THE EXPRESSION OF SOMATIC SYMPTOMS AMONG INDIVIDUALS AT RISK OF DEPRESSIVE DISORDER

Somatinių simptomų raiška tarp asmenų, kuriems yra rizika susirgti depresiniu sutrikimu

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SUMMARY

Background. Depression stands as a significant mood disorder on a global scale. It is known that some physical symptoms show significant positive predictive values (PPV) for depression, such as sleep disturbances (PPV – 61%), fatigue (PPV – 60%), experiencing three or more complaints (PPV – 56%), nonspecific musculoskeletal complaints (PPV – 43%), back pain (PPV – 39%), amplified complaints (PPV 39%), and vaguely expressed complaints (PPV – 37%).

The aim of this study. This study aims to evaluate the correlations of subjective expressions of somatic, cognitive, and depressive symptoms severity among individuals at risk of depressive disorder.

Methods. The survey consisted of a questionnaire designed by the authors regarding sociodemographic information and two standard questionnaires: PHQ-9 and PHQ-15.

Results. 189 individuals had significant severity of depressive symptoms. Multivariable regression analysis indicated that PHQ-9 factor 2 (somatic symptoms) was associated with higher rates of back pain ($\beta = 0.250$, $p < 0.001$), pain in arms, legs, or joints ($\beta = 0.488$, $p < 0.001$), menstrual cramps ($\beta = 0.640$, $p < 0.001$), pain or problems during sexual intercourse ($\beta = 0.270$, $p < 0.001$), headaches ($\beta = 0.304$, $p < 0.001$), chest pain ($\beta = 0.304$, $p < 0.001$), dizziness ($\beta = 0.594$, $p < 0.001$), heart palpitations (feeling heart pound or race) ($\beta = 0.266$, $p < 0.001$), nausea, gas or indigestion ($\beta = 0.281$, $p < 0.001$) and feeling tired or having low energy ($\beta = 0.223$, $p < 0.001$), after adjusting each regression model for the potential confounders.

Conclusions. It can be emphasized that individuals who are at risk of developing depression may experience various somatic symptoms that are conditioned by their depressive state. The obtained results indicate that the following research is required to identify other factors affecting the severity of the disease and to determine more sufficient treatment plans.

Keywords: depressive symptoms, somatic symptoms, cognitive symptoms, PHQ-9, PHQ-15

SANTRAUKA

Įvadas. Depresinis sutrikimas yra reikšmingas psichikos nuotaikos sutrikimas pasauliniu mastu. Pažymėtina, kad didelę teigiamą depresijos prognostinę vertę (TPV) turintys somatiniai simptomai yra: miego sutrikimai (TPV – 61 proc.), nuovargis (TPV –60 proc.), didesnis skundų kiekis (trys ar daugiau) (TPV – 56 proc.), nespecifiniai raumenų ir kaulų sistemos sutrikimai (TPV – 43 proc.), nugaros skausmas (TPV – 39 proc.), sustiprėję skundai (TPV: 39 proc.) ir neaiškiai išreikšti skundai (TPV – 37 proc.).

Tyrimo tikslas. Įvertinti subjektyvių somatinių, kognityvinių ir depresinių simptomų sunkumo sąsajas tarp asmenų, kuriems yra rizika susirgti depresija.

Tyrimo metodai. Apklausą sudarė autorių sukurta anketa apie sociodemografinę informaciją ir dvi standartinės anketos: PHQ-9 ir PHQ-15.

Rezultatai. 189 asmenys turėjo reikšmingą depresijos simptomų išraišką. Daugiaveiksnės regresijos analizė parodė, kad PSK-9 faktorius 2 (somatiniai simptomai) buvo susijęs su nugaros skausmu ($\beta = 0{,}250$, $p < 0{,}001$), rankų, kojų ar sąnarių skausmu ($\beta = 0{,}488$, $p < 0{,}001$), mėnesinių skausmu ($\beta = 0{,}640$, $p < 0{,}001$), skausmu ar problemomis lytinių santykių metu ($\beta = 0{,}270$, $p < 0{,}001$), galvos skausmu ($\beta = 0{,}304$, $p < 0{,}001$), krūtinės skausmu ($\beta = 0{,}304$, $p < 0{,}001$), galvos svaigimu ($\beta = 0{,}594$), $p < 0{,}001$), nereguliariu arba padažnėjusiu širdies ritmu ($\beta = 0{,}266$, $p < 0{,}001$), pykinimu, dujų susikaupimu žarnyne ar virškinimo sutrikimais ($\beta = 0{,}281$, $p < 0{,}001$) ir nuovargiu bei mažu energijos kiekiu ($\beta = 0{,}223$, $p < 0{,}001$), kiekvieną regresijos modelį pakoregavus pagal kitus įtakojančius veiksnius.

Išvados. Asmenys turintys riziką susirgti depresija gali jausti įvairius somatinius simptomus, nulemtus jų depresinės būsenos. Gauti rezultatai rodo, kad būtų tikslinga atlikti tolimesnius tyrimus, siekiant atrasti efektyvesnius gydymo metodus ir nustatyti papildomus veiksnius, turinčius įtakos ligos sunkumui.

Raktažodžiai: depresiniai simptomai, somatiniai simptomai, pažintiniai simptomai, PSK-9, PSK-15

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INTRODUCTION

Depressive disorder is a significant psychiatric mood disorder on a global scale. Statistics reveal that around 17% of individuals encounter depression at least once in their lifetime [1]. According to the data of the World Health Organization, approximately 3.8% of the population undergoes depression, with 5% of adults being affected (4% among men and 6% among women), along with 5.7% of adults aged 60 and above. Based on the most recent information, around 280 million people in the world have this illness [2]. Depression can manifest in all age groups, from childhood to late adulthood, resulting in significant costs for society. If left untreated, this disease can cause severe distress, disrupt daily life, and lead to fatal outcomes [3].

Even though the emergence of depression has been strongly associated with genetic factors [4], depressive disorder can occur in anyone. It is worth noticing that patients with a history of substance abuse, significant losses, or other stressful situations have a higher risk of developing this ailment [2]. Major Depressive Disorder (MDD) has a huge impact on the disease burden within diverse economic landscapes, including low, middle, and high-income countries [5]. This condition challenges various aspects of life, affecting the patient‘s performance in school, work, home, and community.

The severity of a depressive episode is classified as mild, moderate, or severe based on the amount and intensity of symptoms, as well as their impact on the individual’s overall functioning [2]. To diagnose the depressive disorder, at least five of the following nine DSM-V symptoms must persist consistently for a minimum period of two weeks, with at least one symptom involving depressed mood or loss of interest or pleasure. These symptoms include feelings of worthlessness or excessive or inappropriate guilt, disruptions in sleep patterns (insomnia or hypersomnia), notable changes in weight or appetite, psychomotor agitation or retardation, indecisiveness, reduced ability to think or concentrate, increased suicidality, experiencing a low or depressed mood, a lack of interest or pleasure, along with fatigue or loss of energy. These symptoms must result in significant distress or interfere with functioning in social and occupational interactions or other essential aspects of life. Moreover, the episode must not be caused by the direct physiological impact of a substance or by any other medical condition [6]. The prognosis of depressive disorders is adversely influenced by cognitive dysfunctions because they increase the likelihood of depression recurrence and reduce responsiveness to pharmacological treatment [7].

It is noteworthy that age, among demographic factors, has a significant influence on the cognitive impairments observed in depressed patients. Older patients with depression tend to exhibit more significant disabilities compared to younger patients. Particularly affected are those, who experience a late onset of the disease, typically between the ages of 50 to 65 years [8, 9].

Concerning symptoms of MDD, fluctuations in emotional well-being are the primary manifestations of the ailment. This consists of reduced interest or motivation for pleasurable activities, a decrease in experiencing positive emotions (anhedonia), and an abundance of negative emotions such as feelings of depression or anxiety [10]. Another characteristic occurring in the group of patients with depression is apathy, which can overlap with reduced interest, loss of energy, and even indecisiveness but is too unspecific to be considered a fundamental symptom. Apathy is more commonly reported as a side effect, impacting up to 20% of patients prescribed SSRI antidepressants [11]. In a family practice assessment comparing physician diagnosis with patient self-reports of depressive manifestations, disruptions in sleep patterns and depressed mood were the most identified symptoms. Interestingly, the diagnosis of depression was most frequently assigned to those patients, who had the presence of suicidal thoughts together with insomnia or hypersomnia [12]. Sleep disturbances commonly occur as a symptom of depression and could often be an early sign of a major depressive episode [13]. In addition, sleep disturbances are often an indicator of the likelihood of relapse [14] and are considered the eighth most sensitive factor in reflecting the patient‘s response to antidepressants [15]. Additionally, individuals diagnosed with depression have a higher sensitivity to negative information. That contributes to a pessimistic outlook on the world and a poorer perception of themselves and others [16].

Moreover, complaints of exhaustion or an inability to engage in physical or mental activities are very common among individuals with depression in primary healthcare settings as well [11]. Among the domains assessed on the WSAS (work, home management, social activities, private activities, relationships) impaired concentration emerged as one of the most disabling symptoms in each area [17]. Data indicate persistent impairments in both memory and executive function, especially affecting elderly patients [18]. It is noteworthy that the presence of cognitive impairment in older individuals with moderate-to-severe depression significantly predicts the likelihood of developing dementia in the future [19].

Moreover, physical manifestations, especially somatic anxiety and fatigue were observed in 80% of patients diagnosed with MDD (a group consisting of 260 women and 239 men) [20, 21]. A strong correlation between pain symptoms and depression has been recorded as well, as around two-thirds (69%) of 573 patients diagnosed with MDD in a United States study reported experiencing general aches and pains [22]. Certain somatic symptoms demonstrated considerable positive predictive values (PPV) for depression such as: sleep disturbances (PPV – 61%), fatigue (PPV – 60%), three or more complaints (PPV – 56%), nonspecific musculoskeletal complaints (PPV – 43%), back pain (PPV – 39%), amplified complaints (PPV – 39%) and vaguely stated complaints (PPV – 37 %) [23].

Additionally, other symptoms that often complicate the experiences of individuals dealing with depression are sexual difficulties. These challenges may involve a decrease in sexual desire, diminished arousal, infrequent engagement in sexual activities, and obstacles in reaching orgasm [11]. In a large-scale European study conducted to examine sexual function among both treated and untreated individuals with depression, over two-thirds of men and women experienced a decrease in libido. The reduction in libido augmented with the severity and

duration of the depressive episode [24]. Diminished libido can contribute to the worsening of interpersonal or marital relations and make the severity of depression even worse. Up to 60% of patients undertaking treatment with SSRI antidepressants report encountering the onset of sexual dysfunction during the therapy [25,26]. Taking that into account, sexual dysfunction remains one of the most frequent reasons for discontinuing prescribed medicines [27].

Notably, the depressive disorder often manifests only with somatic symptoms (about 50% of the patients report physical manifestations exclusively), while affective symptoms and mood disorders are not obvious and often remain unrecognizable [28]. Therefore, the assessment of somatic symptoms and the variation in their intensity over the daytime is an important diagnostic criterion. That confirms the significant importance of an early diagnosis and appropriate treatment, especially when approximately half of the 800,000 annual suicides globally occur during a depressive episode. Compared to the general population, individuals with MDD are nearly 20 times more likely to commit suicide in the future [29].

It is noteworthy that early symptoms of MDD can manifest differently in males and females [30]. The Prodrome of MDD in men is most often associated with enhanced aggression, irritability, violent tendencies, substance misuse, risky behaviors, or somatic complaints [30-35]. Such outbursts of violence or angry verbal reactions are not only damaging to the individual but can also trigger negative emotions and traumatic reactions in the entire family [36].

Talking about the female population, increased rates of anxiety, somatic symptoms, changes in appetite, and weight gain are among the most common depressive symptoms [37]. Depression in women can have a huge negative impact on the whole family as well and induce abnormal development, cognitive deficiencies, and psychological disorders in children, especially when a female is diagnosed with postpartum depression [38].

Taking that into account, it is important to recognize early signs of depressive disorder as soon as possible and start the proper treatment. Nevertheless, immediate recognition, early intervention, and appropriate medical care can foster recovery, prevent relapse, and diminish the emotional and financial strain caused by the condition [39].

Considering this, our study aims to evaluate the correlations of subjective expressions of somatic, cognitive, and depressive symptoms severity among individuals at risk of depressive disorder.

STUDY PROCEDURES AND METHODS

Ethical considerations

The study procedures were approved by the Bioethics Center of Lithuanian University of Health Sciences (Approval No. BEC-MF-247, April 4, 2023). Before starting the survey, participants had to provide online informed consent to participate in the study by marking the appropriate answer "agree/disagree."

Study participants

After receiving permission from the Bioethics Center of the Lithuanian University of Health Sciences (LUHS) (No. BEC-MF-247), an online survey was started on April 4, 2023. Adult (over 18 years) subjects were invited to participate in this study and fill in an anonymous online survey. The researchers provided information about the study and an invitation for participation, sharing information about the study and the link to the online survey on various social media groups. The inclusion criterion for the study was age: adult (over 18 years) subjects. Out of the 603 respondents who accepted the invitation and completed the survey for the ultimate assessment, the final sample consisted of 189 individuals with significant severity of depressive symptoms (according to PHQ-9 ≥10). The engagement rate for accessing the questionnaire was not monitored.

Methods

The survey was composed of three parts. The first part of the survey consisted of a questionnaire designed by the authors regarding sociodemographic information. The following data was collected: gender and age of participants, as well as marital status, education, work, number of children, and place of residence. Current living conditions were also evaluated, where participants were able to rate their current conditions in comparison with others. The possible answers ranged from "very poor compared to other people" to "very good compared to other people".

For the evaluation of the subjective psychological characteristics in this study, we used two standard questionnaires:

PHQ-9 was used to measure symptoms of depression [40, 41]. The PHQ-9 is a brief nine-item self-report questionnaire measuring depression symptoms and severity over the past two weeks. Answers are presented on a four-point Likert scale ranging from 0 ("not at all") to 3 ("nearly every day"). The total score ranges from 0 to 27, with higher scores indicating a higher prevalence of depressive symptoms. Cronbach's alpha for the measure in the current study was 0.66.

The two factors that emerged were related [42] to cognitive/affective symptoms: loss of interest, feeling depressed, feeling bad about yourself, suicidal thoughts (Cronbach's alpha = 0.632), and somatic symptoms: sleep problems, loss of energy, poor appetite or overeating, trouble concentrating, being slower or more restless (Cronbach's alpha = 0.528) [42].

PHQ-15 was used to measure somatic symptoms [43]. The PHQ-15 comprises 13 somatic symptoms from the PHQ, each symptom scored from 0 ("not bothered at all") to 2 ("bothered a lot") and two additional physical symptoms (feeling tired or having little energy and trouble sleeping) are contained in the PHQ-9 depression module. The total score ranges from 0 to 30, with higher scores indicating higher somatic symptom severity. Cronbach's alpha for the measure in the current study was 0.69.

Statistical analysis

Statistical analyses were conducted using version 27.0 of the SPSS for Windows statistical package (SPSS Inc., Chicago, IL, USA). There was no missing data. Descriptive statistics such as means and frequencies were calculated for all

sociodemographic characteristics and subjective psychological characteristics. For correlations between somatic symptoms and PHQ-9 two factors (F1 – cognitive/affective symptoms; F2 – somatic symptoms), the significance threshold was adjusted by using Bonferroni correction, setting the p-value at 0.003. A multivariable regression analysis was conducted to investigate the associations between somatic symptoms and PHQ-9 two factors (F1 – cognitive/affective symptoms; F2 – somatic symptoms). Each factor was adjusted for age, sex, education, current employment status, place of residence, living conditions, and family status.

RESULTS

Out of the 603 respondents who accepted the invitation and completed the survey for the ultimate assessment, the final sample consisted of 189 individuals with significant severity of depressive symptoms. The age of the individuals ranged from 19 to 75 years old (M = 33; SD = 13), and the majority were female (n = 151; 78.1%).

Most of the study participants had higher education (59.3%) and were currently working (54.5%). Also, most of them were single (36%) or married (30.2%), had no children (65.1%), and lived in the city (78.8%). Almost half of all participants rated their living conditions as average (45.5%) or much better than average (23.8%) compared with others.

A detailed description of the sample, somatic, and depression characteristics is presented in Table 1.

The distribution in severity of somatic symptoms is presented in Table 2. The most severe range was reported in the severity of trouble sleeping (M = 1.06; SD = 0.78), feeling tired or having low energy (M = 1.39; SD = 0.65), back pain (M = 0.9; SD = 0.67) and headaches (M = 0.84; SD = 0.68).

Next, we analyzed the correlations between somatic symptoms, measured with PHQ-15 and PHQ-9 two factors (F1 – cognitive/affective symptoms; F2 – somatic symptoms) (Table 3).

PHQ-9 factor 1 (cognitive/affective symptoms) had a weak positive correlation with feeling tired or having low energy ($r = 0.252$, $p < 0.005$). PHQ-9 factor 2 (somatic symptoms) had a weak positive correlation with back pain ($r = 0.278$, $p < 0.001$), pain or problems during sexual intercourse ($r = 0.279$, $p < 0.001$), feeling tired or having low energy ($r = 0.290$, $p < 0.001$), low positive correlation with headaches ($r = 0.340$, $p < 0.001$), chest pain ($r = 0.489$, $p < 0.001$), heart palpitations (feeling heart pound or race) ($r = 0.309$, $p < 0.001$), nausea, gas or indigestion ($r = 0.342$, $p < 0.001$), and a moderate positive associations with pain in your arms, legs or joints ($r = 0.511$, $p < 0.001$), menstrual cramps ($r = 0.511$, $p < 0.001$) and dizziness ($r = 0.615$, $p < 0.001$).

Finally, multivariable regression analyses were used to examine the associations among somatic symptoms and PHQ-9 two factors (F1 – cognitive/affective symptoms; F2 – somatic symptoms) adjusted age, sex, education, currently working, residence, living conditions, and family status (Table 4).

Multivariable regression analysis indicated that PHQ-9 factor 1 (cognitive/affective symptoms), was associated with higher feeling tired or having low energy ($\beta = 0.259$, $p < 0.001$). PHQ-9 factor 2 (somatic symptoms) was associated

Table 1. **Sociodemographic characteristics of study participants with significant severity of depressive symptoms (n=189)**

	PHQ-9≥10
Age, years; mean (SD)	33.2 (12.8)
Sex, n (%)	
Male	38 (20.1)
Female	151 (79.9)
Education, n (%)	
Primary	4 (2.1)
Secondary	73 (38.6)
Higher	112 (59.3)
Are you currently studying? n (%)	
Yes, at school	4 (2.1)
Yes, at college or university	81 (42.9)
No	104 (55.0)
Are you currently working? n (%)	
Yes, full-time	103 (54.5)
Yes, part-time	33 (17.5)
Yes, I am a freelancer	11 (5.8)
No	42 (22.2)
Where is your place of residence? n (%)	
In the city	149 (78.8)
In the town	27 (14.3)
In the village	13 (6.9)
How would you rate your living conditions? n (%)	
Very poor	1 (0.5)
Much worse than average	5 (2.6)
Worse than average	16 (8.5)
Average	86 (45.5)
Much better than average	45 (23.8)
Better than average	25 (13.2)
Very good	11 (5.8)
Family status, n (%)	
Single	68 (36.0)
In an extramarital relationship	47 (24.9)
Married	57 (30.2)
Widower	2 (1.1)
Divorced	15 (7.9)
Do you have any children? n (%)	
No	123 (65.1)
1	18 (9.5)
2	38 (20.1)
3	7 (3.7)
4	3 (1.6)
PHQ-15, total score; mean (SD)	12.9 (4.4)
PHQ-9, total score; mean (SD)	14.8 (4.2)

Table 2. **The range of somatic symptoms severity among study participants with significant severity of depressive symptoms (n=189)**

Symptoms	Mean (SD)	Did not bother me at all	Bothered me minimally	Bothered me significantly
		n (%)		
Stomach pain	0.44 (0.61)	373 (62.0)	193 (32.1)	36 (6.0
Back pain	0.90 (0.67)	169 (28.1)	327 (54.3)	106 (17.6)
Pain in your arms, legs or joints (knees, hips, etc.)	0.74 (0.71)	253 (42.0)	255 (42.4)	94 (15.6)
Menstrual cramps or other problems with your periods	0.54 (0.71)	352 (58.5	175 (29.1)	75 (12.5)
Been bothered by pain or problems during sexual intercourse	0.14 (0.40)	530 (88.0)	60 (10.0)	12 (2.0)
How often have you been bothered by headaches	0.84 (0.68)	195 (32.4)	308 (51.2)	99 (16.4)
Bothered by chest pain	0.28 (0.53)	455 (75.6)	123 (20.4)	24 (4.0)
Been bothered by dizziness	0.48 (0.63)	356 (59.1	201 (33.4)	45 (7.5)
Been bothered by fainting spells	0.03 (0.22)	585 (97.2)	13 (2.2)	4 (0.7)
Feeling your heart pound or race	0.48 (0.65)	363 (60.3)	189 (31.4)	50 (8.3)
Bothered by shortness of breath	0.18 (0.46)	508 (84.4)	77 (12.8)	17 (2.8)
Bothered by constipation, loose bowels or diarrhea	0.56 (0.66)	322 (53.5)	222 (36.9)	58 (9.6)
Bothered by nausea, gas or indigestion	0.65 (0.67)	275 (45.7)	260 (43.2)	67 (11.1)
Bothered by trouble sleeping	1.06 (0.78)	165 (27.4)	236 (39.2)	201 (33.4)
Bothered by feeling tired or having low energy	1.39 (0.65)	56 (9.3)	254 (42.2)	292 (48.5)

with higher rates of back pain ($\beta = 0.250$, $p < 0.001$), pain in arms, legs or joints ($\beta = 0.488$, $p < 0.001$), menstrual cramps ($\beta = 0.640$, $p < 0.001$), pain or problems during sexual intercourse ($\beta = 0.270$, $p < 0.001$), headaches ($\beta = 0.304$, $p < 0.001$), chest pain ($\beta = 0.304$, $p < 0.001$), dizziness ($\beta = 0.594$, $p < 0.001$), heart palpitations (feeling heart pound or race) ($\beta = 0.266$, $p < 0.001$), nausea, gas or indigestion ($\beta = 0.281$, $p < 0.001$) and feeling tired or having low energy ($\beta = 0.223$, $p < 0.001$), after adjusting each regression model for potential confounders.

DISCUSSION

In the current study, we aimed to evaluate the correlations of subjective expressions of somatic, cognitive, and depressive symptoms severity among individuals at risk of depressive disorder.

This study shows that 189 respondents out of the 603 respondents who accepted the invitation and completed the survey, reported having significant severity of depressive symptoms (31.34%). This compares with the data provided by

Table 3. **Correlations between somatic symptoms (PHQ-15) and PHQ-9 factors**

Factors	F1		F2	
	r	p	r	p
Stomach pain	0.058	0.431	0.159	0.029
Back pain	0.030	0.685	0.278	**<0.001**
Pain in your arms, legs or joints (knees, hips, etc.)	0.018	0.804	0.511	**<0.001**
Menstrual cramps or other problems with your periods	0.093	0.204	0.572	**<0.001**
Been bothered by pain or problems during sexual intercourse	0.012	0.871	0.279	**<0.001**
How often have you been bothered by headaches	0.164	0.024	0.340	**<0.001**
Bothered by chest pain	0.114	0.120	0.489	**<0.001**
Been bothered by dizziness	0.155	0.034	0.615	**<0.001**
Been bothered by fainting spells	– 0.008	0.916	0.177	0.015
Feeling your heart pound or race	0.141	0.009	0.309	**<0.001**
Bothered by shortness of breath	0.032	0.657	0.211	0.004
Bothered by constipation, loose bowels or diarrhea	– 0.047	0.525	0.143	0.049
Bothered by nausea, gas or indigestion	0.141	0.053	0.342	**<0.001**
Bothered by trouble sleeping	0.172	<0.018	0.111	0.129
Bothered by feeling tired or having low energy	0.252	**<0.001**	0.290	**<0.001**

F1 – cognitive/affective symptoms; F2 – somatic symptoms
*Bonferoni p<0.003

Table 4. **Multivariable regression analyses of associations between somatic symptoms and PHQ-9 factors**

	F1			F2		
	R^2	β	p	R^2	β	p
Stomach pain	0.124	0.101	0.168	0.199	0.169	0.017
Back pain	0.119	0.071	0.328	0.231	0.250	**<0.001**
Pain in your arms, legs or joints (knees, hips, etc.)	0.114	0.005	0.947	0.394	0.488	**<0.001**
Menstrual cramps or other problems with your periods	0.128	0.147	0.092	0.436	0.640	**<0.001**
Been bothered by pain or problems during sexual intercourse	0.114	0.006	0.934	0.237	0.270	**<0.001**
How often have you been bothered by headaches	0.131	0.135	0.065	0.259	0.304	**<0.001**
Bothered by chest pain	0.129	0.122	0.088	0.436	0.525	**<0.001**
Been bothered by dizziness	0.131	0.131	0.069	0.505	0.592	**<0.001**
Been bothered by fainting spells	0.118	– 0.060	0.406	0.180	0.084	0.230
Feeling your heart pound or race	0.145	0.180	0.013	0.239	0.266	**<0.001**
Bothered by shortness of breath	0.120	0.076	0.303	0.192	0.145	0.042
Bothered by constipation, loose bowels or diarrhea	0.115	0.035	0.652	0.183	0.106	0.149
Bothered by nausea, gas or indigestion	0.135	0.150	0.041	0.244	0.281	**<0.001**
Bothered by trouble sleeping	0.137	0.153	0.032	0.182	0.097	0.162
Bothered by feeling tired or having low energy	0.176	0.259	**<0.001**	0.219	0.223	**0.001**

F1 – cognitive/affective symptoms; F2 – somatic symptoms
*Bonferoni p<0.003
Adjusted age, sex, education, currently working, residence, living conditions, family status

Eurostat, showing that 7.2% of EU citizens reported having chronic depression in 2019, a minor increase compared to 2014 (+0.3 percentage points) (Eurostat statistics explained: "Mental well-being and social support statistics" [44]), where our survey recorded even higher figures than the survey conducted in 2019. The mentioned rise in results obtained could be due to COVID-19. This is also discussed in the research conducted with respondents who are 60 years old and older. In Portugal, the proportion of respondents reporting increased symptoms of sadness/depression ranges between more than 30 percent [45]. Meanwhile, an increase of slightly less than 20 percent is being recorded in Lithuania.

During the study, it was found that subjects with significantly expressed depression manifested several somatic symptoms. Ohayon and Schatzberg's population study also indicated that 43.4% of subjects with MDD reported having at least 1 chronic painful physical condition, which occurs four times as frequently as the remaining sample (16.1%) [46].

Our study showed that cognitive-affective symptoms have a significant correlation with fatigue and feeling lack of energy. This is one of the main symptoms of depression which possibly determines the cognitive deterioration that is observed during a depressive episode, regardless of gender, age, or other sociodemographic characteristics. The most significant impairment of cognitive functions occurs during and between episodes of depression. Cognitive subdomains such as learning and memory, executive functioning, processing speed, attention, and concentration significantly contribute to occupational and functional disability in people with depression [47]. Therefore, in order to treat depression and achieve effective treatment outcomes, patients have to restore their cognitive functions.

It is also important to note, that the study found a significant link between somatic symptoms (such as back pain, pain in arms, legs, or joints, menstrual cramps, pain during sexual intercourse, headaches, chest pain, dizziness, head pounding, nausea, low energy) and resolution of affective symptoms. Naturally, people start to feel anxious about their health when being faced with somatic symptoms. Anxiety can manifest itself as constant thinking about the severity of symptoms, which requires large amounts of individual energy. A study of patients with cardiac neurosis also found that somatic symptoms are linked with mood disturbances, where depression rates reach up to 50% [48].

The shortcoming of the research is that the conducted survey did not include questions on whether respondents suffered from depression and other mental or somatic illnesses. The absence of this question precluded the assessment of individuals who were already at increased risk of depression. Another study limitation is the cross-sectional design. Since only one-time symptoms are assessed, they cannot be evaluated as a variable of somatic signs with affective symptoms (for example during treatment with antidepressants) to determine whether the expressiveness is reduced or not. Moreover, the Cronbach's alpha of both PHQ-9 and PHQ-15 questionnaires is considered moderate (acceptable) [49] and ranges from 0.53 to 0.69. An established interpretation of the coefficient is $\alpha < 0.5$ for low reliability, $0.5 < \alpha < 0.8$ for moderate (acceptable) reliability, and $\alpha > 0.8$ for high (good) reliability [50]. The value of Cronbach's alpha is impacted by the length of the test and its dimensionality. A reduced alpha value might arise from a limited quantity of questions, insufficient connections among items, or the presence of heterogeneous constructs in the assessment [51].

In conclusion, it can be emphasized that individuals who are at risk of developing depression may experience various somatic symptoms that are conditioned by their depressive state. Our study showed that cognitive-affective symptoms have a significant correlation with fatigue and feeling lack of energy. That is one of the main symptoms of depression which possibly determines the cognitive deterioration that is observed during a depressive episode, regardless of gender, age, or other sociodemographic characteristics. Moreover, the study found a significant link between somatic symptoms (such as back pain, pain in arms, legs, or joints, menstrual cramps, pain during sexual intercourse, headaches, chest pain, dizziness, head pounding, nausea, and low energy) and resolution of affective symptoms.

However, the obtained results indicate that the following research is required to identify other factors affecting the severity of the disease and to determine more sufficient treatment plans.

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