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ORIGINAL ARTICLE / ÖZGÜN MAKALE

ANTIDEPRESSANT CONSUMPTION IN TÜRKİYE DURING THE PANDEMIC

PANDEMİ DÖNEMİNDE TÜRKİYE'DE ANTİDEPRESAN TÜKETİMİ

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ABSTRACT

Objective: *This study aims to reveal how the restrictions, quarantines, social policies, and implemented measures during the COVID-19 pandemic have affected the consumption of antidepressant drugs in Türkiye.*
Material and Method: *The research was conducted based on the total consumption figures of antidepressant drugs between 2017 and 2022. The necessary data were obtained from IQVIA/Turkey and OECD official sources.*
Result and Discussion: *Our study has shown that antidepressant consumption in Türkiye during the pandemic has increased much more than expected. Additionally, alongside countries where consumption has increased in OECD countries, there are countries where consumption has not been affected. Examining countries' social and economic policies where consumption is unaffected during the pandemic would be beneficial. Türkiye's social and economic policies have proven inadequate in psychologically protecting the country's citizens during the pandemic.*
Keywords: *Antidepressant, COVID-19, pandemic, Türkiye*

ÖZ

Amaç: *Bu çalışmada COVID-19 Pandemisi döneminde kısıtlamaların, karantinaların, sosyal politikaların, uygulanan önlemlerin, vb. durumların Türkiye'de antidepresan ilaçların tüketimini nasıl etkilediğini ortaya çıkarmak amaçlanmıştır.*
Gereç ve Yöntem: *Araştırma Antidepresan ilaçların 2017-2022 yılları arasındaki toplam tüketim rakamları üzerinden gerçekleştirilmiştir. Gerekli veriler IQVİA/Türkiye ve OECD resmi verilerinden alınarak kullanılmıştır.*
Sonuç ve Tartışma: *Çalışmamız göstermiştir ki; pandemi sürecinde Türkiye'de antidepresan tüketimi beklenenden çok daha fazla artmıştır. Ayrıca OECD ülkelerinde tüketimin arttığı ülkelerin yanı sıra tüketimi hiç etkilenmeyen ülkeler de bulunmaktadır. Tüketimin etkilenmediği ülkelerin pandemi sürecindeki sosyal ve ekonomik politikaları incelenmelidir. Türkiye'nin sosyal ve ekonomik politikaları ülke vatandaşlarını psikolojik açıdan korumakta yetersiz kalmıştır.*
Anahtar Kelimeler: *Antidepresan, COVID-19, pandemi, Türkiye*

INTRODUCTION

The COVID-19 pandemic emerged in December 2019 when a group of people in Wuhan, China,

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exhibited respiratory symptoms such as fever, cough, and shortness of breath. The identification of the COVID-19 virus was made on January 13, 2020, following research conducted on a group of patients. While the virus originated in the local animal market, it later spread from person to person, first within the People's Republic of China and eventually globally, leading to a pandemic. There are variations in the symptoms of the COVID-19 virus; some infected individuals remain asymptomatic, while others experience severe cases, some of which result in death [1,2].

As of November 2, 2021, the COVID-19 virus has caused approximately five million deaths worldwide [3]. In Türkiye, during the same period, around 70 thousand people have died due to the COVID-19 virus [4]. Studies indicate that the risk of death in hospitalized patients ranges from 0.5% to 4%, while for critically ill patients, this rate varies between 5% and 15% [5].

There is a broad consensus that the COVID-19 pandemic affects physical, mental, and well-being [6]. Measures such as confinement, social and physical distancing, and stay-at-home orders contribute to increased incidents of violence and aggressive behavior. Similarly, restrictions on production and limited commercial activities negatively impact many individuals and businesses economically. These risk factors challenge societal health during the pandemic [7]. From a public health perspective, the pandemic leads to insecurity, confusion, emotional distress, and stigmatization in individuals, along with adverse effects such as insufficient resources during medical care. These effects have caused emotional changes, such as anxiety, depression, insomnia, and an increased desire for substance use, in individuals across various demographics [8].

It is assumed that the fundamental cause of anxiety during both past pandemics and the current COVID-19 situation is the uncertainty surrounding the exact cause of the disease. This uncertainty is believed to increase psychiatric morbidity [9,10]. Past pandemics, such as the SARS-CoV-1 in 2003, H1N1 influenza in 2010, the Ebola outbreak in 2014, and the MERS outbreak in 2015, demonstrated that uncertainty, isolation, interruption of social activities, and the atmosphere of a significant disaster contribute to deterioration in mental health during and after the pandemic [11-15]. Additionally, despite numerous studies evaluating the psychological effects and psychopharmacological aspects of the Covid-19 pandemic [1,16-19], there is limited research on the impact of the pandemic on psychological medication use and outpatient visits.

Therefore, this study aims to present the psychological effects of the COVID-19 pandemic on individuals in Türkiye with concrete and measurable data and to reveal how it has affected the antidepressant drug market.

MATERIAL AND METHOD

The study was conducted using sales and unit box data of drug molecules defined and used as antidepressants over the years. Data between 2017 and 2022, when all precautions were lifted entirely to observe the pre-pandemic consumption trend, were used. The data from Turkey were obtained from Iqvia/Turkey (IMS/Health), an institution that tracks and records market movements from drug production to end consumers. Data from OECD countries were obtained from the official OECD website. Additionally, statistics such as the number of outpatient clinics, prescription numbers, and diagnosis numbers for the years included in the study were formally requested from the Ministry of Health and the Social Security Institution. However, positive responses could not be obtained. Therefore, data on the number of psychiatry outpatient clinics, diagnosis distributions, and hospital admission rates for the years included were obtained from Hitit University Erol Olçok Training and Research Hospital with the approval of the ethics committee, considering that it would support and contribute to the study. Initially, it was considered to include antipsychotic drugs in the study. However, it was abandoned as no significant change in the consumption of this group of drugs was observed when examining the data. The study was conducted retrospectively based on consumption data of antidepressant drugs over the years and quantitative data obtained from the sample hospital.

RESULT AND DISCUSSION

In Table 1, data on the prevalence of depression and anxiety per population in Türkiye and worldwide are provided.

Between 2017 and 2019, corresponding to the pre-pandemic period in Türkiye and globally, there has not been a significant increase in the prevalence of depression and anxiety disorders (Table 1).

Table 1. Prevalence of depression and anxiety per population in Türkiye and worldwide [20]

Location	Diagnosis	2017	2018	2019
Türkiye	Depression	% 4.54	% 4.56	% 4.60
Worldwide	Depression	% 3.72	% 3.74	% 3.76
Türkiye	Anxiety	% 4.99	% 5.00	% 5.02
Worldwide	Anxiety	% 4.03	% 4.04	% 4.05

In 2017, 42.204 individuals applied to the psychiatry clinic, and the number of inpatients was 551. During the same year, 2.881 individuals were diagnosed with depression, 35.128 with anxiety, and 954 with Obsessive-Compulsive Disorder (OCD). In 2019, just before the pandemic, 56.333 individuals sought help from the psychiatry clinic, and the number of inpatients was 660. Within the same year, 2.055 individuals were diagnosed with depression, 44.649 with anxiety, and 1.169 with OCD. A significant and consistent increase in diagnoses, outpatient clinic visits, and inpatients was observed in the years leading up to the pandemic. However, starting from 2020, when restrictions began and the pandemic was widely felt, a notable decrease has been observed (Table 2).

Table 2. Data on individuals seeking psychiatry clinic in Çorum province for the years 2017-2022

Diagnosis	2017	2018	2019	2020	2021	2022
Depression (F33)	2.881	2.242	2.055	537	216	67
Anxiety (F41)	35.128	41.928	44.649	25.875	22.481	23.947
Obsessive Compulsive (F42)	954	1.167	1.169	681	767	559
Annual number of outpatient clinic visits	42.204	51.384	56.333	37.393	33.491	***
The annual number of inpatient-treated patients	551	604	660	406	527	***

***Due to changes in the hospital data system, data for this year could not be obtained

Before the pandemic, the consumption of antidepressant drugs was directly proportional to the prevalence of diseases (Table 1). Unexpectedly, starting in 2020, when restrictions began and uncertainties related to the disease were felt, consumption started to increase. In 2020 and 2021, the consumption of antidepressant drugs increased by approximately 20% compared to 2019. Consumption showed a lower increase in 2022, when all restrictions were lifted, compared to the previous year (Table 3). When the consumption of drug groups is examined, there is no significant change in the consumption of tricyclic and other antidepressants. The entire increase occurred in the consumption of SSRI and SNRI group drugs (Table 3).

When examining the data on the daily antidepressant dose per 1000 people in the workforce in OECD countries over the years, significant increases in antidepressant consumption were observed in 19 out of 31 countries (Table 4). Germany, Australia, Belgium, the Czech Republic, France, Hungary, Italy, Lithuania, Luxembourg, the Netherlands, and Norway did not experience a significant increase during the pandemic. On the other hand, Australia, Belgium, Canada, Denmark, Finland, Iceland, New Zealand, Portugal, Spain, Switzerland, and the United Kingdom had daily antidepressant doses per 1000 people that exceeded the OECD country average.

After the coronavirus was detected in China in December 2019, the first case in Türkiye was identified in March 2020 [23]. Depending on the effects of the coronavirus, severe symptoms can occur in some individuals, while others can fully recover without the need for treatment [24].

Table 3. Unit box consumption of antidepressant drugs in Türkiye by years [21]

ANTIDEPRESSANTS	2018	2019	2020	2021	2022
Escitalopram	10.529.619	10.144.714	11.744.525	12.869.289	13.728.810
Sertraline	8.148.558	8.733.827	9.852.838	11.253.207	11.803.761
Fluoxetine	5.552.252	5.539.824	5.925.600	6.876.494	7.469.335
Duloxetine	5.096.552	5.388.454	5.791.382	6.074.065	6.328.466
Paroxetine	3.978.307	4.127.676	4.842.143	5.086.292	4.898.636
Venlafaxine	3.942.414	4.210.894	4.445.134	4.606.524	5.026.684
Mirtazapine	2.068.344	2.169.126	2.460.106	2.623.603	2.641.811
Vortioxetine	802.571	994.818	747.482	770.555	857.893
Trazodone	2.030.914	2.069.637	2.115.082	2.291.318	2.132.211
Citalopram	1.928.396	1.790.880	1.897.539	1.928.562	1.865.714
Fluvoxamine	240.147	239.485	198.215	196.146	232.535
TOTAL SSRI and SNRI	**44.318.074**	**45.409.335**	**50.020.046**	**54.576.055**	**56.985.856**
Amitriptyline	1.580.025	1.305.409	1.441.041	1.651.184	1.623.194
Clomipramine	984.439	970.056	1.027.715	1.167.088	1.171.788
Lithium	450.415	563.760	539.668	559.555	536.249
Opipramol	712.549	551.584	553.432	508.978	464.895
Mianserin	327.279	335.846	372.811	384.284	236.678
Bupropion	186.855	265.806	232.860	336.825	352.290
Imipramine	170.035	180.070	160.607	158.384	160.242
Maprotiline	82.959	78.719	89.130	92.262	98.225
TOTAL TRICYCLIC and OTHERS	**4.494.556**	**4.251.250**	**4.417.264**	**4.858.560**	**4.643.561**
TOTAL MARKET	**48.812.630**	**49.660.585**	**54.437.310**	**59.434.615**	**61.629.417**
EXCHANGE		**1.6 %**	**9.6 %**	**9.2 %**	**3.7 %**

Table 4. Daily antidepressant dose per 1000 people in OECD countries by years [22]

OECD COUNTRIES	2017	2018	2019	2020	2021	2022
Australia	109.3	112.2	115.6	122.2	127.9	..
Austria	61	61.3	62	63.2	63.5	..
Belgium	78.8	79.7	81.9	83.8	86.2	..
Canada	104.4	108.4	114.1	122	130.1	134
Chile	42	40.1	52	67	90.7	94.3
Costa Rica	30.9	33.4	35.9	39	41.5	34.5
Czech Republic	59.9	61.4	64.4	65.7	69.4	..
Denmark	75.7	76.6	78.3	80.7	84.6	..
Estonia	28.8	31.9	34.8	37	40.7	44.5
Finland	70.5	74.9	78.3	81.5	85.2	..
France	51.3	51.5	54.4	54.5	57.6	..
Germany	56.9	58.5	60.3	62.2	64	..
Grecee	55.1	58	61	65.8	70.6	73.1
Hungary	28.8	29.3	29.5	30.4	29.8	30.3
Iceland	138.6	142	146	153.4	161.1	157.3
Israel	49.2	51.1	53.8	55.4	57.7	61.8
Italy	40.4	41.6	42.8	43.7	44.6	45.5
Korea	18.8	21	23.4	27.4	31.1	..
Latvia	15	16.1	17.6	19.8	21.5	24.3
Lithuania	32.1	31.3	35.4	36.8	37.4	..
Luxembourg	53	52.9	54.9	55.3	57.3	53.1
Netherlands	46.2	47.2	48	48.4	48.5	..

Table 4 (*continue*). Daily antidepressant dose per 1000 people in OECD countries by years [22]

OECD COUNTRIES	2017	2018	2019	2020	2021	2022
New Zealand	..	81.4	82.6	81.4	92	96
Norway	57.3	56.2	57.9	58.7	61.1	63.1
Portugal	103.8	109.3	123.7	131	138.8	150.5
Slovak Republic	39.4	41.1	42.4	42.9	44.7	..
Slovenia	59.5	61.5	63.3	63.6	66.1	68.4
Spain	77.2	80.4	83.6	86.9	92.7	98.4
Sweden	96.9	98.8	102.7	105.5	108.9	114.5
Türkiye	43.5	44.1	44.2	48.9	52.5	..
United Kingdom	107.9	116.5	123.9	131.7	138.2	..
Mean	59	61.5	64.6	67.6	71.75	

The COVID-19 pandemic, when contagious diseases rapidly spread and deaths increased, has negatively impacted health globally. Government policies also have similar effects, especially with psychological implications. Anxiety disorders, characterized by uncontrollable worry, are frequently reported diseases [25]. Before the pandemic, the prevalence of anxiety and depression disorders in Türkiye and worldwide was approximately the same and had not changed significantly (Table 1). However, it is believed that the prevalence changed in situations like the pandemic with uncertainties. Additionally, despite the Turkish population increasing by 2.97% from 80.8 million in 2017 to 83.2 million in 2019, there was no proportional increase in the frequency of depression and anxiety [26].

During the pandemic, measures were taken globally, including in Türkiye, to reduce and delay the spread of the virus [27]. Consequently, a series of measures have been implemented, including restrictions and prohibitions on international entries and exits, curfews, limitations on gatherings in crowded places such as restaurants, and the daily disclosure by the Ministry of Health of the number of individuals infected with and deceased from the virus, aiming to prevent misinformation. Moreover, many hospitals have been converted into pandemic hospitals [28]. These measures generally had adverse psychological effects on individuals [8]. The misinformation that emerged in the early stages of the pandemic was reported to increase stress and risk perception based on the fear of death. Even quarantine and isolation processes were considered a trauma, leading to cognitive disorders [29]. In a qualitative study conducted among individuals with psychiatric illnesses during the pandemic, participants mentioned an increase in the dosage of the medications they used. The study also included interviews where individuals reported a deterioration in their psychological state despite the prescribed medication, choosing not to stay in the hospital but continuing to take their medications [30]. However, an examination of applications to the psychiatric clinic in Çorum revealed a consistent increase in applications before the pandemic, followed by a sudden decrease in depression, anxiety, OCD, annual outpatient clinic numbers, and hospitalized patient numbers during the pandemic (Table 2). This could be attributed to the fact that the only state hospital in Çorum served as a pandemic hospital and people's fear of infection, leading them to avoid going to the hospital and the restrictions in place.

Before the pandemic, the consumption of antidepressant drugs was directly proportional to the prevalence of diseases (Table 1). However, during the pandemic, a significant increase was observed in the use of SSRI and SNRI group drugs, unlike the period before the pandemic (Table 3). However, during these years, the population of Turkey has increased by a rate of 1.8% [26]. This increase in drug consumption is not proportional to population growth; in fact, there was a decrease in the number of polyclinics in inpatient health institutions during this period (Table 2). Therefore, it is thought that the deaths and restrictions during the pandemic influenced drug consumption, and an increase in prevalence rates is expected in the future. In the future, it is anticipated that there will be a regression in prevalence rates. All the drugs included in the study are controlled medications that should be prescribed with a white prescription by the Ministry of Health of the Republic of Turkey. The increased consumption of drugs, particularly those belonging to the SSRI and SNRI groups, can be attributed to their more accessible prescription by family physicians [31]. Additionally, studies in the literature indicate the genotoxic effects of tricyclic group drugs. At the same time, there is evidence suggesting that drugs

belonging to the SSRI and SNRI groups are more reliable compared to tricyclic drugs [32]. On the other hand, the Social Security Institution has extended the durations of chronic medication usage reports during the pandemic, allowing community pharmacists to issue continuation prescriptions based on these reports [33]. A study indicated that such practices by community pharmacists generally lead to an excessive increase in drug consumption and give rise to unethical situations [34]. Furthermore, the observed decline in the consumption of tricyclics and other classes of antidepressants raises the possibility of prescription migration from inexpensive to more expensive drugs following manufacturers' marketing activities.

The COVID-19 pandemic has manifested its impact worldwide; however, these effects vary from individual to individual. As societies experience differing levels of impact internally, variations in these effects are also observed at the country level. This situation is evident in the significant increase in antidepressant drug consumption in some countries, while similar increases may not be observed in certain societies (Table 4). Furthermore, Chile, which had antidepressant consumption rates below the OECD average, has surpassed the OECD average in the year 2021 (Table 4). In a society like Italy, with a high incidence of deaths and lockdowns, the absence of any increase is noteworthy (Table 4). Studies indicate that the occurrence or absence of these increases may be influenced by factors such as the health systems of countries, policies implemented during the pandemic, death and infection rates, and cultural impact. Individuals can exhibit biological responses to diseases, and societies also have cultural responses. A virus pandemic affecting the entire world is anticipated to lead to significant social changes and the emergence of new normative orders. Furthermore, it can be mentioned that culture impacts the emergence of behaviors when threatened [35]. Therefore, it is considered that the impact of all mentioned factors may contribute to the emergence of differences. In this context, the support services provided to their societies during the pandemic by states such as Italy, Germany, Hungary, and Austria should be examined. When examining the data on the daily antidepressant dosage per 1000 people in OECD countries, another notable observation is the return to 2022 figures in the data for Costa Rica, Iceland, and Luxembourg. This regression is an expected phenomenon and is anticipated to occur in other countries in the coming years.

However, it should be noted that these consumption figures, especially for Turkey, represent only the data related to drugs prescribed and used upon consultation with a doctor. It is also considered that many individuals experiencing psychological problems during this period without seeking medical help or using medication are not accounted for.

In conclusion, processes such as pandemics that affect and restrict the daily lives of societies vary in terms of the psychological responses people give based on the socio-cultural structures of the societies, the content of the measures taken by governments, and the economic support provided. Antidepressant consumption in Turkey has been influenced during the pandemic period, and an increase has occurred beyond what was expected.

AUTHOR CONTRIBUTIONS

Consept: E.B., Design: H.D.K., E.B., E.K.; Control: E.B.; Sources: H.D.K.; Data Collection and/or Processing: H.D.K., E.B., E.K.; Analysis and/or Interpretation: H.D.K., E.B.; Literature Review: H.D.K., E.K.; Manuscript Writing: H.D.K., E.B., E.K.; Critical Review: E.B.; Others: -

CONFLICT OF INTEREST

The authors declare that there is no real, potential, or perceived conflict of interest for this article.

ETHICS COMMITTEE APPROVAL

Ethics committee permission numbered 2021-295 was received by Hitit University Non-Interventional Ethics Committee on 09/12/2021.

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