Review paper

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Emotional and cognitive states of geriatric patients during the COVID-19 pandemic – an observational study

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Abstract

Introduction: The authors of the study assessed the emotional and cognitive state of geriatric patients during the COVID-19 pandemic and tried to answer the question: were there any differences in this state in geriatric patients at different stages of the pandemic?

Material and methods: The study included 518 patients of 60 years old and above of the Department of Geriatrics in Warsaw. To collect data, the following tools of psychological measurement were applied: the Mini-Mental State Examination scale and Geriatric Depression Scale. In order to test the differences in the means between the groups, a Chi-square test (with Yates's correction for continuity when the class size did not exceed 8 items) was used. For the comparison of the three groups, the Kruskal-Wallis (ANOVA) test was performed.

Results: It was found that the majority of geriatric patients (73% of respondents) do not show symptoms of depressed mood. But there are statistically significant differences in the results of the patients' cognitive state tests depending on the time of examination. Patients examined before the pandemic tended to demonstrate a better cognitive state than patients at the beginning of the pandemic and in its later stages. Nevertheless, there are no significant differences in the cognitive functioning of patients examined at the beginning and later in the pandemic.

Conclusions: The number of geriatric patients with symptoms of depression significantly increased when visits of relatives prohibition were introduced. However, the number of patients with depression returned to its previous level later in the pandemic.

This phenomenon may indicate psychological adaptation to the situation. The presented results of observation suggest that the introduction of limitations is less important than the particular perception of one's situation and adaptation to that.

Key words: emotional state, COVID-19 pandemic, mental health, geriatric patients.

Introduction

One of the main problems of the elderly is pathological ageing, understood as a process of rapid decline in physical and mental functions. The effects of these changes include decrepitude, inability to function independently and, as a result, the need for support. The most common mental illnesses in the elderly are dementia syndromes and depression. In addition to the effects related to impaired functioning, these problems appear to be multi-causal, chronic, and difficult to treat [1].

The number of people affected by dementia is constantly growing [2], which is a serious encumbrance for families and carers [3]. As regards depression, in most cases, elderly people do not show the symptoms that are typical of it [4]. Numerous researchers emphasise the impact of loneliness on the severity and development of depressive disorders [5].

In France, there have been studies showing a link between loneliness and symptoms of depressed mood [6]. The above-mentioned data highlight the impor-

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tance of contacting a specialist in order to start diagnostics and implement treatment [7].

In Poland, the elderly have already faced limitations related to access to healthcare and the social support system in the field of dementia [8]. The growing inequality in access to these services is also visible during the global spread of the SARS-CoV-2 virus in other countries, e.g. in Italy [9]. The impact of the pandemic on the mental health of older people has been observed in Spanish studies [10].

Due to the nature of the symptoms of dementia even at its early stage, such as difficulty with learning new things (e.g. telecommunication skills), people affected by this condition may have particular problems with reaching specialists and receiving support in this area [11] as well as healthcare [12].

While controlling transmission of the virus appears to be the main priority, both medical and psychological consequences of the lack of access to medical care, resulting in the progression of dementia and long-term effects in changes in functioning, should be taken into account as well [8]. Social activity appears to be of particular importance for cognitive performance [13].

Therefore, the aim of this study was to answer the following question: are there differences in geriatric patients' emotional and cognitive states at different stages of the pandemic?

Material and methods

This is a retrospective analysis of medical data routinely obtained from patients hospitalized in a department of geriatrics. The basic socio-demographic data were collected in an routinely medical interview during admission and hospitalization. The patients provided their age and level of education, which is needed for further analysis of cognitive abilities and impairments during geriatric assessment.

The Mini-Mental State Examination (MMSE) by Folstein et al. [14] and the Geriatric Depression Scale: Short Form (GDS-SF) by Yesavage et al. [15] are routinely used to assess the patients in geriatric care. In analysed medical data the MMSE scale was used first, followed by the GDS-FS scale. The above scales are screening methods used to diagnose psychological disorders as part of the Comprehensive Geriatric Assessment.

Mini-Mental State Examination

The Mini-Mental State Examination (MMSE) is the most frequently used scale in the assessment of cognitive functioning disorders in adults. Developed in 1975, it consists of 11 categories of tasks that examine different cognitive functions. The functions examined by this method are: orientation to time and place and working memory (with each of these three categories including five tasks), ability to remember, recall and follow instructions (three tasks in each of the three categories), naming (two tasks), repeating, reading, writing, and visuospatial skills (one task for each category).

The overall score is the sum of all points obtained, corrected according to the age and level of education of the tested person, with the minimum score being 0 and the maximum being 30 points. Specific assessments fall into the following ranges: the score indicating proper cognitive functioning is 27–30 points, scores of 24–26 points suggest the presence of mild cognitive impairments, and scores below 24 points indicate the presence of the dementia process.

For qualification purposes, the following score subranges can be distinguished: scores indicating mild dementia (19–23 points), scores indicating the presence of moderate dementia (11–18 points), and scores from 0 to 10 points indicating the presence of severe dementia [14].

In Poland, normalisation research was conducted by Stańczak [16] and indicated the following psychometric values of the scale: internal consistency coefficient $\alpha = 0.82$ (high), time stability coefficient $r = 0.93$ (very high).

Short form of the Geriatrics Depression Scale

The study utilised the short form of the GDS (Geriatric Depression Scale), containing 15 questions and two answer options (yes or no). A maximum of 15 points can be obtained. The likelihood of depression increases with the number of points. A score between 0 and 5 indicates that the patient's emotional state is normal. A score above 5 points indicates the presence of a depressed mood, most likely depression. A score between 6 and 10 points indicates the presence of moderate depression, and a score above 10 points indicates – the presence of severe depression.

In a comparative study of the original version and the short version, it was found that these scales are strongly correlated with each other ($r = 0.89$) and have similarly high sensitivity rates; therefore, the GDS-SF can be considered an appropriate substitute for the full version [17].

Exclusion criteria

People with profound cognitive impairments and patients with visual and hearing impairments preventing them from performing tasks included in psychological tests were excluded.

Study populations

Data of all patients hospitalized in the Department of Geriatrics of the National Institute of Geriatrics, Rheumatology and Rehabilitation in Warsaw between July 2019 and November 2021 were analysed. All analysed patients consented to the psychological examination.

Among 518 patients all patients were over 60 years of age; the oldest patient was 100 years old. The average time of hospitalization of the patient in the Department of Geriatrics was 8 days.

Statistical analysis

In order to test the differences in the means between the groups, a Chi-square test (with Yates's correction for continuity when the class size did not exceed 8 items) was used. For the comparison of the three groups, the Kruskal-Wallis (ANOVA) test was performed.

Ethical standards

The ethical principles for medical research involving human subjects were respected in the present study according to the Declaration of Helsinki. All patients gave their informed consent to the procedures described, along with their consent to hospitalization. The data of patients staying in the clinic during this period who were not fully capable of self-determination were excluded from the analysis.

Results

The analysed data were divided into three periods: 164 patients (31%) were hospitalized between July 2019 and March 2020 (time before the COVID-19 pandemic in Poland); 166 patients (32%) between June 2020 and November 2020 (at the beginning of the pandemic); and 188 patients (36%) between May 2021 and November 2021 (during the pandemic).

In total, there were 371 women (72%) and 147 men (28%). This distribution reflects the general trend in the elderly population in Poland, where women constitute the majority of the geriatric population [18]. Most of the hospitalised patients (n = 213) were aged 81–90 (41%). There were 177 people aged 71–80 (34% of respondents). The study also included data of 99 patients aged 60–70 (19%) and 29 patients aged 90 and over (6%).

As regards the level of education of the analysed elderly people, 34% of them had more than 15 years of education. Thirty-two percent of the respondents had between 12 and 15 years of education. Twenty-three percent of the respondents had 8 to 11 years of education, and the fewest completed their education after a maximum of 7 years (11%).

The analysis of the emotional state of the discussed group showed that the majority of them, n = 379 (73%), did not show symptoms of depressed mood. Among those studied 139 patients (27%) showed symptoms of depression. Moderate depression was confirmed in 121 patients; severe depression in 18.

In Table I presents the characteristics of the study group in terms of sex, age, emotional and cognitive state.

In terms of cognitive state, most of the hospitalized patients (n = 307; 59%) were within normal limits. In the whole sample group, 124 patients (24%) had mild cognitive deficits and 87 patients (17%) presented symptoms of dementia.

Table II summarizes the percentage distribution, means and standard deviations of the emotional state of patients in different periods of the pandemic.

There were statistically significant differences in the results of the patients' cognitive state tests depending on the time of examination (H = 15.37, $p < 0.001$). Patients examined before the pandemic tended to demonstrate a better cognitive state than patients at the beginning of the pandemic and in its later stages of the pandemic.

Nevertheless, there are no significant differences in the cognitive functioning of patients examined at the

Table I. Characteristics of the sample group (n = 518)

Parameters	n	%
Sex		
Female	371	72
Male	147	28
Age [years]		
60–70	99	19
71–80	177	34
81–90	213	41
91–100	29	6
Cognitive state (MMSE)		
Normal	307	59
Mild cognitive deficits	124	24
Mild dementia	66	13
Moderate dementia	21	4
Severe dementia	0	0
Emotional state (GDS)		
Normal	379	73
Mild depression	121	23
Moderate depression	18	3

GDS – Geriatric Depression Scale, MMSE – Mini-Mental State Examination.

Table II. Percentage distribution and means and deviations of the emotional state of patients according to the Geriatric Depression Scale in different periods of the pandemic

Time of examination	Normal		Moderate depression		Severe depression				
	n	%	*n*	%	*n*	%	*n*	Mean	SD
Pre-pandemic	123	75	36	22	5	3	164	3.87	3.047
Beginning of the pandemic	116	70	44	27	5	4	166	3.99	3.165
Later in the pandemic	140	74	41	22	7	4	188	3.99	2.897

SD – standard deviation.

Table III. Significance level of differences between the Mini-Mental State Examination cognitive state scores in the three groups depending on the time of examination

	Kruskal-Wallis test		Significant differences between the groups		
	H	*p*	1–2	2–3	1–3
Cognitive state	15.37	0.001	>		>

H – time of examination, p – p-value, 1 – pre-pandemic, 2 – beginning of the pandemic, 3 – later in the pandemic, 1 < 2 – people from group 1 scored significantly lower than people from group 2, 2 < 3 – people from group 2 scored significantly lower than people from group 3.

beginning and later in the pandemic. Before the pandemic, almost 3/4 of patients (71%) had normal scores, 18% showed mild cognitive impairments, and 11% had dementia scores. The results of analysis are presented in Table III.

Table IV presents the cognitive status of patients at different times of the pandemic. At the beginning of the pandemic, 56% of patients were cognitively normal. The rest of the patients had below-normal scores, of these 26% showed mild cognitive impairments and 18% showed dementia.

In the later stages of the pandemic, the upward trend of patients with both mild cognitive impairments and dementia intensified – although the difference is not statistically significant, it can be seen in the qualitative analysis. Nearly half of the patients (52%) received scores outside the normal range, 28% had mild cognitive impairments, and 21% obtained scores indicative of dementia.

Discussion

The presented data are similar to the results of studies assessing the prevalence of depression among the elderly in Poland. According to the Chancellery of the Senate [19], people aged 65 and over are the group with the highest incidence of depression (11.5% of people at this age show symptoms of depression, 4.7% experience severe symptoms of depression, and 6.8% have other symptoms of depression).

Comparing the results of this research with data obtained in the study of long-term care elderly patients, one may observe that in the long-term facility, patients with dementia are the dominant group (over 70% of respondents), with patients affected by moderate dementia being the majority (over 1/4 of patients).

People with mild cognitive impairments (17.2% of respondents) and those within the normal range (10.4%) are a minority in this group [20]. The group of patients hospitalised in the Department of Geriatrics, the majority of whom obtained a normal MMSE score, is characterised by a different profile in terms of cognitive state.

Before the introduction of lockdown (February 2020), long-term care patients were mostly people without symptoms of depression (87.9%). During the period of full isolation (March 2020), 26% of the elderly patients showed symptoms of depression. It should be emphasised that in May 2020, with the use of partial isolation (video calls, letters, photos, ability to see someone while being separated by a glass wall), the percentage of people with symptoms of depression decreased to a level comparable to that before the pandemic. The differences between the analysed groups are statistically significant [20].

This research indicates that patients hospitalised in the geriatrics clinic showed symptoms of depression prior to the pandemic more often (25% of respondents) than patients covered by long-term care. The number of these patients increased even more with the introduction of the visiting ban (up to 31%), but later in the pandemic it returned to the previous level.

Although the differences between the compared groups were not statistically significant, a similar ten-

Table IV. Cognitive state of patients according to the Mini-Mental State Examination Scale at different periods

Time of examination	Normal		Mild cognitive deficits		Mild dementia		Moderate dementia				
	n	%	*n*	%	*n*	%	*n*	%	*n*	Mean	SD
Pre-pandemic	117	71	29	18	13	8	5	3	164	0.396	0.679
Beginning of the pandemic	93	56	43	26	23	14	7	4	166	0.632	0.780
Later in the pandemic	97	52	52	28	30	16	9	5	188	0.691	0.795

SD – standard deviation, severe dementia does not occur..

dency as in patients in the 24-hour care facility is observed, consisting in mood improvement after being able to contact their relatives. This is consistent with other studies conducted in Poland which indicate that during the fourth wave of the COVID-19 pandemic, Poles felt better than during the first wave, which may be evidence of better psychological adaptation or a better response to the reduction of restrictions [21].

Similar conclusions can be drawn from studies carried out in the USA, where despite the increase in the number of COVID patients, there was no increase in depressive symptoms [22]. This may be due to the fact that elderly people show better mental health resilience compared to younger people [23]. However, as highlighted by Wang et al. [24] an intensified increase in psychological distress is associated with multimorbidity.

The generally higher level of depressive symptoms in patients hospitalised in the geriatrics clinic than in people living in the 24-hour care facility may be explained by the observation of Bukhari et al. [5] indicating that elderly people who normally live with their families and suddenly become isolated feel a greater sense of loneliness than those who have lived without a family for a long time.

However, as emphasised by Müller et al. [25], what is associated with depressive symptoms among the elderly population in Germany is loneliness rather than isolation. Thus, the subjective emotional assessment, i.e. the sense of loneliness, appears to be more significant than the objective state of isolation. Similar findings were obtained in Spain, where no association between the state of the pandemic and depressive disorders in the elderly was found [26].

According to the results of research conducted in the US, the elderly appear to be more resistant to anxiety, depression and stress-related mental health disorders compared to younger age groups during the COVID-19 pandemic [27]. Similarly, in the Netherlands, it was found that although elderly people felt lonely during the pandemic, their level of mental health remained unchanged [28].

Conclusions

The number of geriatric patients who showed symptoms of depression increased further after the visitation ban was imposed, but returned to its previous level later in the pandemic. This may indicate psychological adaptation to the situation or reaction to the reduction of restrictions. The obtained results suggest that the perception of one's own life situation seems to be more important than the objective introduction of limitations.

A new aspect resulting from the COVID-19 pandemic, which affects the emotional and mental state of seniors, was being assessed. The limitations of the study are related to the surveyed population just of hospitalized seniors.

Further research requires expanding the study group to out-of-hospital conditions. It would also be advisable to include information about any previous episodes of affective disorders in the in-depth interview with the patient.

The authors declare no conflict of interest.

References

1. Wójcicka M, Szczuka J. Opiekun szyty na miarę. Poradnik dla opiekunów osób z chorobami otępiennymi. Fundacja na rzecz standardów opieki Wyspy Pamięci, Warszawa 2019.
2. Alzheimer's Disease International. 2019. World Alzheimer Report 2019: attitudes to dementia. London: Alzheimer's Disease International.
3. Rymaszewska J, Szcześniak D, Urbańska K. Przewodnik o tworzeniu Centrów Spotkań dla osób z otępieniem i ich opiekunów. Droes Röse-Marie (ed.). Warszawa 2017.
4. Filipska K, Pietrzykowski Ł, Ciesielska N, et al. [Depressive disorders in elderly patients the literature review]. Gerontol Pol 2015; 4: 165–169 [Article in Polish].

5. Bukhari F, Awan I, Fahd S. Relationship of depression and loneliness in depressed and normal population. Int J Curr Advan Res 2016; 4: 85–89, DOI: 10.21474/IJAR01/354.
6. Andersen AJ, Mary-Krause M, Bustamante JJH, et al. Symptoms of anxiety/depression during the COVID-19 pandemic and associated lockdown in the community: longitudinal data from the TEMPO cohort in France. BMC Psychiatry 2021; 21: 381, DOI: 10.1186/s12888-021-03383-z.
7. Szczuka J, Wójcicka M. Organizacja życia rodziny w obliczu choroby otępiennej. Poradnik dla opiekunów. Fundacja Projekt Starsi, Warszawa 2017.
8. Łuc M, Szcześniak D, Trypka E, et al. SARS-CoV-2 pandemic and the population with dementia. Recommendations under the auspices of the Polish Psychiatric Association. Psychiatr Pol 2020; 54: 421–436, DOI: 10.12740/PP/122780.
9. Cipriani G, Di Fiorino M. Access to care for dementia patients suffering from COVID-19. Am J Geriatr Psychiatry 2020; 28: 796–797, DOI: 10.1016/j.jagp.2020.04.009.
10. Holmes EA, O'Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry 2020; 7: 547–560, DOI: 10.1016/S2215-0366(20)30168-1.
11. Wang H, Li T, Barbarino P, et al. Dementia care during COVID-19. Lancet 2020; 395: 1190–1191, DOI: 10.1016/S0140-6736(20)30755-8.
12. Armitage R, Nellums LB. COVID-19 and the consequences of isolating the elderly. Lancet Public Health 2020; 5: e256, DOI: 10.1016/S2468-2667(20)30061-X.
13. Szcześniak D, Rymaszewska J, Saibene FL, et al. Meeting centres support programme highly appreciated by people with dementia and carers: a European cross-country evaluation. Aging Ment Health 2019; 5: 1–11, DOI: 10.1080/13607863.2019.1683814.
14. Folstein MF, Folstein SE, Fanjiang G. MMSE. Krótka Skala Oceny Stanu Umysłowego. Przewodnik kliniczny. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2009.
15. Yesavage JA, Brink TL, Rose TL, et at. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res 1983; 17: 37–39, DOI: 10.1016/0022-3956(82)90033-4.
16. Stańczak J. MMSE. Polska normalizacja. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2010.
17. Lesher EL, Berryhill JS. Validation of the Geriatric Depression Scale – Short Form among impatients. J Clin Psychol 1994; 50: 256–260, DOI: 10.1002/1097-4679(199403)50:2<256::aid-jclp2270500218>3.0.co;2-e.
18. Główny Urząd Statystyczny. Informacja o sytuacji osób starszych w Polsce za 2019 rok. GUS, Warszawa 2020.
19. Kancelaria Senatu. Zdrowie psychiczne w Unii Europejskiej, Warszawa 2019. Available at: https://www.senat.gov.pl/gfx/senat/pl/senatopracowania/175/plik/ot-674_zdrowie_psychiczne.pdf.
20. Górski M, Garbicz J, Buczkowska M, et al. Depressive disorders among long-term care residents in the face of isolation due to COVID-19 pandemic. Psychiatr Pol 2019; 202: 1–14, DOI: 10.12740/PP/OnlineFirst/127144.
21. Babicki M, Kowalski K, Bogudzińska B, Mastelerz-Migas A. Impact of the COVID-19 pandemic on mental well-being. A nationwide online survey convering three pandemic waves in Poland. Front Psychiatry 2021; 12: 704248, DOI: 10.3389/fpsyt.2021.704248.
22. Daly M, Robinson E. Psychological distress and adaptation to the COVID-19 crisis in the United States. J Psychiatr Res 2020, 136: 603–609, DOI: 10.1016/j.jpsychires.2020.10.035.
23. Vahia IV, Jeste DV, Reynolds CF 3rd. Older adults and the mental health effects of COVID-19. JAMA 2020; 324: 2253–2254, DOI: 10.1001/jama.2020.21753.
24. Wang Y, Fu P, Li J, et al. Changes in psychological distress before and during the COVID-19 pandemic among older adults: the contribution of frailty transitions and multimorbidity. Age Ageing 2021; 50: 1011–1018, DOI: 10.1093/ageing/afab061.
25. Müller F, Röhr S, Reininghaus U, Riedel-Heller SG. Social isolation and loneliness during COVID-19 lockdown: associations with depressive symptoms in the German old-age population. Int J Environ Res Public Health 2021; 18: 3615, DOI: 10.3390/ijerph18073615.
26. García-Fernández L, Romero-Ferreiro V, López-Roldán PD, et al. Mental health in elderly Spanish people in times of COVID-19 outbreak. Am J Geriatr Psychiatry 2020; 28: 1040–1045, DOI: 10.1016/j.jagp.2020.06.027.
27. Czeisler MÉ, Lane RI, Petrosky E, et al. Mental health, substance use, and suicidal ideation during the COVID-19 pandemic. MMWR Morb Mortal Wkly Rep 2020; 69: 1049–1057, DOI: 10.15585/mmwr.mm6932a1.
28. van Tilburg TG, Steinmetz S, Stolte E, et al. Loneliness and mental health during the COVID-19 pandemic. J Gerontol B Psychol Sci Soc Sci 2021; 76: 249–255, DOI: 10.1093/geronb/gbaa111.