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Frequency and correlates of depression at the primary health care level in Belgrade

Учесталост и корелати депресије на примарном нивоу здравствене заштите у Београду

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SUMMARY

Introduction/Objective The prevalence of depression in primary care is relatively high. The aim of the study was to assess the frequency of depression among patients in primary health care center Zvezdara in Belgrade. We also examined the relationship between depression and individual risk factors (socio-demographics, lifestyle-characteristics, and health-related factors).

Methods A cross-sectional study, which included 422 adult patients, under 65, was conducted in Zvezdara Primary Healthcare Centre in Belgrade, Serbia, during January of 2018. The instrument used was Patient Health Questionnaire-9, PHQ-9 (cut-off score ≥10). Multivariate logistic regression analysis was applied.

Results Depression, at least of moderate intensity, was found in 36% persons. Around 1.4% of participants confirmed suicidal thoughts almost every day during the last 2 weeks. The logistic regression model showed the association with depression and: being married (OR: 0.24, 95% CI: 0.13–0.44), single (OR: 0.43, 95% CI:0,22–0.83), unemployment (OR: 3.83, 95% CI: 1.51–9.76), lifetime contact with mental health services (OR: 3.79, 95% CI: 2.19–6.57) and regular treatment for chronic illnesses (OR: 3.22, 95% CI: 1.94-5.34).

Conclusion This study found a relatively high prevalence of depression among patients in primary health care centre. We found the association between depression and marital status, employment, previous contact with mental health services and regular treatment for chronic illnesses. The PHQ-9 instrument could be implemented in primary health care settings in Serbia.

Keywords: depression, prevalence, primary health care

САЖЕТАК

Увод/циљ Преваленција депресије међу пацијентима на нивоу примарне здравствене заштите је релативно висока. Циљ ове студије био је да се испита учесталост депресије међу пацијентима који су посетили свог изабраног лекара у Дому здравља Звездара у Београду, као и да се испита повезаност депресије са индивидуалним факторима ризика (социјално-демографским, карактеристикама животног стила и факторима повезаним са здрављем).

Метод Студија пресека, која је обухватила 422 одраслих учесника, млађих од 65 година спроведена је у Дому здравља Звездара, у Београду, Србија, током јануара 2018. Инструмент истраживања био је Упитник о здрављу пацијената (*Patient Health Questionnaire 9, PHQ-9*). Гранична вредност износила је ≥10. Примењена је мултиваријанта логистичка регресиона анализа.

Резултати Код 36% особа утврђена је депресивност (умерени, умерено тешки или тешки степен изражености), док је 1,4% свих испитаника имало суицидалне мисли скоро сваки дан током последње две недеље. Мултиваријантна логистичка регресија је показала повезаност депресивности и брачног статуса - у браку (*OR*: 0,24; 95% *CI*: 0,13–0,44), неожењен/неудата (*OR*: 0,43; 95% *CI*:0,22-0.83), као и незапослености (*OR*: 3,83; 95% *CI*: 1,51-9,76), претходног контакта са службама за ментално здравље (*OR*: 3,79; 95% *CI*: 2,19-6,57) и регуларне терапије за хроничне болести (*OR*: 3,22; 95% *CI*: 1,94-5,34).

Закључак Ова студија је показала релативно високу учесталост депресивности међу испитаницима у дому здравља. Пронашли смо повезаност између брачног стања, запослења, претходних контаката са службом менталног здравља и редовном терапијом хроничних болести. *PHQ-9* инструмент може се примењивати у примарној здравственој заштити у Србији.

Кључне речи: депресија, преваленција, примарна здравствена заштита.

INTRODUCTION

Major depressive disorder (depression) is a common mental health condition in which the absence of positive affect is associated with mental health problems. The World

Health Organization estimates that depression will be the second leading cause of the global burden of the disease by 2020 [1]. Mood changes cover a spectrum from transitory "normal" low mood to clinically significant affective disorder (such as major depression) which may be life-threatening. Nevertheless, the higher the degree of affective disorder, the higher is the mortality rate and the prevalence of adverse outcomes [2].

There is evidence that almost half of patients with depression in Europe have been unrecognized or inadequately treated. This gap results from the reluctance of patients to seek help, and also from misdiagnosis at the primary care level [3]. In health care systems, general practitioners are the first line contact with patients with mental health problems. It could be stated that timely diagnosis and the efficiency of treatment is affected by the general practitioners' knowledge and training on the proper communication with this group of patients [4, 5]. The prevalence of depression varies among the patients in primary health care and it ranges from 2.3% up to 48.5% [6-9]. The most recent meta-analysis from 2018 (n = 1,112,573 adults) showed no difference between the rural and urban settlements (13% vs 17.7%, respectively) [10].

Different social factors could affect the development of depression, such as: female gender, lower education, economic inactivity and being divorced or widowed, or lifestyle characteristics and habits: diet, exercise, sleep [11-16]. If inadequately treated, depression can lead to many complications, in particular it significantly increases a risk for suicide. Primary health care plays an important role in suicide prevention as more than half of suicide victims contact their general practitioner one to four weeks prior to death, which creates the window of opportunity for the health care system to provide preventive measures [17, 18].

Screening instruments for depression are numerous and include Beck Depression Inventory, Zung Self-Rated Depression Scale, Kessler Psychological Distress Scale [19]. Patient Health Questionnaire (PHQ-9) and its versions (PHQ-8 and PHQ-2), is widely

proposed to be used in these settings, as it was shown to have higher specificity and sensitivity compared to primary health care physicians' diagnoses [3, 20]. Routine use of the 9-item Patient Health Questionnaire (PHQ-9) may be useful at primary care level and it may identify individuals at risk for depression who would not otherwise have been identified [21]. Routine use of PHQ-9 is still not a frequent practice in Serbia. According to the education and practice in Serbia, general practitioners should be able to recognize the depression and refer the patient to the psychiatry treatment. The study among general practitioners in five Southeastern European countries showed that the majority of our general practitioners consider recognizing the depression as their responsibility [22].

Serbia National Health Survey conducted in 2013 (n=19,079) found a 4.1% prevalence of depression (PHQ-8 total score 10–24) in general population. [23]. The prevalence of depression in primary health care centers in Serbia was examined by the Lisulov and Nedic, with PHQ-9 and MINI test [24].

The aim of the study was to assess the frequency of depression among patients in primary health care center Zvezdara in Belgrade. We also examined the relationship between depression and individual risk factors (socio-demographics, lifestyle-characteristics and health-related factors).

METHODS

Patients and setting

A cross-sectional study was conducted in Zvezdara Primary Healthcare Center in Belgrade, Serbia. The study included patients aged 18 to 65 who visited three general practitioners in January 2018. Exclusion criteria were: age under 18, age over 65, pregnancy and postpartum, mental retardation or intellectual disability. Patients over 65 were excluded since it was shown that screening methods available are less robust for this age group and

symptoms of depression often coexist with medical comorbidities [25]. We excluded a total of 14 patients who had an appointment with a psychiatrist before the study began and four who had not filled in the questionnaire. The final sample consisted of 422 patients. The required sample size (two-tailed) was calculated for a significance level of 5% and the power was set at 95%, whereas the proportion of depression was estimated to 25% by Lisulov and Nedic study [24]. Our final sample of 422 exceeded the required minimum sample size of 72 patients. All the patients were informed on the study aim and the data collection. The patients gave their written consent to participate in the study.

The study was approved by the Ethics Committee of the Zvezdara Primary Healthcare Center [No 1641/3] and the Faculty of Medicine, University of Belgrade [No 29/VI-15].

Data collection

The study instrument was a questionnaire, which consisted of four sections: socio-demographic and socio-economic characteristics, lifestyle characteristics, physical health and mental health. Socio-demographic data were obtained by a questionnaire which included the following information: sex; age (for further analysis it was stratified in three clusters 19-34 years, 35-54 years and above 55), marital status (single, married, widowed and divorced), educational level (elementary school, high school, college and university), employment status (employed, unemployed, other - retired or student), monthly income per person in the household in RSD - one euro is approximately 120 RSD (less than 10000 RSD, 10000-25000 RSD, 25000-50000 RSD, >50000 RSD), housing space per person (less than 10, 11-30, and above 31 square meters), number of family members in the household (one, two, 3-4, 5 or more members). The lifestyle characteristics were Tobacco (yes/no) and Alcohol consumption (no/regularly/occasionally). The third part of the questionnaire included

questions on health related factors: whether they regularly took any prescribed medication at the time of this evaluation (yes/no) and whether they had contact with mental health services during lifetime (yes/no).

Mental health was assessed by PHQ-9 questionnaire. PHQ-9 Patient Health Questionnaire has been widely used in primary care to quickly assess symptoms of depression and is considered as a screening gold standard [18]. It has 9 items scoring 9 common symptoms of depression in the past 2 weeks. It has a 4-point rating scale from 0 'not at all' to 3 'always'. Score 5-9 indicate mild depression, 10-14 moderate depression, 15-19 are considered as moderate-severe depression and 20 and above as severe depression. The validated cut-off score of ≥10 (sensitivity =0.85, specificity = 0.89) has been recommended as an indicator for moderate to severe depression symptoms [19]. The 9th question of PHQ-9 measures suicidality (questioning if there were any "thoughts that you would be better off dead or of hurting yourself in some way" could be scored "not at all," "several days," "more than half the days," or "nearly every day"). The cut-off score of ≥1 was used as an indicator of suicidality (endorsement of "several days" or more to the item).

DATA ANALYSIS

Descriptive statistics was used to show socio-demographic, socio-economic and lifestyle characteristics, as well as health related factors of the respondents (age, sex, education, employment status, marital status, number of family members in the household, monthly income per person, housing space per person, whether participant is taking any prescribed medication on a daily basis and previous contact with mental health service). The difference in proportions was tested by Chi-square test. Multivariate logistic regression analysis was performed to obtain significant factors (independent variables) associated with

depression (dependent variable) and presented by odds ratio (OR), 95% confidence interval (CI) and P value. All data were analyzed using SPSS 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.).

RESULTS

Based on PHQ-9 scores, patients were divided into two groups: in the first were patients with the scores ≤9 who had none, minimal or mild depression (n=270; 64.0%) and in the second were patients with scores ≥10 who had moderate, moderately severe or severe depression (n=152; 36.0%). Cronbach alpha for PHQ-9 was 0.90 and ICC was ≥0.90.

About two thirds (68.0%) of the patients were female. The majority of these were married (50.2%), 66.8% were employed and the majority had a high school education (46.7%). The monthly income per person range from 10,000 to 25,000 RSD (85 - 210 euros) for most of the patients. About 64.0% of patients had no lifetime contact with mental health services. More than half were non-smokers (57.8%) and most of them reported no alcohol consumption (69.9%). About 59.0% of patients were not using any medication on a daily basis (Table 1).

A frequency of the patients who answered positively on the last question on the PHQ-9 questionnaire (considering suicidality) was 10.8%. Around 1.4% of all patients answered that they had suicidal thoughts or thoughts about hurting themselves almost every day.

The logistic regression model showed the association with depressive symptoms and: being married (OR: 0.24, 95% CI: 0.13-0.44), single (OR: 0.43, 95% CI:0,22-0.83), unemployment (OR: 3.83, 95% CI: 1.51-9.76), lifetime contact with mental health services (OR: 3.79, 95% CI: 2.19-6.57) and regular treatment for chronic illnesses (OR: 3.22, 95% CI: 1.94-5.34) (Table 2).

DISCUSSION

This cross-sectional study of depression prevalence in an urban population of Serbia indicated that more than 1/3 of adults attending Primary Healthcare Center had depressive symptoms of moderate, moderately severe or severe intensity. Another study of Primary Healthcare Center population in Vojvodina, by Nedic and Lisulov, registered prevalence of 24.5% [24]. Studies in primary health care in the world reported prevalence in the wide range, from 2.3% to 48.5% [6. 7, 9]. Overall, prevalence in Primary Healthcare Center population is much higher than prevalence of depression reported in the general population. For example, prevalence reported by the National Health Survey conducted in general population of Serbia in 2013 was only 4.1% [23].

In our study 1.4% of participants answered that they had suicidal thoughts almost every day during the last 2 weeks. In the literature, the prevalence of suicidal thoughts was estimated at around 10% [27] which meant that suicidal thoughts were present "more than half the days" or "nearly every day" in 1/10 adults who were visiting their general practitioner. By showing that cumulative probability of both nonfatal and fatal suicidal attempts (according to response to item 9 of the PHQ-9) was ranging from approximately 0.4% (1 in 250) for those responding "not at all", to approximately 4% (1 in 25) for those responding "nearly every day", Simon et al. emphasized the need for sustained and organized follow-up care to address an ongoing risk of suicide. We fully support this statement, in particular related to Primary Healthcare Center screening practices [27].

Several individual-level factors: lower education, female gender, economic inactivity and being divorced or widowed, were associated with increased odds of depression in a large, multilevel cross-national study of prevalence of depression, which was conducted in 68 countries [4]. It was shown previously that women are twice more likely to experience depression during lifetime in most studies [7, 15]. The results of the National Health Survey

of the Republic of Serbia 2013 demonstrated that symptoms of depression were present in a significantly higher percentage in women (5.3%) than men (2.9%) [23]. In our study gender was not associated with likelihood depression. This could be explained with numerous social factors in Serbia, which could have led to increase in prevalence of mental health problems. Previous studies have shown that women are more likely to be depressed in countries in which they have lower income, and lower socio-economic status. Women are more likely to be prescribed with more antidepressants than men, which may be associated with higher prevalence reported [22].

Our study showed that married patients are less likely to have depression compared to single/widowed/divorced patients, which is in agreement with previous studies [29]. Kessler et al. found that being separated/divorced was associated with increased risk of depressive disorders in 12 countries (OR from < 4.0 to >8.0) [13]. Married participants have strong social support from their partners, which can serve as a protective factor for depression [16].

Unemployed participants had almost four times higher likelihood for development of depression disorders. The reason could be that increase in household spending could stress unemployed participants more and create suitable environment for depression [30]. In our study, the likelihood for developing depression in unemployed patients was three fold higher than that for the employed.

Another independent factor associated with depression in our study was previous contact with mental health service (almost four times higher likelihood). Having in mind that our participants were attending their general physician (GP) for general medical care and that those who already had an appointment with a psychiatrist were excluded, the correlation of actual depression and any lifetime contact with mental health service is to be considered further. The implications of these findings are many, but still beyond the scope of this paper.

In our study, regular treatment for chronic illnesses was also associated with higher likelihood (more than three times higher likelihood). Previous research confirmed that chronic diseases were predictors for depression. However, recent studies have demonstrated the inverse causality, i.e. depression precedes chronic illness [28]. Comorbidities associated with depressive disorders are highly prevalent in primary health care practice [29] and causal link between comorbid physical disorder and depression is yet to be studied.

LIMITATIONS

Our study revealed a relatively high proportion of depression in adults visiting general practitioner in the Primary Healthcare Center. These results should be treated with some caution. PHQ-9 scores do rate some of the patients as depressive despite the fact that psychiatric clinical examination may often reject this diagnosis (false positive findings). In the opposite direction, our question regarding alcohol habits was answered "no" in 70.2% of the cases. There is a slight chance that it was a false negative finding, because the latest reports of alcohol consumption in Serbian population aged 15 years and more, both sexes, showed higher prevalence of alcohol consumption in the population (48.4%) in comparison to our findings. Aforementioned limitations are usual in the evaluations based on a self-report instruments and truth is that only physician-administered interview tools with clinical accuracy will lead to a sufficient diagnostic evaluation for those at risk. Nevertheless, on a day-to-day basis, use of the self-report PHQ-9, with evaluation of both alcohol/drug consumption and anxiety by screening questions, remains the briefest, simplest, most accurate way to diagnose depressive and other frequent psychiatric symptoms in an adult population. Patients can complete and score the questionnaires themselves in the waiting room prior to seeing their doctor. Consistent use of this approach in Primary Healthcare

Center could improve our national general medical practices, helping to choose the most appropriate interventions and to monitor the outcomes.

CONCLUSION

Depression is a highly prevalent in many settings. Early screening for depression in primary health care using the PHQ-9 instrument is essential for early recognition and management of the disorder. Depression and depressive disorders are often associated with numerous socio-demographic factors. In our study, we found the association between depression and marital status, employment, previous contact with mental health services and regular treatment for chronic illnesses. We found relatively high prevalence of depression in our sample, which supports the need for training of Primary Health Center doctors to implement screening instruments for depression.

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Table 1. Socio-demographic and other characteristics and percentages of positive screens for depression (PHQ-9 ≥ 10)

Characteristics	**Total**		PHQ-9 ≤ 9		PHQ–9 ≥ 10		
	N	**%**	**N**	**%**	**N**	**%**	p value [a]
Total	422	100	270	64	152	36	
Sex							
Female	287	68	188	65.5	99	34.5	0.342
Male	135	32	82	60.7	53	39.3	
Age (years)							
19–34	122	29	82	67.2	40	32.8	0.061
35–54	219	52	145	66.2	74	33.8	
> 55	80	19	42	52.5	38	47.5	
Marital status							
Married	212	50.2	159	75	53	25	**< 0.001**
Single	125	29.6	76	60.8	49	39.2	
Widowed, divorced	85	20.1	35	41.2	50	58.8	
Education							
< High school	28	6.6	14	50	14	50	0.216
High school	197	46.7	124	62.9	73	37.1	
College	74	17.5	46	62.2	28	37.8	
University	123	29.1	86	69.9	37	30.1	
Employment status							
Employed	282	66.8	201	71.3	81	28.7	**< 0.001**
Unemployed	77	18.2	33	42.9	44	57.1	
Other (student, retired)	63	14.9	36	57.1	27	42.9	
Monthly income per person (RSD)							
< 10.000	47	11.2	27	57.4	20	42.6	0.092
10.000–25.000	223	55.3	136	61.0	87	39.0	
25.000–50.000	117	28.0	86	73.5	31	26.5	
> 50.000	31	7.4	19	61.3	12	38.7	
Housing space per person (m²)							
0–10	26	6.2	15	57.7	11	42.3	0.701
11–30	304	72.9	195	64.1	109	35.9	
> 30	87	20.9	58	66.7	29	33.3	
Number of family members in the household							
1	37	8.8	19	51.4	18	48.6	0.420
2	72	17.1	47	65.3	25	34.7	
3–4	248	58.8	162	65.3	86	34.7	
5 and more	65	15.4	42	64.6	23	35.4	
Any lifetime contact with mental health service							
No	270	64.0	239	72.0	93	28.0	**<0.001**
Yes	152	36.0	31	34.4	59	65.6	
Smoking							
No	244	57.8	164	67.2	80	32.8	0.105
Yes	178	42.2	106	59.6	72	40.4	
Alcohol consumption							
No	295	69.9	195	66.1	100	33.9	0.167
Yes	127	30.1	75	59.1	52	40.9	
Regular treatment for chronic illnesses							
No	249	59.0	185	74.3	64	25.7	**<0.001**
Yes	173	41.0	85	49.1	88	50.9	

RSD – The Serbian Dinar currency; p value < 0.05 was considered as statistically significant

Table 2. Factors associated with depression

Parameters	**Positive screening for depression**	
	p value	**OR (95% CI)**
Marital status		
married	**<0.001**	**0.24 (0.13–0.44)**
single	**0.013**	**0.43 (0.22–0.83)**
widowed, divorced	/	Ref. category
Employment status		
employed	0.955	1.02 (0.44–2.36)
unemployed	**0.005**	**3.83 (1.51–9.76)**
other (student, retired)		Ref. category
Any lifetime contact with mental health service	**<0.001**	**3.79 (2.19–6.57)**
Regular treatment for chronic illnesses	**<0.001**	**3.22 (1.94–5.34)**

OR – odds ratio, CI – confidence interval

p value < 0.05 was considered as statistically significant

