

DEPRESIVNE SMETNJE MEĐU ČLANOVIMA PORODICE KOJI BRINU O PACIJENTIMA U KUĆNOM LEČENJU: PHQ-9 STUDIJA PRESEKA

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DEPRESSIVE SYMPTOMS AMONG FAMILY MEMBERS PROVIDING INFORMAL CARE FOR PATIENTS RECEIVING HOME-BASED CARE: A PHQ-9 CROSS-SECTIONAL STUDY

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SAŽETAK

Uvod/Cilj: Porodični negovatelji pacijenata uključenih u kućno lečenje predstavljaju populaciju pod povećanim rizikom za razvoj depresivnih simptoma. Cilj ovog istraživanja bio je da se proceni prisustvo i intenzitet depresivnih simptoma primenom upitnika PHQ-9, kao i da se ispita povezanost između depresivnih smetnji i svakodnevnog funkcionisanja negovatelja.

Metode: Sprovedena je deskriptivno-analitička studija preseka među 77 porodičnih negovatelja pacijenata uključenih u Službu kućnog lečenja Doma zdravlja Subotica, u periodu mart–septembar 2025. godine. Za procenu depresivnih simptoma korišćen je upitnik Patient Health Questionnaire-9 (PHQ-9). U analizi su primenjeni t-test, Mann-Whitney U test, Kruskal–Wallis test i Spearmanov koeficijent korelacije.

Rezultati: Prosečan PHQ-9 skor iznosio je $8,48 \pm 6,14$. Skor ≥ 10 registrovan je kod 30 (38,9%) ispitanika. Minimalne ili blage simptome imalo je 47 (61,1%) negovatelja. Nije utvrđena statistički značajna razlika u PHQ-9 skoru prema polu ($p = 0,423$) niti prema primarnoj dijagnozi pacijenta ($p = 0,183$). U ukupnom uzorku utvrđena je statistički značajna blaga pozitivna korelacija između PHQ-9 skora i subjektivne procene uticaja simptoma na svakodnevno funkcionisanje ($r = 0,294$; $p = 0,009$).

Zaključak: Depresivni simptomi su prisutni kod značajnog dela porodičnih negovatelja pacijenata u kućnom lečenju. Intenzitet simptoma povezan je sa većom narušenošću svakodnevnog funkcionisanja, što ukazuje na potrebu sistematskog praćenja mentalnog zdravlja ove populacije.

Ključne reči: porodični negovatelji, depresija, demencija, karcinom, moždani udar, skrining

ABSTRACT

Introduction/Objective: Family members providing informal care for patients receiving home-based care represent a population at increased risk of developing depressive symptoms. The aim of this study was to assess the presence and severity of depressive symptoms using the PHQ-9 questionnaire and to examine the association between depressive symptoms and caregivers' daily functioning.

Methods: A descriptive-analytical cross-sectional study was conducted among 77 family caregivers of patients enrolled in the Home Care Service of the Health Center Subotica between March and September 2025. Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9). Statistical analysis included the t-test, Mann-Whitney U test, Kruskal–Wallis test, and Spearman's correlation coefficient.

Results: The mean PHQ-9 score was 8.48 ± 6.14 . A score ≥ 10 was recorded in 30 (38.9%) participants. Minimal or mild depressive symptoms were present in 47 (61.1%) caregivers. No statistically significant differences in PHQ-9 scores were observed according to caregiver sex ($p = 0.423$) or the patient's primary diagnosis ($p = 0.183$). In the overall sample, a statistically significant weak positive correlation was found between PHQ-9 score and the self-reported impact of symptoms on daily functioning ($r = 0.294$; $p = 0.009$).

Conclusion: Depressive symptoms are present in a substantial proportion of family caregivers providing home-based care. The intensity of depressive symptoms is associated with greater impairment in daily functioning, highlighting the importance of systematic monitoring of caregivers' mental health.

Keywords: family caregivers, depression, dementia, neoplasms, stroke, screening

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UVOD

Prema demografskim i socijalnim promenama u savremenim društvima, broj osoba koje zahtevaju intenzivnu zdravstvenu negu kod kuće zbog onkoloških bolesti, neurodegenerativnih poremećaja poput demencije ili posledica ishemijskog cerebrovaskularnog incidenta (ICV), stalno raste [1]. U takvim okolnostima, članovi porodice – supružnici, deca ili drugi bliski srodnici – preuzimaju ključnu ulogu u nezi, bez formalne obuke ili institucionalne podrške, što povećava rizik od psihološkog opterećenja, uključujući simptome depresije [2].

Negovanje pacijenata u kućnim uslovima obuhvata širok spektar aktivnosti: asistenciju pri svakodnevnim potrebama, medicinsku i terapijsku podršku, nadzor, fizičku pomoć, ali i emocionalnu brigu, što sve može dovesti do zamora, stresa i narušavanja mentalnog zdravlja negovatelja [3]. Studije potvrđuju visoku prevalenciju depresivnih simptoma u ovoj populaciji. Na primer, među negovateljima osoba sa demencijom, čak 31% pokazuje simptome umerene depresije, dok 9% ispunjava kriterijume za tešku depresiju [4]. Meta-analiza negovatelja pacijenata sa onkološkim oboljenjima navodi da je prosečna prevalencija depresivnosti oko 42% [5].

Uloga negovatelja u kućnim uslovima ima dalekosežne implikacije i na funkcionisanje zdravstvenog sistema. Nedostatak sistemске podrške može dovesti do pogoršanja kvaliteta nege, povećanja rizika od sagorevanja i većih troškova zdravstvene zaštite [6]. Zbog toga je u savremenoj praksi važan pouzdan skrining depresivnosti među negovateljima.

Upitnik PHQ-9 široko se koristi kao standardni skrining alat u različitim populacijama. Njegova primena u populaciji porodičnih negovatelja potvrđena je u studijama o porodicama koje neguju decu obolelu od raka, gde skoro polovina negovatelja ispunjava kriterijume za blagu depresiju [7], kao i u istraživanjima negovatelja starijih osoba u kućnoj nezi, gde je kod 41,8% prisutna depresija i 64,5% anksioznost [8]. PHQ-9 se takođe pokazao validnim i kod negovatelja osoba sa intelektualnim teškoćama [9]. Prevalencija depresije određena PHQ-9 upitnikom kod negovatelja pacijenata sa moždanim udarom je iznosila 18,5% [10]. Negovatelji pacijenata sa teškim povredama mozga imaju potvrđene simptome depresije kod 61,2% ispitanika uz povezanost sa anksioznošću gde je veći skor PHQ-9 korelirao sa lošijim kvalitetom života negovatelja [11].

Porodični negovatelji suočavaju se sa posebnim problemima:

- Intenzitet i trajanje nege, naročito kod demencije i post-ICV stanja, direktno utiču na psihičko blagostanje [4].

INTRODUCTION

According to demographic and social changes in contemporary societies, the number of individuals requiring intensive home health care due to oncological diseases, neurodegenerative disorders such as dementia, or consequences of ischemic cerebrovascular incident (stroke) is constantly increasing [1]. In such circumstances, family members-spouses, children, or other close relatives-assume a key role in caregiving without formal training or institutional support, which increases the risk of psychological burden, including symptoms of depression [2].

Home caregiving encompasses a wide range of activities: assistance with daily needs, medical and therapeutic support, supervision, physical assistance, and emotional care, all of which may lead to fatigue, stress, and deterioration of caregivers' mental health [3]. Studies confirm a high prevalence of depressive symptoms in this population. For example, among caregivers of persons with dementia, as many as 31% show symptoms of moderate depression while 9% meet criteria for severe depression [4]. A meta-analysis of caregivers of oncology patients reports that the average prevalence of depression is approximately 42% [5].

The role of home caregivers also has far-reaching implications for the functioning of the healthcare system. Lack of systemic support may lead to deterioration in the quality of care, increased risk of burnout, and higher healthcare costs [6]. Therefore, reliable screening for depression among caregivers is important in contemporary practice.

The Patient Health Questionnaire-9 (PHQ-9) is widely used as a standard screening tool in various populations. Its application among family caregivers has been confirmed in studies of families caring for children with cancer, where nearly half of caregivers meet criteria for mild depression [7], as well as in studies of caregivers of older adults receiving home care, where depression was present in 41.8% and anxiety in 64.5% of participants [8]. The PHQ-9 has also proven valid among caregivers of persons with intellectual disabilities [9]. The prevalence of depression determined by the PHQ-9 questionnaire among caregivers of stroke patients was 18.5% [10]. Caregivers of patients with severe brain injuries have confirmed depressive symptoms in 61.2% of participants, with an association with anxiety, where a higher PHQ-9 score correlated with poorer quality of life among caregivers [11].

Family caregivers face several specific challenges:

- The intensity and duration of care, particularly in dementia and post-stroke conditions, directly affect psychological well-being [4].

- Neformalni status negovatelja, odsustvo naknade, podrške ili odmora dodatno pojačavaju emocionalni teret [3].
- Socijalna izolacija i zanemarivanje sopstvenog zdravlja povećavaju rizik za depresivne simptome [2].

U našoj zemlji i regionu nedostaju sistematski podaci o depresivnosti porodičnih negovatelja pacijenata u kućnom lečenju, posebno u odnosu na specifične dijagnostičke kategorije (onkološki pacijenti, demencija, post-ICV). Proučavanje ove populacije važno je kako bi se unapredilo razumevanje njihovog mentalnog zdravlja i omogućilo adekvatno planiranje daljih mera podrške.

Cilj ovog istraživanja bio je da se pomoću upitnika Patient Health Questionnaire-9 (PHQ-9) proceni prisustvo i intenzitet depresivnih simptoma među članovima porodice pacijenata uključenih u Službu kućnog lečenja, te da se ispita da li postoje razlike u nivou depresivnih smetnji u zavisnosti od osnovne dijagnoze pacijenta (onkološko oboljenje, demencija ili post-ishemijski cerebrovaskularni incident).

Sekundarni cilj bio je da se proceni u kojoj meri depresivne smetnje utiču na svakodnevno funkcionisanje negovatelja u obavljanju kućnih, radnih i socijalnih aktivnosti.

METODOLOGIJA

Sprovedena je deskriptivno-analička studija preseka među članovima porodica pacijenata uključenih u Službu kućnog lečenja Doma zdravlja Subotica. Istraživanje je sprovedeno u periodu od marta do septembra 2025. godine.

Veličina uzorka je određena a priori. Korišćenjem G*Power softvera (verzija 3.1.9.7; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany) i F tests – ANOVA: Fixed effects, omnibus, one-way (three groups) izračunata je veličina uzorka uz veličinu efekta 0.40, nivo značajnosti (α err prob = 0,05) i snagu ($1 - \beta$ err prob = 0,80). Prema postavljenim parametrima utvrđena je minimalna veličina uzorka od 66 jedinica posmatranja.

U analizu je uključeno ukupno 77 porodičnih negovatelja koji su kompletno popunili upitnik PHQ-9, dok su svi nepotpuni upitnici bili isključeni iz analize.

PHQ-9 je validirani instrument za skrining depresivnosti koji procenjuje učestalost devet simptoma tokom prethodne dve nedelje. To je upitnik od 9 stavki sa Likertovom skalom za samoprocenu. Ukupan skor kreće se u rasponu od 0–27 poena i klasifikuje težinu depresivnih simptoma u standardne kategorije. Što je viši ukupan rezultat, to su teži depresivni simptomi koje pojedinac doživljava.

Pored PHQ-9 skora, prikupljeni su podaci o polu i starosti porodičnih negovatelja kao i informacije o

- The informal status of caregivers, absence of financial compensation, support, or respite further increases the emotional burden [3].
- Social isolation and neglect of their own health increase the risk of depressive symptoms [2].

In our country and region, systematic data on depression among family caregivers of patients receiving home treatment are lacking, particularly in relation to specific diagnostic categories (oncological patients, dementia, post-stroke conditions). Studying this population is important in order to improve understanding of their mental health and enable adequate planning of support measures.

The aim of this study was to assess the presence and intensity of depressive symptoms among family members of patients enrolled in the Home Care Service using the PHQ-9, and to examine whether differences in the level of depressive symptoms exist depending on the patient's primary diagnosis (oncological disease, dementia, or post-ischemic cerebrovascular incident).

The secondary aim was to assess the extent to which depressive symptoms affect caregivers' daily functioning in performing household, work, and social activities.

METHODOLOGY

A descriptive-analytical cross-sectional study was conducted among family members of patients enrolled in the Home Care Service of the Primary Health Care Center Subotica. The study was carried out between March and September 2025.

The sample size was determined a priori. Using G*Power software (version 3.1.9.7; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany) and F tests – ANOVA: Fixed effects, omnibus, one-way (three groups), the required sample size was calculated assuming an effect size of 0.40, significance level (α err prob = 0.05), and statistical power ($1 - \beta$ err prob = 0.80). Based on these parameters, the minimum required sample size was 66 observational units.

A total of 77 family caregivers who fully completed the PHQ-9 were included in the analysis, while all incomplete questionnaires were excluded.

The PHQ-9 is a validated screening instrument for depression that assesses the frequency of nine symptoms over the previous two weeks. It is a 9-item self-report questionnaire using a Likert scale. The total score ranges from 0 to 27 points and classifies the severity of depressive symptoms into standard categories. Higher total scores indicate more severe depressive symptoms experienced by the individual.

In addition to the PHQ-9 score, data were collected on the sex and age of family caregivers, as well as in-

osnovnoj dijagnozi pacijenta zbog koje je uključen u kućno lečenje (onkološko oboljenje, demencija ili stanje nakon ishemijskog cerebrovaskularnog incidenta), kao i subjektivna procena uticaja simptoma na svakodnevno funkcionisanje negovatelja (ne, malo, dosta, izraženo).

Podaci su prikupljeni anonimno tokom rutinskih dolazaka članova porodica u ambulantu Službe kućnog lečenja, uz dobrovoljni pristanak ispitanika, u skladu sa etičkim principima Helsinške deklaracije. Istraživanje je odobreno od strane Etičkog odbora Doma zdravlja Subotica (del. br. 01-5/I/2025. od 20.02.2025).

Statistička analiza obavljena je korišćenjem deskriptivnih statističkih metoda i metoda za testiranje razlike između grupa ispitanika i povezanosti između PHQ-9 skora i ispitivanih parametara. Za testiranje razlike korišćeni su t-test, Mann-Whitney U test i Kruskal-Wallis test, a za ispitivanje povezanosti Spearmanov koeficijent korelacije. Analiza podataka je sprovedena u softverskom programu SPSS Statistics 22 (SPSS Inc., Chicago, IL, USA), a kriterijum za statističku značajnost bio je $p < 0,05$.

REZULTATI

Studijom je obuhvaćeno 77 ispitanika, prosečne starosne dobi $49,68 \pm 15,05$ godina. Učestalost ženskih negovatelja iznosila je 46 (59,7%), prosečne starosti $48,30 \pm 13,77$ godina, dok je muških negovatelja bilo 31 (40,3%), prosečne starosti $51,71 \pm 16,79$ godina. Starosna dob ispitanika se nije značajno razlikovala prema polu ($p = 0,333$), što ukazuje da je ispitivana grupa homogena u odnosu na starosnu dob.

Za svakog negovatelja određen je ukupan PHQ-9 skor. Prosečna vrednost za ispitivani uzorak iznosila je $8,48 \pm 6,14$, sa rasponom vrednosti od 0 do 23 poena. Medijana PHQ-9 skora kod ženskih negovatelja iznosila je 7,5 (raspon 0–21), a kod muških 5,0 (raspon 0–23).

formation on the patient's primary diagnosis that led to inclusion in home care (oncological disease, dementia, or condition following an ischemic cerebrovascular incident). A subjective assessment of the impact of symptoms on the caregiver's daily functioning (none, mild, moderate, severe) was also recorded.

Data were collected anonymously during routine visits of family members to the outpatient clinic of the Home Care Service, with voluntary consent from participants, in accordance with the ethical principles of the Helsinki Declaration. The study was approved by the Ethics Committee of the Primary Health Care Center Subotica (decision no. 01-5/I/2025, dated February 20, 2025).

Statistical analysis was performed using descriptive statistical methods and methods for testing differences between groups and associations between PHQ-9 scores and the examined parameters. The t-test, Mann-Whitney U test, and Kruskal-Wallis test were used to test differences, while Spearman's correlation coefficient was used to examine associations. Data analysis was conducted using SPSS Statistics 22 (SPSS Inc., Chicago, IL, USA), and the criterion for statistical significance was set at $p < 0.05$.

RESULTS

The study included 77 participants with a mean age of 49.68 ± 15.05 years. Female caregivers accounted for 46 (59.7%) participants, with a mean age of 48.30 ± 13.77 years, while male caregivers accounted for 31 (40.3%) participants, with a mean age of 51.71 ± 16.79 years. There was no statistically significant difference in age between male and female participants ($p = 0.333$), indicating that the study group was homogeneous with respect to age.

For each caregiver, the total PHQ-9 score was calculated. The mean value for the study sample was 8.48 ± 6.14 , with a range from 0 to 23 points. The me-

Tabela 1. Deskriptivni pokazatelji PHQ-9 ukupnog skora

Deskriptivni parametri / Descriptive parameters	Pol / Sex		Ukupno / Total
	Žene / Female	Muškarci / Male	
Broj ispitanija / Number of respondents	46	31	77
Srednja vrednost / Mean value	8.85	7.94	8.48
Standardna devijacija / Standard deviation	5.86	6.59	6.14
Minimum / Minimum	0	0	0
25th percentile / 25th percentile	4.0	3.0	4.0
Medijana (50 percentila) / Median (50th percentile)	7.5	5.0	7.0
75 percentila / 75th percentile	13.25	13.0	13.0
Maksimum / Maximum	21.0	23.0	23.0

Table 1. Descriptive indicators of the PHQ-9 total score

Tabela 2. Distribucija kategorija depresivne smetnje prema PHQ-9

Kategorija / Category	Opseg skora / Score range	n	%
Nema tegoba do minimalna depresija / No complaints to minimal depression	0–4	24	31.2%
Blaga depresija / Mild depression	5–9	23	29.9%
Umerena depresija / Moderate depression	10–14	16	20.8%
Umereno teška depresija / Moderately severe depression	15–19	11	14.3%
Teška depresija / Severe depression	20–27	3	3.9%

Table 2. Distribution of categories of depressive disorder according to PHQ-9

Testirana je razlika ukupnog PHQ-9 skora između polova i nije utvrđena statistički značajna razlika ($p = 0,423$), **Tabela 1**.

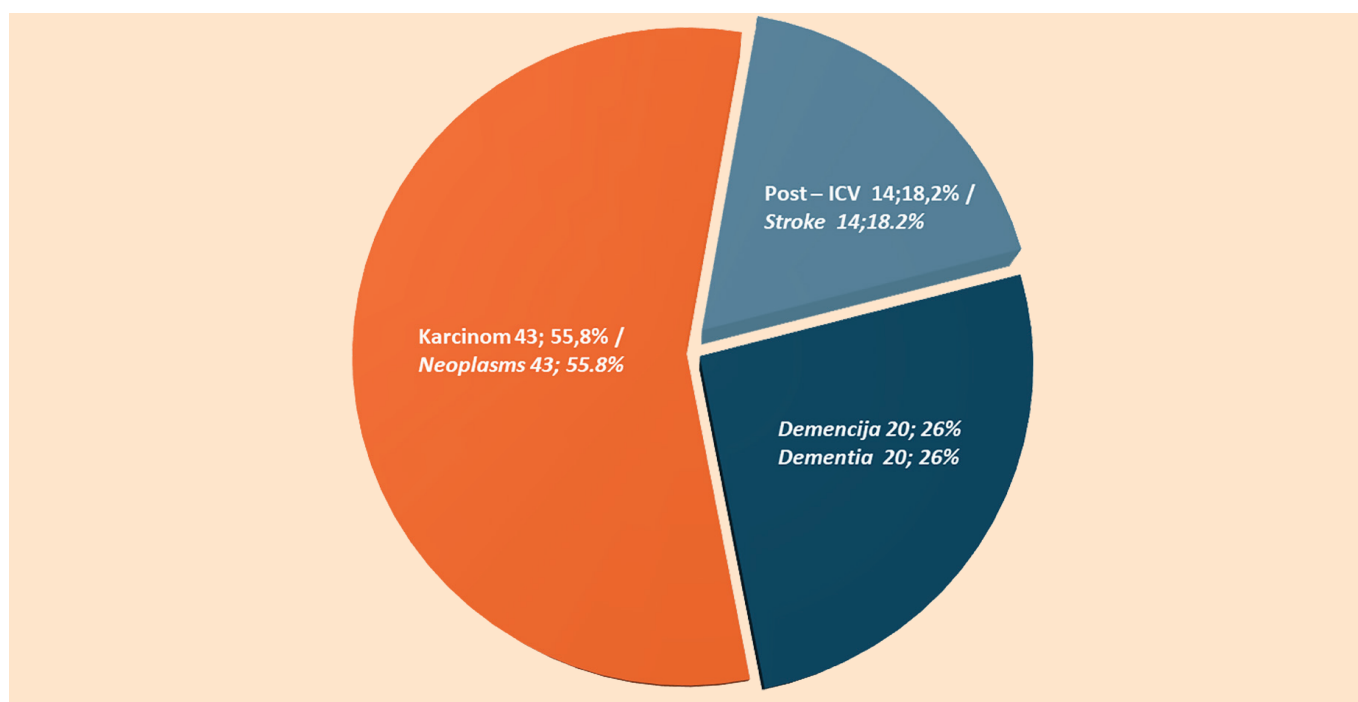
Na osnovu ukupnog PHQ-9 skora i kategorizacije težine depresivnih simptoma, minimalne ili blage simptome depresije imalo je 47 (61,1%) ispitanika. Minimalni simptomi (skor 0–4) bili su prisutni kod 24 (31,2%), dok je blage simptome (skor 5–9) imalo 23 (29,9%) negovatelja. Simptomi sa PHQ-9 skorom ≥ 10 registrovani su kod 30 (38,9%) ispitanika. Umereni simptomi (skor 10–14) bili su prisutni kod 16 (20,8%), umereno teški (skor 15–19) kod 11 (14,3%), a teški simptomi (skor 20–27) kod 3 (3,9%) negovatelja, **Tabela 2**.

Učestalost negovatelja prema osnovnoj dijagnozi pacijenta prikazana je na **Grafikonu 1**. Karcinom je bio zastupljen kod 43 (55,8%) pacijenata, demencija kod 20 (26,0%), dok je 14 (18,2%) pacijenata imalo dijagnozu post-ishemijskog cerebrovaskularnog incidenta.

dian PHQ-9 score among female caregivers was 7.5 (range 0–21), while among male caregivers it was 5.0 (range 0–23). The difference in total PHQ-9 scores between sexes was tested and no statistically significant difference was found ($p = 0,423$), **Table 1**.

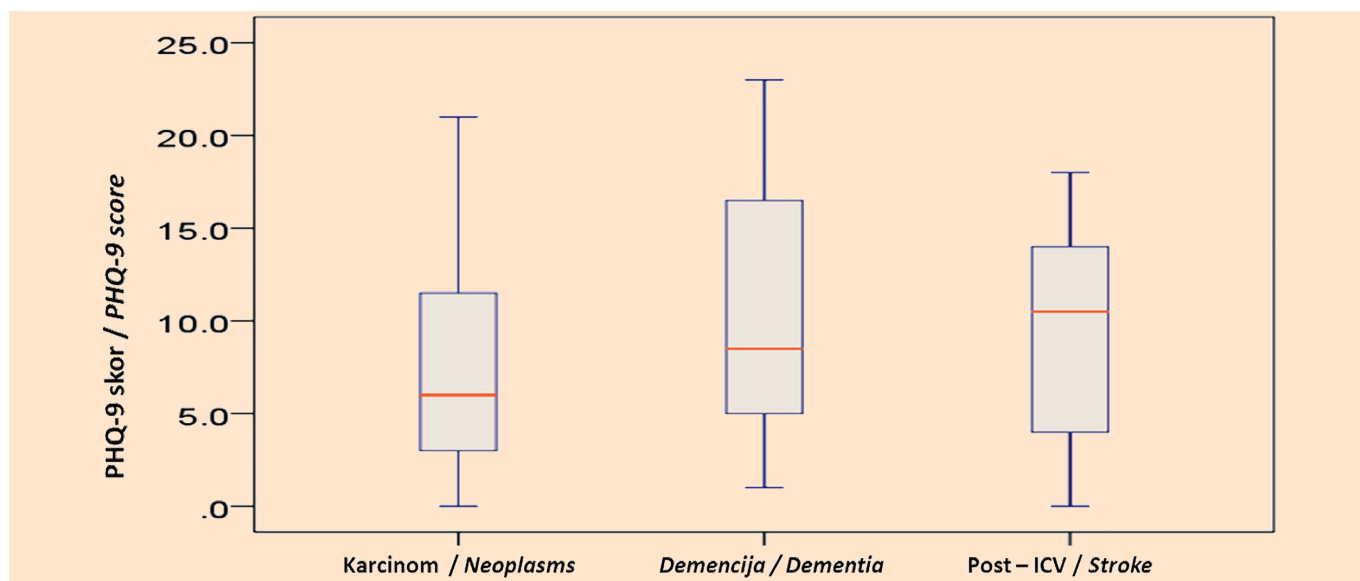
Based on the total PHQ-9 score and the categorization of depressive symptom severity, minimal or mild depressive symptoms were present in 47 (61.1%) participants. Minimal symptoms (score 0–4) were observed in 24 (31.2%) participants, while mild symptoms (score 5–9) were present in 23 (29.9%) caregivers. Symptoms with a PHQ-9 score ≥ 10 were recorded in 30 (38.9%) participants. Moderate symptoms (score 10–14) were present in 16 (20.8%), moderately severe symptoms (score 15–19) in 11 (14.3%), and severe symptoms (score 20–27) in 3 (3.9%) caregivers (**Table 2**).

The distribution of caregivers according to the patient's primary diagnosis is presented in **Graph 1**. Can-



Grafikon 1. Učestalost negovatelja prema osnovnoj dijagnozi pacijenta

Graph 1. Distribution of caregivers according to the patient's primary diagnosis



Grafikon 2. PHQ-9 skor prema osnovnoj dijagnozi pacijenta

Graph 2. PHQ-9 score according to patient's primary diagnosis

Medijana PHQ-9 skora kod negovatelja pacijenata sa karcinomom iznosila je 6,0 (0–21), kod negovatelja pacijenata sa demencijom 8,5 (1–23), dok je kod negovatelja pacijenata sa post-ICV medijana iznosila 10,5 (0–18). Razlika u vrednostima PHQ-9 skora između grupa prema primarnoj dijagnozi pacijenta nije bila statistički značajna ($p = 0,183$), **Grafikon 2**.

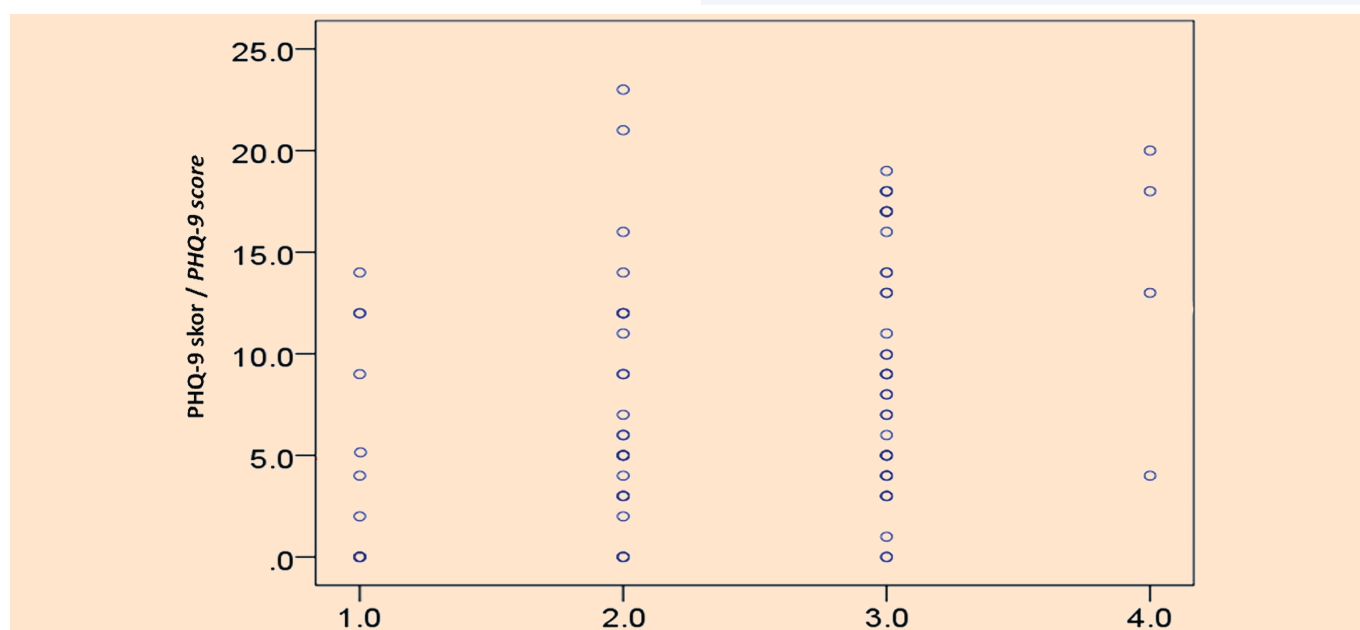
Ispitivanjem povezanosti između PHQ-9 skora i subjektivne procene uticaja simptoma na svakodnevno funkcionisanje kod ukupnog uzorka od 77 negovatelja utvrđena je statistički značajna blaga pozitivna korelacija ($r_s = 0,294$; $p = 0,009$), **Grafikon 3**.

Povezanost PHQ-9 skora sa svakodnevnim funkcionisanjem negovatelja prikazana je po grupama

cer was present in 43 (55.8%) patients, dementia in 20 (26.0%), while 14 (18.2%) patients had a diagnosis of post-ischemic cerebrovascular incident.

The median PHQ-9 score among caregivers of patients with cancer was 6.0 (0–21), among caregivers of patients with dementia 8.5 (1–23), while among caregivers of patients with post-ischemic cerebrovascular incident the median was 10.5 (0–18). The difference in PHQ-9 scores between groups according to the patient's primary diagnosis was not statistically significant ($p = 0.183$), **Graph 2**.

By examining the association between the PHQ-9 score and the subjective assessment of the impact of symptoms on daily functioning in the total sample of



Grafikon 3. Povezanost PHQ-9 skora i uticaja simptoma na svakodnevno funkcionisanje negovatelj

Graph 3. Correlation between PHQ-9 score and the impact of symptoms on caregivers' daily functioning

Tabela 3. Povezanost PHQ-9 skora i uticaja simptoma na svakodnevno funkcionisanje negovatelja u odnosu na primarnu dijagnozu pacijenta

Dijagnoza / <i>Diagnosis</i>	Broj / <i>Number</i>	r_s	<i>p</i>
Karcinom / <i>Neoplasms</i>	43	0.175	0.263
Demencija / <i>Dementia</i>	20	0.212	0.370
post – ICV / <i>post – ICV</i>	14	0.529	0.052

r_s – Spearmanov koeficijent korelacije / r_s – Spearman's correlation coefficient

ispitanika u zavisnosti od primarne dijagnoze pacijenta, **Tabela 3.** U grupi negovatelja pacijenata sa post-ICV umerena pozitivna korelacija ($r_s = 0,529; p = 0,052$), iako nije dostigla statističku značajnost. Kod negovatelja pacijenata sa karcinomom ($r_s = 0,175; p = 0,263$) i demencijom ($r_s = 0,212; p = 0,370$) nije utvrđena statistički značajna povezanost.

DISKUSIJA

U ovoj studiji prosečan PHQ-9 skor među članovima porodice koji neguju pacijente u kućnom lečenju iznosio je $8,48 \pm 6,14$, dok je 38,9% ispitanika imalo skor ≥ 10 . Ovi nalazi ukazuju da je značajan deo porodičnih negovatelja izložen umerenim i težim depresivnim simptomima. Tan i saradnici u svom istraživanju su potvrdili da je prosečan skor PHQ-9 kod negovatelja pacijenata sa demencijom iznosio 7,1 [12]. Prevalencija prijavljena u meta-analitičkoj studiji kod negovatelja osoba nakon moždanog udara ukazuju da je depresija prisutna kod 43,9% ispitanika [13], dok kod negovatelja pacijenata sa malignim bolestima depresivni simptomi dostižu približno 47% [5]. Nešto manja učestalost od 30,5% je bila kod negovatelja pacijenata sa demencijom [12]. Krovni pregled sistematskih pregleda i meta-analiza je objedinio dokaze o depresivnom morbiditetu kod negovatelja pacijenata obolelih od karcinoma i objedinjena globalna prevalenca depresije kod neformalnih negovatelja iznosila je 38% [14]. Ovakva podudarnost rezultata potvrđuje da su porodični negovatelji populacija sa povećanim rizikom za narušeno mentalno zdravlje.

U analizi prema polu nije utvrđena statistički značajna razlika u PHQ-9 skoru, što ukazuje da su depresivni simptomi podjednako zastupljeni među muškim i ženskim negovateljima. Ovaj nalaz je u skladu sa pojedinim savremenim studijama koje pokazuju da, iako žene češće preuzimaju ulogu negovatelja, intenzitet depresivnih simptoma ne mora nužno da se razlikuje prema polu [15]. Međutim pojedine studije potvrđuju na značajno veće angažovanje ženskog pola kada je u pitanju nega pacijenata sa demencijom, sa učestalosću od 68% [12]. Dodatno, novija istraživanja ukazuju da su kod ženskih negovatelja veće opterećenje i osećaj usamljenosti značajno povezani

Table 3. Correlation between PHQ-9 score and the impact of symptoms on caregivers' daily functioning according to the patient's primary diagnosis

77 caregivers, a statistically significant weak positive correlation was found ($r_s = 0.294; p = 0.009$), **Graph 3.**

The association between the PHQ-9 score and caregivers' daily functioning is presented by groups of participants according to the patient's primary diagnosis (**Table 3**). In the group of caregivers of patients with post-ischemic cerebrovascular incident, a moderate positive correlation was observed ($r_s = 0.529; p = 0.052$), although it did not reach statistical significance. No statistically significant association was found among caregivers of patients with cancer ($r_s = 0.175; p = 0.263$) and dementia ($r_s = 0.212; p = 0.370$).

DISCUSSION

In this study, the average PHQ-9 score among family members caring for patients receiving home treatment was 8.48 ± 6.14 , while 38.9% of participants had a score ≥ 10 . These findings indicate that a substantial proportion of family caregivers are exposed to moderate and more severe depressive symptoms. Tan and colleagues reported in their study that the average PHQ-9 score among caregivers of patients with dementia was 7.1 [12]. The prevalence reported in a meta-analytic study among caregivers of stroke survivors indicates that depression was present in 43.9% of participants [13], while depressive symptoms among caregivers of patients with malignant diseases reach approximately 47% [5]. A somewhat lower prevalence of 30.5% was reported among caregivers of patients with dementia [12]. An umbrella review of systematic reviews and meta-analyses synthesized evidence on depressive morbidity among caregivers of cancer patients and reported a pooled global prevalence of depression among informal caregivers of 38% [14]. Such consistency of findings confirms that family caregivers represent a population at increased risk for impaired mental health.

The analysis by sex showed no statistically significant difference in PHQ-9 scores, indicating that depressive symptoms were equally represented among male and female caregivers. This finding is consistent with some contemporary studies showing that although women more often assume the caregiving role, the intensity of depressive symptoms does not necessarily differ by sex [15]. However, some studies confirm significantly greater involvement of women in caregiving

sa intenzitetom depresivnih simptoma, pri čemu smisao životne svrhe može imati medijatorsku ulogu u tom odnosu [16].

Ispitivanje razlika prema primarnoj dijagnozi pacijenta nije pokazalo statistički značajne razlike u nivou depresivnih simptoma između grupa. Iako su medijane bile numerički više kod negovatelja pacijenata sa post-ICV i demencijom, dobijene razlike nisu dostigle nivo statističke značajnosti. Ovaj nalaz može biti posledica relativno malog uzorka i varijabilnosti unutar grupa. Međutim, numerički trend viših vrednosti kod negovatelja pacijenata sa neurološkim oboljenjima u skladu je sa ranijim istraživanjima koja ukazuju da neurokognitivni poremećaji i nagla funkcionalna zavisnost pacijenta predstavljaju značajan psihološki teret za negovateljce [4,15].

Sekundarni cilj istraživanja odnosio se na povezanost depresivnih simptoma i svakodnevnog funkcionisanja negovatelja. U ukupnom uzorku utvrđena je statistički značajna blaga pozitivna korelacija između PHQ-9 skora i subjektivne procene uticaja simptoma na svakodnevno funkcionisanje. Ovaj nalaz ukazuje da sa porastom intenziteta depresivnih simptoma raste i stepen narušenosti radnih, porodičnih i socijalnih aktivnosti negovatelja. Sličnu povezanost između psihološkog opterećenja i smanjenog kvaliteta života potvrđuju i ranije meta-analize [17].

U podgrupnoj analizi prema dijagnozi pacijenta uočena je umerena pozitivna korelacija kod negovatelja pacijenata sa post-ICV, sa nivoom bliskim statističkoj značajnosti. Ovakav trend može ukazivati na specifičnu ranjivost ove grupe. Nagla pojava cerebrovaskularnog incidenta i iznenadna promena funkcionalnog statusa pacijenta mogu dovesti do intenzivnog psihološkog opterećenja članova porodice koji preuzimaju ulogu negovatelja bez prethodne pripreme. Nasuprot tome, kod hroničnih stanja poput demencije ili malignih bolesti, duži tok bolesti može omogućiti postepenu adaptaciju i razvoj mehanizama suočavanja. Slično tome, u zajedničkim analizama neformalnih negovatelja osoba sa teškim mentalnim poremećajima pokazano je da su veće funkcionalno oštećenje korisnika nege i ženski pol značajno povezani sa depresivnim simptomima, dok je duže trajanje bolesti bilo povezano sa manjim rizikom za depresiju, što se tumači procesom adaptacije negovatelja [18].

Klinički značaj ovih nalaza ogleda se u potrebi sistematskog prepoznavanja i praćenja mentalnog zdravlja porodičnih negovatelja u okviru Službe kućnog lečenja. PHQ-9 se u ovom istraživanju pokazao kao praktičan i primenljiv instrument za rutinski skrining depresivnih simptoma, što je u skladu sa preporukama savremenih istraživanja o integraciji

for patients with dementia, with a prevalence of 68% [12]. Additionally, recent research indicates that greater burden and feelings of loneliness among female caregivers are significantly associated with the intensity of depressive symptoms, while a sense of life purpose may play a mediating role in this relationship [16].

The analysis of differences according to the patient's primary diagnosis did not reveal statistically significant differences in the level of depressive symptoms between groups. Although the medians were numerically higher among caregivers of patients with post-ICV and dementia, the observed differences did not reach statistical significance. This finding may be a consequence of the relatively small sample size and variability within groups. However, the numerical trend toward higher values among caregivers of patients with neurological diseases is consistent with previous studies indicating that neurocognitive disorders and sudden functional dependence of the patient represent a significant psychological burden for caregivers [4,15].

The secondary aim of the study referred to the association between depressive symptoms and caregivers' daily functioning. In the overall sample, a statistically significant weak positive correlation was found between PHQ-9 scores and the subjective assessment of the impact of symptoms on daily functioning. This finding indicates that as the intensity of depressive symptoms increases, the degree of impairment in caregivers' work, family, and social activities also increases. A similar association between psychological burden and reduced quality of life has been confirmed in previous meta-analyses [17].

In the subgroup analysis according to the patient's diagnosis, a moderate positive correlation was observed among caregivers of patients with post-ICV, with a level close to statistical significance. This trend may indicate a specific vulnerability of this group. The sudden onset of a cerebrovascular incident and the abrupt change in the patient's functional status may lead to intense psychological burden for family members who assume the caregiving role without prior preparation. In contrast, in chronic conditions such as dementia or malignant diseases, the longer disease course may allow gradual adaptation and the development of coping mechanisms. Similarly, pooled analyses of informal caregivers of individuals with severe mental disorders have shown that greater functional impairment of the care recipient and female sex are significantly associated with depressive symptoms, while longer disease duration is associated with a lower risk of depression, which is interpreted as a process of caregiver adaptation [18].

The clinical significance of these findings lies in the need for systematic recognition and monitoring of the mental health of family caregivers within home care

procene mentalnog zdravlja negovatelja u primarnu zdravstvenu zaštitu [6,19].

Ograničenje studije predstavlja relativno mali uzorak, posebno u podgrupama prema dijagnozi pacijenta, što može umanjiti statističku snagu analize i otežati detekciju značajnih razlika. Buduća istraživanja sa većim uzorkom i uključivanjem dodatnih sociodemografskih i psihosocijalnih varijabli mogla bi pružiti detaljniji uvid u faktore rizika za depresivne smetnje među porodičnim negovateljima. Istraživanja među negovateljima osoba sa demencijom pokazala su da su pojedini sociodemografski faktori, uključujući starost, obrazovanje i odnos sa pacijentom, značajno povezani sa psihološkim blagostanjem negovatelja, što dodatno opravdava potrebu za njihovim sistematskim ispitivanjem u budućim studijama [20].

ZAKLJUČAK

Rezultati ove studije pokazuju da su depresivni simptomi značajno prisutni među članovima porodica koji brinu o pacijentima uključenim u Službu kućnog lečenja, pri čemu je nešto više od trećine ispitanika imalo PHQ-9 skor ≥ 10 . Nivo depresivnih simptoma se nije razlikovao prema polu i primarnoj dijagnozi pacijenta, ali uočene razlike vrednosti ukupnog PHQ-9 skora ukazuju na moguće varijacije u opterećenju među podgrupama.

Pozitivna povezanost između intenziteta depresivnih simptoma i subjektivne procene narušenosti svakodnevnog funkcionisanja negovatelja ukazuje da porast depresivnih simptoma prati izraženiji uticaj na radne, porodične i socijalne aktivnosti negovatelja.

Dobijeni rezultati naglašavaju značaj sistematskog prepoznavanja i praćenja mentalnog zdravlja porodičnih negovatelja u okviru kućnog lečenja. PHQ-9 se pokazao kao praktičan i primenljiv instrument za skrining depresivnih simptoma u ovoj populaciji.

Imajući u vidu ograničenja studije, uključujući relativno manji broj ispitanika u pojedinim podgrupama, opravdana su buduća istraživanja sa većim uzorcima kako bi se potvrdili nalazi ove studije. Uključivanje šireg spektra sociodemografskih i psihosocijalnih varijabli mogla bi omogućiti preciznije sagledavanje faktora rizika i razvoj ciljanih intervencija podrške.

Sukob interesa: Nije prijavljen.

In this study, the PHQ-9 proved to be a practical and applicable instrument for routine screening of depressive symptoms, which is consistent with recommendations from contemporary research advocating the integration of caregiver mental health assessment into primary health care [6,19].

A limitation of this study is the relatively small sample size, particularly in the subgroups according to the patient's diagnosis, which may reduce the statistical power of the analysis and make detection of significant differences more difficult. Future studies with larger samples and the inclusion of additional sociodemographic and psychosocial variables could provide a more detailed insight into the risk factors for depressive symptoms among family caregivers. Studies among caregivers of persons with dementia have shown that certain sociodemographic factors, including age, education, and relationship with the patient, are significantly associated with caregivers' psychological well-being, which further justifies the need for their systematic investigation in future studies [20].

CONCLUSION

The results of this study show that depressive symptoms are significantly present among family members caring for patients enrolled in the Home Care Service, with slightly more than one-third of participants having a PHQ-9 score ≥ 10 . The level of depressive symptoms did not differ according to sex or the patient's primary diagnosis; however, observed differences in total PHQ-9 scores suggest possible variations in burden among subgroups.

The positive association between the intensity of depressive symptoms and the subjective assessment of impairment in caregivers' daily functioning indicates that an increase in depressive symptoms is accompanied by a more pronounced impact on caregivers' work, family, and social activities.

The obtained results emphasize the importance of systematic recognition and monitoring of the mental health of family caregivers within home care services. The PHQ-9 proved to be a practical and applicable instrument for screening depressive symptoms in this population.

Considering the limitations of the study, including the relatively small number of participants in certain subgroups, future research with larger samples is justified in order to confirm the findings of this study. The inclusion of a broader range of sociodemographic and psychosocial variables could enable a more precise identification of risk factors and the development of targeted support interventions.

Conflict of interest: None declared.

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