zunanjo strokovno (anonimno) recenzijo. Znanstveni članki so trojno recenzirani. Recenzenti prejmejo besedilo članka brez avtorjevih osebnih podatkov, članek pregledajo glede na postavljene kazalnike in predlagajo izboljšave. Po zaključenem recenzijskem postopku uredništvo članek vrne avtorju, da popravke odobri, jih upošteva in pripravi čistopis. Avtor je dolžan izboljšave pregledati in jih v največji meri upoštevati. V kolikor katere od predlaganih izboljšav ne upošteva, mora le-to pisno pojasniti. Čistopis uredništvo pošlje v jezikovni pregled.

Stroški objave

Objava članka v Obzorniku zdravstvene nege ni plačljiva.

V primeru odstopa avtorja od objave članka po pripravljeni recenziji, je le ta plačljiva.

Opredelitev tipologije

Uredništvo razvrsti posamezni članek po veljavni tipologiji za vodenje bibliografij v sistemu COBISS (Kooperativni online bibliografski sistem in servisi) (dostopnona: http://home.izum.si/COBISS/bibliografije/Tipologija_slv.pdf). Tipologijo lahko predlagata avtor in recenzent, končno odločitev sprejme glavni in odgovorni urednik.

Metodološka struktura članka

Naslov, **izvleček** in **ključne besede** naj bodo v slovenščini in angleščini. Naslov naj bo skladen z vsebino članka in dolg največ 120 znakov. Oblikovan naj bo tako, da je iz njega razviden uporabljeni raziskovalni dizajn. Če naslovu sledi podnaslov, naj bosta ločena s podpičjem. Navedenih naj bo od tri do šest ključnih besed, ki natančneje opredeljujejo vsebino članka in ne nastopajo v naslovu. Izvleček naj bo strukturiran, vsebuje naj 150–220 besed. Napisan naj bo v tretji osebi. V izvlečku se ne citira.

Strukturirani izvleček naj vsebuje naslednje strukturne dele:

Uvod (Introduction): Navesti je treba ključna spoznanja dosedanjih raziskav, opis raziskovalnega problema, namen raziskave, v katerem so opredeljene ključne spremenljivke raziskave.

Metode (Methods): Navesti je treba uporabljeni raziskovalni dizajn, opisati glavne značilnosti vzorca, instrument raziskave, zanesljivost instrumenta, kje, kako in kdaj so se zbirali podatki in s katerimi metodami so bili obdelani in analizirani.

Rezultati (Results): Opisati je treba najpomembnejše rezultate raziskave, ki odgovarjajo na raziskovalni problem in namen raziskave. Pri kvantitativnih raziskavah je treba navesti vrednost rezultata in raven statistične značilnosti.

Diskusija in zaključek (Discussion and conclusion): Razpravljati je treba o ugotovitvah raziskave, navesti se smejo le zaključki, ki izhajajo iz podatkov, pridobljenih pri raziskavi. Navesti je treba tudi uporabnost ugotovitev in izpostaviti pomen nadaljnjih raziskav za boljše razumevanje raziskovalnega problema. Enakovredno je treba navesti tako pozitivne kot tudi negativne ugotovitve.

Struktura izvirnega znanstvenega članka (1.01)

Izvirni znanstveni članek je samo prva objava originalnih raziskovalnih rezultatov v takšni obliki, da se raziskava lahko ponovi ter ugotovitve preverijo. Revija objavlja znanstvene raziskave, za katere zbrani podatki niso starejši od pet let ob objavi članka v reviji.

Uvod: V uvodu opredelimo raziskovalni problem,in sicer v kontekstu znanja in znanstvenih dokazovv katerem smo ga razvili. Pregled obstoječe znanstvene literature mora utemeljiti potrebo po naši raziskavi in je osnova za oblikovanje namena in ciljev raziskave, raziskovalnih vprašanj oz. hipotez in izbranega dizajna raziskave. Uporabimo znanstvena spoznanja in koncepte aktualnih mednarodnih in domačih raziskav, ki so objavljena kot primarni vir in niso starejša od deset oziroma pet let. Obvezno je citiranje in povzemanje spoznanj raziskav in ne mnenj avtorjev. Na koncu opredelimo namen in cilje raziskave. Priporočamo zapis raziskovalnih vprašanj (kvalitativna raziskava) oz. hipotez (kvantitativna raziskava).

Metode: V uvodu metod navedemo izbrano raziskovalno paradigmo (kvantitativna, kvalitativna)

in uporabljeni dizajn izbrane paradigme. Podpoglavja metod so: *opis instrumenta, opis vzorca, opis poteka raziskave in obdelave podatkov*.

Pri *opisu instrumenta* navedemo: opis sestave instrumenta, kako smo oblikovali instrument, spremenljivke v instrumentu, merske značilnosti (veljavnost, zanesljivost, objektivnost, občutljivost). Navedemo avtorje, po katerih smo instrument povzeli, ali navedemo literaturo, po kateri smo ga razvili. Pri kvalitativni raziskavi opišemo tehniko zbiranja podatkov, izhodiščna vprašanja, morebitno strukturo poteka zbiranja podatkov, kriterije veljavnosti in zanesljivosti tehnike zbiranja podatkov.

Pri *opisu vzorca* navedemo: opis populacije, iz katere smo oblikovali vzorec, vrsto vzorca, kolikšen je bil odziv vključenih v raziskavo, opis vzorca po demografskih podatkih (spol, izobrazba, delovna doba, delovno mesto ipd.). Pri kvalitativni raziskavi opredelimo še možnosti vključitve in izbrani način vključitve v raziskavo, vrsto vzorca, velikost vzorca in pojasnimo zasičenost vzorca.

Pri *opisu poteka raziskave in obdelave podatkov* navedemo etična dovoljenja za izvedbo raziskave, dovoljenja za izvedbo raziskave v organizaciji, predstavimo potek izvedbe raziskave, zagotovila za anonimnost vključenih ter prostovoljnost pri vključitvi v raziskavo, navedeno obdobje, kraj in način zbiranja podatkov, uporabljene metode analize podatkov, pri slednjem natančno navedemo statistične metode, program in verzijo programa statistične obdelave, meje statistične značilnosti. Pri kvalitativni raziskavi natančno opišemo celoten potek raziskave, način zapisovanja, zbiranja podatkov, število izvedb (opazovanj, intervjujev ipd.), trajanje izvedb, sekvence, transkripcijo podatkov, korake analize obdelave, tehnike obdelave in interpretacije podatkov ter receptivnost raziskovalca.

Rezultati: Rezultate prikažemo besedno oz. v tabelah in slikah ter pazimo, da izberemo le en prikaz za posamezen rezultat in da se vsebina ne podvaja. V razlagi rezultatov se osredotočamo na statistično značilne rezultate in tiste, ki so nas presenetili. Rezultate prikazujemo glede na stopnjo zahtevnosti statistične obdelave. Pri prikazu rezultatov v tabelah in slikah je za vse uporabljene kratice potrebna pojasnitev v legendi pod tabelo ali sliko. Rezultate prikažemo po postavljenih spremenljivkah, odgovorimo na raziskovalna vprašanja oz. hipoteze. Pri kvalitativnih raziskavah prikažemo potek oblikovanja kod in kategorij, za vsako kodo predstavimo eno do dve reprezentativni izjavi vključenih v raziskavo, ki najbolje predstavita oblikovano kodo. Naredimo shematični prikaz dobljenih kod in iz njih razvitih kategorij ter sodbo.

Diskusija: V diskusiji ugotovitve raziskave navajamo na besedni način (številčnih rezultatov ne navajamo). Nizamo jih po posameznih spremenljivkah in z vidika postavljenih raziskovalnih vprašanj oz. hipotez, ki jih ne ponavljamo, temveč nanje besedno odgovarjamo. Rezultate v razpravi pojasnimo z vidika razumevanja, kaj lahko iz njih razberemo, razumemo in kako je to primerljivo z rezultati drugih raziskav in kaj to pomeni za uporabnost naše raziskave. Pri tem smo odgovorni in etični ter rezultate pojasnjujemo z vidika spoznanj naše raziskave in z vidika spoznanj, ki so preverljiva, splošno znana in primerljiva z vidika drugih raziskav. Pazimo na posploševanje rezultatov in se pri tem zavedamo omejitev raziskave z vidika instrumenta, vzorca in poteka raziskave. Upoštevamo načelo preverljivosti in primerljivosti. Oblikujemo rdečo nit razprave kot smiselne celote, komentiramo pričakovana in nepričakovana spoznanja raziskave. Na koncu razprave navedemo priporočila, ki so plod naše raziskave, in področja, ki jih nismo raziskali, pa bi jih bilo treba, ali pa smo jih, vendar naši rezultati ne dajejo ustreznih pojasnil. Navedemo omejitve raziskave.

Zaključek: Na kratko povzamemo ključne ugotovitve izvedene raziskave, povzamemo predloge za prakso, predlagamo možnosti nadaljnjega raziskovanja obravnavanega problema. V zaključku ne citiramo ali povzemamo.

Članek naj se zaključi s seznamom literature, ki je bila citirana ali povzeta v članku.

Struktura preglednega znanstvenega članka (1.02)

V kategorijo preglednih znanstvenih raziskav sodijo: sistematični pregled literature, pregled literature, analiza koncepta, razpravni članek (v nadaljevanju pregledni znanstveni članek). Revija objavlja pregledne znanstvene raziskave, za katere je bilo zbiranje podatkov končano največ tri leta pred objavo članka v reviji.

Pregledni znanstveni članek je pregled najnovejših raziskav o določenem predmetnem področju z namenom povzemati, analizirati, evalvirati ali sintetizirati informacije, ki so že bile publicirane. V preglednem znanstvenem članku znanstvena spoznanja niso le navedena, ampak tudi razložena, interpretirana, analizirana, kritično ovrednotena in predstavljena na znanstvenoraziskovalen način. Na osnovi kvantitativne obdelave podatkov predhodnih raziskav (metaanaliza) ali kvalitativne sinteze (metasinteza) rezultatov predhodnih raziskav prinaša nova spoznanja in koncepte za nadaljnje raziskovalno delo. Struktura preglednega znanstvenega članka je enaka kot pri izvirnem znanstvenem članku.

V **uvodu** predstavimo znanstveno, konceptualno ali teoretično izhodišče kot vodilo pregleda literature. Končamo z utemeljitvijo, zakaj je pregled potreben, zapišemo namen, cilje in raziskovalno vprašanje.

V **metodah** natančno opišemo uporabljeni raziskovalni dizajn pregleda literature. Podpoglavja metod so: *metode pregleda, rezultati pregleda, ocena kakovosti pregleda in opis obdelave podatkov*. *Metode*

pregleda vključujejo razvoj, testiranje in izbor iskalne strategije, vključitvene in izključitvene kriterije za uvrstitev v pregled, raziskane podatkovne baze, časovno obdobje iskanja objav, vrste objav z vidika hierarhije dokazov, ključne besede, jezik pregledanih objav. *Rezultati pregleda* vključujejo število dobljenih zadetkov, število pregledanih raziskav, število vključenih raziskav in število izključenih raziskav. Uporabimo diagram poteka raziskave skozi faze pregleda, pri izdelavi si pomagamo z mednarodnimi standardi za prikaz rezultatov pregleda literature (npr. PRISMA-Preferred Reporting Items for Systematic Review and Meta-Analysis). *Ocena kakovosti pregleda in opis obdelave podatkov* vključuje oceno uporabljene iskalne strategije in kriterijev za dokončni nabor uporabljenih zadetkov, kakovost vključenih raziskav z vidika hierarhije dokazov ter način obdelave podatkov. **Rezultate** prikažemo tabelarično kot analizo kakovosti vključenih raziskav. Tabela naj vključuje avtorje raziskave, leto objave raziskave, državo, kjer je bila raziskava izvedena, namen raziskave, raziskovalni dizajn, proučevane spremenljivke, instrument, velikost vzorca, ključne ugotovitve idr. Jasno naj bo razvidno, katere vrste raziskav glede na hierarhijo dokazov so vključene v pregled literature. Rezultate prikažemo besedno, v tabelah in slikah, navedemo ključna spoznanja glede na raziskovalni dizajn. Pri kvalitativni sintezi uporabimo kode in kategorije kot rezultat pregleda kvalitativne sinteze. Pri kvantitativni analizi opišemo uporabljene statistične metode obdelave podatkov iz vključenih znanstvenih del.

V **diskusiji** v prvem delu odgovorimo na raziskovalno vprašanje, nato komentiramo ugotovitve pregleda literature, kakovost vključenih raziskav, svoje ugotovitve primerjamo z rezultati drugih primerljivih raziskav, razvijemo nova spoznanja, ki jih je doprinesel pregled literature, njihovo teoretično, znanstveno in praktično uporabnost, navedemo omejitve raziskave, uporabnost v praksi in priložnosti za nadaljnje raziskovanje.

V **zaključku** poudarimo doprinos izvedenega pregleda, opozorimo na morebitne pomanjkljivosti v splošno uveljavljenjem znanju in razumevanju, izpostavimo pomen bodočih raziskav, uporabnost pridobljenih spoznanj in priporočila za prakso, raziskovanje, izobraževanje, menedžment, pri čemer upoštevamo omejitve raziskave. Izpostavimo teoretični koncept, ki bi lahko usmerjal raziskovalce v prihodnosti. V zaključku ne citiramo ali povzemamo.

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Vsako trditev, teorijo, uporabljeno metodologijo in koncept je treba potrditi s citiranjem. Avtorji naj uporabljajo *APA 7- American Psychological* (APA Style, 2020*)* za navajanje avtorjev v besedilu in seznamu literature na koncu članka. Za navajanje avtorjev **v besedilu** uporabljamo npr.: (Pahor, 2006) ali Pahor (2006), kadar priimek vključimo v poved. Za več kot dva avtorje v besedilu zapišemo »et al.« (dva priimka ločimo z »&«: (Chen et al., 2007; Stare & Pahor, 2010). Če navajamo več citiranih del, jih ločimo s podpičjem. Uredimo jih po abecednem vrstnem redu, glede na priimek prvega avtorja. Če je med njimi v istem letu več citiranih del, jih razvrstimo po abecednem vrstnem redu (Bratuž, 2012; Pajntar, 2013; Wong et al., 2014). Kadar citiramo več del istega avtorja, izdanih v istem letu, je treba za letnico dodati malo črko po abecednem redu: (Baker, 2002a, 2002b).

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NAVODILA ZA PREDLOŽITEV ČLANKA

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V primeru oddaje članka, ki ni skladen z navodili, si uredništvo pridružuje pravico do zavrnitve članka. Spreminjanje vrstnega reda avtorjev ali korespondenčnega avtorja tekom postopka objave članka ni dovoljeno, zato naprošamo avtorje, da skrbno pregledajo v dokumentu Naslovna stran vrstni red avtorjev.

Pred oddajo članka naj avtor članek pripravi v naslednjih treh ločenih dokumentih.

NASLOVNA STRAN, ki vključuje:
- naslov članka;
- avtorje v vrstnem redu, kot morajo biti navedeni v članku;
- popolne podatke o vseh avtorjih (ime, priimek, dosežena stopnja izobrazbe, habilitacijski naziv, zaposlitev, e-naslov, ORCID, Twitter) in podatek o tem, kdo je korespondenčni avtor; če je članek napisan v angleščini, morajo biti tako zapisani tudi vsi podatki o avtorjih; podpisi avtorjev; v sistem je vključena e-izjava o avtorstvu;
- informacijo, ali članek vključuje del rezultatov večje raziskave oz. ali je nastal v okviru diplomskega, magistrskega ali doktorskega dela (v tem primeru je prvi avtor vedno študent);
- izjave (statements): avtorji morajo ob oddaji rokopisa podati sledeče izjave (pri slovensko pisanem članku so vse izjave tako v slovenščini kot tudi v angleščini), ki bodo po zaključenem recenzentskem postopku in odločitvi za sprejem članka v objavo prikazane na koncu članka pred poglavjem *Literatura*.

Zahvala/Acknowledgements

Avtorji se lahko zahvalijo posameznikom, skupinam ali sodelujočim v raziskavi za sodelovanje v raziskavi (izbirno).

Nasprotje interesov/Conflict of interest

Avtorji so dolžni predstaviti kakršnokoli nasprotje interesov pri oddaji članka. V kolikor avtorji nimajo nobenih nasprotujočih interesov naj zapišejo naslednjo izjavo: »Avtorji izjavljajo, da ni nasprotja interesov.«

Financiranje/Funding

Avtorji so dolžni opredeliti kakršnokoli finančno pomoč pri nastajanju članka. Ta informacija je lahko podana z imenom organizacije, ki je financirala ali sofinancirala raziskavo, ter v primeru projekta z imenom in številko projekta. V kolikor ni bilo nobenega financiranja, naj avtorji zapišejo naslednjo izjavo: »Raziskava ni bila finančno podprta.«

Etika raziskovanja/Ethical approval

Avtorji so dolžni podati informacije o etičnih vidikih raziskave. V primeru odobritve raziskave s strani komisije za etiko zapišejo ime komisije za etiko in številko odločbe. V kolikor raziskava ni potrebovala posebnega dovoljenja komisije za etiko, so avtorji to dolžni pojasniti. Glede na posamezen tip raziskave lahko avtorji na primer zapišejo tudi naslednjo izjavo: »Raziskava je pripravljena v skladu z načeli Helsinško- Tokijske deklaracije (World Medical Association, 2013) in v skladu s Kodeksom etike v zdravstveni negi in oskrbi Slovenije (2024) (ali) Kodeksom etike za babice Slovenije (2014),« v skladu s katero je treba v seznamu literature navajati oba vira.

Prispevek avtorjev/Author contributions

V primeru članka dveh ali več avtorjev so avtorji dolžni opredeliti prispevek posameznega avtorja pri nastanku članka, kot to določajo priporočila International Committee of Medical Journal Editors (ICMJE), dostopno na: http://www.icmje.org/recommendations. Vsak soavtor članka mora sodelovati v najmanj dveh strukturnih delih članka (Uvod/Introduction, Metode/Methods, Rezultati/Results, Diskusija in zaključek/Discussion and conclusion). Za vsakega avtorja je treba napisati, v katerih delih priprave članka je sodeloval in kaj je bil njegov prispevek v posameznem delu.

1. IZJAVA O AVTORSTVU
Izjavo o avtorstvu in strinjanju z objavo prispevka, s podpisi avtorjev in razčlenitvijo delov pri katerih so sodelovali na podlagi ICMJE smernic h katerim je revija zavezana.

2. GLAVNI DOKUMENT, ki je anonimiziran in vključuje naslov članka (obvezno brez avtorjev in kontaktnih podatkov), izvleček, ključne besede, besedilo članka v predpisani strukturi, tabele, slike in literaturo. Avtorji lahko v članku uporabijo največ 5 tabel oziroma slik.

Obseg članka: članek naj vsebuje največ 5000 besed za kvantitativno in do 6000 besed za kvalitativno zasnovane raziskave. V ta obseg se ne štejejo izvleček, tabele, slike in seznam literature. Število besed člankaje treba navesti v dokumentu »Naslovna stran«.

Za **oblikovanje besedila članka** naj velja naslednje: velikost strani A4, dvojni razmik med vrsticami, pisava Times New Roman, velikost črk 12 točk in širina robov 25 mm. Obvezna je uporaba oblikovne predloge za članek (Word), dostopne na spletni strani Obzornika zdravstvene nege.

Tabele naj bodo označene z arabskimi zaporednimi številkami. Imeti morajo vsaj dva stolpca ter opisni naslov (nad tabelo), naslovno vrstico, morebitni zbirni stolpec in zbirno vrstico ter legendo uporabljenih znakov. V tabeli morajo biti izpolnjena vsa polja, obsegajo lahko največ 57 vrstic. Za njihovo oblikovanje naj velja naslednje: velikost črk 11 točk, pisava Times New Roman, enojni razmik, pred in za vrstico 0,5 točke prostora, v prvem stolpcu in vseh stolpcih z besedilom leva poravnava, v stolpcih s statističnimi podatki leva poravnava, vmesne pokončne črte pri prikazu neizpisane. Uredništvo si pridružuje pravico, da preobsežne tabele, v sodelovanju z avtorjem, preoblikuje.

Slike naj bodo oštevilčene z arabskimi zaporednimi številkami. Podpisi k slikam (pod sliko) in legende naj bodo v slovenščini in angleščini, pisava Times New Roman, velikost 11 točk. Izraz slika uporabimo za grafe, sheme in fotografije. Uporabimo le dvodimenzionalne grafične črno-bele prikaze (lahko tudi šrafure) ter resolucijo vsaj 300 dpi (dot per inch). Če so slike v dvorazsežnem koordinatnem sistemu, morata obe osi (x in y) vsebovati označbe, katere enote/mere vsebujeta.

Članki niso honorirani. Besedil in slikovnegagradiva ne vračamo, kontaktni avtor prejme objavljeničlanek v formatu PDF (Portable Document Format).

Predložitev članka s strani urednikov ali članov uredniškega odbora

Spodbudno je, da uredniki in člani uredniškega odbora Obzornika zdravstvene nege objavljajo v reviji. V izogib vsakršnemu konfliktu interesov, člani uredniškega odbora ne vodijo uredniškega postopka za svoj članek. Če eden izmed urednikov predloži članek v uredništvo, potem drugi urednik sprejema odločitve vezane na članek. Uredniki aličlani uredniškega odbora ne opravljajo recenzije ali vodijo uredniškega postopka sodelavcev iz institucijev kateri so zaposleni, pri čemer morajo paziti na nastanek potencialnih konfliktov interesov. Od vseh članov uredniškega odbora kot tudi urednikov se pričakuje, da bodo spoštovali zasebnost, sledili načelupravičnosti in sporočali morebitne konflikte interesov,ki jih imajo do avtorjev oddanih člankov.

Sodelovanje avtorjev z uredništvom

Članek mora biti pripravljen v skladu z navodili in oddan prek spletne strani revije na http://obzornik.zbornica-zveza.si, to je pogoj, da se članek uvrsti v uredniški postopek. Če uredništvo presodi, da članek izpolnjuje kriterije za objavo v Obzorniku zdravstvene

nege, bo poslan v zunanjo strokovno (anonimno) recenzijo. Recenzenti prejmejo besedilo članka brez avtorjevih osebnih podatkov, članek pregledajo glede na postavljene kazalnike in predlagajo izboljšave. Avtor je dolžan izboljšave pregledati in jih v največji meri upoštevati ter članek dopolniti v roku, ki ga določi uredništvo. Uredništvo predlaga avtorju, da popravke/spremembe v članku označi z rumeno barvo. V kolikor avtor članka ne vrne v roku, se članek zavrne. V kolikor avtor katere od predlaganih izboljšav ne upošteva, mora to pisno pojasniti. Po zaključenem recenzijskem postopku uredništvo članek vrne avtorju, da popravke odobri, jih upošteva in pripravi čistopis. Čistopis uredništvo pošlje v jezikovni pregled.

Avtor prejme prvi natis v korekturo s prošnjo, da na njem označi vse morebitne tiskovne napake, ki jih označi v PDF-ju prvega natisa. Spreminjanje besedilav tej fazi ni sprejemljivo. Korekture je treba vrniti v treh delovnih dneh, v nasprotnem uredništvo meni,da se avtor s prvim natisom strinja.

NAVODILA ZA DELO RECENZENTOV

Recenzentovo delo je odgovorno in zahtevno. S svojimi predlogi in ocenami recenzenti prispevajo k večji kakovosti člankov, objavljenih v Obzorniku zdravstvene nege. Od recenzenta, ki ga uredništvo neodvisno izbere, se pričakuje, da bo odgovoril na vprašanja, ki so postavljena v obrazcu OJS, in ugotovil, ali so trditve in mnenja, zapisani v članku, verodostojni in ali je avtor upošteval navodila za objavljanje. Recenzent mora poleg znanstvenosti, strokovnosti in primernosti vsebine za objavo v Obzorniku zdravstvene nege članek oceniti metodološko ter uredništvo opozoriti na pomanjkljivosti. Ni treba, da se recenzent ukvarja z lektoriranjem, vendar lahko opozori tudi na jezikovne pomanjkljivosti. Pozoren naj bo na pravilno rabo strokovne terminologije. Posebej mora biti recenzent pozoren, ali je naslov članka jasen, ali ustreza vsebini; ali izvleček povzema bistvo članka; ali avtor citira (naj)novejšo literaturo in ali citira znanstvene raziskave avtorjev, ki so pisali o isti temi v domačih revijah; ali se avtor izogiba avtorjem, ki zagovarjajo drugačna mnenja, kot so njegova; ali navaja tuje misli brez citiranja; ali je citiranje literature ustrezno, ali se v besedilu navedena literatura ujema s seznamom literature na koncu članka. Dostopno literaturo je treba preveriti. Oceniti je treba ustreznost slik ter tabel, preveriti, če se v njih ne ponavlja tisto, kar je v besedilu že navedeno. Recenzentova dolžnost je opozoriti na morebitne nerazvezane kratice. Recenzent mora biti še posebej pozoren na morebitno plagiatorstvo in krajo intelektualne lastnine.

S sprejetjem recenzije se recenzent zaveže, da jo bo oddal v predpisanem roku. Če to ni mogoče, mora takoj obvestiti uredništvo. Recenzent se obveže, da vsebine članka ne bo nedovoljeno razmnoževal ali drugače zlorabil. Recenzije so anonimne: recenzent je avtorju neznan in obratno. Recenzent bo v pregled prek sistema OJS prejel le vsebino članka brez imena avtorja. V sistemu OJS recenzent poda svoje strokovno mnenje v recenzijskem obrazcu. Če ima recenzent večje pripombe, jih kot utemeljitev za sprejem ali morebitno zavrnitev članka na kratko opiše oz. avtorju predlaga nadaljnje delo, pri čemer upošteva njegovo integriteto. Zaradi večje preglednosti in lažjih dopolnitev s strani avtorja lahko recenzent svoje pripombe in morebitne predloge vnese v besedilo članka, pri tem uporabi možnost, ki jo ponuja Microsoft Word – sledi spremembam (Track changes). Recenzent mora biti pozoren, da pred uporabo omenjene možnosti prikrije svojo identiteto (sledi spremembam, spremeni ime/ Track changes, change user name). Recenzentsko verzijo besedila članka z vključenimi anonimiziranimi predlogi nato recenzent naloži v sistem OJS in omogoči avtorju, da predloge dopolnitev vidi. Končnoodločitev o objavi članka sprejme uredniški odbor.

Literatura

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GUIDE FOR AUTHORS

General guidelines

The manuscript should be written clearly and succinctly in standard Slovene or English and should conform to acceptable language usage. Its length must not exceed 5000 words for quantitative and 6000 for qualitative research articles, excluding the title, abstract, tables, pictures and literature. The authors should use the Microsoft Word templates accessible on the website of the editorial board (Title Page and Template for Original Scientific Article/ Review Rrticle). All articles considered for publication in the Slovenian Nursing Review will be subjected to external, triple-blind peer review. Manuscripts are accepted for consideration by the journal with the understanding that they represent original material, have not been previously published and are not being considered for publication elsewhere. Individual authors bear full responsibility for the content and accuracy of their submissions and should therefore state their full name(s) when submitting the article. The submission should also include the name of the designated corresponding author (with their complete home and e-mail address, and telephone number) responsible for communicating with the editorial board and other authors. In submitting a manuscript, the authors must observe the standard scientific research paper structure, format and typology, and submission guidelines. The manuscript will be submitted to the review process once it is submitted in accordance with the guidelines of the editorial office.

If the article reports on research involving human subjects, it should be evident from the methodology section that the study was conducted in accordance with the Declaration of Helsinki and Tokyo. All human subject research including patients or vulnerable groups, healthcare and students requires review and approval by the ethical committee on the institutional or national level prior to subject recruitment and data collection.

The title of the article, abstract and key words, tables (descriptive title and legend) and figures (descriptive title, notes and legend) must be submitted in Slovene as well as in English. The same applies to articles written in English, in which these elements must be presented first in the English language, followed by their translation into Slovene. A manuscript can include a total of five tables and/or figures. Tables and figures should be placed next to the relevant text. The results presented in the tables and figures should use symbols as required by the Author Guidelines, available on the journal website. The authors should refer to each table/figure in the text. The use of footnotes or endnotes is not allowed.

Ethical principles

Should the editorial board find that the manuscript infringes any copyright, it will be immediately excluded from the editorial process. In order to detect plagiarism, a detector of similar contents *Detektor podobnih vsebin* (DPV) and the *CrossCheck Plagiarism Detection System* are used. The authors sign the Authorship Statement confirming that no part of the paper has been published or accepted for publication elsewhere and in any other language.

In case of ethical violations, a resolution and adjudication process is initiated, led by the editorial board of the journal. The second stage of the resolution process is conducted by an honorary review panel of the Slovenian Nurses Association.

In exceptional cases, the editorial board of the Nursing Review, after consulting with the author and the editorial committee, may publish a "correction" (errata) to the article.

Ethical oversight and research ethics

Authors are required to provide information on the ethical aspects of the research. In the case of research approval by an ethics committee, they should state the name of the ethics committee and the decision number. If the research did not require special permission from an ethics committee, the authors must explain this.

If the article publishes research on humans, it should be clear in the subsection of methods "Description of research process and data processing" that the research was conducted in accordance with the principles of the Helsinki-Tokyo Declaration, and the process of obtaining permissions for conducting the research should be described. Experimental research conducted on humans must have the consent of an ethics committee, either at the level of the institution or multiple institutions where the research is conducted, or at the national level.

Data sharing and copyright

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In accordance with open science guidelines and the requirements of the Slovenian Research and Innovation Agency, authors should, whenever possible, ensure that research data used or generated in the research are stored in an appropriate repository that enables long-term accessibility, citation, and reuse of the data. The use of open repositories such as Zenodo or other comparable repositories that provide a persistent identifier (e.g., DOI) and long-term data preservation is recommended.

Research data should be prepared in accordance with the FAIR principles (Findable, Accessible, Interoperable, Reusable). If data cannot be made publicly available due to ethical, legal, or other justified reasons (e.g., protection of personal data), authors must indicate the restrictions on data access in the article and, where possible, provide a description of the data or the conditions under which they may be accessed.

Citation of Research Data

Authors must properly cite all research data, datasets, software, models, or other research outputs that were used or generated in the course of the research.

If research data are publicly available in a repository, they should be included in the reference list at the end of the article in the same way as other cited sources. The citation must include: the author or creator of the data, year of publication, title of the dataset, name of the repository, and a persistent identifier (e.g., DOI or another PID).

Archiving and preservation

The publication is part of the PKP Preservation Network - LOCKSS, which ensures safe and continuous archiving of content. The Slovenian Nursing Review can be found in the Registry of THE KEEPERS, the OAI-PMH repository, and in Dlib - the Digital Library of Slovenia.

Review Process

Articles are reviewed with external professional review. Reviews are anonymous. An article proceeds to the editorial process if it meets the publication criteria. It will be sent for external professional (anonymous) review. Scientific articles are reviewed three times. Reviewers receive the text of the article without the author's personal information, review it based on set indicators, and suggest improvements. After the review process is completed, the editorial office returns the article to the author for approval of the corrections, to consider them, and to prepare the final draft. The author is obliged to review the improvements and consider them to the greatest extent possible. If the author does not follow any of the suggested improvements, they must explain this in writing. The final draft is sent to the editorial office for language review.

Publication Fees

Publishing an article in the Nursing Review is not subject to a fee. If the author withdraws from publishing the article after the review has been prepared, a fee is charged.

Article typology

The editors reserve the right to re-classify any article under a topic category that may be more suitable than that it was originally submitted under. The classification follows the adopted typology of documents/works for bibliography management in COBISS (Cooperative Online Bibliographic System and Services) accessible at: http:// home.izum.si/ COBISS/bibliografije/Tipologija_slv. pdf). While such reclassification may be suggested by the author or the reviewer, the final decision rests with the editor-inchief and the executive editor.

Methodological structure of an article

The title, abstract and key words should be written in Slovene and English. A concise but informative title should convey the nature, content and research design of the paper. It must not exceed 120 characters. If the title is followed by a subtitle, a semicolon should be placed in between. Up to six key words separated by a semicolon and not included in the title should define the content of the article and reflect its core topic or message. All articles should be accompanied by an abstract of no more than 150-220 words written in the third person. Abstracts accompanying articles should be structured and should not include references.

A structured abstract is an abstract which has individually outlined and labelled sections for quick reference. It is structured under the following headings:

Introduction: This section indicated the main question to be answered, and states the exact objective of the paper and the major variables of the study.

Methods: This section provides an overview of the research or experimental design, the research instrument, the reliability of the instrument, the place, methods and time of data collection, and methods of data analysis.

Results: This section briefly summarises and discusses the major findings. The information presented in this section should be directly connected to the research question and purpose of the study. Quantitative studies should include the statement of statistical validity and statistical significance of the results.

Discussion and conclusion: This section states the conclusions and discusses the research findings drawn from the results obtained. Presented in this section are also limitations of the study and the implications of the results for practice and relevant further research. Both positive and negative research findings should be adequately presented.

Structure of an Original Scientific Article

An original scientific article is the first-time publication of original research results in a way which allows the research to be repeated and the findings checked. The research should be based on primary sources no older than five years at the time of the publication of the article.

Introduction: In the introductory part, the research problem is defined in the context of theoretical knowledge and scientific evidence. The review of scholarly literature on the topic provides the rationale behind the study and identifies the gap in the literature related to the problem. It justifies the purpose and aims of the study, research questions or hypotheses, as well as the method of investigation (research design, sample size and characteristics of the proposed sample, data collection and data analysis procedures). The research should be based on primary sources of recent national and international research no older than ten or five years respectively if the topic has been widely researched. Citation of sources and references to previous research findings should be included while the authors' personal views should not. Finally, the aims and objectives of the study should be specified. We recommend formulating research questions (qualitative research) or hypotheses (quantitative research).

Method: This section states the chosen paradigm (qualitative, quantitative) and outlines the research design. It typically includes sections on the research instrument; sample size and characteristics of the proposed sample; description of the research procedure; and data collection and data analysis procedures.

The *description of the research instrument* includes information about the structure of the instrument, the mode of instrument development, instrument variables and measurement properties (validity, reliability, objectivity, sensitivity). Appropriate citations of the literature used in research development should be included. In qualitative research, the data collection method should be stated along with the preliminary research questions, a possible format or structure of data collection and processing, the criteria of validity and reliability of data collection.

The *description of the sample* defines the population from which the sample was selected, the type of the sample, the response rate of the participants, the respondents' demographics (gender, level of educational attainment, length of work experience, post currently held, etc.). In qualitative research, the categories of the sampling procedure and inclusion criteria are also defined and the sample size and saturation is explained.

The *description of the research procedure and data analysis* includes ethical approvals to conduct the research, permission to conduct the research within the confines of an institution, description of the research procedure, guarantee of anonymity and voluntary participation of the research participants, the period and place of data collection, method of data collection and analysis, including statistical methods, statistical analysis software and programme version, limits of statistical significance. Qualitative research should include a detailed description of the methods of data collection and recording, number and duration of observations, interviews and surveys, sequences, transcription of data, steps in data analysis and interpretation, and receptiveness of the researcher.

Results: This section presents the research results descriptively or in numbers and figures. A table is included only if it presents new information. Each finding is presented only once so as to avoid repetition and duplication of the content. Explanation of the results should be focused on statistically significant or unexpected findings. Results are presented according to the level of statistical complexity. All abbreviations used in figures and tables should be accompanied with explanatory captions in the legend below the table or figure. Results are presented according to the variables, and should answer all research questions or hypotheses. In qualitative research, the development of codes and categories should also be presented, including one or two representative statements of respondents. A schematic presentation of the codes and ensuing categories should be provided.

Discussion: The discussion section analyses the data descriptively (numerical data should be avoided) in relation to specific variables from the study. Results are analysed and evaluated in relation to the original research questions or hypotheses. The discussion part integrates and explains the results obtained and relates them to those of previous studies in order to determine their significance and applicative value. Ethical interpretation and communication of research results is essential to ensure the validity, comparability and accessibility of new knowledge. The validity of generalisations from results is often questioned due to the limitations of qualitative research (sample representativeness, research instrument, research proceedings). The principles of reliability and comparability should be observed. The discussion includes comments on the expected and unexpected findings and the areas requiring further or in-depth research as indicated by the results of the study. The limitations of the research should be clearly stated.

Conclusion: Summarised in this section are the author's principal points and transfer of new findings into practice. The section may conclude with specific suggestions for further research building on the topic, conclusions and contributions of the study, taking into account its limitations. Citations of quotes, paraphrases or abbreviations should not be included in the conclusion. The article concludes with a list of all the published works cited or referred to in the text of the paper.

Structure of a Review Article

Included in the category of review scientific research are: literature review, concept analyses, discussionbased articles (also referred to as a review article). The Slovenian Nursing Review publishes review scientific research, the data collection of which has been concluded a maximum of three years before article publication.

A review article represents an overview of the latest publications in a specific subject area, the studies of an individual researcher or group of researchers with the purpose of summarising, analysing, evaluating or synthesising previously published information. Research findings are not only described but explained, interpreted, analysed, critically evaluated and presented in a scholarly manner. A review article presents either qualitative data processing of previous research findings (meta-analyses) or qualitative syntheses of previous research findings (meta-syntheses) and thus provides new knowledge and concepts for further research. The organisational pattern of a review article is similar to that of the original scientific article.

The **introduction** section defines the scientific, conceptual or theoretical basis for the literature review. It also states the necessity for the review along with the aims, objectives and research question(s).

The **method** section accurately defines the research methods by which the literature search was conducted. It is further subdivided into: review methods, results of the review, quality assessment of the review and description of data processing.

Review methods include the development, testing and search strategy, predetermined criteria for the inclusion in the review, the searched databases, limited time period of published literature, types of publications according to hierarchy of evidence, key words and the language of reviewed publications.

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