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Anxio-depressive disorders in a pandemic context: A comparative analysis: year 2019 versus 2020

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Anxio-depressive disorders in a pandemic context: A comparative analysis: year 2019 versus 2020

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ABSTRACT



The outbreak of SARS-CoV-2 pandemic has resulted in increased rates of anxiety and depression worldwide. *Objective.* To comparatively evaluate factors associated with the psychological impact of Coronavirus disease between 2019 and the pandemic year 2020. *Materials and Methods.* The study was performed on a group of 3224 patients, of which 197 were hospitalized, selected from Jan 1st 2019 until 30th Dec 2020 in a tertiary care center for psychiatric disorders. Data were collected from the observation charts. *Results.* The incidence of anxiety disorders is higher in the age range 40-70 years with an average value of 53 years old. In 2019, a third of patients (29,45%) had alcohol-related conditions and developed anxiety-depressive disorder. In 2020, the percentage was lower (9.38%), but also the number of admitted patients significantly decreased ($p < 0.0001$). There were not found significant differences in age, gender or environment. Hypnotic disorders were more predominant in 2019 (54.6% vs 37.5%, $p = 0.01$), whereas in 2020 anxiety and agitation increased significantly (34.4% vs 84.38%, $p = 0.0001$). Relapses were similarly frequent in both years, in half of the cases. *Conclusions.* Coronavirus pandemic lead to a decrease in both presentations and admission to hospital. Although there were not found significant differences in age or gender, more patients from urban environment were admitted, which can have several explanations. Anxiety and agitation became the main reason for hospitalization in 2020.

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Introduction

Anxiety disorders can affect daily life, including job performance and personal relationships by determining people to avoid triggering situations. Symptoms are disproportionately to the situation or age-inappropriate and hinder normal function for diagnosis. Treatment options include psychotherapy and medication, with stress management techniques and support groups also helpful. The causes of anxiety disorders are not fully understood, but likely involve a combination of genetic, environmental, psychological, and developmental factors [1,2].

In the United States (U.S.), generalized anxiety disorder and panic disorder affect 6.8 million adults (3.1% of the U.S. population), respectively 6 million adults (2.7% of the U.S. population), with women being twice more likely to be affected than men for both pathologies. Social Anxiety Disorder (SAD) affects 15 million adults or 7.1% of the U.S. population, with no gender difference, and typically begins around age 13. Many people with an anxiety disorder also have a co-occurring disorder or physical illness, such as ADHD, bipolar disorder, eating disorders, substance abuse and stress, which can make their symptoms worse and the recovery more difficult [2,3].

During the Coronavirus disease (COVID-19) pandemic, many people experienced stress, anxiety, fear, sadness and loneliness, which could lead to worsening mental health disorders [4,5].

The World Health Organization (WHO) released a scientific brief that highlights how the global prevalence of anxiety and depression increased by 25% in the first year of the COVID-19 pandemic. The brief also summarizes the impact of the pandemic on mental health services and who has been most affected. The pandemic has caused unprecedented stress from social isolation, financial worries, and the fear of infection, leading to anxiety and depression. Women, young people, and those with pre-existing physical health conditions are among the most severely impacted groups. The disruptions to mental health services during the pandemic have created significant gaps in care, leaving many people unable to get the support they need [5-7].

Many countries reported major disruptions in life-saving services for mental health, including for suicide prevention. People unable to access face-to-face care have sought support online, highlighting the need for reliable and effective digital tools to be made available. WHO and partners have worked to develop and disseminate resources to help different groups cope with and respond to the mental health impacts of COVID-19. WHO Member States have recognized the impact of COVID-19 on mental health and are taking action, but a global step up in investment is needed to ensure mental health support is available to all [1,2].

Self-care strategies are essential to cope with the situation, such as getting enough sleep, exercising regularly, eating healthy, avoiding tobacco, alcohol, and drugs, limiting screen time, and practicing relaxation techniques [8,9]. It is also essential to reduce stress triggers, such as maintaining a regular routine, limiting exposure to news media, staying busy, focusing on positive thoughts, and connecting with others through virtual communication [5,8].

Ignoring a psychiatric disorder can affect the patient's daily life, and several symptoms can occur such as: anhedonia, appetite disorders, headaches, palpitations, dyspnea, tremors, hypnotic disorders and, in aggravated forms, it can lead to suicidal ideation and even suicide [10, 11]. Given the impressive impact of these manifestations, it can be considered that anxiety-depressive disorders represent a health problem of global importance [12-14] which requires prompt approach and which cannot be neglected no matter how mild the symptomatology may seem.

The aim of this study is to show the similarities and differences that are observed between 2019 and 2020 in terms of anxiety and depression in clinical practice. The study is based on the comparison of several elements: the

total number of cases, the age of the patients, the environment of origin, personal and familial history, behaviors (ethanol consumption).

Materials and Methods

The study was approved by the Review Board of the Hospital where the research was carried out (No. 11567/15.10.2020), respecting the confidentiality requirements imposed, as well as respecting the processing of personal data provided in Law no. 190/2018.

Group of subjects. The study was performed on a group of 3224 patients 3028 being day sheets (hospitalization for up to 12 hours) and 196 being continuous sheets (hospitalization for more than 24 hours). The study included patients with continuous sheets. The group of patients was selected from Jan 1st 2019 until 30th Dec 2020 from Hospital of Psychiatry "Elisabeta Doamna" Galați, a tertiary care center for psychiatric disorders from Romania.

Inclusion criteria. Patients were selected based on their diagnosis, namely: generalized anxiety (F41.1), mixed anxiety and depression disorder (F41.2) and the year of hospitalization (2019-2020).

Exclusion criteria. Patients excluded from the study were those under 18 years of age and those who were not diagnosed with generalized anxiety, mixed anxiety-depressive disorder or did not meet the 2019–2020-time criteria.

Sources and methods of data collection: the data were obtained by studying the observation charts of patients who are part of the group of subjects and the computer database of the study hospital. The study analyses and performs the comparison of several elements: the total number of cases, the age and gender of the patients, the environment of origin, personal and familial history, behaviors (e.g., ethanol consumption), disease-associated symptoms.

Statistical analyses. Statistical analyses were performed with IBM SPSS Statistics version 26, Microsoft Excel version 12 for Windows, GraphPad software available at www.graphpad.com. Results were expressed as numbers, percentages, mean \pm standard deviation. Student t test and Chi square test were used for comparative analyses. Statistical significance was considered for $p < 0.05$.

Results

In 2019, from 1860 patients, 165 were hospitalized (8.9 %). In 2020, the presentations have a higher share than hospitalizations: out of a total of 1364 patients, only 32 were hospitalized (2.3%). The percentage of presentations (day-sheets) increased from 2019 to 2020 (91.1% vs 97.7%). The difference between the number of hospitalized patients in 2019 vs 2020 was statistically significant

($p < 0.0001$). In Table 1 are presented the main characteristics of the two studied groups, the 2019 sample and the 2020 sample.

As seen in Table 1, similar proportions were observed for gender distribution both in 2019 and in 2020 (50.31% males patients vs 53.13%, $p = 0.77$).

Parameter	2019 (%/ No of patients)	2020 (%/ No of patients)
Male gender (%)	50,31 / 82	
Age (mean value±SD)	53,59±14.92	53,53±16.05
Environment (%) (Urban area)	50,92 / 83	59,38 / 19
Ethanol consumption (%)	29,45 / 48	9,38 / 3
Insurance state (%)		
retired	36,81 / 60	43,75 / 14
employee	26,38 / 43	28,13 / 9
social insurance	30,67 / 50	18,75 / 6
no insurance	6,13 / 10	9,38 / 3
Personal history of psychiatric illness	23,93 / 39	21,88 / 7
Relapses present	50,31 / 82	50 / 16

Figure 1 shows that the incidence of anxiety disorders in 2019 is higher in the age range of 50 to 70 years. The fewest patients were registered under the age of 25 and over the age of 80.

The incidence of anxiety disorders in 2020 is higher in the age range 40 years and 70 years. There was no statistical difference between the mean age value of the hospitalized patients in 2019 vs 2020 (53.39 ± 14.92 years vs 53.53 ± 16.05 years, $p = 0.98$).

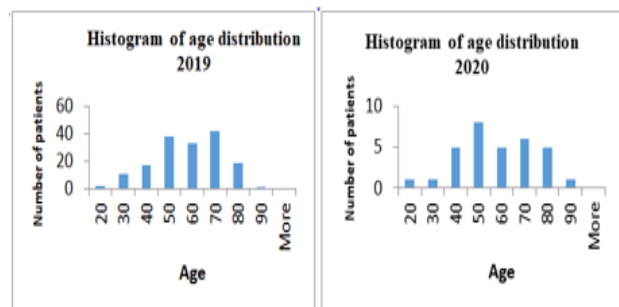


Figure 1. Histograms of age distribution in 2019 and 2020

As regarding the environment of origin, the percentage slightly increased for the urban area from 2019 to 2020 (50.9% vs 59.4%), but there was no statistical difference ($p = 0.38$).

Out of a total of 163 hospitalized patients in 2019, 23.93% had a history of psychiatric illness (e.g., depression, schizophrenia, dementia, addictions etc.). In 2020, the percentage of patients with psychiatric illnesses was 21.88%.

Ethanol consumption may be one of the factors that cause anxiety disorders. In 2019, 29.45% of patients (48) were chronic ethanol users. The reason for their presentation and subsequent hospitalization was either ethanol intoxication, either for anxiety-depressive disorders. In 2020, a significantly smaller percentage of patients (9.38%, $p = 0.01$) who were chronic alcohol users were admitted to hospital (Table 1).

Looking at the insurance state, in descending order, as seen in Figure 2, in 2019 the highest percentage is represented by retired (with insurance) with 36.81%, followed by patients with social insurance with a percentage of 30.67%, employees with 26.38%, and on the last place are those without social insurance. As in 2019, in 2020, the highest percentage is represented by retired people (with insurance - 43.75%), but they are followed by employees with a percentage of 26.13%. The last place is also occupied by patients without social insurance (18.75%).

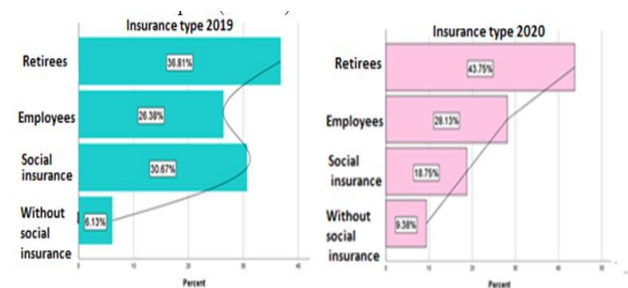


Figure 2. Distribution of the lot according to the insurance state in year 2019 vs 2020

As seen in Table 2, anxiety and psychomotor agitation were the main symptoms of hospitalization in 2020, with 49.98% more than in 2019 (p value = 0.001). In 2020, psychomotor restlessness and agitation were followed by hypnotic disorders and appetite disorders as reasons for admission, while in 2019 the main reasons for admission were: hypnotic disorders, psychomotor restlessness and agitation and multiple somatizations.

Hypnotic disorders also have a large share among patients in both 2019 and 2020, but the difference between the two years is 17.1% for 2019, p value = 0.0159, being statistically significant.

A large proportion of patients who presented to the hospital and were diagnosed with anxiety-depressive disorders had insomnia as their main symptom. It can be seen that in this study, hypnotic disorders are found in high percentages, being the major symptom present in 2019 and ranked second in 2020.

Table 2 shows that patients presented with appetite disorders in less than 25% of cases in both 2019 and 2020.

Table 2. Comparative distribution of the signs and symptoms presented at hospitalization in 2019 vs. 2020			
Reason for hospitalization	Percentage of the sign or symptom (%)		Two tailed P-value
	Year		
Hypnotic disorders	2019	2020	0.0159
	54,60	37,5	
Anxiety and agitation	34,4	84,38	0.0001
Somatic charges	26,38	18,75	NS
Appetite disorders	17,79	21,88	NS
Tremor	17,18	15,63	NS
Decreased concentration	14,72	18,75	NS
Anhedonia	11,66	6,25	NS
Sweating	9,2	9,36	NS
Palpitations (arrhythmias)	8,59	3,13	NS
Easy crying	8,59	15,63	NS
Headaches	3,07	3,13	NS
Dyspnea	1,23	3,13	NS
Suicidal Ideation	1,84	0	NS
NS- statistically non-significant (p>0.05)			

Table 3 shows comparatively the prescribed medication in 2019 vs 2020. A large part of the patients received treatment with anxiolytics (74.85% -122 patients in 2019, respectively 68.75%-22 patients in 2020). The 2019/2020 ratio is 1.14 in favor of 2019. Antidepressant medication was the first choice in medication therapies in both 2019 and 2020. Antidepressants were prescribed in a similar percentage in 2019 and 2020: 83.44% (136 patients) in 2019 and 87.50% (28 patients) in 2020. In 2019, 31.29% (51 patients) received treatment with hypnotics, and in 2020, 25% (8 patients) being the third choice of treatment of anxiety-depressive disorder in 2020, while in 2019 were the mood stabilizers (41.10%- 67 patients) after antidepressants and anxiolytics. Mood stabilizers were more frequently used in 2019 vs 2020 (p=0.0007).

Table 3. Comparative distribution of the prescribed medication in 2019 vs. 2020			
Medication type	Percentage of administration (%)		P-value
	Year		
Anxiolytics	2019	2020	NS
	74,85	68,75	
Hypnotics	31,29	25	NS
Antidepressants	83,44	87,50	NS
Antipsychotics	11,66	9,38	NS
Mood Stabilizers	41,10	18,7	0.0007
NS- statistically non-significant (p>0.05)			

As can be seen, antipsychotics are not a first-line treatment for anxiety and depression. In 2019, the percentage was 11.66%, and in 2020, 9.38%. The difference between the two years is not statistically cases were reported for hospital presentation significant. Relapses occurred in similar frequencies in both 2019 and 2020, in almost half of the patients (50.31% vs 50.00%, p=0.9).

Discussions

In both 2019 and 2020, we can observe that there is a higher share of day sheets than continuous sheets. In 2020, there may be a significantly smaller number of patients hospitalized than in 2019, due to fear of SARS-CoV-2 infection, so patients preferred to stay isolated at home and only very serious or hospitalization.

Before 2020, patients had reasons to develop anxio-depressive disorders such as: loss of a loved one, divorce, loss of a job, lack of friends, various conflicts or poverty. In 2020, in addition to these reasons, there may be the fear of illness, the fear of losing a loved one due to illness, deprivation of liberty (isolation or quarantine) and lack of communication.

There are studies that show the prevalence of anxiety and depression has increased during the pandemic and, especially, since the installation of quarantine. A 2020 meta-analysis based on 17 studies collected from Science Direct, Embase, Scopus, PubMed, Web of Science (ISI) and Google Scholar showed that out of 63,439 people, about 31.9% suffered from anxiety and other statistics based on 14 studies with a sample of 44,531 people showed that depression occurred in 33.7% [14,15].

Regarding the differences between the female sex and the male sex, a study conducted in 2020 on a group of 1642 participants in Cyprus showed that the percentage of development of anxiety-depressive disorders was considerably higher for females than for males. The female sex had a percentage of 71.6%, and the male sex of 28.4% [16,17].

The environment of origin was the next factor studied and in 2019, the gap between urban and rural patients was very small, with almost equal incidences, while in 2020 urban patients predominated. One explanation may be that those in the urban environment have developed an anxious-depressive pathology possible after the eventual loss of the job, the quarantine or the isolation at home due to the presence of the Coronavirus. The urban environment may be a more conducive environment for the occurrence of anxiety-depressive disorders, and the increased incidence may be partly explained by the fact that during the lockdown people in the urban environment had to stay isolated in apartments, while people living in rural areas had more space at their disposal and were able to work in the open space.

The age of hospitalized patients with axio-depressive disorders was also a studied factor. An analysis conducted in Denmark in 2016 and based on 24 studies showed that the age at which the generalized anxiety disorder occurred was between 21.1 and 34.9 years [17], which is not consistent with the present study.

The patients' comorbidities played a role in this study because it was observed that older people are more prone to anxiety-depressive disorders because of the comorbidities they have [18]. It is possible that the fear of complications is one of the reasons why more retired patients presented to the hospital in 2020.

Alcohol consumption is a factor in the occurrence of anxiety-depressive disorders that cannot be neglected. A study conducted in 2019 showed that a large number of patients who had alcohol-related conditions developed an anxiety-depressive disorder at some point, but we can also consider a two-way relation between alcohol and psychiatric symptoms as patients with anxiety disorders may also develop alcohol-related problems [19]. In our study, in 2019, a fairly high percentage (almost 30%) had alcohol-disorders and developed anxiety and depression. In 2020, the percentage of alcohol-consumers was lower (9.38%), and protective factors can be considered home quarantine and family integration. However, the number of hospitalized patients was lower than in 2019, which makes statistical interpretation difficult.

Patients presented multiple symptoms, but the most common in 2019 in descending order were: hypnotic disorders, anxiety and psychomotor agitation and somatic accusations, while in 2020 the order was in favour of: anxiety and psychomotor agitation, hypnotic disorders and appetite disorders. In 2016, a study was conducted by Harvard Medical School, Boston, Massachusetts, which showed that there is a clear link between sleep disorders and anxiety disorders [20]. Anxiety is a consequence of everyday life. In axio-depressive disorder, the brain sends impulses with false alarms that lead to a state of dysfunctional arousal that alters the sleep-wake state [21]. In a study conducted in 2012 in Italy on a group of 90 patients, it was observed that 43 of the patients had a normal appetite, 22 of them had a satisfactory appetite and 25 of the patients had a low appetite or very low [22]. This study, similar to ours, shows that more patients had a normal appetite than a modified appetite. In this study both in 2019 and in 2020, the subjects had a lower percentage of appetite disorders.

Regarding the treatment administered, both in 2019 and 2020, patients diagnosed with anxiety-depressive disorders were treated with antidepressants and anxiolytics (first two options), whilst the third associated therapy was with mood stabilizers as adjuvants in 2019, and hypnotics in 2020. A study published in 2003 found that bipolar patients with comorbid anxiety disorders responded less well to

anticonvulsant drugs than those without anxiety disorders and the response may depend on the level of the comorbidity. This may mean that anticonvulsant drugs can be used successfully even if they are not first-line like anxiolytics and antidepressants [23].

Some authors recommend to follow up the evolution of each patient by the dosage of serum serotonin and the anxiety and depression questionnaires that should be filled in at admission and then in evolution [24,25].

The difference between the two years (2019 vs. 2020) of antipsychotics prescription is not statistically significant but in 2019 we can conclude they were used as an effective adjuvant along with antidepressants, similar idea being emphasized in a 2013 study [26,27].

A very high percentage of patients (50%) presented relapses in both 2019 and 2020. An analysis based on several studies from 2017 showed that a large percentage of patients who stopped taking antidepressants subsequently relapsed [28]. As patients have a restrictive lifestyle, as in the case of chronic diseases such as diabetes [29,30], psoriasis or chronic kidney disease [31-33], there may be frequent relapses which can end in isolation, refusal of therapies, a lower quality of life, so therefore once diagnosed the patient with SARS-CoV-2 infection, a multidisciplinary approach would be recommended [34,35]. One of the reasons for relapses is the discontinuation of treatment.

The present study has several limitations that may affect the statistical analysis and further interpretation. First of all, the small sample size, especially in 2020 may affect the statistical analysis and does not confer sufficient statistical power to the study. Secondly, the study is limited to years 2019 and 2020, reason for which the issuance of some conclusions is based on hypotheses detected strictly in the case of these patients. For this reason, we can consider as a future research perspective, the continuation of the study over an extended period of time, as well as an increased number of subjects.

Conclusions

Anxiety disorders represent an important medical and social problem that requires careful evaluation and prompt treatment. The COVID-19 pandemic led to an aggravation of the anxiety disorders because of isolation and fear of disease.

In 2019, more patients presented at the hospital for both consultations and admissions compared to 2020. There was no significant difference for age or gender between the groups. The average age for anxiety disorders is 53 years. However, we emphasize that after the age of 40, their incidence increased. In 2019, the difference between urban and rural areas was very small, with almost equal incidences, while in 2020 urban patients predominated, but the difference was not significant.

Patients with a personal history of psychiatric pathology had a higher prevalence of cases in 2019, compared to 2020 and ethanol consumption associated with anxiety-depressive disorders was one third lower in 2020, compared to 2019; protective factors can be considered home quarantine and family integration. More patients presented anxiety and psychomotor agitation in 2020.

Highlights

- ✓ The COVID-19 pandemic led to an aggravation of the anxiety disorders because of isolation and fear of disease. In 2020 there were both fewer consultations and admissions compared to 2019.
- ✓ There was no significant difference for age or gender between the groups. The average age for anxiety disorders is 53 years. In 2020 urban patients predominated, but the difference was not significant.
- ✓ More patients presented anxiety and psychomotor agitation in 2020.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

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