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INSTRUMENTI PROCENE ZDRAVSTVENE PISMENOSTI ADOLESCENATA

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SAŽETAK

Zdravstvena pismenost označena je kao sposobnost pojedinca da primi, obradi i razume zdravstvene informacije. Adolescencija je ključni stadijum psiho-fizičkog razvoja, te bi unapređenje zdravstvene pismenosti mladih značajno doprinelo usvajanju zdravih navika i osnažilo ih da preuzmu kontrolu nad sopstvenim zdravljem. Cilj ovog preglednog rada je bio da prikaže instrumente procene zdravstvene pismenosti u adolescentskoj populaciji. Identifikovanje instrumenata za adolescentsku populaciju spovedeno je pretragom literature korišćenjem različitih baza podataka. Od 9 instrumenata, koji su poređeni u odnosu na domen merenja zdravstvene pismenosti i način prikupljanja podataka, šest (HLS-Child-Q15, HELiASeSS, HAS-A, HELMA, eHEALS, HLAT-8) procenjuju zdravstvenu pismenost u sva tri domena te mogu pružiti kompletniju sliku o nivou zdravstvene pismenosti adolescenata. Od ovih 6 instrumenata, HLS-Child-Q15 i HELMA su dostupni za preuzimanje što može da utiće na njihovu veću primenu u budućnosti za procenu zdravstvene pismenosti u adolescentskoj populaciji. U budućim istraživanjima trebalo bi još detaljnije analizirati instrumente za procenu zdravstvene pismenosti, a posebno njihovu validnost i pouzdanost.

Ključne reči: zdravstvena pismenost, adolescent, instrumenti procene zdravstvene pismenosti

Uvod

Zdravstvena pismenost je sposobnost pojedinca da primi, obradi i razume zdravstvene informacije. Predstavlja značajnu determinantu javnog zdravlja, a označena je i kao globalni cilj za unapređenje promocije zdravlja (1). Prema Svetskoj zdravstvenoj organizaciji (SZO) zdravstvena pismenost podrazumeva kognitivne i socijalne veštine koje određuju motivaciju i sposobnost pojedinaca da pristupi, razume i koristi informacije na načine koji promovišu i održavaju dobro zdravlje. Termin zdravstvene pismenosti prvi put je opisan u tekstu *Health Education as Social Policy*, iz 1974. godine, čiji je autor bio profesor *Simonds* sa Univerziteta u Mičigenu (2).

U prethodne dve decenije pridavana je velika pažnja konceptu zdravstvene pismenosti, jer je utvrđeno da ima značajan doprinos održivosti sistema zdravstvene zaštite, pogotovo u vremenu kada su masovne nezarazne bolesti u porastu. Strategije za unapređenje javnog zdravlja u razvijenim zemljama ističu potrebu pojedinaca da preuzme brigu o sopstvenom zdravlju čime će doprineti efektivnijem korišćenju usluga zdravstvene zaštite i smanjenju troškova. Zbog shvatanja da donosi veliku korist za javno zdravlje, mnoge zemlje, kao što su SAD, Kanada, Australija su ga istakle kao prioritet u svojim zdravstvenim politikama (3).

Empirijska istraživanja pokazuju da je nizak nivo zdravstvene pismenosti povezan sa nizom štetnih ishoda po zdravlja (4), dok novija istraživanja kao posledice niske zdravstvene pismenosti navode neodazivanje na skrining preglede, otkrivanje oboljenja u kasnoj fazi, povećanu učestalost komplikacija i produženu hospitalizaciju kod hroničnih bolesnika (5).

Nacionalne studije u SAD-u, Kanadi i Kini, kao i Evropska uporedna analiza, pokazale su da je problem neadekvatne zdravstvene pismenosti stanovništva globalan. Samo 12% ispitivane populacije u SAD-u (6) i oko 8% u Kini imalo je adekvatan

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INSTRUMENTS FOR THE ASSESSMENT OF HEALTH LITERACY IN ADOLESCENTS

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SUMMARY

Health literacy is defined as an individual's ability to receive, process and understand health information. Adolescence is a key stage of psycho-physical development, and therefore, improving the health literacy of young people would significantly contribute to the adoption of healthy habits and empower them to take control of their own health. The aim of this review article was to present instruments for assessing health literacy in the adolescent population. The identification of instruments for the adolescent population was carried out through a literature search using different databases. Of 9 instruments, which were compared in relation to the domain of measuring health literacy and the method of data collection, six (HLS-Child-Q15, HELiASeSS, HAS-A, HELMA, eHEALS, HLAT-8) assess health literacy in all three domains, and therefore, they can offer a more complete picture of the level of health literacy in adolescents. Of these 6 instruments, HLS-Child-Q15 and HELMA are available for downloading which can influence the greater implementation in the future for the assessment of health literacy in adolescents.

Keywords: health literacy; adolescents; health literacy assessment instruments

Introduction

Health literacy is the ability of an individual to receive, process and understand health information. It represents a significant determinant of public health, and it has been designated as a global goal related to the improvement of health promotion (1). According to the World Health Organization (WHO), health literacy includes cognitive and social skills that determine the motivation and ability of individuals to access, understand and use information in ways that promote and maintain good health. The term health literacy was first described in the text Health Education as Social Policy in 1974 by Professor Simonds from the University of Michigan (2).

In the last two decades, much attention has been paid to the concept of health literacy due to its significant contribution to the sustainability of healthcare system, especially at the time when mass non-communicable diseases are on the rise. Strategies for the improvement of public health in developed countries emphasize the need of individuals to take care of their own health, thus contributing to more efficient use of healthcare services and cost reduction. Since it has been realized that it brings a great benefit to public health, many countries such as the USA, Canada, Australia have given priority to it in their health policies (3).

Empirical studies have shown that a low level of health literacy is associated with a number of harmful health outcomes (4), while it has been indicated in recent studies that the consequences of low health literacy include not going to screening examinations, detection of diseases at a late stage, increased frequency of complications and prolonged hospitalization in chronic patients (5).

National studies in the USA, Canada and China, as well as the European comparative analysis have shown that the problem of inadequate health literacy of the population is global. Only 12% of the

nivo zdravstvene pismenosti (7). U kanadskoj studiji pronađeno je da oko 60% ispitanika ima neadekvatan nivo zdravstvene pismenosti (8), a u Evropi je taj procenat 47,6% (9).

Rešavanje problema neadekvatne zdravstvene pismenosti postalo je prioritet u mnogim zemljama, jer se to smatra najekonomičnijom i najefikasnijom merom za poboljšanje zdravlja celokupnog stanovništva. Poseban akcenat se stavlja na unapređenje zdravstvene pismenosti dece i adolescenata. Istraživanja pokazuju da 34% adolescenata u SAD i 67,6% u Australiji ima niske nivoe zdravstvene pismenosti (10,11). Adolescencija je ključni stadijum psiho-fizičkog razvoja, te bi unapređenje zdravstvene pismenosti mladih značajno doprinelo usvajanju zdravih navika i osnažilo ih da preuzmu kontrolu nad sopstvenim zdravljem (12).

Cilj ovog rada bio je da prikaže instrumente procene zdravstvene pismenosti u adolescentskoj populaciji.

Metode

Pretraživanjem baza *PubMed* i *Google Scholar* pronađeno je mnoštovo radova na temu zdravstvene pismenosti, a za analizu definicija korišćeni su pregledni radovi koji su na engleskom jeziku i koji su najviše citirani.

Definicije i koncepti zdravstvene pismenosti

Prema preglednim radovima *Sorensen*-a i saradnika (4) i *Liu*-a i saradnika (3) formirana je tabela definicija zdravstvene pismenosti (Tabela 1). SZO u svojoj definiciji (1) ističe značaj interakcije kognitivnih i socijalnih veština neophodnih za pristup, razumevanje i interpretaciju zdravstvenih informacija koje mogu doprineti dobrom zdravlju, a nasuprot tome, u definiciji Američke medicinske asocijacije akcenat je na sposobnosti razumevanja numeričkih zadataka i čitanja (13). Novije definicije naglašavaju važnost prevazilaženja individualnog pristupa i posmatraju zdravstvenu pismenost kao interakciju između zahteva zdravstvenih sistema i veština pojedinca. Prema *Nutbeam*-u (14) zdravstvena pismenost zavisi od ličnih, kognitivnih i socijalnih veština, a *Kwan* i saradnici (15) u svojoj definiciji ističu značaj interakcije veština i sposobnosti svih subjekata uključenih u proces donošenja odluka vezanih za zdravlje.

Različiti istraživači koji su se bavili zdravstvenom pismenošću shvataju je kao višedimenzionalan koncept. Većina konceptualnih modela prikazanih u literaturi razmatra ključne komponente zdravstvene pismenosti, individualne i sistemske faktore koji utiču na nivo zdravstvene pismenosti, kao i povezanost nivoa zdravstvene pismenosti sa ishodima po zdravlje (4). U dostupnoj literaturi se najčešće pominje *Nutbeam*-ov koncept po kome se razlikuju tri tipa zdravstvene pismenosti (14):

1. Funkcionalna, koja uključuje veštine čitanja i pisanja,
2. Interaktivna, odnosi se na naprednije kognitivne veštine i veštine pismenosti koje pojedincu omogućavaju da izdvoji informacije, primeni ih u različitim situacijama i bude sigurniji u komunikaciji sa zdravstvenim profesionalcima,

Tabela 1. Definicije zdravstvene pismenosti

Svetska zdravstvena organizacija (SZO, 1998)	Skup kognitivnih i socijalnih veština i kapaciteta potrebnih za pristup, razumevanje i korišćenje informacija na način kojim se promoviše i štiti dobro zdravlje (1).
Američka medicinska asocijacija (AMA, 1999)	Skup veština neophodnih za funkcionisanje u zdravstvenom okruženju koje uključuju sposobnost izvođenja osnovnih numeričkih zadataka i čitanja (13).
***Nutbeam* (2000)**	Lične, kognitivne i društvene veštine koje određuju sposobnost pojedinaca da dobiju pristup, razumeju i koriste informacije za promovisanje i održavanje dobrog zdravlja (14).
***Kwan, et al.* (2006)**	Sposobnost pojedinca da traži, razume i koristi zdravstvene informacije u okviru zdravstvene zaštite (15).
***Sorensen, et al.* (2012)**	Zdravstvena pismenost je povezana sa pismenošću i podrazumeva znanje pojedinca, motivaciju i sposobnosti da pristupi, razume, proceni i primeni informacije o zdravlju, kako bi u svakodnevnom životu prosuđivao i donosio odluke u vezi sa zdravljem, prevencijom bolesti i unapređivanjem zdravlja u cilju održavanja ili poboljšanja kvaliteta života tokom životnog veka (4).

examined population in the USA (6) and around 8% in China had an adequate level of health literacy (7). In one Canadian study, it was found that about 60% of respondents had an inadequate level of health literacy (8), and in Europe that percentage was 47.6% (9).

Solving the problem of inadequate health literacy has become a priority in many countries, since it is considered to be the most economical and effective measure for improving the health of the whole population. Special emphasis has been placed on improving the health literacy of children and adolescents. Research has shown that 34% of adolescents in the USA and 67.6% in Australia have low levels of health literacy (10,11). Adolescence is a key stage of psycho-physical development, and improving the health literacy of young people would significantly contribute to the adoption of healthy habits and empower them to take control over their own health (12).

The aim of this study was to present the instruments for the assessment of health literacy in the adolescent population.

Methods

By searching the databases PubMed and Google Scholar, a lot of papers examining the topic of health literacy have been found, while mostly cited review articles in the English language have been used.

Definitions and concepts of health literacy

According to the review articles of Sorensen and associates (4), Liu and associates (3), the table of definitions of health literacy has been formed (Table 1). The World Health Organization in its definition (1) emphasizes the importance of the interaction of cognitive and social skills necessary for accessing, understanding and interpreting health information that can contribute to good health, and in contrast, in the definition of the American Medical Association, the emphasis is placed on the ability to understand numerical tasks and reading (13). Newer definitions emphasize the importance of going beyond the individual approach and perceive health literacy as an interaction between the demands of health systems and skills of an individual. According to Nutbeam (14), health literacy depends on personal, cognitive and social skills, while Kwan and associates (15) in their definition emphasize the importance of the interaction between skills and abilities of all subjects involved in the process of decision-making related to health.

Different researchers, who have dealt with health literacy, understand it as a multidimensional concept. Most of the conceptual models which are presented in the literature consider the key components of health literacy, individual and systematic factors that influence the level of health literacy, as well as the connection between the level of health literacy and health outcomes (4). In the available literature, Nutbeam's concept is most often mentioned, according to which three types of health literacy are distinguished (14):

1. Functional, which includes reading and writing skills,
2. Interactive, which refers to more advanced

Table 1. Definitions of health literacy

World Health Organization (WHO, 1998)	The set of cognitive and social skills and capacities needed to access, understand and use information in a way that promotes and protects good health (1).
American Medical Association (AMA, 1999)	The set of skills necessary for functioning in a healthcare environment that include the ability to perform basic numerical tasks and reading (13).
Nutbeam (2000)	Personal, cognitive and social skills that determine the ability of individuals to access, understand and use information necessary for promoting and maintaining good health (14).
Kwan, et al. (2006)	The ability of an individual to search for, understand and use health information within healthcare (15).
Sorensen, et al. (2012)	Health literacy is related to literacy and includes the knowledge, motivation and ability of individuals to access, understand, evaluate and apply information about health, so that in everyday life they could judge and make decisions related to health, disease prevention and health promotion aimed at maintaining and improving the quality of life during lifetime (4).

3. Kritička, odnosi se na najsloženije kognitivne veštine koje u interakciji sa socijalnim veštinama mogu da se koriste za kritičku analizu informacija i bolju kontrolu različitih situacija i životnih događaja.

Kako bi otklonili nedostatke različitih konceptualnih okvira zdravstvene pismenosti, *Sorensen* i saradnici (4) su konstruisali integrisani model zdravstvene pismenosti koji obuhvata glavne dimenzije postojećih konceptualnih modela. U centralnom delu modela prikazane su 4 dimenzije zdravstvene pismenosti: pristup informacijama o zdravlju, razumevanje informacija o zdravlju, interpretacija informacija o zdravlju i primena informacija o zdravlju (4).

Zdravstvena pismenost adolescenata

Zdravstvena pismenost adolescenata ima specifičnosti u odnosu na zdravstvenu pismenost odraslih, jer je ovo ključni stadijum razvoja i razvijene veštine za unapređenje zdravlja mogu ostati tokom čitavog života (10). Od adolescenata se očekuje da razumeju sve složenije zdravstvene informacije, veliku količinu edukativnog materijala koji im pružaju zdravstveni radnici i obrazovni sistem, kao i da postanu odgovorni za svoje zdravlje (16).

Sistematska analiza potvrdila je pozitivnu korelaciju između viših nivoa zdravstvene pismenosti i boljih ishoda po zdravlje adolescenata (17), a studija preseka sprovedena među adolescentima u Kini o stavovima prema vakcinaciji protiv kovid-19 je pokazala da je neodlučnost o vakcinaciji povezana sa ograničenim nivoom zdravstvene pismenosti (18).

S obzirom da mladi provode veliki deo vremena u školskom okruženju, bilo bi značajno sprovoditi aktivnosti za unapređenje zdravstvene pismenosti kako učenika, kao i njihovih roditelja i profesora. Shodno tome, SZO se angažovala u brojnim akcijama za poboljšanje zdravlja kroz promovisanje i unapređenje zdravstvene pismenosti, a obrazovni sektor prepoznat je kao najvažnije okruženje za to (2).

Instrumenti procene zdravstvene pismenosti adolescenata

Instrumenti procene zdravstvene pismenosti mogu biti opšti koji se primenjuju u opštoj populaciji, i specifični koji se primenjuju u određenoj starosnoj grupi, ili kod obolelih od određene bolesti. Pretragom baze instrumenata za procenu zdravstvene pismenosti (engl. *Health Literacy Tool Shed*) (19) i analizom preglednog rada *Guo*-a i saradnika (20) pronađeni su instrumenti validirani za adolescentsku populaciju. Ovi instrumenti se razlikuju po domenu merenja zdravstvene pismenosti, ali je najviše onih koji procenjuju zdravstvenu pismenost u sva tri domena: funkcionalna, interaktivna i kritička. Kriterijumi za uključivanje bili su: validirani instrument za procenu zdravstvene pismenosti u adolescentskoj populaciji u rasponu od 10 do 24 godine, rad dostupan u punom tekstu, i instrumenti koji procenjuju opštu zdravstvenu pismenost.

Najčešći instrumenti za procenu zdravstvene pismenosti koji su ispunili zadate kriterijume u pregledanoj literaturi su:

1. Kineska verzija kratke forme Testa za procenu funkcionalne zdravstvene pismenosti adolescenata (engl. *Chinese version of short-form Test of Functional Health Literacy in Adolescents* – c-sTOFHLAd) (21),
2. Instrument za brzu procenu pismenosti adolescenata u medicini – kratka forma (engl. *Rapid Estimate of Adolescent Literacy in Medicine Short Form* – REALM-TeenS) (22),
3. Instrument za merenje zdravstvene pismenosti adolescenata (engl. *Measurement of Health Literacy Among Adolescents Questionnaire* – MOHLAA-Q) (23),
4. Evropski upitnik za procenu zdravstvene pismenosti stanovništva (engl. *European Health Literacy Survey* – HLS.EU.Q) je validiran za decu (0-9 godina) i adolescente (10-17 godina) (24),
5. Instrument procene zdravstvene pismenosti učenika srednje škole (engl. *Instrument for the Health Literacy Assessment of Secondary School Students* – HELiASeSS) (25),
6. Skala za procenu zdravstvene pismenosti adolescenata (engl. *Health Literacy Assessment Scale for Adolescents* - HAS-A) (26),
7. Instrument za procenu zdravstvene pismenosti adolescenata (engl. *Health Literacy Measure for Adolescents* – HELMA) (27),
8. Instrument za procenu elektronske zdravstvene pismenosti (engl. eHealth Literacy Scale – eHEALS) (28),
9. Instrument za procenu zdravstvene pismenosti sa 8 stavki (engl. *Health Literacy Assessment Tool* – HLAT-8) (29).

Prikaz navedenih instrumenata prema načinu procene zdravstvene pismenosti, kao i druge značajne karakteristike istih, izvršen je u Tabeli 2.

cognitive and literacy skills that allow the individual to elicit information, apply it in different situations and be more confident while communicating with healthcare professionals,
3. Critical, which refers to the most complex cognitive skills that, in interaction with social skills, can be used for the critical analysis of information and better control of different situations and life events.

In order to overcome the shortcomings of different conceptual frameworks of health literacy, Sorensen et al. (4) constructed an integrated model of health literacy that includes the main dimensions of existing conceptual models. In the central part of the model, the following four dimensions of health literacy are presented: access to information about health, understanding of health related information, interpretation of information about health and application of information about health (4).

Health literacy of adolescents

The health literacy of adolescents has specificities compared to the health literacy of adults, because this is a key stage of development and developed skills necessary for improving health can remain throughout life (10). Adolescents are expected to understand the increasingly complex health information, a large amount of educational materials provided by health workers and educational system, as well as to become responsible for their health (16).

A systematic analysis has confirmed a positive correlation between higher levels of health literacy and better outcomes related to adolescents' health (17), while a cross-sectional study, which was conducted among the adolescents in China about their attitudes to vaccination against Covid-19, showed that hesitancy to get vaccinated was associated with the limited level of health literacy (18).

Given that young people spend much time in the school environment, it would be important to implement activities for improving the health literacy of students, as well as their parents and professors. Therefore, the World Health Organization (WHO) has engaged in numerous actions for improving health through promoting and improving health literacy, while the educational sector has been recognized as the most important environment for this (2).

Instruments for the assessment of health literacy

The instruments for the assessment of health literacy can be general, which are applied in the general population, and specific, which are applied in a certain age group, or in patients with a certain disease. By searching the Health Literacy Tool Shed (19) and analyzing the review article by Guo et al. (20), instruments validated for the adolescent population were found. These instruments differ according to the domain of measuring health literacy, but most of them evaluate health literacy in all three domains: functional, interactive and critical. Inclusion criteria were the following: validated instrument for the assessment of health literacy in the adolescent population from 10 to 24 years, a paper is available as a full text, and instruments that assess the general health literacy. The most common instruments for the assessment of health literacy that met the set criteria in the reviewed literature are the following:

1. Chinese version of short-form Test of Functional Health Literacy in Adolescents (c-sTOFHLAd) (21),
2. Rapid Estimate of Adolescent Literacy in Medicine Short Form (REALM-Teens) (22),
3. Measurement of Health Literacy Among Adolescents Questionnaire (MOHLAA) (23),
4. European Health Literacy Survey (HLS.EU.Q) was validated for children (0-9 years) and adolescents (10-17 years) (24),
5. Instrument for the Health Literacy Assessment of Secondary School Students (HELiASeSS) (25),
6. Health Literacy Assessment Scale for Adolescents (HAS-A) (26),
7. Health Literacy Measure for Adolescents (HELMA) (27),
8. eHealth Literacy Scale (eHEALS) (28),
9. Health Literacy Assessment Tool – HLAT-8 (29).

The presentation of the above mentioned instruments according to the method of assessment of health literacy, as well as other significant characteristics of those instruments are shown in Table 2.

Out of these 9 instruments for the assessment of health literacy in adolescents, 6 assess health literacy in all three domains (functional, interactive and critical), which speaks in favor of giving importance to empowering adolescents in health

Tabela 2. Pregled instrumenata za procenu zdravstvene pismenosti adolescenata prema tipu i načinu primene

Autor	Naziv instrumenta	Tip merenja	Vreme potrebno za popunjavanje/ Broj pitanja	Populacija u kojoj su validirani	Jezik na kome je validiran
Chang, et al. **(2012)**	Kineska verzija kratke forme instrumenta za procenu funkcionalne zdravstvene pismenosti adolescenata (engl. *Chinese version of short-form Test of Functional Health Literacy in Adolescents* – c-sTOFHLAd)	Razumevanje pročitanog teksta	11 minuta/ 36 stavki	Adolescenti 10-17 godina	Tajvanski
Manganello, et al. **(2017)**	Instrument za brzu procenu pismenosti adolescenata u medicini – kratka forma (engl. *Rapid Estimate of Adolescent Literacy in Medicine Short Form* – REALM-TeenS)	Test prepoznavanja i izgovaranja medicinskih reči, numeričke sposobnosti	4 min/ 10 pitanja	Adolescenti 10-17 godina	Engleski
Domanska, et al. **(2020)**	Skala za merenje zdravstvene pismenosti adolescenata (engl. *Measurement of Health Literacy Among Adolescents Questionnaire* – MOHLAA-Q)	Razumevanje zdravstvenih informacija	Neograničeno vreme/ 29 pitanja	Adolescenti 14-17 godina	Nemački
Bollweg, et al. **(2020)**	Evropski upitnik za procenu zdravstvene pismenosti – verzija upitnika prilagođena uzrastu (engl. *Age Adapted Survey version of the European Health Literacy Questionnaire for fourth-graders* – HLS-Child-Q15)	Test razumevanja, primena zdravstvenih informacija, komunikacija: veština slušanja	10 minuta/ 15 pitanja	Deca 0-9 godina Adolescenti 10-17 godina	Nemački
Bechraki, et al. **(2022)**	Instrument procene zdravstvene pismenosti učenika srednje škole (engl. *Instrument for the Health Literacy Assessment of Secondary School Students* – HELiASeSS)	Traženje, razumevanje, procena, zdravstvenih informacija; Komunikacijske veštine	Neograničeno vreme/ 37 pitanja	Adolescenti 10-17 godina	Grčki
Manganello **(2015)**	Skala za procenu zdravstvene pismenosti adolescenata (engl. *Health Literacy Assessment Scale for Adolescents* – HAS-A)	Traženje, razumevanje i obrada zdravstvenih informacija	Neograničeno vreme/ 15 pitanja	Adolescenti 10-17 godina	Engleski
Ghanbari, et al. **(2016)**	Instrument za procenu zdravstvene pismenosti adolescenata (engl. *Health Literacy Measure for Adolescents* – HELMA)	Razumevanje pročitanog teksta, komunikacijske i numeričke veštine, primena zdr. informacija	Neograničeno vreme/ 44 pitanja	Adolescenti 14-17 godina	Engleski
Norman and Skinner **(2006)**	Instrument za procenu elektronske zdravstvene pismenosti (engl. *eHealth Literacy Scale*-eHEALS)	Pristupanje, procena i primena zdravstvenih informacija	Neograničeno vreme/ 8 pitanja	Adolescenti 13-21 godina	Engleski
Abel, et al. **(2014)**	Instrument za procenu zdravstvene pismenosti sa 8 stavki (engl. *Health Literacy Assessment Tool* – HLAT-8)	Pronalaženje, razumevanje i primena zdravstvenih informacija	Neograničeno vreme/ 8 pitanja	Adolescenti 18-24 godine	Engleski

Od 9 instrumenata za procenu zdravstvene pismenosti adolescenata, 6 procenjuje zdravstvenu pismenost u sva tri domena (funkcionalna, interaktivna i kritička), što govori u prilog davanju značaja osnaživanju adolescenata u promociji zdravlja. Poređenje instrumenata u odnosu na domen merenja zdravstvene pismenosti i način prikupljanja podataka (subjektivno procenjivanje vrši ispitanik samostalno – test samoprocene veština, dok je za objektivno procenjivanje potrebna asistencija edukovanog zdravstvenog profesionalca) prikazano je u Tabeli 3.

Table 2. Review of instruments for the assessment of health literacy in adolescents according to the type and method of application

Author	Instrument's name	Type of measurement	Time needed to complete/ Number of questions	Population in which it was validated	Language in which it was validated
Chang, et al. (2012)	Chinese version of short-form Test of Functional Health Literacy in Adolescents (c-sTOFHLAd)	Reading comprehension	11 minutes/ 36 items	Adolescents 10-17 years	Taiwanese
Manganello, et al. (2017)	Rapid Estimate of Adolescent Literacy in Medicine Short Form (REALM-TeenS)	Test of recognizing and understanding medical words, numerical abilities	4 min/ 10 questions	Adolescents 10-17 years	English
Domanska, et al. (2020)	Measurement of Health Literacy Among Adolescents Questionnaire (MOHLAA-Q)	Understanding health related information	Time is not limited/ 29 questions	Adolescents 14-17 years	German
Bollweg, et al. (2020)	Age Adapted Survey version of the European Health Literacy Questionnaire for fourth-graders (HLS-Child-Q15)	Test of understanding, application of health information, communication: listening skill	10 minutes/ 15 questions	Children 0-9 years Adolescents 10-17 years	German
Bechraki, et al. (2022)	Instrument for the Health Literacy Assessment of Secondary School Students (HELiASeSS)	Searching for, understanding, evaluating health information; communication skills	Time is not limited/ 37 questions	Adolescents 10-17 years	Greek
Manganello (2015)	Health Literacy Assessment Scale for Adolescents (HAS-A)	Searching for, understanding and analyzing health information	Time is not limited/ 15 questions	Adolescents 10-17 years	English
Ghanbari, et al. (2016)	Health Literacy Measure for Adolescents (HELMA)	Reading comprehension, communication and numerical skills, application of health information	Time is not limited/ 44 questions	Adolescents 14-17 years	English
Norman and Skinner (2006)	eHealth Literacy Scale (eHEALS)	Accessing, evaluating and applying health information	Time is not limited/ 8 questions	Adolescents 13-21 years	English
Abel, et al. (2014)	Health Literacy Assessment Tool (HLAT-8)	Finding, understanding and applying health information	Time is not limited/ 8 questions	Adolescents 18-24 years	English

promotion. The comparison of instruments in relation to the domain of measuring health literacy and the method of collecting data (subjective assessment is performed by the respondent independently – self-assessment of skills, while objective assessment requires the assistance of educated health professional) was shown in Table 3.

By analyzing the identified instruments, it was observed that only the REALM-TeenS instrument requires the presence of an educated health worker who will carry out testing, while the other instruments of self-assessment of skills and levels of health literacy are realized by respondents, which indicates that the instruments of self-assessment are more often used in practice for the assessment of health literacy. Similar results were shown in the review article by Guo et al. (20), while the use of instruments of self-assessment is a cheaper and easier option for the collection of data, although it may have certain disadvantages. Namely, adolescents are still, to a great extent, dependent on their parents when it comes to making health-related decisions, so if they filled out the self-

Tabela 3. Poređenje instrumenata u odnosu na domen merenja zdravstvene pismenosti i način prikupljanja podataka

Instrument	Funkcionalna	Interaktivna	Kritička	Numerička	Subjektivno/ Objektivno merenje
C-sTOFHLAd	+	-	-	+	S
REALM-TeenS	+	-	-	+	O
MOHLAA-Q	-	+	-	-	S
HLS-Child-Q15	+	+	+	-	S
HELiASeSS	+	+	+	-	S
HAS-A	+	+	+	-	S
HELMA	+	+	+	+	S
eHEALS	+	+	+	+	S
HLAT-8	+	+	+	-	S

+ = DA; - = NE; S-subjektivno merenje; O-objektivno merenje

Analizom identifikovanih instrumenata, uočeno je da jedino REALM-TeenS instrument zahteva prisustvo edukovanog zdravstvenog radnika koji će sprovoditi testiranje, dok se ostali instrumenti samoprocene veština i nivoa zdravstvene pismenosti realizuju od strane ispitanika što ukazuje na to da se instrumenti samoprocene češće koriste u praksi za procenu zdravstvene pismenosti. Slične rezultate pokazao je i pregledni rad *Guo*-a i saradnika (20), a primena instrumenata samoprocene je jeftinija i lakša opcija prikupljanja podataka, ali može imati određene nedostatke. Naime, adolescenti još uvek u velikoj meri zavise od roditelja kada je donošenje odluka vezanih za zdravlje u pitanju, te ako bi sami popunjavali upitnike samoprocene moglo bi doći do pogrešnih rezultata. Zbog toga bi upitnici trebalo da budu razumljivi, kako bi adolescenti shvatili šta se od njih traži (30).

Instrumenti koji se fokusiraju samo na procenu veštine čitanja i prepoznavanja medicinskih reči, kao što su c-s-TOFHLA i MOHLAA-Q, ne procenjuju druge veštine zdravstvene pismenosti (numeričke sposobnosti, konceptualna znanja i dr.) koje su značajne za potpunije određivanje nivoa zdravstvene pismenosti (20).

Šest instrumenata (HLS-Child-Q15, HELiASeSS, HAS-A, HELMA, eHEALS, HLAT-8) procenjuju zdravstvenu pismenost u sva tri domena te mogu pružiti kompletniju sliku o nivou zdravstvene pismenosti adolescenata od prva tri instrumenta navedena u Tabeli 2 (C-sTOFHLAd, REALM-TeenS, MOHLAA-Q). Od pomenutih 6 instrumenata, HLS-Child-Q15 i HELMA su dostupni za preuzimanje te bi mogli biti primenjeni za buduća istraživanja zdravstvene pismenosti u adolescentskoj populaciji.

U budućim istraživanjima trebalo bi još detaljnije analizirati instrumente za procenu zdravstvene pismenosti adolescenata, a posebno njihovu validnost i pouzdanost.

Zaključak

Od analiziranih instrumenata za procenu zdravstvene pismenosti adolescenata 6 procenjuje zdravstvenu pismenost u sva tri domena, te bi bili adekvatniji za primenu od instrumenata koji procenjuju samo određenu veštinu zdravstvene pismenosti. Neophodna su dalja istraživanja u ovoj oblasti, a posebno procena njihove validnosti i pouzdanosti.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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Table 3. Comparison of instruments according to the domain of measuring health literacy and the method of data collection

Instrument	Functional	Interactive	Critical	Numerical	Subjective/ Objective measurement
C-sTOFHLAd	+	-	-	+	S
REALM-TeenS	+	-	-	+	O
MOHLAA-Q	-	+	-	-	S
HLS-Child-Q15	+	+	+	-	S
HELiASeSS	+	+	+	-	S
HAS-A	+	+	+	-	S
HELMA	+	+	+	+	S
eHEALS	+	+	+	+	S
HLAT-8	+	+	+	-	S

+ = YES; - = NO; S-subjective measurement; O-objective measurement

assessment questionnaires on their own, the results could be wrong. Therefore, questionnaires should be comprehensible, so that adolescents would understand what they were asked (30).

Instruments that focus only on the assessment of reading skills and recognition of medical words, such as c-s-TOFHLA and MOHLAA-Q, do not evaluate other skills of health literacy (numerical abilities, conceptual knowledge, etc.) that are important for a more complete determination of the level of health literacy (20).

Six instruments (HLS-Child-Q15, HELiASeSS, HAS-A, HELMA, eHEALS, HLAT-8) assess health literacy in all three domains, and therefore, they can provide a more complete picture of the level of health literacy of adolescents than the first three instruments listed in Table 2 (C-sTOFHLAd, REALM-TeenS, MOHLAA-Q). Of the mentioned 6 instruments, HLS-Child-Q15 and HELMA are available for downloading and therefore, they could be applied in future research of health literacy in the adolescent population.

In future research, the instruments for the assessment of health literacy in adolescents should be analyzed in more detail, especially their validity and reliability.

Conclusion

Of the analyzed instruments for the assessment of health literacy in adolescents, 6 assess health literacy in all three domains, and therefore, they would be more adequate for application than instruments that assess only a certain health literacy skill. Further research in this field is necessary, especially the assessment of their validity and reliability.

Competing interests

The authors declared no competing interests.

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