

ORIGINAL PAPER

FACTORS AFFECTING THE INCIDENCE OF DEPRESSION IN THE ELDERLY

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Abstract

Depression belongs to the most severe diseases of the elderly people. Quite often, depression is not diagnosed and treated at the older age. Consequently, it leads to deterioration of the overall physical, psychological and social state of an elderly person. *Aim:* The goal of the quantitative research was to roughly estimate the prevalence of depression among persons who live in houses for the elderly or similar institutions and to find the factors which influence the occurrence of depression. *Methods:* The sample of the elderly comprised 84 individuals who were intentionally chosen. The quantitative research was based on the use of the Geriatric Depression Scale (GDS). Other statistical tests were used to evaluate the influence of individual factors on the prevalence of depression among the elderly: Pearson's chi-squared test, Mann-Whitney *U* test, Kruskal-Wallis test and Spearman's correlation coefficient. *Results:* The GDS revealed depression in 28.6% of individuals in the tested sample. The appropriate statistical tests showed increased depression rates among the elderly who were lonely, widowed, suffering from chronic diseases or pain, and those with impaired cognitive thinking. *Conclusion:* Depression among individuals living in houses for the elderly or similar institutions is a grave and contemporary problem. The solution of this problem depends on the timely recognition of depression and analysis of factors which influence the prevalence of depression among the elderly.

Key words: elderly, depression, GDS, nursing, risk factors.

Introduction

Life expectancy of the population increases rapidly (Topinková, 2005, p. 4). Mortality in Slovakia is expected to decrease in both sexes by 2050. This in turn will drive the increase of life expectancy of the population at birth (Husáková, Rievajová, 2010). It should rise to 77.13 years in males and to 84.01 years in females by 2050. Such life expectancy of the Slovak population will catch up with the life expectancy rates in the most developed countries in the world (Vaňo et al., 2002). Nurses will work with more elderly people, which will impose new challenges on proper identification of the needs of the elderly, especially because these needs may change as a result of involutionary processes (Pokorná, 2010; Martinková, Lajdová, 2010).

Depression is a state of pathological affect with predominantly sad mood that influences awareness, learning and emotional experience (Topinková, 2010). It is the most frequent affective disorder which occurs at the older age. Weber et al. (2000, p. 126) states that every sixth old individual who visits

a general practitioner has a varying degree of depression. The etiopathogenesis of depression is not clearly defined because it is a disease of multiple etiologies. The occurrence of depression at the older age is associated with certain factors. Thus, it is important to define such factors and to actively search for their existence in order to diagnose depression early in a patient. The most significant factors mentioned in the literature (Cole, 2003; Weber et al., 2000; Topinková, 2005) which lead to the development of depression in the elderly are previous occurrence of depression, disease, pain, disability, brain disease, cognitive impairment, drugs, death, loneliness, low socio-economic status, female gender, etc. Praško (2012, p. 45) mentions other stressful factors which are also potentially associated with depression such as a loss (of a spouse, friends, constant contact with children, career, physical health, independence), conflicts in relationships (with a spouse, children, other close people), learning to embrace a new role in life (retirement, change of social environment) and social isolation. Many of these factors are directly associated with care provided by institutions such as houses for the elderly. The main goal of care for the elderly is the

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maintenance of their maximum possible independence and dignity while remaining in their own homes (Rudačková, 2009). Individuals who cannot live by themselves or with their families due to social or medical reasons are taken care of by institutions such as houses for the elderly (Weber et al., 2000). This is associated with many risks despite the fact that the care is professional and the stay in a nursing home is the optimal solution for a particular elderly person. Care provided by an institution is one of the risk factors that lead to the development of depression (Hegyi, 2003). Depression occurs in 7–15% of people older than 65 years who live in the community but the rates reach 20–30% among people who are either hospitalized or receive long-term nursing care (Topinková, 2010, p. 145).

Depression profoundly affects the physical health, longevity and socio-economic status of a suffering individual. The treatment is available and highly effective mainly during the onset of depression. However, Weber et al. (2000, p. 126) states that only 10% of the elderly suffering from depression who are in need of a proper treatment actually receive one. Therefore, it is recommended to actively search for the elderly with developing depression in order to diagnose it early on. Also, it is recommended to particularly pay attention to vulnerable groups of the elderly in which the rate of depression is significantly higher (Raboch, Laňková, 2008). There are standardized scales for depression used for screening of depression such as the Hamilton Depression Rating Scale (HAM-D), Montgomery-Åsberg Depression Rating Scale (MADRS), Beck Depression Inventory (BDI), Zung Self-Rating Depression Scale (SDS) or the Geriatric Depression Scale (GDS) developed by Sheikh and Yesavage (Topinková, 2010).

Aim

The goal of this research was to roughly estimate the prevalence of depression among the elderly who live in houses for the elderly or similar institutions and to determine the risk factors and the extent of their influence on the occurrence of depression using the Geriatric Depression Scale.

Methods

Design

The chosen design was a prospective quantitative study that used a questionnaire.

Sample

The sample was intentionally selected. The participants had to be 65 or more years old and they

had to live in a house for the elderly or a similar institution. The exclusion criteria were a diagnosis of depression and treatment with antidepressants since the goal of the study was to diagnose developing depression. The sample contained 84 individuals, of whom 83.3% were women and 16.7% were men; a total of 84.5% of the participants were widowed. The subjects had various levels of education. For example, there were 29.8% of individuals with only elementary education and 14.3% with a university degree. As many as 64.3% of the participants had at least one chronic disease. Even though the participants were not equally distributed in terms of education level, individual subgroups in the sample were still statistically comparable.

Data collection

The data were collected using the standard GDS questionnaire filled in with each individual separately. The short form of the GDS questionnaire contains 15 questions. The evaluation of answers is done in the following way: an examined individual receives 1 point for a so-called depressive answer, which means “yes” for questions number 2, 3, 4, 6, 8, 9, 10, 12, 14 and 15, and 1 point for “no” for the remaining questions 1, 5, 7, 11 and 13 (Weber et al., 2000, p. 131). It takes approximately 3 minutes to fill out one questionnaire. The GDS is a simple questionnaire which is easy to use in practice. There are only two options (yes/no) which are associated with receiving 1 point for each answer depending on the question. It is capable of evaluating the current state of an elderly person and differentiating three groups of people – without depression, with minor symptoms, and those in need of a psychiatric intervention (Sheikh, Yesavage, 1986). The questions are designed to focus on symptoms of depression typical for the elderly (Tomagová, 2009, p. 313). The normal result is considered to be between 0 to 7 points (Tomagová, 2009, p. 313). However, Topinková (2005, p. 224) and Weber et al. (2000, p. 131) indicate that normal values are between 0 to 5 points. The GDS is a useful screening tool used in clinical practice in order to simplify the diagnosis of depression among the elderly. More than 5 points obtained in the GDS should be a reason for psychological examination of that particular individual. In the study, the level of cognitive functions was assessed with Folstein’s Mini Mental State Exam (MMSE), the level of independence with the Barthel Index of Activities of Daily Living (ADL), the level of pain with a five-point numerical scale, and the marital status with an additional question. The data were collected from November

2013 until December 2013 in three houses for the elderly located in the Trnava Region.

Data analysis

The data were analyzed using descriptive statistics, Pearson's chi-squared test, Mann-Whitney *U* test, Kruskal-Wallis test, and Spearman's correlation coefficient. The SPSS 16.0 software was used for processing and analysis of collected data.

Results

The prevalence of depression among the elderly is high. The present study found out that in a sample of 84 elderly people, as many as 60.7% of them suffered from some degree of depression; of those, 32.1% suffered from only a mild type and 28.6% suffered from severe depression.

Various factors influence the occurrence of depression among the elderly. The present study focused on chronic disease, pain, marital status, independence and the level of cognitive thinking.

The relations between cognitive impairment and independence and the occurrence of depression among the elderly

The Barthel Index of ADL showed that 52.4% of the participants were independent, 19.0% were slightly dependent, 23.8% were moderately dependent, and 4.8% were completely dependent. The MMSE showed that 67.9% of the subjects had appropriate cognitive functions, 11.9% had cognitive functions just on the border between appropriate and slightly impaired, and 20.2% had mild dementia. Spearman's correlation coefficient showed a weak yet significant correlation ($\rho = -0.225$; $p < 0.05$) between cognitive impairment and occurrence of depression among the residents of houses for the elderly. Those with cognitive impairment demonstrated an increased prevalence of depression compared with their counterparts without cognitive impairments. The relation between independence of an elderly person and the prevalence of depression was not statistically significant ($\rho = -0.082$; $p > 0.05$). Therefore, it may be concluded that the prevalence of depression among the elderly is not associated with their independence. The Spearman's correlation coefficients are presented in Table 1.

The relation between marital status and the occurrence of depression among the elderly

Loneliness is one of the most frequent risk factors leading to depression among the elderly. The loss of a spouse is the main contributor to loneliness at older age. Therefore, it was expected that widowed

participants would demonstrate greater prevalence of depression than the single elderly or those still living with a spouse. The nonparametric Kruskal-Wallis analysis was used to test the hypothesis because of low numbers of individuals in the compared groups. The results of this test are shown in Table 2. There was a statistically significant difference ($p = 0.003$) in the occurrence of depression between the single, married and widowed elderly, with the latter having the highest GDS score. On the other hand, the married subjects had the lowest GDS score.

Table 1 Cognitive impairment, independence and the occurrence of depression (n = 84)

Depression	Cognitive impairment	Independence
Spearman's correlation coeff.	-0.225*	-0.082
p	0.040	0.458
N	84	84

p – level of statistical significance, N – relative number of individuals

Table 2 Marital status and the occurrence of depression (n = 84)

Marital status/depression	N	Mean GDS score	p
Marital status			
Single	6	30.50	0.003
Married	7	15.93	
Widowed	71	46.13	

N – relative number of individuals, p – level of statistical significance

The relations between chronic disease and pain and the occurrence of depression among the elderly

It was hypothesized that the elderly suffering from chronic disease and pain would have higher GDS scores than those without the conditions. The nonparametric Mann-Whitney *U* test was used to verify the hypothesis. The result, as presented in Table 3, was statistically significant ($p < 0.05$). The elderly with chronic disease had higher mean GDS scores.

A total of 44.0% of the elderly were found to suffer from pain at the time of the study, as assessed using a five-point numerical scale for pain, with 5 representing the worst pain. The results of Mann-Whitney test for pain are presented in Table 4, with statistical significance of less than 0.001. The elderly with pain had significantly higher GDS scores than those without pain.

Table 3 Chronic disease and the occurrence of depression (n = 84)

Chronic disease/depression	N	Mean GDS score	Mann-Whitney U test	Z	p
Chronic disease	Yes	53	47.06	580.000	-2.254
	No	31	34.71		

N – relative number of individuals, p – level of statistical significance

Table 4 Pain and the occurrence of depression (n = 84)

Pain/depression	N	Mean GDS score	Mann-Whitney U test	Z	p
Feeling pain	Yes	38	55.18	392.00	-4.362
	No	46	32.02		

N – relative number of individuals, p – level of statistical significance

Discussion

Depression is characterized as a syndrome consisting of sad mood and the lack of interest or enjoyment while doing the majority of daily activities. These symptoms have to be clearly distinguishable from the normal behavior of a given individual and they have to last for at least two weeks (Pokorná et al., 2013, p. 21). It has been reported that depression occurs in 15% of the elderly living at home and in 30% of persons living in houses for the elderly (Matějovská Kubešová, 2009). The present study found out that the prevalence of depression among the elderly reaches 60.7%, and on top of that, 28.6% of them suffer from severe depression. Holmer et al. (2006) obtained similar results in their study; Topinka and Neuwirth (1997) diagnosed depression in 50.6% of individuals living in houses for the elderly. Thus, it may be concluded that approximately a half of residents living in houses for the elderly suffer from some degree of depression. The main reason for the occurrence of depression is the stay in a house for the elderly where a person leaves his or her natural social environment behind, loses contacts with his surroundings, and has to adjust to a new routine. Studies focusing on depression show that adults who suffer from depression are equally or more likely to suffer from deterioration of bodily functions than those who suffer from chronic diseases of heart and lungs, arthritis, hypertension, and diabetes (Yan et al., 2012, p. 1143). Depression represents a severe health issue, which not only decreases the quality of life but also threatens the life itself.

The occurrence of depression at the older age is undoubtedly associated with certain factors. It can be associated with physical diseases such as ischemic heart disease, hypertension, stroke, Parkinson's disease, diabetes, rheumatism, hypothyroidism, and

some autoimmune diseases. Depression can even worsen the above pathologies. Physical impairments are more difficult to treat and rehabilitation after the treatment may not always be immediately available (Praško et al., 2012, p. 46). Holmer et al. (2006) and Jongelines et al. (2004) showed a statistically significant relation between chronic disease and depression ($U = 580$; $Z = -2.254$, $p < 0.05$). The studied individuals most frequently suffered from cardiovascular diseases, stroke, rheumatism, diabetes mellitus, and also blindness or allergies. Based on these studies, it may be concluded that the elderly who suffer from chronic diseases and consequently have deteriorated health are at greater risk of developing depression.

Another risk factor contributing to the development of depression is pain. Pain may not only stimulate the development of depression, but also worsen the already present degree of depression. Pain is also a risk factor for suicide especially in those who already suffer from depression. Pain is defined as an unpleasant sensory and emotional phenomenon caused by actual or potential damage of the tissue or by psychological factors. One of the possible psychological factors causing pain is depression (Topinková, 2010, p. 54). A study conducted by Jongenelis et al. (2004) found out that persons living in houses for the elderly who suffered from severe depression were affected by risk factors including pain. The study comprised 333 residents of houses for the elderly. This finding was confirmed by the present study.

Cognitive symptoms represent a core of depressive impairments and influence many bodily functions of a patient. Some evidence indicates that depression increases the risk of deterioration of cognitive functions and development of a functional disability (Lebowitz et al., 1997; Charney et al., 2003).

Currently, it is believed that depression mainly influences episodic memory and learning ability. Pokorná et al. (2013, p. 21) state that depression itself does not decrease the long-term level of cognitive functions, but it reduces the ability of a patient to adequately use his or her cognitive capacity. Consequently, it worsens the health of a patient, complicates the treatment and cooperation of a patient with care providers, and ultimately it negatively influences a patient's comeback into his or her regular life. A patient has most often an attention deficit, a memory deficit, awareness problems, learning and judgment problems, or a slowdown of a psychomotor activity. If the assessment of depression is not sufficient, the above symptoms may hide the symptoms of actual depression. Consequently, a patient is often considered to suffer from dementia, but in reality, he or she suffers from undiagnosed depression. This scenario is named pseudodementia. In the present study, the level of cognitive functions was tested with the MMSE. Subsequently, the relation between results of the exam and the occurrence of depression among the tested elderly was assessed. There was a significant correlation between the occurrence of depression and a decreased level of cognitive functions. Thus, it may be concluded that reduced cognitive functions increase the risk for development of depression and vice versa.

Independence is defined as the ability to take care of oneself and it is influenced by the physical state of an individual. An independent individual is able to do all the necessary daily activities without supervision, and is also able to fulfil his or her social role within the environment. Thus, an elderly person is considered independent if he or she is able to do all standard ADLs (Pokorná et al., 2013, p. 83). The inability to do so is considered one of the risk factors for the development of depression. The hypothesis was confirmed by Holmer et al. (2006, p. 176) who showed that severe depression was associated with decreased mobility as well as with reduced functional capacity, with both depriving the individual of his or her independence. Mobility and functional capacity were evaluated by ADL and instrumental ADL tests. Similarly, in a study carried out by Jongenelis et al. (2006), decreased functional capacity was found to be a significant risk factor for development of depression. The present study did not prove this hypothesis, and a decreased level of independence evaluated by the Barthel Index of ADL was not associated with the development of depression despite the fact that 23.8% of the elderly in this study were moderately dependent, 19.0% of them were slightly dependent, and 8% of them were completely

dependent. In spite of these results, the loss of independence is likely to negatively affects the psychology of a person; however, it depends on each individual how he or she can cope with this problem.

One of the most characteristic risk factors for the development of depression is loneliness. It quite often leads to serious health problems. Green et al. (1992) state that loneliness is the third most important risk factor for development of depression, and also it is a significant cause of suicides and attempts of suicides. A study conducted by Hansson et al. (1987) found out that loneliness is related to a poor mental state of a person, unhappiness within the family, and bad social relationships. Another cause of loneliness at the older age is widowhood. A study carried out by Holmer et al. (2006, p. 176) found a significantly higher occurrence of depression among the elderly without children or those without a spouse. In this case, it is important to distinguish loneliness from living alone. A study conducted by Prince et al. (1997, p. 329) found out that the elderly who live alone but have neighbors and friends have a lower risk of developing depression than those without relationships. Because of this finding, the marital status was added to the set of factors analyzed in the present study. The results show that the marital status is associated with the development of depression since the widowed individuals tend to suffer from depression more frequently than the others. By contrast, the elderly living with their spouses demonstrated the lowest incidence of depression. The results confirm that widowhood belongs to the significant risk factors for development of depression in the elderly.

Limits

The limits of the study are a small sample size and an unbalanced nature of the tested cohort. Due to these limits, the results cannot be applied to all the elderly living in institutions. Also, it must be noted that assessment of the presence of depression with the GDS only serves for orientational purposes. In case of a positive result, the individual must be referred for a medical examination.

Conclusion

Depression represents a serious phenomenon from both individual and public health perspectives. It affects the quality of life of an individual as well as the nursing care for a depressed individual. Depression is a treatable condition; however, the correct diagnosis is necessary for treatment to be successful. Depression at the older age has its own specific features. An older person has to face new stress factors. Problems with psychological well-

being are accompanied by dramatic deterioration of physical health. Due to this fact, the elderly require a special attention, care and treatment. Nursing not only includes ensuring proper visits of patients to their physicians and the technical form of nursing care, but it also includes identification of patient's and his or her family's or community's needs. There are various tools used for evaluating depression in elderly persons such as the GDS. Based on the present study findings, the GDS should be used for the diagnosis of depression among the elderly in the first phase of the nursing process, in the phase of investigation, and also in the phase of evaluation. Using the GDS in the phase of evaluation provides a feedback about the quality of care used in evaluating depression to a given individual. In addition, it helps to personalize further nursing care that person. Another recommendation is that a person who scores between 11 and 15 points on his or her GDS scale should see a psychiatrist and should be a subject of analysis of risk factors leading to depression based on his or her personal or family history. Special attention should be paid to the lonely and widowed elderly, those suffering from chronic disease or pain, and those with cognitive deficits. The reason for this is a statistically higher occurrence of depression among the elderly who have any of the above conditions. The last but definitely not the least recommendation is to carry out another study focused on the occurrence of depression among the elderly living both in institutions as well as those living at home.

Ethical aspects and conflicts of interest

The authors declare that this study has no conflicts of interest and that it complied with all the ethical principles of research. All subjects of the study were informed about its purpose and agreed to participate.

References

- Cole MG, Dendukuri N. Risk factors for depression among elderly community subjects: a systematic review and meta-analysis. *American Journal of Psychiatry*. 2003;160(6):1147-1156.
- Green BH, Copeland JR, Dewey ME, Shamra V, Saunders PA, Davidson IA, Sullivan C, Mc William C. Risk factors for depression in elderly people: A prospective study. *Acta Psychiatrica Scandinavica*. 1992;86(3):213-217.
- Hansson RO, Jones WH, Carpenter BN, Remondet JH. Loneliness and adjustment to old age. *International Journal of Human Development*. 1987;27(1):41-53.
- Hegy L. Niektoré riziká pobytu v domovoch dôchodcov. *Geriatría*. 2003;2(2):51-59. (in Slovak)
- Holmerová I, Vaňková H, Dragomírecká E, Janečková H, Veleta P. Depresivní syndrom u seniorů, významný a dosud nedocenený problém. *Psychiatria pre prax*. 2006;7(4):175-177. (in Czech)
- Husáková M, Rievajová E. Demografické východiská sociálnej politiky v Slovenskej republike. *Reprodukce lidského kapitálu: vzájemné vazby a souvislosti*, III. ročník: [sborník] z mezinárodní konference konané jako součást dlouhodobého výzkumného projektu 2D06026 Reprodukce lidského kapitálu financovaného MŠMT v rámci Národního programu výzkumu II: Praha 13. - 14. 12. 2010 [cited 2014 March 13]. Praha: Vysoká škola ekonomická v Praze. Nakladatelství Oeconomica, 2010. (in Slovak)
- Charney DS, Reynolds CF, Lewis L, Lebowitz BD, Sunderland T, Alexopoulos GS, Blazer DG. Depression and Bipolar Support Alliance. Depression and Bipolar Support Alliance consensus statement on the unmet needs in diagnosis and treatment of mood disorders in late life. *Archiver of General Psychiatry*. 2003;60(2):664-672.
- Jongenelis K, Pot AM, Eisses AM, Beekman AT, Kluiters H, Ribbe MW. Prevalence and risk indicators of depression in elderly nursing home patients: the AGED study. *Journal of Affective Disorders*. 2004;83(2-3):135-142.
- Lebowitz BD, Pearson JL, Schneider LS, Reynolds CF, Alexopoulos GS, Bruce LM. Diagnosis and treatment of depression in late life: consensus statement update. *JAMA*. 1997;278:1186-1190.
- Martinková J, Lajdová A. Ageizmus – etický problém v starostlivosti o seniorov. *Nové trendy vo vzdelávaní a praxi ošetrovateľstva a pôrodnej asistencie*. Ružomberok: VERBUM, 2010;160-163. (in Slovak)
- Matějovská Kubešová, H. *Akutní stavy v geriatrii*. Praha: Galén; 2009. (in Czech)
- Pokorná A. *Komunikace se seniory*. Praha: Grada; 2010. (in Czech)
- Pokorná A, Komínková A, Schneiderová M, Pinkavová H. *Ošetrovateľství v geriatrii*. Praha: Grada; 2013. (in Czech)
- Praško J, Bulíková B, Sigmundová Z. *Depresivní porucha a jak ji překonat*. Praha: Galén; 2012. (in Czech)
- Prince MJ, Harwood RH, Blizard RA, Thomas A, Mann AH. Social support deficits, loneliness and life events as risk factors for depression in old age. The Gospel Oak Project VI. *Psychological Medicine*. 1997;27(2):323-332.
- Raboch J, Laňková J. *Deprese. Doporučené postupy pro praktické lékaře*. CDP-PL 2008. (in Czech)
- Rudačková J. Starnutie populácie a starostlivosť o gerontov z pohľadu štátu, medicíny a Cirkvi. *Kresťanské východiská sociálnej práce a jej misijný rozmer: zborník príspevkov z vedeckej konferencie s medzinárodnou účasťou konanej dňa 6.-7. októbra 2008 v Prešove* [cited 2014 March 10]. Prešov: Prešovská univerzita v Prešove, 2009;74. Available from: <http://www.pulib.sk/elpub2/PBF/Sak3/index.html> (in Slovak)
- Sheikh JI, Yesavage JA. Geriatric Depression Scale (GDS). Recent evidence and development of a shorter version. *Clinical Gerontologist: A Guide to Assessment and Intervention*. NY: The Haworth Press, Inc. 1986;5(1/2):165-173.
- Tomagová M. Vybrané meracie nástroje v posudzovaní kognitívnych funkcií seniora v ošetrovateľskej starostlivosti. *Kontakt*. 2009;11(3):310-319. (in Slovak)
- Topinková E, Neuwirth J. Depresivní syndrom u geriatrických pacientů v ústavní péči. *Česká a slovenská psychiatrie*. 1997;93(4):181-188. (in Czech)
- Topinková E. *Geriatrie pro praxi*. 1. vyd. Praha: Galén; 2005. (in Czech)

Topinková E. *Geriatric*. Praha: Společnost všeobecného lékařství ČLS JEB; 2010. (in Czech)

Vaňo B, Jurčová D, Mészáros J. *Prognóza vývoja obyvateľstva SR do roku 2050*. Bratislava: Akty; 2002. (in Slovak)

Weber P, Bradáčová M, Weberová D, Polcarová, V. *Minimum z klinické gerontologie*. IPVZ Brno; 2000. (in Czech)

Yan XY, Huang SM, Huang CQ, Wu WH, Qin Y. Marital status and risk for late life depression: a meta-analysis of the published literature. *The Journal of International Medical Research*. 2012;39(4):1142-1154.