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Trabalho realizado sob a orientação de:
PROFESSOR DOUTOR ANTÓNIO MIGUEL CRUZ FERREIRA
PROFESSOR DOUTOR LUIZ MIGUEL DE MENDONÇA SOARES SANTIAGO

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Covid-19 and Mental Health of the Elderly in Portugal

Impacto da COVID-19 na Saúde Mental dos Idosos em Portugal

Inês Pereira Ribeiro [1]

Professor Doutor Luiz Miguel de Mendonça Soares Santiago [2]

Professor Doutor António Miguel Cruz Ferreira [3]

[1] Aluna do 6º ano do Mestrado Integrado em Medicina na Faculdade de Medicina da Universidade de Coimbra, Portugal

[2] Professor Associado com Agregação na Faculdade de Medicina da Universidade de Coimbra; Clínica Universitária de Medicina Geral e Familiar na Faculdade de Medicina da Universidade de Coimbra; Consultor, Assistente Graduado Sénior em Medicina Geral e Familiar.

[3] Assistente de Medicina Geral e Familiar, USF Norton de Matos; Assistente convidado da Faculdade de Medicina da Universidade de Coimbra; Clínica Universitária de Medicina Geral e Familiar da Faculdade de Medicina da Universidade de Coimbra. E-mail: krusferreira@hotmail.com

Faculdade de Medicina, Universidade de Coimbra, Portugal
Azinhaga de Santa Comba, Celas
3000 – 548 Coimbra

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RESUMO

Introdução: A COVID 19 foi declarada uma pandemia a 11 de março de 2020 e desde então têm-se levantado questões acerca do seu impacto na saúde mental dos idosos. A multimorbilidade e outros problemas inerentes ao seu estadio de vida tornam o "idoso" num grupo populacional particularmente suscetível e vulnerável. Portugal tem uma proporção elevada da população envelhecida, sendo o principal objetivo deste estudo analisar a tendência nos registos de depressão e ansiedade, bem como a prescrição de fármacos psicotrópicos nos Cuidados de Saúde Primários e perceber se estes foram afetados pela pandemia de COVID 19, segundo indicadores públicos oficiais de Cuidados de Saúde Primários.

Métodos: Foi realizado um estudo observacional transversal pela análise de dois indicadores do Bilhete de Identidade dos Cuidados de Saúde Primários: 297 "Proporção de utentes com idade igual ou superior a 65 anos, sem prescrição prolongada de ansiolíticos, nem de sedativos, nem de hipnóticos, no período em análise" e 381 "Proporção de utentes adultos com registos clínicos evidenciando a existência de depressão ou ansiedade, com registo de diagnóstico na lista de problemas". Os dados foram colhidos para a totalidade dos anos de 2018 a 2021 e estudados a nível nacional, regional e local. Recorreu-se a estatística descritiva e inferencial não paramétrica, através do teste de Kruskal-Wallis e coeficiente de correlação de Spearman, definindo-se significado estatístico para $p<0.05$.

Resultados: A nível nacional verificaram-se, para os indicadores 297 e 381, tendências de +0.037 e -0.040 entre 2018 e 2021. Para as médias nos períodos pré-pandémico e pandémico, estas foram de +0.028 e -0.035, respetivamente. Não houve diferença estatisticamente significativa nos períodos 2018-2019 ($p=0.358$), 2019-2020 ($p=0.538$) e 2020-2021 ($p=0.523$) para a prescrição de ansiolíticos, sedativos ou hipnóticos. Houve um decréscimo nos registos de ansiedade e depressão entre 2018 e 2020, seguido de um aumento no período de 2020 para 2021; houve diferença estatisticamente significativa entre 2018 e 2019 ($p=0.017$), mas não em 2019-2020 ($p=0.194$) e 2020-2021 ($p=0.110$).

Discussão: A pandemia influenciou os indicadores estudados, em especial a "Proporção de utentes adultos com registos clínicos evidenciando a existência de depressão ou ansiedade, com registo de diagnóstico na lista de problemas". A estabilização da prescrição de fármacos, apesar de estar de acordo com as metas do Programa Nacional para a Saúde Mental, não é necessariamente um bom sinal de mudança tendo em conta o sub-financiamento do Sistema Nacional de Saúde e

consequente escassez de recursos para opções de tratamento não farmacológico. Em estudos futuros, seria importante ter em conta outras determinantes de saúde mental e disparidades de caráter regional.

Conclusão: Devido à pandemia de COVID 19 houve um agravamento dos problemas de saúde mental dos idosos em Portugal, não acompanhado, todavia, de um aumento do tratamento farmacológico.

Palavras-chave: COVID 19; Saúde mental; Idosos; Fármacos psicotrópicos

ABSTRACT

Introduction: COVID-19 was declared a pandemic on March 11, 2020 and, since then, there have been concerns about its impact on the elderly's mental health, whose multimorbidity and life stage inherent issues make them a particularly susceptible vulnerable group. Portugal has a very aged population and so the main goal of this study was to analyse the trends of depression and anxiety records as well as the prescription of psychotropic drugs in Primary Health Care and understand if they have been affected by the COVID 19 pandemic.

Methods: Cross-sectional observational study analysing two public accessible indicators retrieved from the Identity Card of Primary Health Care Matrix was performed: 297 "Proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review" and 381 "Proportion of adult users with clinical records showing the existence of depression or anxiety, a diagnosis existing in the list of problems". The data were collected for the whole years of 2018 to 2021 and studied on a national, regional, and local scale. Descriptive and non-parametric inferential statistics through the Kruskal-Wallis test and Spearman's rank correlation coefficient were performed for a significant difference of $p < 0.05$.

Results: At a national level of analysis, for indicators 297 and 381 a trend of +0.037 and of -0.040 between 2018 and 2021 was found; as for their mean in pre-pandemic and pandemic times, it was +0,028 and -0,035. There were no statistically significant differences in the years 2018-2019 ($p=0.358$), 2019-2020 ($p=0.538$) and 2020-2021 ($p=0.523$) for the prescription of anxiolytics, sedatives, or hypnotics. A decrease in anxiety and depression records was registered between 2018 and 2020, followed by an increase in the period from 2020 to 2021; there was a statistical difference in the period 2018-2019 ($p=0.017$), but not in 2019-2020 ($p=0.194$) and 2020-2021 ($p=0.110$).

Discussion: The pandemic has influenced the studied indicators, especially "Proportion of adult users with clinical records showing the existence of depression or anxiety, a diagnosis existing in the list of problems". The stabilization of drug prescription, although in line with the goals set by the National Plan for Mental Health, is not necessarily a good change considering the insufficient funding of the NHS and consequent lack of resources for non-pharmacological treatment options. It would be pertinent to focus on additional mental health determinants and regional disparities in future research.

Conclusion: Due to the COVID 19 pandemic there was an increase in mental health issues for the elderly, not accompanied, though, by a rise in pharmacological treatment.

ABBREVIATIONS

CoVs – Coronaviruses

SARS-CoV – Severe Acute Respiratory Syndrome Coronavirus

WHO – World Health Organization

COVID-19 – Coronavirus Disease 2019

SARS-CoV-2 – Severe Acute Respiratory Syndrome Coronavirus 2

DALY – Disability-Adjusted Life Years

YLD – Years Lived with Disability

EU – European Union

OECD – Organization for Economic Co-operation and Development

PHC – Primary Health Care

BI CSP – Bilhete de Identidade dos Cuidados de Saúde Primários

SPMS – Serviços Partilhados do Ministério da Saúde

NHS – National Health System

ARS – Administração Regional de Saúde

ACeS – Agrupamento de Centros de Saúde

ATC – Anatomical Therapeutic Code

DDD – Defined Daily Dose

LVT – Lisboa e Vale do Tejo

INE – Instituto Nacional de Estatística

TSRD – Trauma- or Stressor-Related Disorders

NPMH – National Plan for Mental Health

INTRODUCTION

COVID-19

Coronaviruses (CoVs) are a large family of viruses, several of which cause respiratory diseases in humans. Most of these are mild, with exception of the ones caused by Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus (MERS-CoV), both of which have high mortality rates and were detected for the first time in 2003 and 2012, respectively.[1-2]

On 31 December 2019, the World Health Organization (WHO) China Country Office was informed of cases of pneumonia of unknown etiology detected in the city of Wuhan, China.[1] The pathogen responsible for this disease, later named Coronavirus Disease 2019 (COVID-19), was identified as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), a virus belonging to the *Coronaviridae* family with high homology with SARS-CoV and other CoVs isolated from bat populations.[2]

The clinical spectrum of SARS-COV-2 infection ranges from asymptomatic infection to critical and fatal illness. In symptomatic patients, the clinical manifestations usually start within a week and mainly concern the respiratory system, with the most reported symptoms being dry cough, fever, and myalgia.[3]

With a rapidly increasing number of cases, WHO declared COVID-19 a pandemic on March 11, 2020. According to Reuters, more than 428 million cases and 6 million deaths were reported worldwide to date.[4]

In the particular case of Portugal, the first two cases were registered on March 2, 2020, and approximately 30% of the population has already been infected.[5] In total, 15 emergency states were declared by the President of the Republic: the first ones between March 19 and May 2, 2020, and the others from November 24, 2020, to April 5, 2021.[6] These states implied general confinement measures and suspension of most activities and non-essential services.

Mental Health and COVID-19

According to WHO, Mental Health is an integral and essential part of health determined by socioeconomic, biological, and environmental factors. Mental health conditions contribute substantially to the burden of disease worldwide, being associated with poor health outcomes, premature death, human rights violations, and global and national

economic loss. Depression and anxiety together cost the global economy US$ 1 trillion each year. [7,8]

Since the beginning of the pandemic, concerns have been raised about the impact of COVID-19 both on healthy people and on patients with mental illness.

Symptoms of anxiety, depression, and insomnia have been reported in patients with COVID-19.[9] A large retrospective cohort study conducted in the USA, concluded that previous psychiatric illness is associated with an increased risk of being diagnosed with COVID-19.[9] It has also been linked to severe illness, death, and long-term complications.[10] Additionally, it was found that COVID-19 survivors have a significantly higher rate of psychiatric disorders, dementia, and insomnia.[9]

These problems are multifactorial but important roots can be identified. On one hand, there are Covid-related stressors, such as exposure to infected sources, infected family members, loss of loved ones, and physical distancing from support networks.[11] Beyond these, mass home-confinement directives are new to people and may be associated with increased levels of stress, depression, irritability, insomnia, fear, confusion, anger, frustration, and boredom, some of which persisted after the quarantine was lifted.[14] Poor information from public health authorities and lack of coordination and transparency from the levels of government involved also lead to confusion, fear, and difficulty complying with quarantine protocols.[12] Several studies have also demonstrated the negative outcomes caused by economic vulnerability, especially during a time when businesses and workplaces were shut down as the pandemic situation worsened. [13,14]

Some groups may be particularly susceptible to the aforementioned psychosocial effects: women; frontline healthcare workers; the elderly; children; college students; those infected or who have relatives with suspected or confirmed COVID-19; people with pre-existing physical, psychological, or substance use problems; financially unstable people and the homeless.[11,15,16]

The situation in Portugal

Portugal is located in southwestern Europe and has a population of 10.3 million people. With a median age of 45,5 years and 22,1% of the population aged 65 or more, it has certainly one of the world's oldest populations. This demographic aging is in line with the global trend and can be attributed to lower birth rates, increasing longevity, and negative migratory balance.[17]

The aforementioned is reflected in the country's health status. According to the Global Burden of Disease study of 2016, non-communicable diseases accounted for 85.9% of the burden of disease in Portugal (measured in Disability-Adjusted Life Years – DALYs) in 2015, with mental and behavioural disorders being the fourth most important cause (8.9% DALY). However, when it came to morbidity (measured in Years Lived with Disability – YLD), these came in second place (17,7% of the total YLD) only surpassed by musculoskeletal disorders (25.1% of YLD).[18]

The latest data from Eurostat show that, among the European Union (EU) countries, Portugal (12.2%) had the highest share of the population with self-perceived chronic depression in 2019, followed by Sweden (11.7%), Germany, and Croatia (both 11.6%). Additionally, the value peaked within the age group 65+ years, with 19,6% reporting chronic depression.[19]

Many risk factors for mental health problems may be present in different age groups and the elderly are no exception; the high prevalence of mental disorders in this population can be explained by a combination of factors. Advanced age comes with progressive loss of functional ability (whether it is sensory, cognitive, or physical) and increased likelihood of physical health conditions (such as cardiovascular disease and musculoskeletal disorder), which can decrease autonomy levels, add to psychological distress and require long-term care.[20] Furthermore, and specifically in the Portuguese context, many of these people live alone or with a caregiver, have low levels of education and poor incomes, which put them at a higher risk of poverty, isolation, and loneliness.[21]

In addition to the problem of mental illness in Portugal, there is also a high consumption of anxiolytic, sedative, and hypnotic drugs. According to statistics from the Organisation for Economic Co-operation and Development (OECD), in 2019, Portugal was the first country with the highest sales volume of anxiolytics, which constituted 1.8% of the drugs sold in Portugal. The sales volume of hypnotics and sedatives represented 0.8% of the total, saving it the 10th position in the OECD countries.[22]

One of the concerns regarding the prescription of these drugs in the elderly is their dangerous side effects. The high rates of dependence and risk of overdose in sedatives and hypnotics and the cognitive impairment, fractures, and delirium associated with benzodiazepines stand out.[23] This is an issue in Portugal, where there is a great tendency toward polypharmacy (simultaneous use of 5 or more medications), which increases the likelihood of potentially inappropriate medication. The only study carried out in Portugal to date with a representative sample of the national reality, estimated a prevalence of polypharmacy in elderly patients in primary care of 77%.[24]

In Portugal, Primary Health Care (PHC) plays a key role in the prevention, diagnosis, treatment, and follow-up of a large portion of patients with psychiatric and/or psychological disorders. When it comes to the management of patients and corresponding results, the National Health System resorts to a set of indicators, organized in the Bilhete de Identidade dos Cuidados de Saúde Primários (BI CSP). This tool, developed by Serviços Partilhados do Ministério da Saúde (SPMS) ensures continued improvement of services provided by the Portuguese National Health System (NHS), supplying citizens and professionals with transparent and optimized access to information about its functional units.[25]

The BI CSP consists of three components: one portal with public and authenticated access; a tool to explore information (Portal Power BI) and another for creating and monitoring action plans for the Functional Health Units, within the scope of PHC Contractualization.[26]

Thus, the relevance of this study attends to the need for a better understanding of the way that this pandemic has impacted the mental well-being of the older age groups.

The main goals were to: analyse the evolution of depression and anxiety records in Portuguese PHC; analyse the evolution of anxiolytics, sedatives, and hypnotics prescription in Portuguese PHC; compare the behaviour of these indicators before and within the pandemic context; check for disparities between the national reality, the Administrações Regionais de Saúde (ARS) and Agrupamentos de Centros de Saúde (ACeS); understand if the indicators are, in fact, reliable instruments for evaluating the hypothesis in question; elaborate conjectures and find solutions in light of the results obtained, to improve the approach in a possible similar situation in the future.

METHODS

The BI CSP is a project integrated into the Information and Monitoring System, a platform that organizes Health data on a national scale, created to provide information that allows for the characterization and monitoring of all PHC Functional Units.[26]

A cross-sectional observational study analysing data collected for two Indicators of the BI CSP Matrix was made, namely:

- 297 [Proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review]

- 381 [Proportion of adult users with clinical records showing the existence of depression or anxiety, with a diagnosis record in the list of problems]

Concerning indicator 297:

- The numerator is represented by the number of registered CSP users, without prolonged prescription of anxiolytics (Anatomical Therapeutic Chemical – ATC – code N05B), sedatives, or hypnotics (ATC code N05C)

  - The sum of the Defined Daily Dose (DDD - average daily maintenance dose of a drug in adults, when used for the treatment of its main therapeutic indication) of these drugs during the analysis period must be equal to or less than 53, and must comply with the conditions described for the denominator;

- The denominator is represented by the number of users aged 65 or over, with active registration in the health unit on the reference date of the indicator.[27]

Regarding indicator 381:

- The numerator is represented by the number of users with active depression or anxiety in the chronic list of problems and must meet the conditions described for the denominator;

- The denominator is represented by the number of adult users (age 18 or older) with clinical records showing evidence of depression or anxiety; they must have an active registration in the Health Unit and have had at least one face-to-face appointment in the previous 12 months.[28]

In an attempt to study a representative sample of the national reality, including all 5 ARS, a cardinal number was assigned to each ACeS in ascending order. Subsequently, even numbers were randomly selected, to always make up half+1 of each ARS. As a result, the following were chosen: 3 of the 4 ACeS in Alentejo, 2 of the 3 ACeS in Algarve, 5 of the 9 ACeS in Centro, 8 of the 15 ACeS in Lisboa e Vale do Tejo (LVT), 13 of the 24 ACeS in Norte.

For indicator 297, the data were collected for the months of December between 2018 and 2021, in the period of floating analysis. Indicator 381 was also studied in a floating analysis period, however, there were no data for the matching months of the years under investigation, so the following were selected: May of 2018, May of 2019, September of 2020, and October of 2021. Growth dynamics were calculated between 2018 and 2019, 2019 and 2020, 2020 and 2021, as a way of understanding the evolution before and during the pandemic. Statistical analysis was performed with IBM SPSS v27 software, using descriptive and non-parametric inferential statistics, by the Kruskal-Wallis test and Spearman's rank correlation coefficient. Significant difference was defined as $p < 0.05$.

Ethical approval by the Ethics Committee of the Regional Health Administration of the Center was not required as the data collected from the platform is anonymized.

RESULTS

Table 1 represents the data from indicators 297 (proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review) and 381 (proportion of adult users with clinical records showing the existence of depression or anxiety, with a diagnosis record in the list of problems) for the years under study, organized to the national total, ARS and calculated sample.

TABLE 1 | Results for the indicators 297 [Proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review] and 381 [Proportion of adult users with clinical records showing the existence of depression or anxiety, with a diagnosis record in the list of problems] by Year/ARS and Year/ACES, in the floating analysis period of 2018-2021.

		2018		2019		2020		2021	
		ARS	ACeS*	ARS	ACeS*	ARS	ACeS*	ARS	ACeS*
297	National	78,80		80,06		81,67		81,71	
	Alentejo	77,19	77,01	79,04	78,94	80,35	81,57	80,39	80,45
	Algarve	86,47	86,64	87,98	88,08	89,52	89,48	89,70	89,60
	Centro	77,72	77,31	78,71	78,37	80,05	79,68	80,30	79,71
	LVT	82,04	81,70	83,51	83,38	85,10	85,15	85,39	85,25
	Norte	75,24	74,76	76,32	75,77	77,94	77,38	77,85	77,35
381	National	79,57		76,28		74,12		76,33	
	Alentejo	80,75	79,77	77,04	76,50	74,86	74,47	76,74	76,21
	Algarve	74,06	74,69	76,19	76,68	76,35	77,12	78,76	79,76
	Centro	80,57	76,72	77,36	72,91	74,97	72,14	76,47	73,55
	LVT	80,29	79,46	76,83	76,23	74,68	74,53	76,99	76,71
	Norte	78,82	77,59	75,24	73,57	72,97	71,63	75,51	74,32

* Calculated average on the selected ACeS. LVT: Lisboa e Vale do Tejo.

The proportion of elderly users without long-term prescription of medicines increased over the years under study, both on a national and ARS level. The only exception, although minimal, was in Norte, with a drop from 77.94% (2020) to 77.85% (2021). The

Algarve and LVT regions always recorded values above the national average. The highest values were found, for all years, in the Algarve (maximum value of 89.70% in 2021) and the lowest in Norte (minimum value of 75.24% in 2018). The sample generally behaved in the same way as the respective ARS, excluding Alentejo in 2020-2021, where there was a decrease in proportion.

Regarding clinical records of depression and anxiety in adult users, there was a decrease at a national level from 2018 to 2020 and an increase from the previous to 2021. Despite this rise in 2021, the proportion was still below that of 2018 (76.33% vs 79,57%). The ARS mostly behaved in the same way, except for the Algarve region, which registered growth every year. The Algarve and Norte remained below the national average, however, from 2020 onwards the Algarve started to record higher values. The maximum value was found in Alentejo in 2018 (80.75%) and the minimum in Norte in 2020 (72.97%). The sample behaved, in general, similarly to the respective ARS, although bigger disparities were found in Centro.

For indicators 297 and 381 a trend of +0.037 and of -0.040 between 2018 and 2021 was found and for their mean in pre-pandemic and pandemic times of +0,028 and -0,035.

Figures 1 and 2 show the growth dynamics for indicators 297 and 381, respectively, in the periods 2018-2019, 2019-2020, and 2020-2021. These were calculated based on the averages of the selected ACeS.
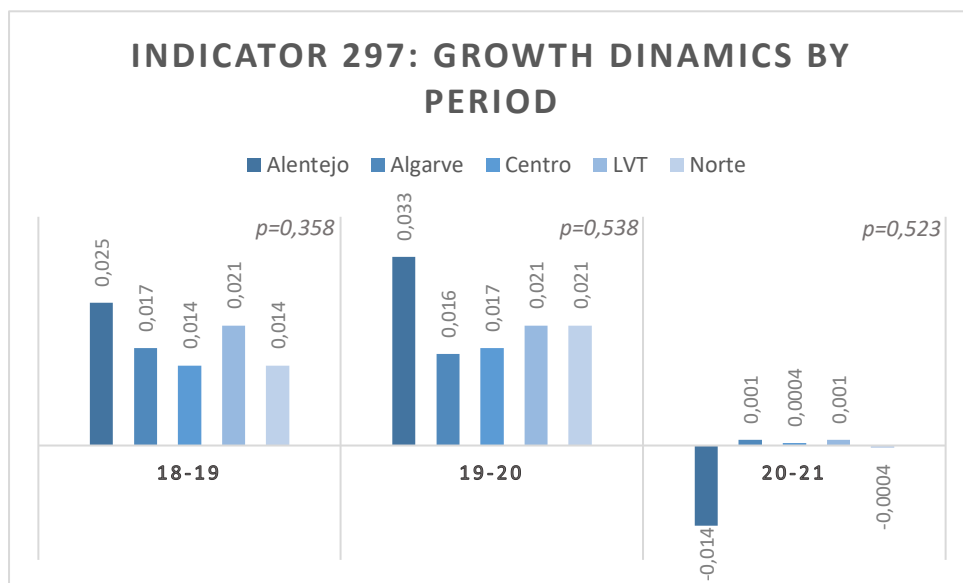

Figure 1 Growth dynamics of indicator 297 [Proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review] by period
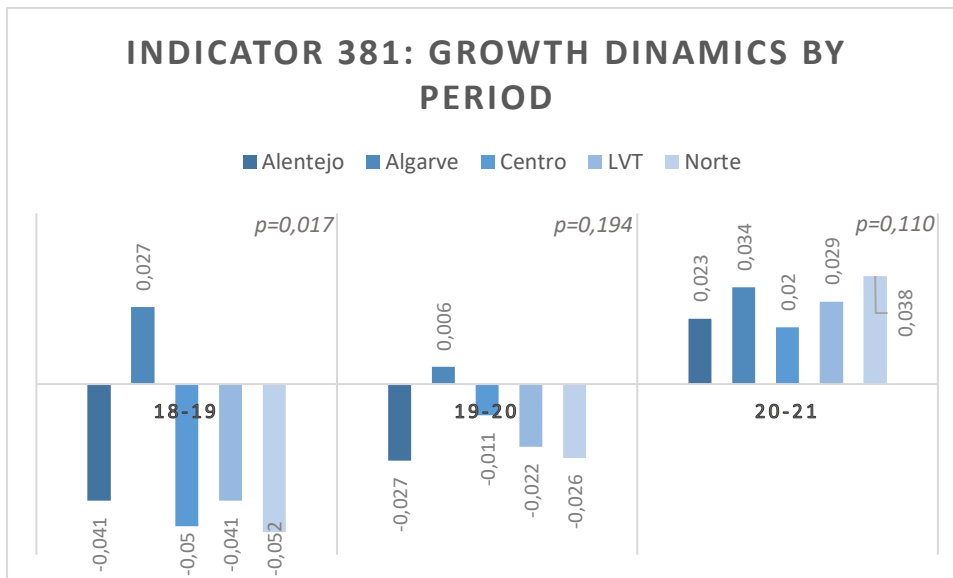
Figure 2 Growth dynamics of indicator 381 [Proportion of adult users with clinical records showing the existence of depression or anxiety, with a diagnosis record in the list of problems] by period

Figure 1 reinforces the results shown in the previous table: increase in prescription from 2018 to 2020 and relative stabilization from 2020 to 2021, with some disparities between the ARS in the latter period. There were no statistically significant differences in the years 2018-2019 (p=0.358), 2019-2020 (p=0.538) and 2020-2021 (p=0.523).

Figure 2 also shows the decrease in anxiety and depression records between 2018 and 2020, followed by an increase in the period from 2020 to 2021 (except for the Algarve, as previously noted). The difference was statistically different in the period 2018-2019 (p=0.017), but not in 2019-2020 (p=0.194) and 2020-2021 (p=0.110).

In order to understand how the growth dynamics of both indicators evolved together, a Spearman correlation was performed and the results were as follows: weak (ρ = 0.213) and non-significant (p = 0.250) correlation between 2018 and 2019, very weak (ρ = 0.168) and non-significant (p = 0.365) correlation between 2019 and 2020, very weak (ρ = 0.151) and non-significant (p = 0.418) correlation between 2020 and 2021.

DISCUSSION

The present study aimed to shed a light on the mental health status of the elderly population in Portugal using, for this purpose, the Identity Card of Primary Health Care. In this platform, several indicators are organized and serve as an essential tool for monitoring the evolution and quality of services provided at a regional and local level, allowing the comparison between the different areas and filling of gaps where they exist. The following indicators were analysed: 297 – "Proportion of users aged 65 years or over, without prolonged prescription of anxiolytics, sedatives, or hypnotics, in the period under review" – and 381 – "Proportion of adult users with clinical records showing the existence of depression or anxiety, with a diagnosis record in the list of problems".

Anxiolytics, sedatives, and hypnotics are drugs indicated in the treatment of anxiety and sleep-wake disorders, among others. The national average proportion of elderly people without prolonged prescription of the same increased from 2018 to 2021. This situation can be explained by: new users, due to a higher rate of diagnosis; better accessibility to medicines; approval of new therapeutic indications.[29] However, although there was an increase, this was not very significant, having stabilized over the period under study, a trend that had already been set since 2014 at least. For this reason, it is not safe to establish a direct cause-effect relationship between the pandemic and the prescription of these drugs.

The arithmetic mean of the sample was, in most cases, below the value of the respective ARS, although not constantly in Alentejo and the Algarve. These differences may reveal inequities in access to Primary Health Care within the same ARSs and individual variability related to prescribers.

Two ARS stood out for being constantly above the national average, the Algarve and LVT, with the first one displaying the highest values in all years. Provisional results of the 2021 Census, released by Instituto Nacional de Estatística (INE) showed that the Algarve was the NUTS II with the highest population growth, followed by the Lisbon Metropolitan Area (1.7%). All other NUTS II recorded negative growth. This increase in population pressure may have made it harder to manage local health structures. On another platform developed by SPMS, Área da Transparência, it was possible to consult the number of users without an assigned family doctor from 2018 to 2021, which was found to be higher in LVT. This is a problem that has been affecting the Portuguese health system in recent years and makes access to health care more difficult, which explains the lower prolonged prescription of these drugs. The opposite happens in Norte,

the region of the country with the least percentage of users without a family doctor and where the indicator values are also the lowest.[30]

We found some limitations concerning this indicator. As it evaluates a proportion of users, it does not clarify the reason for prescribing the drugs: benzodiazepines, for example, are as well indicated in conditions such as epilepsy and alcohol withdrawal syndrome. In addition, it may underestimate the real value, since it only encompasses the non-extended prescription, to be specific, which does not exceed 53 DDD. Therefore, we do not have data on the proportion of chronic users, something to consider in subsequent work and even to be introduced in this very interesting data platform.

Even more important than knowing a proportion would be to have access to data on the consumption of these drugs in the form of DDD/100 inhabitants/day or their average prescribed dose, since the first is simply a technical unit of measurement and comparison.

Among non-specific stimulant drugs of the Central Nervous System and Psychotropics, antidepressants are the most consumed, with a growing trend, reaching in 2018 111.6 DDD per 1000 inhabitants per day.[31] Thus, it would be important to study this pharmacological class, as well as others (antipsychotics, for example) to more reliably assess the national reality.

The national average of clinical records of depression and anxiety decreased from 2018 to 2020 and increased in 2021. The decrease has perhaps to do with lower case coding and, from 2019 to 2020, a greater number of casualties and follow-up losses due to the pandemic. The fact that family doctors were the ones who tracked most of the patients with COVID-19 in Portugal, could also mean they were less available to manage patients with other pathologies.

On the other hand, the latest rise can be explained by a higher incidence of these disorders or an increase in case coding. The first hypothesis is reinforced by several studies, one of which in the United States of America, that demonstrated a significant increase in anxiety and depression, suicidal ideation, and substance use related to symptoms of TSRD (Trauma- or Stressor-Related Disorders) in adults during the pandemic.[32]

All ARS followed the national pattern, except the Algarve, which values raised every year. In addition, it registered the highest share of users in the last two years. In the bulletin "Especial COVID19", prepared by the Algarve Regional Coordination and Development Commission in October 2021, the unemployment rate was 10.2% in the

first quarter of the year. This was the highest among all NUTS II, as well as in the first quarters of 2020 (7.6%) and 2019 (9.6%). Although labour conditions do not have a direct impact on the elderly, it is worth remembering that this indicator applies to users aged 18 or over. This turns out to be another limitation, since the object of study is the senior population, so a different metric is needed for this indicator.

In this group of samples, we found greater discrepancies in the arithmetic mean of the ACeS compared to that of the ARS, more noticeable in Centro. This can be a result of the different prevalence of psychiatric disease, accessibility to PHC and the fact that the regions in question have a large geographic dimension, which may condition inequalities in the population distribution. In the particular case of Centro, younger age groups are more condensed in coastal (near the sea) areas, while the interior has an older population. In future works, the expansion to more restricted areas, such as ACeS, would address this factor which analysis could be relevant.

An aspect worth mentioning concerns the degree of subjectivity in the recording of these disorders. On the one hand, such depends on their classification by family doctors, conditioned by their training. In addition, it is influenced by patients' use of health care and the quality of the information they provide.

Psychiatric illness goes far beyond depression and anxiety. Dementia, for instance, assumes a relevant character due to its prevalence in Portugal, as a result of population aging. There are yet no studies that determine its frequency at the national level, but, taking into account previous investigations, it is estimated to be 20.8 per 1000 inhabitants. We are the fourth country with the highest prevalence of dementia in the OECD.[31] Another parameter that reflects the state of mental health is the suicide rate, which was 9.7 per 1000 inhabitants in 2019, according to INE data.[33] These numbers are worrying in persons over 65 years old, rising to 32.6 in men and 8.1 in women.[34] It is important to remember that mental health is more than the absence of disease: it is the complete state of psychological and social well-being, determined by a multiplicity of factors which analysis would also be essential. Social problems can also carry significant weight, being described as anxiety or depression and coded as a chronic problem by doctors.[35]

Regarding the general weaknesses of this work, it should be stated that the collected information refers exclusively to the PHC. Although these are the basis of the health system and assume most cases of common psychiatric disorder, many are also accompanied in hospital care, in the context of consultation, emergency, and hospitalisation. In addition, it lacks analysis and comparison to the regions of Madeira

and the Açores. These are more autonomous in management in comparison to the Portuguese NHS, and their data are not available on the same platform.

Finally, Spearman's correlation significance results demonstrated that we do not have sufficient evidence to suggest that the diagnosis of depression/anxiety and medication prescription are correlated. Furthermore, even disregarding the value of p given the small sample size (n=31), Spearman's ρ suggested a weak correlation between these two. Thus, the existence of indicators that combine, for example, the diagnosis of depression with the consumption of antidepressants or the diagnosis of anxiety with the consumption of anxiolytics would be more enlightening considering the scope of the study and the need to have clear indicators on health. The extension to 2020 of the National Plan for Mental Health (NPMH) expected a 25% increase in the clinical records of mental health disorders in PHC and a stabilization in the prescription of drugs for the treatment of anxiety.[36] In addition to the data up to 2020 not appearing to meet these targets, the stabilization in prescriptions in the last year is not necessarily a good sign of change. It is a fact that the health sector has a chronic issue with underfunding, reflected in the shortage of human resources in adequate numbers and specific training to provide treatments such as psychotherapy, which currently have strong scientific evidence in the management of several cases. Therefore, the integration of PHC in the promotion and prevention of mental health, as well as treatment of common psychiatric disorders, through the training of a qualified workforce and the creation of multidisciplinary teams, should be taken as a priority. Particularly among the senior population, community involvement and the articulation of services from diverse sectors (health, social security, institutional…) are essential in order to stimulate their autonomy and quality of life.

Despite all political and social constraints, we are a country of reference at the European and international levels. The 2007 NPMH not only identified problems in the provision of health care but also elaborated precise goals, following the rules of the World Health Organization, to reform mental health care in Portugal. In the international scene, the following stand out: coordination of the EU Joint Action on Mental Health and Wellbeing in 2013; the joint proposal with Brazil on "Mental Health and Human Rights" at the United Nations Commission on Human Rights; the Global Platform Gulbenkian Mental Health in started in 2010.[37]

CONCLUSION

Due to the COVID 19 pandemic the elderly's mental health issues worsened, as shown by an increase in clinical records of depression and anxiety. This was not accompanied, though, by a rise in pharmacological treatment.

The differences found between and within different regions reveal social, populational, and economic disparities as well as the heterogeneity of the services provided and articulation of Primary Health Care with the remaining structures of the system.

There was no evidence to suggest the two indicators were correlated, hence the need for new ones, evaluating other parameters for a more comprehensive view on mental health.

Nevertheless, this work opens doors and lays a foundation for future studies that can provide a deeper look into the aforementioned aspects, in an effort to standardize healthcare and increase its effectiveness and individualization.

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