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RISK ASSESSMENT OF DEPRESSION IN GERIATRIC PATIENTS

Ocena ryzyka wystąpienia depresji u pacjentów w wieku geriatrycznym

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A - Koncepcja i projekt badania, B - Gromadzenie i/lub zestawianie danych, C - Analiza i interpretacja danych, D - Napisanie artykułu, E - Krytyczne zrecenzowanie artykułu, F - Zatwierdzenie ostatecznej wersji artykułu

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Abstract (in Polish):

Cel pracy

W populacji osób w wieku geriatrycznym co piąta osoba choruje na depresję. Często zdarza się, że jej objawy są mylone z objawami innych schorzeń, takich jak demencja czy Choroba Alzheimera.
Celem badań była ocena ryzyka wystąpienia depresji u pacjentów w wieku geriatrycznym oraz czynników na nią wpływających.

Materiał i metody

Grupę badaną stanowili pacjenci zgłaszający się do Oddziału Klinicznego Medycyny Ratunkowej Szpitala Uniwersyteckiego nr 2 w Bydgoszczy. W badaniu wzięło udział łącznie 150 osób. Badania

przeprowadzono metodą sondażu diagnostycznego za pomocą kwestionariusza ankiety, który składał się z dwóch części: danych społeczno-demograficznych oraz Geriatrycznej Skali Oceny Depresji (GDS).

Wyniki

Ryzyko wystąpienia depresji w badanej grupie było na wysokim poziomie. Wynik średni GDS wyniósł 10,88±6,87 pkt. U blisko połowy ankietowanych (47,33%) nie występowało ryzyko depresji. Wśród pozostałych osób 40,00% uzyskało wynik świadczący o depresji w stopniu łagodnym, a 12,67% w stopniu głębokim. Największy wpływ na pojawienie się objawów depresji wśród osób w wieku geriatrycznym miały takie czynniki jak: wiek, stan cywilny, wysokość dochodu, mieszkanie samotnie oraz występowanie chorób przewlekłych. Posiadanie zainteresowań, aktywność fizyczna i odczuwanie wsparcia od bliskich zmniejszają ryzyko wystąpienia depresji wśród pacjentów w wieku podeszłym.

Wnioski

U badanych osób wystąpiło duże ryzyko wystąpienia objawów depresji. Na wyniki badań miały wpływ czynniki społeczno-demograficzne oraz współwystępowanie chorób przewlekłych.

Abstract (in English):

Aim

In the geriatric population, every fifth person suffers from depression. Frequently, its symptoms are confused with those of other medical conditions, such as dementia and Alzheimer's disease.
The aim of the study was to assess the risk of depression in geriatric patients and the factors influencing it.

Material and methods

The study group consisted of patients reporting to the Clinical Department of Emergency Medicine, University Hospital No. 2 in Bydgoszcz. A total of 150 people took part in the study. The research was carried out using the diagnostic survey method, using a questionnaire consisting of two parts: socio-demographic data and the Geriatric Depression Scale (GDS).

Results

The risk of depression in the study group was high. The average GDS score was 10.88 ± 6.87 points. Nearly half of the respondents (47.33%) did not experience the risk of depression, 40.00% obtained the result indicating mild depression, and 12.67% - deep depression. Factors such as age, marital status, income, living alone, and the presence of chronic diseases had the greatest impact on the appearance of depression symptoms among people of geriatric age. Having interests, being physically active, and feeling supported by relatives reduce the risk of depression among elderly patients.

Conclusions

The respondents had a high risk of depression symptoms. The results of the research were influenced by socio-demographic factors and the coexistence of chronic diseases.

Keywords (in Polish): depresja, czynniki ryzyka, osoby starsze, Geriatryczna Skala Oceny Depresji (GDS).

Keywords (in English): depression, risk factors, elderly people, Geriatric Depression Scale (GDS).

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Short title
Ryzyko depresji u pacjentów w wieku geriatrycznym

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Introduction

European society, including Poland, is aging. Every year the number of elderly people increases. It is estimated that the growth of life expectancy in Poland will intensify neurological, psychiatric, and geriatric disorders. Frequently, we can meet elderly people who exhibit symptoms of depression. The specificity of these disorders in the elderly often differs from the typical form of the disease. Sometimes its symptoms are confused with those of other conditions, such as dementia or Alzheimer's disease.

Depression has been called the disease of the 21st century not without a reason. It affects about 350 million people in the world, including about 1.5 million people in Poland. In recent years, a significant increase in illnesses has been observed. Therefore, we can perceive depression as a civilizational disease. In the geriatric population, every fifth person suffers from depression [1]. In this group of people, we often deal with disability, age-related somatic diseases, deficiencies in self-care, and loneliness. The coexistence of depressive disorders with other diseases may significantly delay the diagnostic and therapeutic process. In such a situation, increased vigilance of the therapeutic team caring for the elderly patient and a holistic approach are required [2].

Late-life depression is a serious clinical problem related to the reduction of the quality of life and physical changes of people at retirement age. Along with dementia, they are one of the most common mental disorders in this age group. The symptoms of depressive disorders in the elderly may differ from the symptoms of depression in other age groups. Usually, these are a drop in mood, lack of appetite, anhedonia, i.e., the inability to feel joy and pleasure, sleep problems, guilt, suicidal thoughts, psychomotor slowness, somatic symptoms, and a general decrease in energy [3, 4, 5].

Medical staff considers depression an unusual disease, however, in other environments and at the same time by ourselves it is too often underestimated and minimized to feeling blue or bad mood [6]. Such a situation causes a lot of suffering to people experiencing depression and contributes to serious mood disorders and feeling unwell even for many months and years. Moreover, it is crucial to take care of the people from the patient's closest environment, for whom the nurse/doctor recommends self-observation

towards the first depression symptoms, participation in support groups, and caring for mental health through sports and maintaining family ties [7].

Objective

The aim of the study was to assess the risk of depression in geriatric patients and the factors influencing it.

Material and methods

The research was conducted among 150 patients of the Department of Clinical Emergency Medicine, University Hospital no. 2 in Bydgoszcz in 2020.

A survey questionnaire containing questions about socio-demographic data and the Geriatric Depression Scale (GDS) have been used. GDS is a 30-item screening scale designed to assess and study depressive symptoms in the elderly. It incorporates a simple two-part format that encourages respondents to make a 'yes' or 'no' choice for each question. These responses were assigned a score of 0 or 1. The value +1 was received by those responses that indicated a higher risk of depression. Thus, the higher the total score obtained by each person, the greater the probability of developing depression of a deeper intensity. The maximum number of points that each of the respondents could get was 30 points. According to the adopted scale, the scores from 0 to 9 points mean no depression, from 10 to 19 points mean mild depression, and above 20 points - deep depression. The questionnaire has been designed especially for the elderly and determines their level of satisfaction, quality of life, and feelings [8, 9].

Statistica 13 software and MS Excel Office 360 were used for the statistical analysis. The quantitative results of the assessment of the level of depression from the GDS questionnaire were presented as mean values with standard deviation. In addition, the Shapiro-Wilk, Student's t, Mann-Whitney, Kruskal-Wallis tests, and multivariate regression analysis were used. Statistically significant differences between the groups were considered when the p-value < 0.05 for the compared groups.

Results

The study population included 150 people over the age of 60. Detailed characteristics of the study group are presented in Table 1.

Table. 1. Descriptive analysis of the group of respondents in terms of sex, age, place of residence, education, marital status, and professional status

Question	Reply	N	%
Sex	Women	80	53.33%
	Men	70	46.67%
Age	60-69 years	55	36.67%
	70-79 years	50	33.33%
	80-89 years	31	20.67%
	90 and more	14	9.33%
Place of residence	village	43	28.67%
	city up to 100,000 citizens	66	44.00%
	city over 100,000 citizens	41	27.33%

Question	Reply	N	%
Education	primary	14	9.33%
	occupational	43	28.67%
	secondary	53	35.33%
	higher	40	26.67%
Marital status	single	16	10.67%
	married, in a relationship	75	50.00%
	divorced	11	7.33%
	widowed	48	32.00%
Occupational status	unemployed	8	5.33%
	active	22	14.67%
	runs own business	12	8.00%
	retirement or pension, still working	13	8.67%
	retirement or pension	95	63,33%

The respondents were asked 5 questions assessing several social aspects of their lives. They were asked e.g. whether their income is sufficient to meet all their essential needs. An affirmative answer was given by 78.00% of the respondents. Moreover, 74.67% of the respondents declared that they have offspring, and 64.00% that they live with their relatives, but only 56.67% said that they feel frequent support from them. The question about hobbies was positively answered by 60.67% of the respondents.

The level of physical activity of the respondents was also assessed. Only 14.67% of them declared physical activity three times a week or more. 42.00% showed physical activity 1-2 times a week, while even 43.33% of the respondents stated that they do not engage in any physical activity.

The type and frequency of selected comorbidities were also analyzed. The most frequently diagnosed comorbid disease was arterial hypertension (48.00%), followed by diabetes (24.67%). The respondents were also diagnosed with thyroid disease (12.67%), cancer (12.00%), atherosclerosis (9.33%), chronic kidney disease (8.67%), and rheumatoid arthritis (2.00%). About 25% of respondents reported that they had not been diagnosed with any chronic diseases.

The level of depression in the study population was assessed using the Geriatric Depression Scale (GDS). The average score was 10.88 ± 6.87 points. The median was 11 points and was close to the mean result of the respondents (Fig. 1).

The individual results were interpreted. Nearly half of the respondents (47.33%) did not experience the risk of depression. Among the remaining persons, 40.00% obtained the result indicating mild depression, and 12.67% - deep depression.

The total results achieved by the respondents (GDS) were subjected to a more detailed statistical analysis in terms of the impact of socio-demographic variables on them. In the case of sex, men obtained slightly lower mean scores (10.8 ± 6.3) than women (11.0 ± 7.4). This indicates the occurrence of mild depression among the representatives of both separate groups. The comparison of the results using the Mann-Whitney U-test showed that the observed difference was not statistically significant ($p = 0.858$).

Furthermore, it was tested whether the age of the respondents influenced the level of depression. The oldest people (> 90 years old) achieved the highest mean scores (14.1 ± 5.1). In turn, the lowest (7.4 ± 6.2) was recorded among the youngest (60-69 years). Accordingly, the results indicated the presence of mild depression among people aged > 70 years and no depression among respondents aged 60-69 years. The comparison of the results using the Kruskal-Wallis test showed that the observed differences were

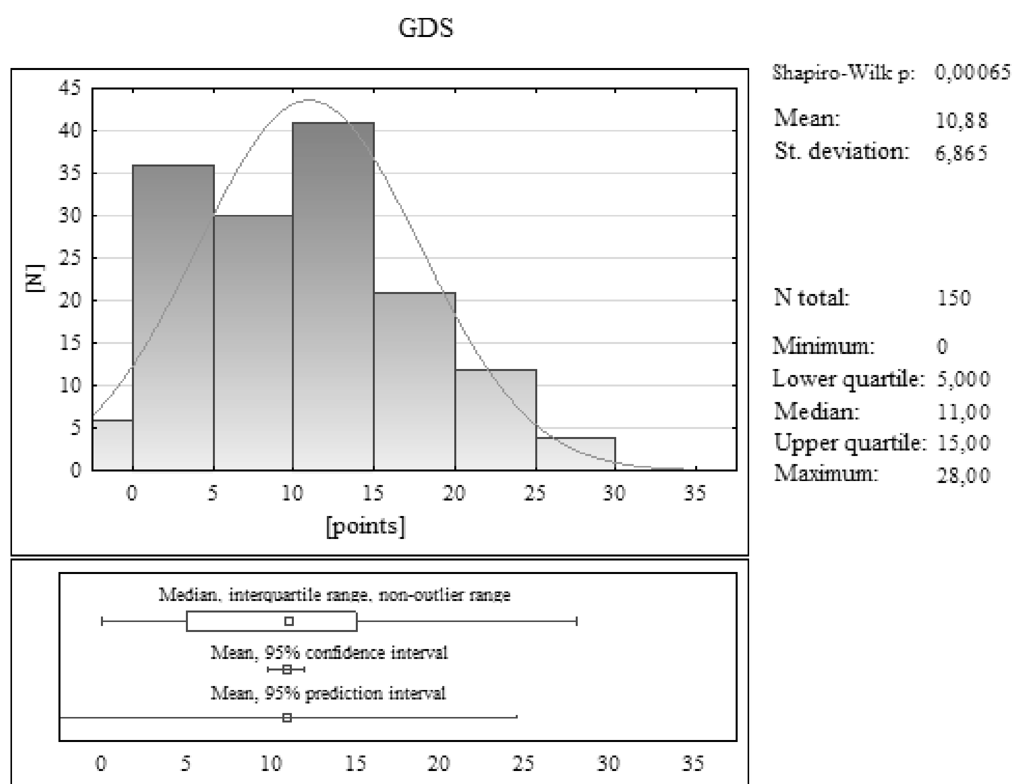

Figure. 1. Distribution of Geriatric Depression Scale (GDS) scores

statistically significant (p <0.001), and age was a significant factor differentiating the results achieved by the participants.

In the case of a place of residence, people living in cities of over 100,000 inhabitants achieved the highest mean scores (12.4 ± 6.6). On the contrary, the lowest (9.2 ± 6.7) was recorded among rural residents. People living in cities up to 100,000 inhabitants achieved the results of an intermediate value (11.0 ± 7.0). The observed differences were not statistically significant (p = 0.858).

The education of the respondents was also not a significant factor differentiating their results (p = 0.769). People with higher education achieved the highest mean scores (12.1 ± 7.9), while those with primary education - the lowest (9.7 ± 6.1).

In terms of marital status, it turned out that the highest mean scores (14.8 ± 6.3) were achieved by widowers and widows, and the lowest (7.9 ± 5.9) by persons living in a marriage or informal relationship. The results indicated the presence of mild depression among singles, widowed and divorced people, and the absence of depression among people living in relationships (p <0.001).

When analyzing the professional status of the respondents, it turned out that retirement or disability pensioners achieved the highest mean scores (11.6 ± 6.2), while the lowest (6.8 ± 4.5) were recorded among retirees or pensioners, but still economically active (p = 0.057).

Next, it was determined whether the amount of income achieved and the related ability to satisfy the needs of the respondents influenced the amount of GDS results. People who felt their income was insufficient to satisfy their basic needs obtained higher mean scores (13.7 ± 7.2) than people having the opposite opinion (10.1 ± 6.6). These scores show the presence of mild depression among the representatives of both groups (p = 0.009).

It was observed that the respondents who did not have children obtained slightly higher mean scores (12.7 ± 7.4) compared to those who did have children (10.3 ± 6.6). These scores indicated the

occurrence of mild depression among representatives of both groups. The difference was not statistically significant though (p = 0.071).

On the other hand, the way of living in terms of estate influenced the achieved results, because people who lived alone obtained significantly higher mean scores (14.5 ± 7.9) compared to people who lived with someone close (8.8 ± 5.9). These scores suggested the presence of mild depression in the first group and no depression in the second group. The comparison of the results with the Mann-Whitney U-test showed that the observed difference was statistically significant (p<0.001), and the way of living of the respondents was a significant factor differentiating their results.

Similar results were reported for comorbidities. People diagnosed having them obtained significantly higher mean scores (11.9 ± 6.8) compared to those who were not confirmed with such diseases (7.7 ± 6.2). These scores indicated the presence of mild depression in the first group and no depression in the second group. The difference at the significance level p = 0.001.

Having a hobby by the respondents also turned out to be statistically significant (p<0.001). People who did not have a hobby achieved significantly higher mean scores (14.9 ± 6.7) compared to people who declared having various interests (8.3 ± 5.6). These numbers indicated the presence of mild depression among the former and no depression among the representatives of the latter group.

The physical activity of the respondents was also a factor differentiating their results (p<0.001). Physically inactive people achieved the highest mean scores (13.4 ± 5.7). In turn, the lowest (7.6 ± 8.1) was recorded among the respondents who are physically active 3 or more times a week. Being physically active 1-2 times during the week resulted in an intermediate value (9.4 ± 6.6). This indicated the presence of mild depression among physically inactive people and the lack of depression among people exhibiting any physical activity.

It was determined whether the respondents' feelings of support from their relatives influenced the occurrence of depression (fig.2.).

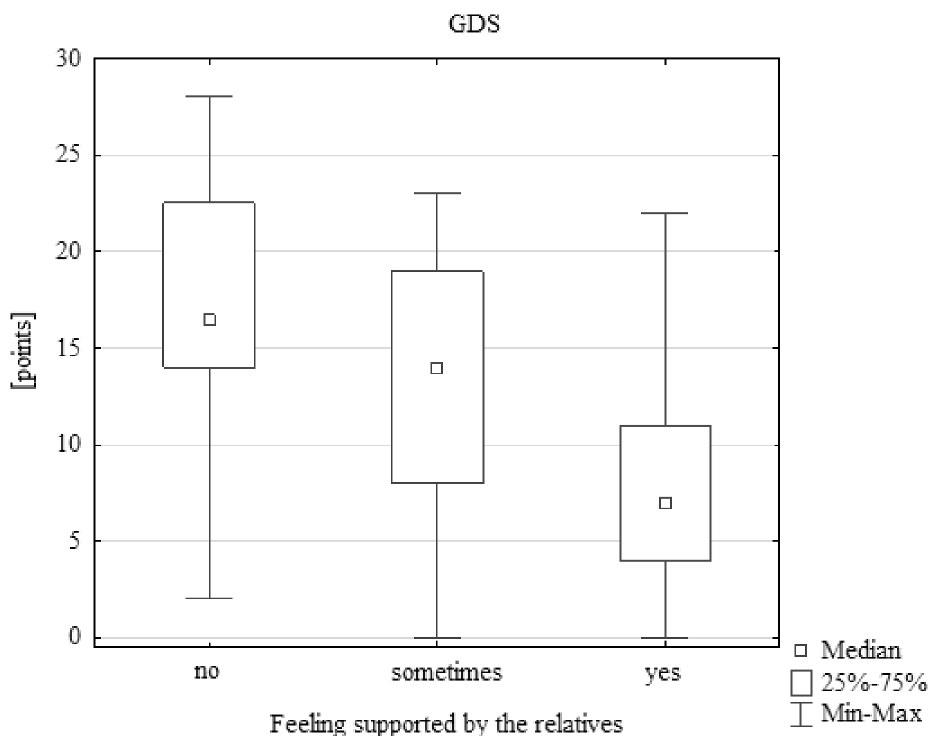

Figure 2. Distribution of the GDS questionnaire results in terms of the feeling of support from relatives

The respondents who did not feel the support of their relatives at all achieved the highest mean scores (17.5 ± 7.1). On the contrary, the lowest (7.8 ± 5.2) was recorded among people who often felt support from people close to them. People who felt the support of their relatives only seldomly achieved the results of intermediate value (13.7 ± 6.4). Thus, mild depression occurred among people who did not feel support from their relatives or who felt this support only occasionally, and no depression was found among people who felt support from relatives frequently. The differences were statistically significant ($p < 0.001$).

When building a multivariate regression model, an attempt was made to estimate which of the characteristics of the respondents had the greatest and significant impact on the total score obtained by them in GDS. Statistical analysis showed that the size of the final result achieved by the respondents significantly depended on the following parameters: feeling supported by relatives ($p<0.001$), age ($p=0.031$), having a hobby ($p=0.001$), having comorbidities ($p = 0.040$) and education ($p = 0.042$). The final result did not depend on marital status ($p = 0.115$) and the amount of income of the respondents ($p = 0.131$). The greater the feeling of support from relatives ($b = -3.429$) and having a hobby ($b = -3.002$), the greater the reduction of the total final score in the GDS questionnaire. On the contrary, the higher the age of the respondents ($b = 1.076$), the more diseases they had ($b = 2.085$), and the higher their education ($b = 0.942$), the higher the total results were obtained in the GDS questionnaire.

Discussion

Based on the analysis of the literature and own research, it can be concluded that the risk of depression in geriatric patients is high. According to the results presented here, depression in old age affected 40% of people to a mild degree, and almost 13% to a deep degree. The study conducted in the Netherlands by Jongenelis et al. [10] among 333 nursing home patients using GDS determined the percentage of people with mild depression at 14.1%, and the incidence of major depression at 8.1%, while 24% of patients suffered from subclinical depression, i.e. latent. On the other hand, the research conducted by Bartoszek et al. [11] among 120 people living in a home environment shows that symptoms of moderate depression occurred in 14%, and the risk of severe depression was found in 3%. According to Wróblewska et al. [12], half of the respondents did not have the diagnosis of depression. In the remainder, the Geriatric Depression Scale test confirmed mild depression (37.86%) or severe depression (12.14%) This confirms the immensity of the problem of depression in old age. The effects of individual studies vary, but the risk of depression is still present in a high percentage of respondents. Differences may be due to the fact that depression in the elderly is often masked, which may lead to considerable difficulties in making an accurate diagnosis.

The results were analyzed in terms of selected socio-demographic factors and it was determined how they influence the occurrence of depression symptoms among the respondents. Taking into account gender, men obtained slightly lower mean scores, but it was not statistically significant. The studies by Rajtar-Zembaty et al. [13], in which 186 respondents participated, also did not reveal any significant differences in terms of sex. It can be concluded that women and men suffer from depression in old age evenly often, in contrast to younger age groups, where the incidence of depression is even four times higher in women than in men.

In the study group, which was divided according to age into 4 subgroups, it can be clearly noticed that the youngest people (60-69 years old) obtained the lowest average results, while the oldest people (over 90 years old) the highest. The subjects aged 70-89 achieved results of an intermediate value. Similar results were obtained in the research carried out under the PolSenior [14] project. The percentage of

people with depressive diseases was 26.1% in the 65-79 age group and 35.1% in the group of people equal to and over 80 years of age. Age was confirmed to be an important factor influencing the incidence and level of depression.

By analyzing the distribution of results in terms of the place of residence of the respondents, it can be noticed that the lowest average results were recorded in patients living in the countryside, and the highest in people from cities over 100,000 inhabitants, however, it turned out to be statistically insignificant. On the other hand, Gałecki et al. [15] believe that the size of the town is important and influences the prevalence of depression.

It was examined how the level of education influences the risk of depression. It turned out that 58% of people with higher education were at risk of mild or profound depression. In people with secondary education, this percentage was 55%, while in people with primary education - 43%. The level of education of the respondents turned out to be statistically insignificant and did not significantly affect the achieved results, despite the fact that people with higher education achieved the highest average scores, and those with primary education the lowest. Gałecki et al. [15] pay attention to the correlation between the level of education and the occurrence of subsequent depressive symptoms. The higher the education of the respondents, the more episodes of depression they experience.

The respondents were also asked to indicate whether their income is sufficient to provide basic needs. It turned out to be so for 78% of people. Respondents who believed that their income was insufficient to meet their basic needs obtained higher mean scores than those who were of the opposite opinion. The observed difference was statistically significant, and the amount of income and the related ability to meet the basic needs of the respondents was a factor that significantly differentiated their results. Research shows how the satisfaction of material needs significantly influences the occurrence of depression symptoms.

Respondents were asked about their occupational status. Most people (63.33%) were retired or on a disability pension. The highest mean scores (11.6 ± 6.2) belonged to them. On the other hand, the lowest (6.8 ± 4.5) was recorded among persons who are retired or on a disability pension, but still professionally active. People from the remaining groups achieved results of intermediate value. The occupational status of the respondents turned out to be an insignificant factor differentiating the results in the studied population of elderly people, as well as having children.

Respondents living alone obtained significantly higher scores than those living with relatives. Among 54 respondents living alone, even 41 were at risk of mild or profound depression. It can be conducted that only one in four persons living alone does not have symptoms of depression. Equally large disproportions can be noticed in the study by McDouall et al. [by 16] MRC CFAS (The Medical Research Council Cognitive Function and Aging Study), in which the prevalence of depression among residents staying in long-term care centers was three times higher (27.1%) than in people living outside the center (9.3%). It can be concluded that the way of living significantly influenced the results achieved by the respondents.

The performed analysis is similar if the differentiating factor is the support of relatives, which is largely related to loneliness. Among 150 respondents, 20 people answered that they did not feel supported by their loved ones. The risk of depression occurred in 17 people, so as much as 85% of respondents who did not feel the support of their relatives had symptoms of depression. These people achieved significantly higher average scores compared to the respondents who felt the support of their relatives. A strong relationship between loneliness and lack of social support was also shown by the AGED (Amsterdam Groningen Elderly Depression) study by Jongenelis et al. [10] and by Górski et al. [17].

In the studied population, it was determined whether marital status had an impact on the results obtained in the GDS questionnaire. After the analysis, widows and widowers had the highest average results, whereas the lowest belonged to people in a formal or informal relationship. It is related to the feeling of loneliness and uselessness as well as the lack of support from loved ones, which largely influence the risk of developing depression in old age, as exemplified by the results of our own research and Jongenelis et al. [10].

The group of respondents was also asked about the coexistence of chronic diseases. Only every fourth person reported their absence. The most common chronic diseases were hypertension (48%) and diabetes (25%). In 68 out of 112 people with chronic diseases, there is a risk of depression. According to Bartoszek et al. [11], the percentage of people suffering from depression increases up to 45% in patients with additional diseases. It can be concluded that the presence of chronic diseases in the respondents is an important factor differentiating their results, indicating a higher risk of depression.

When asked about the level of physical activity and interests, as many as 43.33% of respondents said that they did not engage in any physical activity. On the other hand, 60.67% of respondents had a hobby. The analysis shows that both having interests and practicing physical activity are factors that significantly reduce the risk of depression in the elderly. Therefore, an important role of both nurses and other medical workers will be to make patients and their families aware of this so that they can enjoy good physical and mental condition for as long as possible.

Conclusions

1. The risk level of depression symptoms in the studied geriatric patients turned out to be high.
2. Socio-demographic factors such as age, marital status, income, and the related ability to meet basic needs, living alone or with relatives influenced the occurrence of depression symptoms among the surveyed geriatric patients.
3. The occurrence of chronic diseases contributed to the emergence of depressive disorders.
4. Having interests, being physically active, and feeling support from relatives turned out to be factors reducing the risk of depression among the studied patients.

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