



**PSYCHOLOGICAL PERSPECTIVES  
ON HEALTH AND DISEASE**

**VOLUME 2  
MANIFESTATION AND DIAGNOSES OF HEALTH  
CONDITIONS**

**Krzysztof Kielkiewicz**

**Editor**

UEHS Press  
Warsaw  
2019

**Daniel Pankowski**

Faculty of Psychology, University of Warsaw, Poland

**Konrad Janowski**

Institute of Psychology

University of Economics and Human Sciences in Warsaw, Poland

**Kinga Wytrychiewicz**

Faculty of Psychology, University of Warsaw, Poland

Corresponding author: Daniel Pankowski

d.pankowski87@gmail.com

## **Sociodemographic variables and severity of depressive symptoms in primary care patients**

### **Introduction**

Major depression is estimated to be among the most burdensome disorders. According to the World Health Organization (WHO, 2017), there were 1.878.988 cases (5.1% of the total population) suffering from depressive disorders in Poland in 2015. In 2015, depressive disorders led to a global total of over 50 million years lived with disability (YLD) worldwide, and 330.423 total YLD in Poland.

It is estimated that depression and depressive symptoms may be even more common in specific populations, for instance, in patients suffering from somatic diseases (Barnett et al., 2012; Pakriev et al., 2009). The relationship between depression and somatic disease is complex, and, in addition, the mechanisms underlying the co-occurrence of depressive disorders and somatic disease are still not fully understood. Depression is a multi-system disease, that is, both its etiology and its course are associated with many biological factors (e.g., endocrine or immune, Cubała et al., 2006). The mere presence of depressive symptoms increases the risk of death for reasons related to the cardiovascular system (Lahtinen et al., 2018; Marwijk et al., 2015) as well as the risk of general mortality regardless of the underlying disease, especially among the elderly and in the course of

treatment in a medical facility (e.g., Chowdhury et al., 2019). Pathophysiological processes associated with somatic disease may also adversely affect depression (Kapfhammer, 2006). In particular, poorer response to antidepressant pharmacotherapy as well as incomplete remission or a persistent chronicity of depressive symptoms was reported in patients with co-occurring somatic disease (Keitner et al., 1991; Koike et al., 2002).

The comorbidity of depression and somatic disease is associated with much higher incidence of suicide attempts compared to the general population. The risk associated with suicide increases with the difficulty (pain or disability) caused by the symptoms of the disease (WHO, 2015). This is also true for diseases that do not pose a direct threat to life, such as psoriasis or acne (Gupta et al., 2017).

Several studies show that adverse health-risk behaviours, such as a sedentary lifestyle, smoking, and over-eating are common in patients with major depression. These kinds of behaviours may lead to a higher risk of diabetes and heart disease (Goodman & Whitaker, 2002; Rosal et al., 2001).

Many people seeking medical help begin with primary care institutions. Studies conducted in Poland, covering the group of elderly primary care patients emphasize the need for screening tests for depression in this group of patients. For example, one study showed an association between the severity of depressive symptoms and the number and severity of somatic complaints (Kujawska-Danecka et al., 2015). Also, in 2017, the Polish Psychiatric Association, the Polish Society of Family Medicine, and the College of Family Physicians in Poland developed guidelines for diagnosis and treatment of depressive disorders in primary health care patients (Piotrowski et al., 2017).

All these data point to the fact that depression and the severity of depressive symptoms in people suffering from somatic diseases can be a very important factor associated with its course or prognosis, especially in primary care.

### **Purpose of the Study**

The aim of the current study was thus to evaluate the severity of depressive symptoms and their relationship with sociodemographic variables in primary care patients in Poland.

## **Participants**

The study involved 179 primary care patients (130 women, 48 men). Their age ranged from 18 to 65 years ( $M = 44.75$   $SD = 13.93$ ). More than half of the participants were married (60.3%), 22.3% were single, 9.5% were divorced, and 7.8% were widowed. Less than 65% of the participants were employed, 14.5% were retired, 9.5% continued their education, 7.3% were unemployed, and 3.9% were on an old age pension. Less than half of the respondents (48.6%) had a secondary education, 33.5% had a higher education, 11.7% had a vocational education, and 6.1% had an elementary education. The majority of respondents lived with their families (85.5%), 14.5% lived alone

Participants were excluded from the study if their somatic disease was too severe to enable them to fill in the questionnaires. The exclusion criteria also included other co-occurring mental or neurodegenerative disorders (evidenced in the patient's medical history) and a refusal to give informed consent. All participants included in the study gave informed consent.

This study was conducted according to the guidelines of the Declaration of Helsinki. The participants were informed about the study protocol and their rights, and written informed consent was obtained from each participant.

## **Measurements**

The participants completed the following self-report measures:

- Questionnaire measuring sociodemographic and clinical variables (gender, age, marital status, education, occupational activity, residence, other co-occurring diseases)

- Beck Depression Inventory (BDI), original version by Beck et al. (1961), Polish version by Parnowski and Jernajczyk (1977). The BDI is a self-report scale assessing the presence of depressive symptoms over the specified period of time. It contains 21 depressive symptoms, marked A to U, the severity of which is described by four statements. Each statement is assigned a score from 0 to 3 points. Apart from the global score, two subscales can be calculated (affective-cognitive and somatic symptoms, Łopuszańska et al., 2013). Severity of depression is based on the total BDI score: < 10 indicates no depression,  $\geq 10$  and < 20 indicates mild depression, and  $\geq 20$  and < 30 indicates moderate

depression. The score of 30 and above indicates severe depressive symptoms (Łopuszańska et al., 2013). The reliability coefficient of the BDI global score in our study was high (Cronbach's  $\alpha = .82$ ), the reliability coefficients of the affective-cognitive and somatic symptoms indexes were satisfactory (Cronbach's  $\alpha = 0.77$  and  $.62$ , respectively).

### **Statistical Methods**

Due to the nature of the collected data, statistical analyses were performed using nonparametric tests (Kruskall Wallis'  $H$ , Mann-Whitney's  $U$ ),  $\chi^2$  and frequency analysis in the IMAGO PS software package.

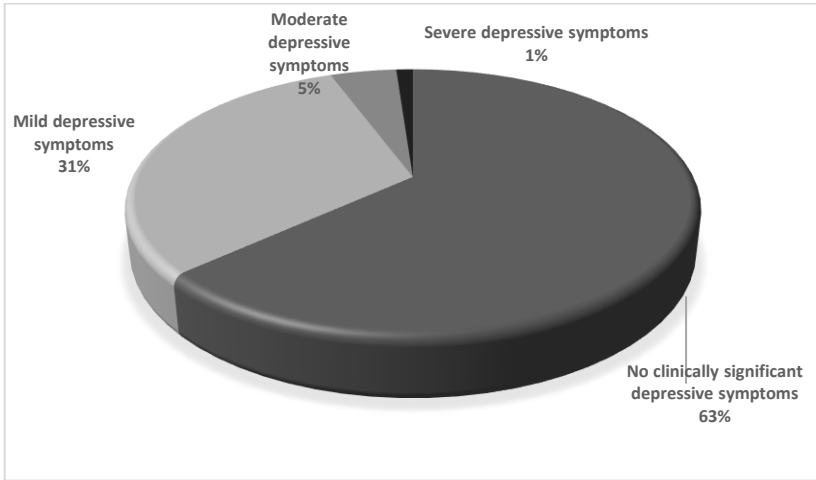
The study protocol was accepted by the Bioethical Committee at the University of Economics and Human Sciences in Warsaw.

### **Results**

**Severity and distribution of depressive symptoms.** The BDI global scores obtained in the sample ranged from 0 to 32. The mean BDI score for the whole sample was 8.51 ( $SD = 6.25$ ). The scores for the cognitive-affective index ranged from 0 to 18, with the mean score of 4.75 ( $SD = 4.12$ ). The scores for the somatic symptoms index were within the range of 0 to 15, with the mean of 3.77 ( $SD = 2.88$ ).

One hundred and twelve (63%) participants obtained global BDI scores below the threshold for clinically significant depressive symptoms ( $< 10$ ). Fifty-seven (31%) participants had global BDI scores within the diagnostic range for mild depressive symptoms ( $10 \leq \leq 19$ ). Eight (5%) participants scored within the range for moderate depressive symptoms ( $20 \leq, < 30$ ), and 2 participants (1%) reported severe depressive symptoms ( $\geq 30$ , see Figure 1).

**Gender and depressive symptoms.** No statistically significant differences between male and female participants were observed in the mean BDI global scores, nor in the affective-cognitive and somatic subscales (see Table 1). The number of men ( $n = 16$ ; 33%) and women ( $n = 50$ ; 39%) whose scores fell within the diagnostic range for clinically significant depressive symptoms ( $\geq 10$ ) were not statistically significantly different ( $\chi = 0.395$ ,  $p = .530$ ).



**Figure 1.** Distribution of depressive symptoms in the sample of primary care patients.

Table 1

BDI	Men ( <i>n</i> = 48)		Women ( <i>n</i> = 130)		<i>U</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Global score	7.71	6.47	8.78	6.17	2792	.281
Cognitive– affective symptoms	4.42	4.22	4.85	4.11	2878	.426
Somatic symptoms index	3.29	3.07	3.92	2.80	2658.5	.128

*Note.* BDI = Beck Depression Inventory.

**Age and depressive symptoms.** In the next step, the sample was divided into five subgroups with regards to age (see Table 2). A main effect was found for the BDI somatic symptoms subscale and the BDI global score. A further analysis using Mann-Whitney’s *U* showed statistically significant differences between the < 30 and the 51–60 age groups,  $U = 309.5$ ,  $p = .027$ , as well as between the <30 and the > 60 groups,  $U = 671$ ,  $p = .015$ , in BDI somatic symptoms subscale. The differences in the BDI somatic symptoms subscale were also statistically significant between the 31-40 and the 41-50 age groups,

$U = 357.5, p = .025$ , the 31-40 and the 51-60 age groups,  $U = 303, p < .000$ , as well as the 31-40 and  $> 60$  age groups,  $U = 123.5, p = .000$ ).

Table 2

**Age and Depression Severity Means**

BDI	>30 ( <i>n</i> = 37)		31 – 40 ( <i>n</i> = 30)		41 – 50 ( <i>n</i> = 35)		51 – 60 ( <i>n</i> = 52)		>60 ( <i>n</i> = 25)		Kruskal-Wallis ANOVA	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>H</i>	<i>p</i>
Global score	8.89	7.04	6.30	4.69	7.06	6.02	9.98	6.58	9.60	5.45	10.77	.029
Cognitive– affective symptoms	5.38	4.55	4.33	3.71	3.86	4.02	5.13	4.15	4.76	4.04	3.80	.433
Somatic symptoms	3.51	3.33	1.97	1.71	3.20	2.46	4.85	2.95	4.84	2.41	30.29	< .000

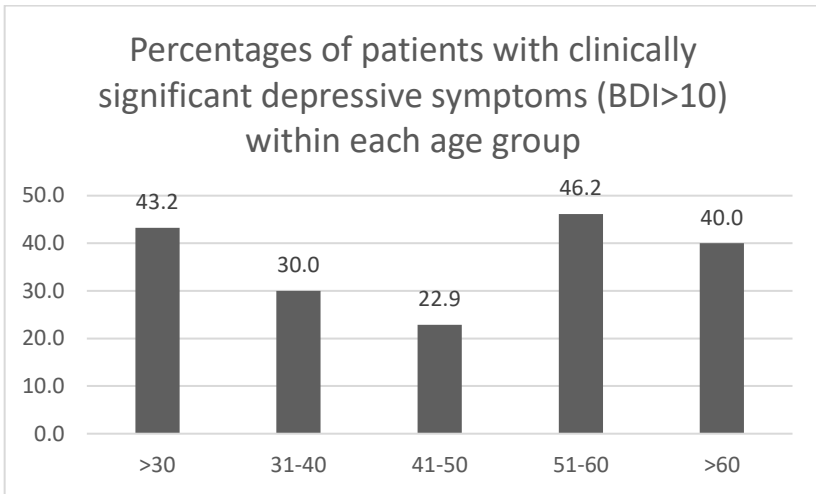
*Note.* BDI = Beck Depression Inventory.

The 41-50 age group had significantly lower the BDI somatic symptoms scores than did the 51–60 age group,  $U = 565.5, p = .003$ , and the  $> 60$  age group,  $U = 256, p = .006$ . The BDI global score differed significantly between the 31–40 and the 51–60 age groups,  $U = 517.5, p = .011$ , as well as the 31–40 and the  $> 60$  age groups,  $U = 245.5, p = .028$ ). Statistically significant differences were also found between the 41–50 and the 51–60 age groups,  $U = 627.5, p = .014$ , and the 41–50 and the  $> 60$  age groups,  $U = 293.5, p = .030$ .

Figure 2 presents the incidence of clinically significant depressive symptoms, including the division into age groups. The differences between the groups were not statistically significant,  $\chi^2 = 6.175, p = .186$ .

**Marital status and severity of depressive symptoms** No statistically significant differences were observed in BDI scores between participants with various marital status.

**Level of education and severity of depressive symptoms** Next, the severity of depressive symptoms was analysed in relation to the level of education (see Table 3). There were statistically significant differences on the BDI somatic symptoms subscale between elementary education and secondary education groups,  $U = 279.5, p = .024$ , as well as between elementary and higher education groups,  $U = 128, p < .000$ . There were also differences between vocational education and higher



**Figure 2.** The frequencies of participants with Beck Depression Inventory scores indicative of clinically significant depressive symptoms ( $M \geq 10$ )

Table 3

**Education Level and Depression Severity Means**

BDI	Elementary		Vocational		Secondary		Higher		Kruskal-Wallis ANOVA	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>H</i>	<i>p</i>
Global score	12.09	9.13	10.48	6.32	8.62	5.70	7.02	6.05	8.84	.031
Cognitive-affective symptoms	5.64	5.43	5.33	4.03	4.84	3.93	4.25	4.20	2.43	.488
Somatic symptoms	6.45	3.93	5.14	2.90	3.78	2.70	2.77	2.42	19.06	< .000

Note. BDI = Beck Depression Inventory.

education groups on the BDI somatic symptoms subscale,  $U = 331$ ,  $p < .000$ , and the BDI global score,  $U = 420$ ,  $p = .023$ .

The secondary education subgroup also scored higher than did the higher education group on the BDI somatic symptoms subscale,  $U = 1994$ ,  $p = 0.014$ , and the BDI global score,  $U = 2089$ ,  $p = 0.04$ .

The numbers of participants with significant depressive symptoms in subgroups with different educational levels showed no statistically significant differences,  $\chi^2 = 6.404$ ,  $p = .94$ .



**Employment and severity of depressive symptoms** Finally, the subgroups differing in employment status were compared (see Table 4).

Statistically significant differences were found on the BDI somatic symptoms subscale and the BDI global score. A further analysis using Mann-Whitney’s *U* test showed statistically significant differences between the group receiving benefits and the employed employed on the BDI somatic symptoms subscale,  $U = 818.5, p < .000$ , and the BDI global score,  $U = 969.5, p = .004$ , as well as between the participants receiving benefits and the students on the BDI somatic symptoms subscale,  $U = 133.5, p < .000$ . In addition, statistically significant differences were found between unemployed and employed participants on the BDI global score,  $U = 492, p = .04$ .

Table 4

**Employment Status and Depression Severity Means**

BDI	Employed		Unemployed		Receiving benefits		Pension		Student		Kruskal-Wallis ANOVA	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>H</i>	<i>p</i>
Global score	7.49	5.79	12.62	9.30	9.86	6.54	10.85	6.08	8.24	4.87	11.69	.020
Cognitive –affective symptoms	4.30	4.07	7.08	5.25	4.71	4.23	5.50	3.89	4.88	3.43	6.59	.159
Somatic symptoms	3.19	2.44	5.54	4.45	5.14	2.67	5.35	2.92	3.35	2.89	17.50	.002

Note. BDI = Beck Depression Inventory.

No statistically significant differences were observed between these subgroups with respect to the percentages of participants with clinically significant depressive symptoms,  $\chi^2 = 5.84, p = .21$

**Discussion**

The data obtained in this study clearly demonstrate that the severity of depressive symptoms among primary care patients is alarming. Clinically relevant symptoms (with the BDI total score of > 10) were observed in 37% of the current study’s participants. Previous analyses showed that depressive symptoms may be associated with, for example, poorer health, functional status, and quality of life, as well as with increased health care use (Herrman et al., 2002). Importantly,

depressive symptoms and major depression may also be associated with increased morbidity and mortality from such chronic illnesses as diabetes and heart disease (Carney et al., 2002). Clinicians and researchers also point to the adverse effects of depression on health-related behaviours, such as smoking (Mathew et al., 2017), diet, over-eating, a sedentary lifestyle (Katon, 2003), lowered adherence to medical regimens, as well as direct adverse physiologic effects (i.e., decreased heart rate variability, increased adhesiveness of platelets, e.g., do Carmo et al., 2015; Gorman & Sloan, 2000). Biological, lifestyle, and psychological correlates may explain the association of depressive symptoms with increased morbidity and mortality (Katon, 2003).

In our study, sociodemographic factors, such as gender and marital status, were not associated with depressive symptoms, in contrast to the findings of other studies (Kessler et al. 1993). Our results have also shown that higher education, continuing education (student), and active employment were protective factors associated with lower severity of depressive symptoms. It may result from, for example, higher social skills, cognitive factors, help-seeking skills, better social functioning, bigger social groups, and better coping skills (Muris et al., 2001).

Further analyses showed that the prevalence of cognitive-affective symptoms was high in the group of young adults. It is hypothesized that this might be related to many significant lifetime changes (wedding, pregnancy) and education/work stressors (finding job, finishing university) in this period of life. Other studies showed associations between stressful life events and depressive symptoms (Assari & Lankarani, 2016; Kessler, 1997). These results need further investigation in prospective surveys.

The frequency of occurrence of clinically significant depressive symptoms was also analysed. The analyses showed no differences between the groups differing in sociodemographic variables. Although the mean severity of symptoms varied significantly between the groups, the number of participants with clinically significant depressed mood was similar in all groups. This may be related to the fact that chronic somatic disease is a risk factor for the development of depression to a greater extent than are sociodemographic factors,

regardless of gender, age, education, employment, and relationship status.

Our study has some limitations. We took into account only a small number of variables that may be relevant to the prevalence of depressive symptoms in primary care patients, and we did not cover other variables, such as diagnosis of the disease and its severity, years of illness, and stressful life events. Another limitation is the subjective character of the presented data. This may be of importance particularly when reporting depressive symptoms. Specialists using a standardized interview could better recognize depressive symptoms and their severity.

The obtained data suggest that depression is a relevant problem in primary care units. Some sociodemographic variables such as gender and marital status do not play an important role in determining symptom severity. However, higher educational level and active employment could be protective factors in depression. Our data also show that cognitive-affective symptoms of depression are frequent in young adults.

The data collected in the current study clearly indicate that the frequency of depressive symptoms in primary care patients demands attention. For this reason, there is increasing need for greater primary care specialist education about this disorder and the use of screening tests, such as the Center for Epidemiologic Studies-Depression Scale (CES-D, Radloff, 1977), the Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983), or the BDI (Beck et al., 1961) at every physician-patient contact.

In addition, it was revealed that sociodemographic variables may play an important role in depressive symptom epidemiology. Due to the aging of society and many other factors, both medical, social, and psychological, particular attention should be paid to the population of people over 50 years of age. Depressive symptoms or other abnormalities of a neurobiological nature (e.g., the deterioration of neurocognitive functioning) should be assessed at an early stage of a patient's contact with health services. Furthermore, our data clearly show the high ratio of depressive symptoms in the group of young adults (> 30 years old). It should be clearly indicated that disorders such as depression, along with inadequate lifestyle choices, can be risk factors for many serious diseases later in life.

The study was not financed from external sources.

### **Summary**

Depression is estimated to be among the most burdensome disorders. It is estimated that depression and depressive symptoms may be even more common in specific populations, for instance, in patients suffering from somatic diseases.

The aim of the current study was to evaluate the severity of depressive symptoms and their relationships with sociodemographic variables in primary care patients in Poland.

The study involved 179 primary care patients (130 women, 48 men) aged from 18 to 65 years old. All participants completed the Beck Depression Inventory (BDI) and a questionnaire measuring sociodemographic and clinical variables.

Clinically relevant symptoms (BDI total score > 10) were observed in 37% of the participants. Gender and marital status were not associated with depressive symptoms; higher education, continuing education (student), and active employment were protective factors associated with a lower severity of depressive symptoms. Further analyses showed that the prevalence of cognitive–affective symptoms is high in the group of young adults. The analyses of occurrence of clinically significant depressive symptoms showed no differences between the groups differing in sociodemographic variables

Data collected in the above study clearly indicate that the frequency of depressive symptoms in primary care patients is significant. For this reason, there is a need for greater primary care specialist education about this type disorder and for the use of screening tests at every physician–patient contact.

In addition, it was noted that some sociodemographic variables may play an important role in depressive symptom epidemiology

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