

# Use of psychotropic drugs during the argentine quarantine due to the COVID-19 pandemic

## Abstract

**Background:** Socio-economic crisis situations usually generate an increase in psychiatric pathologies. If we add the state of confinement due to quarantine, the picture can get even worse. The data were obtained from a region of Argentina and expressed as defined daily doses (DDD).

**Methods:** Descriptive observational study. Data were obtained from drug suppliers that provide medicines to community pharmacies. Finding was statistically analyzed by Chi-square test. the consumption measure is defined in DDD.

**Results:** During the semester from April to September 2020, they used 281,262 DDDs of psychotropic drugs, from October 2019 to March 2020 the amount was 264,486 DDDs and from April 2019 to September 2019 was 252,840 DDDs. Between all semesters there was an increase in the consumption of the four types of psychotropic drugs, although the increase during the quarantine was greater, almost double for antidepressants and hypnotics, not so for Antidepressants. Antipsychotics maintained a non-significant increase.

**Conclusions:** This work shows the increase in the use of psychotropic drugs during a period of socio-economic crisis that worsened with the quarantine by COVID-19.

**Keywords:** consumption, psychotropic drugs, COVID-19, political-economic crisis, quarantine

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## Introduction

In December 2019, an atypical pneumonia emerged from Wuhan, China. It was designated by the WHO as COVID-19 (Coronavirus disease 2019) in February 2020.<sup>1</sup> On March 11, it was recognized as a pandemic by the WHO. Pandemics are large-scale epidemics that affect people in multiple countries and can sometimes, as today, spread globally.<sup>2</sup> The rapid evolution of the disease dramatically altered people's lives, as well as multiple aspects of the global economy, both public and private. The uncertainties and fears due to the appearance of the disease associated with the economic recession and the closure of businesses are predictors of the increase in mental disorders, as well as suicides.<sup>1</sup> Quarantine is the separation and restriction of the movement of people who have potentially been exposed to a contagious disease to determine if they have been infected and thus reduce the risk of spreading that disease. Isolation, for its part, is the separation of people who have been diagnosed with this contagious disease from those who have not.<sup>2</sup>

Quarantine and isolation have been used in the face of the outbreak of the disease by COVID-19 in different countries, with various variants. In Argentina, the first confirmed case of COVID-19 was detected on March 3, 2020. First, all people returning from other countries began to be isolated. Air travel was suspended and borders were closed. As of March 20, 2020, the mandatory quarantine of the entire Argentine population came into effect, with the exception of health, security and defense workers, the press and industry, distribution and sale of food.<sup>2</sup> Drug use studies are normally carried out in order to glimpse the increase or decrease in the consumption of different types of drugs,<sup>3-5</sup> which makes it possible to analyze the uses of different types of medication<sup>6</sup> and use them as tools to promote the rational use of them. Mental health disorder is a global health issue which affects the quality of life of the ill individuals and their family, but also leads to serious social consequences and economics costs for

a country. In Europe mental health disorders are the most common cause of disability.<sup>7</sup>

The use of psychotropic drugs is a global problem, envisioned for several decades<sup>6,8</sup> that must be considered when trying to rationalize their use. The constant growth of its consumption observed in several countries,<sup>9,10</sup> as well as in ours<sup>11,12</sup> and the recognition of a psychological factor in almost all pathologies lead to the need to estimate its dispensing in community pharmacies. In this way, the pharmacist can inform about the appropriate use of psychotropic drugs, preventing their abuse<sup>13-15</sup> and their side effects.<sup>9,16</sup> Likewise, no one can ignore the addictive power of some of these drugs such as benzodiazepine anxiolytics<sup>13-16</sup> as well as that they must be used for short-term treatments in well-defined and diagnosed psychopathological cases such as severe generalized anxiety, treatment of insomnia pathological persistence, generalized traumatic anxiety or incapacitating panic attacks.<sup>16</sup> In addition, these studies can be used to promote and evaluate the educational effort associated with rational pharmacotherapy.<sup>6</sup>

There is considerable evidence of the use of these drugs in unfavorable socio-economic conditions, such as job instability, personal debt, job dissatisfaction, to which must be added the context of confinement caused by the quarantine of the COVID-19 Pandemic.<sup>17-20</sup> Some authors point out important psychological effects due to situations of isolation prior to the current event,<sup>18</sup> as well as the association of unemployment, the product of an economic crisis, with the increase in suicide, which aggravates the situation.<sup>7,20</sup> During the economic crisis, as a result of a perceived reduction in income and investment and fear of job loss, a perception of poorer mental health is observed not only among the unemployed, but also the employed. Since psychotropic drugs mitigate many of mental health disorders, the rationale would be that a greater perceived risk by population should lead to an increased use of these drugs.<sup>7</sup>

At the same time, there are authors who point out the increase in anxiety associated with the appearance of COVID-19 itself and everything that this disease entails, such as being diagnosed by a positive test.<sup>18</sup> Likewise, some authors point out the increase in all other psychiatric pathologies such as depression, stress, psychological distress and post-traumatic stress.<sup>1</sup> There is evidence of the increased emotional impact caused by the pandemic in the region, as well as that the virus affected more patients with chronic mental disorders.<sup>21,22</sup> Currently, scientific studies and publications on the impact of the pandemic and quarantines on mental health have increased around the world. Recent and dramatic experiences with COVID-19 show similar or more serious results in current studies.<sup>2</sup>

From studies of epidemics and pandemics prior to the current one, it appears that the longest quarantine was 21 days in the African country of Liberia in 2015, since the Ebola outbreak. From the psychosocial aspect, mandatory quarantine is usually an unpleasant experience for those who suffer it: separation from loved ones, loss of freedom, uncertainty about the state of the disease and boredom, with considerable economic losses. Regarding previous epidemics, three studies showed that prolonged quarantine is associated with worse mental health, with symptoms of post-traumatic stress, avoidance behaviors and anger being the most prevalent. From these studies it is concluded that the longer the quarantine time, the higher the level of psychological symptoms. In most of these studies, an association is observed between low income, independent work and health work with higher levels of psychological symptoms.<sup>2</sup> In Argentina, both situations occurred simultaneously, with the seasoning that the longest quarantine was carried out worldwide, with more than six months. Several studies show the negative effect on mental health of quarantine.<sup>19</sup> In this way we can try to study the consumption of psychotropic drugs in these conditions in order to be able to provide data in pursuit of strategies that tend to improve health policies in the face of the two unfavorable contexts such as those presented.

## Materials and methods

The descriptive observational study of outpatients, residents in the Northeast Region of Argentina (NEA). It is made up of four provinces, and with a total population of approximately 3,679,609 according to data from the 2010 National Census.<sup>23</sup> In order to analyze the consumption of psychotropic drugs, they were classified according to the WHO Anatomical, Therapeutic and Chemical Classification System in: Antipsychotics (N05A), Anxiolytics (N05B), Hypnotics (N05C) and Antidepressants (N06A). For Antipsychotics (N05A), the first and second generation were considered as the only group. The consumption measure is defined in daily diary doses (DDD), which is

the technical unit of measurement that corresponds to the maintenance dose in the main indication for a given route of administration in adults. The DDDs for drugs are established by the WHO and are published on the website of the WHO Collaborating Center for Drug Statistics Methodology.

The collection and subsequent analysis of the consumption data of the mentioned drugs were obtained from the files of four drugs suppliers that provide medicine to community pharmacies in the region, which distribute 87% of them, with the following information: Generic Name, Name of Fantasy, origin, dosage, the pharmaceutical form and its prices. We must emphasize that, in Argentina, as in other countries, the sale of these drugs is under a filed prescription, made by a physician.<sup>7,24</sup> Three time periods were defined called Stages 1, 2 and 3. Stage 1 runs from April to September 2019, Stage 2, from October 2019 to March 2020 and the last Stage, from April to September 2020. After collecting all the data, their use was analyzed during the mentioned periods and statistically compared using the Chi-square test, observing if the differences were significant between each of the defined stages. The web page used for that was <https://www.quantpsy.org/chisq/chisq.html> was used for the calculation.

## Results

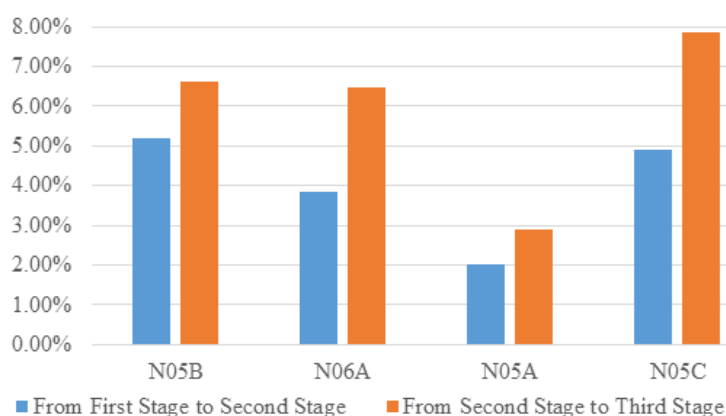
Table 1 shows the consumption of each group of psychotropic drugs and the totals for each defined period.

**Table 1** Total psychotropic drugs used in each period studied

	Stage 1	Stage 2	Stage 3
N05B	161136	169518	180738
N06A	61428	63786	67914
N05A	20142	20550	21144
N05C	10134	10632	11466

A constant increase in the consumption of psychotropic drugs was observed during the year and a half that the study lasted. Likewise, the broad predominance of anxiolytic drugs during the three stages. In the statistical comparisons between all the stages, we find that between the first and second stages the value of X<sup>2</sup> with Yates correction is 10.711 with a  $p = 0.013$ , between the second and third stage, the X<sup>2</sup> with Yates correction is 13,021 with a  $p = 0.004$  and the comparison between the first and third stage, the X<sup>2</sup> with the same correction is 43,193 with a  $p = 0$ .

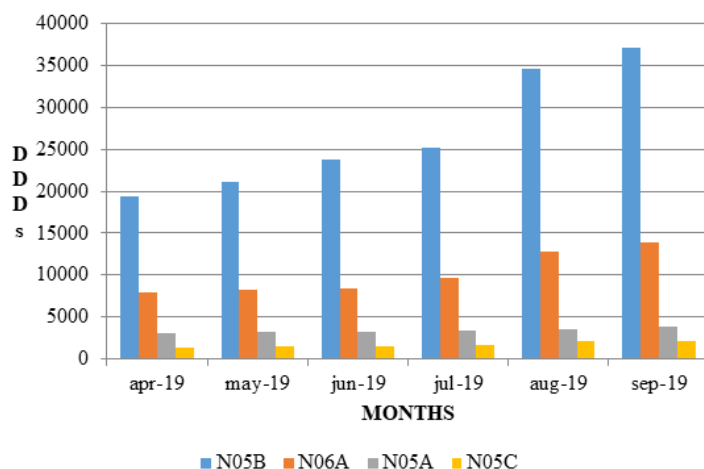
Figure 1 shows the increase in the use of the drugs studied in each of the selected time intervals.



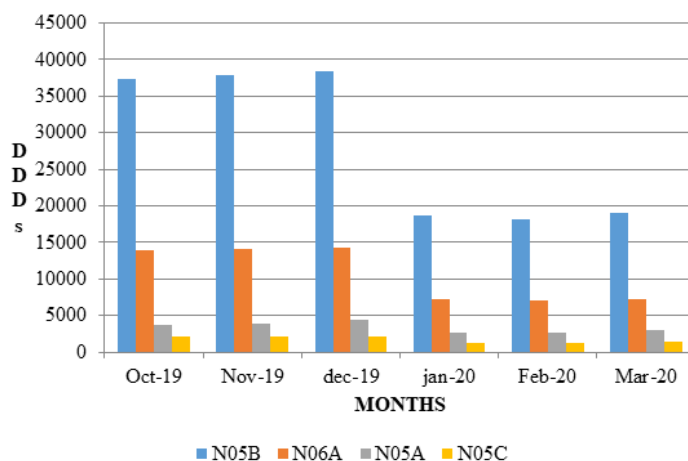
**Figure 1** Increase in consumption during the months studied.

Figure 2 shows the use of psychotropic drugs during each month of Stage 1. As we can see, growth was constant in all months, increasing markedly during the months of August and September.

In Figure 3, we observe an increase in consumption towards December and then a marked decrease from January to March.



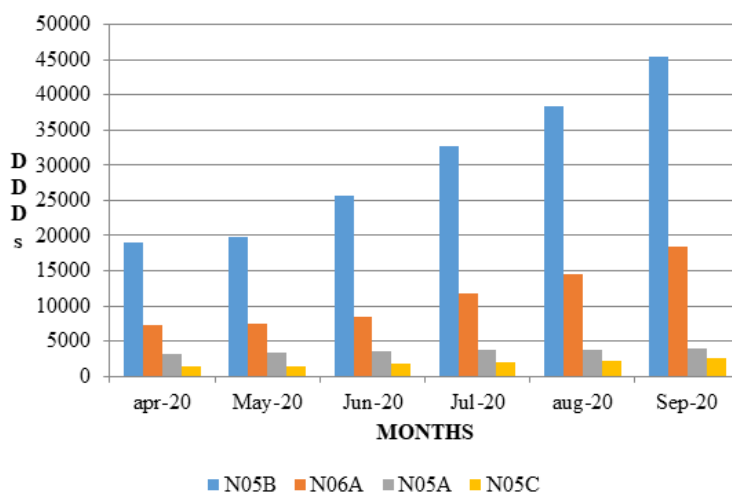
**Figure 2** Psychotropic drugs used during stage 1.



**Figure 3** Psychotropic drugs used during stage 2.

Finally, in Figure 4, we observed the use of psychotropic drugs in the last stage studied. Here, as in Figure 1, a constant increase in the consumption of these drugs it can be seen. The jump would be

made in the month of June and from there the increase is constant and accelerated.



**Figure 4** Psychotropic drugs used during stage 3.

## Discussion

Table 1 highlights an increase in consumption. From the first stage to the second it is 4.61% and from the second to the third, during the quarantine, is 6.34%. The total increase at the period of time of this study reached 11.24 %. This increase exceeds the increase observed by other authors.<sup>7,20</sup> It is also well above any population increase seen so far in the country in any previous period of time.<sup>23</sup> As we can see in the Figure 1, from the first to the second stage the drugs that grew the most were anxiolytics (N05B), in 5.20%, followed by hypnotics (N05C) in the order of 4.91%, in third place, they appear antidepressants (N06A) with an increase of 3.84%. Finally, the lower increase in consumption was due to antipsychotics (N05A), in the order of 2.03%. While from the second to the last stage studied, the drugs that increased their consumption the most were hypnotics (N05C), in the range of 7.85%, followed by anxiolytics (N05B), with 6.62%. Although antidepressants (N06A) remain in third place, the increase in their use almost doubled the previous increment from stage 1 to 2, reaching 6.47%, being the type of psychotropic drug that increased the most in comparison from stage to stage increment.

Lastly, antipsychotics kept the last place with the increase in use of 2.89%. The greater stability of these drugs was observed by other studies.<sup>7,20</sup> We must also highlight the broad predominance of anxiolytic drugs during all three stages. In the first they represent 63.73%, in the second 64.09% and in the third, 64.26%. This predominance in the use of anxiolytics was observed by other authors, both foreign<sup>4,6,25,26</sup> and national,<sup>12,27</sup> followed by antidepressants, as the ESEMeD-Spain Study also demonstrated.<sup>10</sup> This increase in consumption, as well as that of hypnotics, may be due to the possible increase in the prevalence of neurotic disorders, those related to stress, the medicalization of human suffering and social problems, the ability to produce dependence on benzodiazepines, that can prolong its use even for decades, or commercial promotion by the pharmaceutical industry.<sup>17</sup>

Regarding the statistical comparisons, we observe that in stages 1 and 2 the differences are not statistically significant, although there is an increase in consumption beyond the population increase. It would be a consequence that, in August 2019, after the primary elections, the economic crisis worsens, which will continue in the next stage. While in the comparison of the second and third stage, the differences already acquire statistical significance, due to the implementation of a very extensive and strict quarantine with all that clinically entails that, explained above. Finally, the comparison between the first and third stages is the one that obtains the greatest statistical difference, which we believe is due to a substantial increase in the economic crisis amalgamated with the psychiatric consequences of the confinement. Figure 2 shows the growing increase in consumption, as expected, but here, unlike what was observed in other studies, after the winter months, it continued to grow.

The seasonal depressive pattern is described by bibliography and confirmed by several studies.<sup>19,28-30</sup> In Argentina, in mid-August, after the primary elections with the victory of the current ruling political party, an economic crisis began that triggered the use of psychotropic drugs, as shown by other authors, so instead of an expected decline after the month of July, their sales continued to grow. In Figure 3, we see that consumption continued to grow, and towards the month of December it reached a peak and a fall for the first months of 2020, which is described by other authors.<sup>12</sup> This is due to the fact that the majority of the medical corps takes their vacations during the months of January and February, so in December they prescribe a greater quantity so that their patients have their drugs for those months.

While in Figure 4, we continue to observe low consumption during the months of March and April, that is, at the beginning of the quarantine, which was decreed by the government on March 202. We must emphasize that during those months the national population identified with the government's measures, obeying them in a forceful way, but as the months passed the economic situation worsened, and the population began to transgress the quarantine, which continued rigidly until the end of September and will continue for an undetermined time.

Stress and confinement situations have a negative impact on the mental health of the population, as shown by several studies.<sup>2,20</sup> The prolonged confinement and the increasingly serious social and economic situation triggered the consumption of psychotropic drugs again, which is reflected in the constant increase in them, beyond the winter months, as happened in 2019. Although some authors found increases in consumption in pre-crisis times,<sup>16</sup> unlike this study, which, like others, observed them as a consequence of a crisis.<sup>7,16,20</sup> Despite this, some authors from other countries highlight that, in Argentina, during crises, the consumption of psychotropic drugs increases.<sup>20</sup>

## Conclusions

This work shows us a growing and alarming increase in the use of psychotropic drugs in the Northeast region of Argentina in the period of 18 months. It should be noted that the increase in the consumption of these drugs began to consolidate with the August 2019 primary elections, which generated a political crisis which resulted in economic problems. Such is the case that consumption patterns were violated, such as the seasonal depressive pattern, with consumption not falling after the winter months, as happened in the country and the region in other years. To this crisis was added the confinement caused by the quarantine in view of the covid-19 pandemic, which triggered an increase in the consumption of psychotropic drugs due to the psychiatric consequences of the prolonged confinement. Everything indicates us to affirm that the socio-economic crisis, together with situations of isolation, lead to a worsening of psychiatric pathologies that are reflected in the increase in the consumption of psychotropic drugs, which is not explained by the population increase, since it widely exceeds it. Issues to be taken into account when planning health policies.

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## Conflicts of interest

Author declares that there is no conflict of interest.

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