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Psychiatric Evaluation of the Effects of COVID-19

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Abstract

The current COVID-19 pandemic has hit the entire world population hard and it is assumed that its consequences on mental health will be as important as its current physical repercussions. However, the evidence on this is not yet well known and it may be too early to assess these consequences.

Objective: Identify if mental health has been worst in 2020 than 2018 and 2019. Descriptive study using artificial intelligence and natural language processing savana manager program in a population of 3,000,000 inhabitants.

Results: Psychopathological diagnoses and prescription of psychotropic drugs have not changed significantly in the last year.

Keywords

Antidepressive; Anti-anxiety Medications; Antipsychotic; Anxiety; Depression; Alcoholism; Psychosis; Adaptive Disorder; Pandemic; COVID-19

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Introduction

COVID-19 has not only meant a change in global health, but also in the psychosocial aspects of the world's population, putting our psychological resilience to the test. There is a general awareness of uncertainty about the future and the belief that the pandemic is far from over and that the psychological consequences of the pandemic, likely to persist for months and years, are very present in the population. Multiple lines of evidence indicate that the COVID-19 pandemic has psychological and social effects [1].

We know from other epidemics of the 21st century that the psychosocial consequences behind them are frequent. If we review recent history, some studies conducted on the impact of Severe Acute Respiratory Syndrome (SARS-Cov-1), the first massive outbreak of an infectious disease in the 21st century, have shown a significant impact on people's mental health and their level of well-being even 4 years after this SARS epidemic [2,3]. Post-Traumatic Stress Disorder (PTSD) and depressive disorders have been the most prevalent psychological disorders during long-term follow-up [4].

During the 2015 outbreak of Middle East Respiratory Syndrome Coronavirus (MERS-CoV), which led to the confinement of almost 17.000 people exposed to it, an increased risk of symptoms was observed. Of post-traumatic stress in health workers who had treated infected patients as well as symptoms of anxiety (7.6%), anger (16.6%) and depression (19.3 %), even among those who underwent isolation measures without having developed the disease, lasting, in many cases, during the 4-6 months after confinement [5].

We speak of "bio-disasters" to catastrophes that, in addition to their physical impact, are capable of generating a psychological impact comparable to other catastrophes such as terrorist attacks, earthquakes, etc. [6]. SARS or MERS were also bio-disasters, as is now COVID-19. However, during SARS or MERS, the measures carried out, such as the level of global impact, were not as extreme as on this occasion, so it would be expected that the impact of this COVID-19 pandemic will be even greater.

It is suggested that this emergency situation in public health could generate not only negative emotional reactions, but also a lack of compliance with public health directives and the genesis of unhealthy behaviors such as excessive use of substances [7]. In other words, we are not only facing the pandemic but the COVID-19 pandemic fatigue. Among the most frequent responses, it has been suggested that they could be: stress, depression, irritability, insomnia, fear, confusion, anger, frustration, boredom or stigma (Brooks, et al., 2020). In addition, it has also been pointed out that the pandemic could have a notable impact on the increase in suicide risk in the population [8].

The studies that have been carried out to study the psychological consequences of the pandemic, most of them have been surveys and the majority, carried out in China. Their results

show that around 30% of the respondents verbalized having felt feelings of anxiety and depression. But we cannot say that the cases of anxiety and depression have increased by 30% since these surveys are based on the responses of the questioned population, but they are not clinical diagnoses made. In another study carried out in Turkey in 2020 where they defined fatigue as feeling tired quickly, feeling mentally and physically exhausted, experiencing lack of energy, inability to start and perform daily activities, lack of desire to do things, difficulty thinking clearly and concentrate on work, 64.1% of the participants had criteria to meet the definition of pandemic fatigue [9]. If we look at the study by the University of the País Vasco carried out in March-May 2020, this research has verified that psychological discomfort has increased in all the groups considered [10].

Therefore, what we can say is that in general there is a reported worsening of positive emotions and life satisfaction and a reported increase of negative emotions in the form of anxiety, depression and anger. Currently data are sparse, but indicate that mental health is impaired in the general population compared to before the outbreak [11].

However, in the longitudinal study by Wang et al., 2020, they did not find significant differences between the levels of depression, anxiety and stress studied during the months following the outbreak and furthermore, those that did present them improved after improvement in the population incidence [12].

This is interesting, since it is known from the previous SARS epidemic that the population that was affected by the epidemic, (for example, by quarantine), presented psychiatric symptoms months after the control of the epidemic and this could indicate that these symptoms are long-lasting and late-onset after COVID-19 [13].

Vulnerable Groups

We also know that psychopathological vulnerability models indicate that there are subjects who are at greater risk of suffering an impairment in their mental health regardless of the current situation and by extension, faced with a stressor such as COVID-19, this risk will be greater. It is expected that people in vulnerable situations will be those who, due to their characteristics, present a disadvantage due to age, sex, family structure, educational level, ethnic origin, physical and / or mental situation or condition and who require an additional effort to join to development and coexistence. This group could include people with functional diversity, the child population (especially girls), ethnic minorities, people with psychological disorders, migrants, refugees, people with sexual diversity and / or gender identity, among other minorities. If this is coupled with a complicated economic situation, the uncertainty of the pandemic or that they become infected, develop the COVID-19 disease or suffer more serious manifestations of the disease, the risk increases [14,15].

Risk Factors

Many risk factors (especially depressive and anxiety symptoms) have been reported in relation to COVID-19, but most of them are already well-known psychopathological risk factors: female gender current or past psychiatric history or related physical health [16,17]. However, the pandemic is adding an aspect of quarantine and isolation that is also a risk factor with psychological impact [4].

In addition, worrying about the infection of family, friends and acquaintances, is also a newly added dimension. Some of these factors that have been described are suffering from a previous pathology, restriction of movements, overexposure to the virus and to information from the media, quarantine, urbanity, difficult access to adequate health care or the economic crisis. Due to altered living conditions, many of the identified risk factors will increase and most likely lead to an increase in the prevalence of psychopathological involvement.

Expected Consequences for Mental Health

Fear and worry are expected to be a common outcome among those exposed and infected by the virus, those whose loved ones are exposed or infected, and those without resources to cope should they infect [17-21]. Within the spectrum of anxiety resulting from this pandemic, the most common are expected to be psychosomatic disorders, somatoform disorders and generalized anxiety disorder, the latter probably going to be the most common [15,21]. People exposed to potentially traumatic events resulting from infection (for example, undergoing invasive treatments, witnessing death, or long admissions to intensive care) and other pandemic stressors (for example, domestic and gender-based violence) will be at risk of experiencing acute stress, and PTSD symptoms and disorders over time [12,22,23]. Stressful events associated with depression (e.g.: severe illness, interpersonal loss, unemployment, and economic hardship) will be common experiences during the pandemic [1,5,14,20,21]. Among vulnerable populations (for example, the elderly), suicidal tendencies (suicidal ideation and behavior) and completed suicide are likely to increase [24-27]. It is likely that the prevalence of complicated bereavement may increase among friends, family, caregivers, and healthcare professionals of those who have died from COVID-19 [28].

There is concern that as the pandemic continues, we will see an increase in substance use and related disorders [29,30]. These results can be attributed to the use of alcohol and other substances to cope with pandemic stressors (for example, financial hardship) and their consequences (stress, anxiety, depression) or for recreation or pleasure that is not otherwise possible or would be available [31,32]. During the pandemic, access to detoxification and other treatments (for example, opioid agonist treatment; mutual self-help groups) has been difficult,

and treatment interruptions have also occurred, thus it is believed that the risk of physical consequences of these consumptions and their derived risks [25].

Material and Methods

Objective

Identify if Mental Health has been worst in 2020 than 2018 and 2019.

Hypothesis

The number of psychopathological diagnoses is higher after the SARS-CoV-2 outbreak than before the pandemic.

Population

The study population is that of the Castilla-La Mancha region, an autonomous community within Spain of about 3,000,000 inhabitants. The demographic characteristics of this region are rurality and the aging of the population. The urban nucleus with the largest population has 170,000 inhabitants, but cities with around 30-50,000 inhabitants are the majority. One of the biggest problems in the area is geographic dispersion, but most of the towns have an emergency and emergency center less than half an hour away. Health in this region is public, based on the principles of universality, accessibility and equity. The prescription of psychotropic drugs in this region is governed by the electronic prescription of the national health system, and users cannot purchase psychotropic drugs freely.

Material

SESCAM (Castilla-La Mancha Health System) has an artificial intelligence system developed by "savanamed" (savannaManager). This system unlocks all the clinical value that exists in electronic medical records using Artificial Intelligence and Natural Language Processing (NLP). Savana is fed from all the medical records in the region, both taken in primary care and in hospitals and emergency and emergency points. The documents processed for this study have been 282,876,699 and 3,309,302 patients.

Method

For this study, the periods between January 1st and December 31st, 2018 have been studied; between January 1st and December 31st, 2019 and from January 1st, 2020 to December 31st, 2020. The three periods have been compared, observing whether the prescription of psychotropic drugs (antidepressants, antipsychotics and anti-anxiety medications) has been higher since the beginning of the COVID-19 pandemic in the field of outpatient consultations, hospitalization, emergencies and primary care (taking into account all specialties) and, on the other hand, seeing only the field of the specialty of Psychiatry. The search criteria was “clinical intervention”. In turn, the same three periods have been studied and in the same two settings (consultations, hospitalization, emergencies and Primary Care VS Psychiatry), but including as a criterion “clinical situation”: anxiety (including anxiety symptoms, anxiety and anguish), depression (depressive disorder, depressive syndrome and depressive illness), alcoholism (harmful use of alcohol, abuse and dependence), psychosis (psychotic disorder and psychotic break) and adjustment disorder (adjustment disorder and adaptive reaction).

In the searches, there was no lower or upper age limit and both sexes were included.

For the comparison, the variables have been studied: percentage of the population affected by the "clinical intervention" or the "clinical situation" in question; the percentages of affectation by sex and the average age.

Result

Regarding antidepressants, in 2019 there is an increase in their prescription of 4.79 points compared to the previous year, however, although in 2020 they have not decreased excessively, the expected increase is not observed. As for benzodiazepines, there is no increase in their prescription and the same happens with antipsychotics (Table 1).

In 2020, none of these pharmacological groups have seen their prescription increased. Regarding the distribution by gender, there has not been a significant change regarding the percentages by sex, maintaining in the three years studied ranges between 60-66% for women and 36-38% for men (Table 1).

The averages of age have not seen changes greater than 12 months, except in the case of the prescription of antipsychotics in 2020 (Table 1).

Seeing that there have not been major changes in the prescription, the clinical actions were analyzed (Table 2). Depression, psychosis and adjustment disorder have suffered a slight decrease compared to the previous year (-0.19, -0.01 and -0.35, respectively). Although these decreases have not been high, it is seen that these clinical situations have not increased in 2020. Anxiety and alcoholism have had a slight increase (0.04 and 0.05 respectively), in 2020 and in

addition, it is observed that its trend continues to grow in a similar way to how it happened in 2019.

Regarding the prevalence by gender, alcoholism rose from 15.7% to 19.43% in women, being 20.05% in 2020, against the prevalence in men which has been gradually decreasing in these three years. In the case of gender and psychosis, the prevalence in women increased by 1.81 deviations with respect to 2019, but the prevalence continues to be higher in men in the three years studied.

The averages of ages have not changed by more than one deviation, except in the case of the average age of alcoholism in 2019 (53.6 years), falling again in 2020 and approaching the value of 2018 (52.2 years).

If we observe what has happened in the case of the specialty of psychiatry (Table 3 and 4), we see that the trend of the prescription of antidepressants has decreased in the last two years, the prescription of benzodiazepines has increased in 2020 (0.28 deviation) but still has not reached the levels of 2018, at that time they had values of 0.46% of prescription. In gender, we see a growing trend in the prevalence of depression in men in the last three years (36.5%, 36.94% and 37.62% respectively), but its greatest increase in prescription has occurred in 2020 in the case of antipsychotics, where they show a deviation of 1.15. Regarding the years, the variations in the averages have been less than 12 months (Table 3).

Regarding clinical situations, depression, anxiety, psychosis and adaptive disorder have maintained the diagnostic decline that they had been showing in 2019. Only alcoholism has not decreased in 2020, but it has not increased either.

Regarding gender, the trend in the prevalence of men is the increase in all diagnostic groups, anxiety (+0.65 in two years), depression (+0.98 in two years), alcoholism (+0.79 in two years), psychosis (+2.08 in two years) and adjustment disorder (+1.51 in two years). The age averages are similar to what happened in general health care settings, which do not vary by more than 12 months.

General Sanitary Assistance	2018	2019	Desv.	2020	Desv.
Antidepressants	51% of the sample	55,79% of the sample	4,79	55,24% of the sample	-0,05
	52,3% female	52,4% female	0,1	52,3% female	-0,1
	47,7% male	47,6% male	-0,1	47,7% male	0,1
	44,6 years	44,6 years	0	45,2 years	0,6
Benzodiacepine anxiolitycs	8,89% of the sample	9,3% of the sample	0,41	8,51% of the sample	-0,79
	66,43% female	66,21% female	-0,22	66,95% female	0,52

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Antipsychotics	33,57% male	33,79% male	0,22	33,05% male	-0,74
	57,5 years	57,3 years	-0,2	58,2 years	0,9
	2,54% of the sample	2,7% of the sample	0,16	2,34% of the sample	-0,36
	66,77% female	63,01% female	-3,76	62,14% female	-0,87
	37,23% male	36,99% male	-0,24	37,86% male	0,87
	61,6 years	61,6 years	0	62,7 years	1,1

Table 1: Drugs prescribed as clinical intervention taking into account all specialties and all healthcare setting.

General Sanitary Assistance	2018	2019	Desv.	2020	Desv.
Anxiety	1,55% of the sample	1,72% of the sample	0,23	1,76% of the sample	0,04
	70,3% female	70,3% female	0	70,68% female	0,38
	29,7% male	29,7% male	0	29,82% male	0,12
	47,9 years	47,6 years	-0,3	49,4 years	2,2
Depression	0,54% of the sample	0,56% of the sample	0,2	0,37% of the sample	-0,19
	73,03% female	72,75% female	-0,28	72,67% female	-0,08
	26,97% male	27,25% male	0,28	27,33% male	0,08
	57,5 years	57,7 years	2,2	57,7 years	0
Alcoholism	0,01% of the sample	0,01% of the sample	0	0,06% of the sample	0,05
	15,7% female	19,43% female	3,73	20,05% female	0,62
	84,3% male	80,66% male	-3,64	79,95% male	-0,71
	52,2 years	53,6 years	1,4	52,8 years	-0,8
Psychosis	0,06% of the sample	0,05% of the sample	-0,01	0,04% of the sample	-0,01
	44,71% female	42,39% female	-2,32	44,2% female	1,81
	55,29% male	57,61% male	2,32	55,8% male	-1,81
	51,6 years	50,3 years	-1,3	50,8 years	0,5
Adaptive disorder	55,1% of the sample	55,79% of the sample	0,69	55,24% of the sample	-0,35
	52,53% female	52,47% female	-0,06	52,44% female	-0,03
	47,47% male	47,53% male	0,06	47,56% male	0,03
	44,6 years	44,6 years	0	45,2 years	0,6

Table 2: Psychopathological clinical situations taking into account all specialties and all care settings.

Specialized Psychiatric Assistance	2018	2019	Desv.	2020	Desv.
Antidepressants	058% of the sample	0,53% of the sample	-0,05	0,44% of the sample	-0,09
	63,5% female	63,06% female	-0,44	62,38% female	-0,68
	36,5% male	36,94% male	0,44	37,62% male	0,68
	52,1 years	52,4 years	0,3	51,9 years	-0,5
Benzodiacepine anxiolytics	0,46% of the sample	0,07% of the sample	-0,39	0,35% of the sample	0,28
	63,43% female	63,44% female	0,01	62,53% female	-0,91
	36,57% male	36,56% male	-0,01	37,47% male	0,91
	50,5 years	50,1 years	-0,4	50,1 years	0
Antipsychotics	0,29% of the sample	0,26% of the sample	0,03	0,23% of the sample	-0,03
	48,03% female	47,41% female	-0,68	46,26% female	-1,15
	51,97% male	52,59% male	0,62	53,74% male	1,15
	49,9 years	50,1 years	0,2	49,6 years	-0,5

Table 3: Drugs prescribed as clinical intervention taking into account only the specialty of Psychiatry in the field of external consultations, psychiatric hospitalization and psychiatric emergencies.

Specialized Psychiatric Assistance	2018	2019	Desv.	2020	Desv.
Anxiety	0,34% of the sample	0,33% of the sample	-0,01	0,3% of the sample	-0,03
	62,45% female	62,23% female	-0,22	61,8% female	-0,43
	37,55% male	37,77% male	0,22	38,2% male	0,43
	46,6 years	47 years	0,4	46,6 years	-0,4
Depression	0,29% of the sample	0,27% of the sample	-0,02	0,23% of the sample	-0,04
	68,16% female	67,81% female	-0,35	67,18% female	-0,63
	31,84% male	32,19%	0,35	32,82%	0,63

	53,4 years male	53,7 years male	0,3	53 years	-0,7
Alcoholism	0,05% of the sample	0,05% of the sample	0	0,04% of the sample	-0,01
	27,89% female	27,1% female	-0,79	27,91% female	0,81
	72,11% male	72,9% male	0,79	72,09% male	0
	45,6 years	46 years	0,4	45,6 years	-0,4
Psychosis	0,1% of the sample	0,08% of the sample	-0,02	0,08% of the sample	0
	41,63% female	40,09% female	-1,54	39,55% female	-0,54
	58,37% male	59,91% male	1,54	60,45% male	0,54
	47 years	47 years	0	46,5 years	-0,5
Adaptive disorder	0,14% of the sample	0,14% of the sample	0	0,11% of the sample	-0,03
	63,03% female	61,89% female	-1,14	61,52% female	-0,37
	36,97% male	38,11% male	1,14	38,48% male	0,37
	47,5 years	48,1 years	0,6	48,4 years	0,3

Table 4: Psychopatological clinical situations taking into account only the specialty of Psychiatry in the field of outpatient consultations, psychiatric hospitalization and psychiatric emergencies.

Discussion

To simplify the main ideas derived from the results, Table 5 is attached. In it we see that in general health care there have been no changes regarding the prescriptions of psychotropic drugs. A possible explanation for this is the fact that SESCAM took the measure during the months with the highest incidence of COVID-19, to automatically renew the prescription of drugs that patients previously had in their indicated medical records. This measure was taken to avoid going to the primary care health centers in person, and thus reducing the risk of contagion in administrative matters such as the renewal of prescriptions. In SESCAM, the first prescription for a drug is made by the specialist, but continuation prescriptions are made by primary care in order to avoid "hospitalocentrism". In addition, another measure that occurred

in recent months in the fight with COVID-19 was the suspension of face-to-face medical consultations for non-serious cases, changing to a telephone service program to monitor patients during quarantine. This would explain why in psychiatry the prescription of antipsychotics has remained unchanged, why benzodiazepines have increased (most likely to control symptoms of chronic patients in quarantine) and antidepressants have decreased [33-39].

Anxious-depressive pathology is one of the most prevalent psychopathologies, but not serious in all cases. In situations of physical difficulties, it is common to observe that the population neglect their mental health. Thus, it is likely that in the face of the serious situation of the COVID-19 pandemic, a large part of the population has put aside their sadness or discouragement and also, they have probably assumed it as a physiological response to the world situation instead of as a pathological symptom. This could also explain that with regard to the diagnoses of depression and adjustment disorder, it has been seen that, both in general health care and in psychiatric care, the prevalence has decreased. In the case of psychosis, its decline may be explained by the behavior of the disease itself. The stressors that have accompanied the pandemic such as social isolation, movement restrictions and changes in health care, are factors that may have harmed serious mental disorders, such as psychosis, hindering their access to health care that they had before the pandemic.

The explanation that we suppose for the increase in anxiety in general health care and the decrease in psychiatric care, we justify it on the basis that, it is frequent that situations of anxiety are attended in emergencies and Primary Care, on many occasions, anxious reactions or crises specific anxiety disorders, which do not imply an anxiety disorder as such, while these disorders, being mild in many cases, are not referred to psychiatry in their entirety, but can be resolved in Primary Care. In the case of alcohol, its increase in both areas, general and psychiatric, can be related to the fact of the care change and the difficulty of attending the Addictive Behavior Units in person without an appointment, as was done before the pandemic (in the case of the psychiatric sector). And in the general case, I do not believe that more cases of alcoholism have been diagnosed during the pandemic with a telematic care system and during the first months of the outbreak, where the priority was SARS-CoV-2, but probably This is because due to the increase in hospitalizations for COVID-19, we have collected more information about alcohol consumption as a personal medical history, from many people who otherwise would not have considered themselves alcoholics.

	General Healthcare	Specialized Psychiatric Assistance
Antidepressant	No changes	Increases
Anti-anxiety medications	No changes	Increases
Antipsychotics	No changes	No changes

Anxiety	Increases	Decreases
Depression	Decreases	Decreases
Alcoholism	Increases	Increases
Psychosis	Decreases	Decreases
Adaptive disorder	Decreases	Decreases

Table 5: Variations in the percentages of prescription of drugs and diagnoses comparing general and psychiatric health care.

Conclusion

In view of these results, it is too early to say that there has been a psychopathological worsening at the population level, at least in our region. But this may be due to the fact that it is still too early to assess the psychosocial consequences of COVID-19, even more so if we are in a situation in which the accumulated incidence has not yet decreased from 150 / 100.000 inhabitants, the vaccination program and we are immersed in the paradigm shift in healthcare.

Limitations

This study aims to take a descriptive picture of the current situation, but does not analyze the relationship with other variables such as the number of consultations made or patients infected by COVID-19 within the population. It would be advisable to continue in this line of research to verify the impact of the pandemic on global mental health.

Conflict of Interests

The author declares that he has no conflict of interest. This work has not been financed by any entity or company.

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