COMPARATIVE ANALYSIS OF THE CONSUMPTION OF ANTIDEPRESSANTS IN UKRAINE, ESTONIA AND NORWAY

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Due to modern living conditions, the number of patients suffering from chronic depression is increasing every year. Antidepressants (AD) are one of the most popular drugs. In recent years, the demand for AD has increased in many countries of the world. The analysis of trends in the level and structure of AD consumption in Ukraine compared to other countries is relevant.

The aim. *The purpose of the study was to study the assortment of AD in Ukraine for 2020–2021, as well as to analyze the volume and structure of AD consumption compared to similar data for Estonia and Norway.*

Materials and methods. *Marketing analysis of the range of drugs on the market and ATC/DDD-methodology were used to study the volume of drug consumption. The analysis of the assortment and consumption volumes of AD was carried out according to the data of the State Register of Medicinal Products of Ukraine and the analytical company "Proxima Research"/"Morion". Calculations of consumption volumes were made according to the ATC/DDD methodology in terms of DDDs per 1000 inhabitants per day (DID). The obtained results of the level and structure of AD consumption were compared with similar data on the official resources of the State representatives of medicinal products of Estonia and Norway.*

Results. *The obtained results showed that ADs in Ukraine during 2020–2021 were represented by 19 INNs, mostly drugs of foreign manufacturers. The pharmaceutical market was dominated by selective serotonin reuptake inhibitors (SSRIs). It was established that the consumption of AD among the population of Estonia exceeded the indicators in Ukraine by 12.2–13.6 times, and in Norway by 18.2–21.6 times. The leader in terms of consumption in the three studied countries was a representative of the SSRI group escitalopram, but its consumption in Estonia and Norway was higher than in Ukraine, respectively, by 7.7–9.4 times and by 16.8–21.3 times.*

Conclusions. *A significant difference in AD consumption may indicate that in Estonia and Norway, a greater number of patients with chronic depression seek medical help and receive pharmacotherapy than in Ukraine*

Keywords: *depression, antidepressants, pharmaceutical market, ATC/DDD methodology, consumption volumes, escitalopram, comparison of consumption volumes, Ukraine, Norway, Estonia*

1. Introduction

According to the data of the World Health Organization (WHO), the most common mental illness, which affects about 280 million people in the world, is depression [1]. This disease is a mental disorder that leads to serious consequences, characterized by a depressed mood (hyotimia) with a negative, pessimistic assessment of oneself and one's situation in the present, past and future [2, 3]. Along with depression (in typical cases – in the form of welcome yearning), depression includes ideational and motor retardation with a decrease in motivation for activity or anxious excitement. Depressive patients are characterized by mental hyperalgesia (mental pain), combined with a psychologically unmotivated sense of guilt, low self-esteem, sometimes suicidal tendencies, and severe physical well-being with somatic symptoms (sleep disorders with difficulty falling asleep and early awakenings; a sharp decrease in appetite with a decrease in body weight; decreased libido, violation of

the menstrual cycle), which can determine the clinical picture of a specific depressive episode. Depressed mood persists throughout the entire depressive episode, it is slightly susceptible to fluctuations depending on changes in the patient's life circumstances [4, 5].

According to the WHO, almost every fifth person (22 %) who has survived war or other armed conflicts in the last 10 years had developed depression and other mental disorders in anamnesis [6]. In connection with military aggression in Ukraine, approximately 30 % of the population have depression, anxiety, and post-stress disorders [6, 7]. According to WHO forecasts, in the future after the end of the war in Ukraine, about 15 million Ukrainians will need psychological support, and about 3–4 million of them will need medical treatment [6, 7].

Treatment with antidepressants (AD) is the main type of therapeutic intervention regardless of the nosological affiliation of depression. All over the world, the consumption of AD has been increasing in recent years.

According to data from the National Health and Nutrition Examination Survey (NHANES) in the United States during 2015–2018, 13.2 % of Americans aged 18 years and older reported taking AD in the past 30 days [8]. AD use was higher among women than among men in each age group. Their use increased with age in both men and women. Almost a quarter of women aged 60 and older (24.3 %) took AD [9].

Diaz-Camal N. et al. (2022) published a literature review in which they analyzed selective ADs from the group of selective serotonin reuptake inhibitors (SSRIs), data on their consumption during the COVID-19 pandemic and concluded that the progressive increase in AD consumption in many countries of the world may cause harm for the environment [10].

However, according to the WHO, in low- and middle-income countries, to which Ukraine belongs, treatment for depression is often absent or underdeveloped. Obstacles to timely and effective treatment are lack of financial resources, insufficient number of qualified medical workers and social stigmas.

According to the guidelines of the US National Institute of Health (NIH, 2017), depression is characterized by the heterogeneity of the disease (variety of subtypes of depressive disorders), recurrence and comorbidity, one of the variants of which is the combination of depression and anxiety. But, even in severe cases, depression is well treatable [11].

The analysis of scientific research publications conducted in Ukraine showed that the study of the assortment and consumption of AD was carried out by domestic scientists in the period 2015–2019 [12, 13], but the literature did not cover data for recent years and did not compare the volumes of AD consumption in Ukraine with various countries in dynamics during 2020–2021. Therefore, this study is relevant at the present time.

2. Planning (methodology) of research

According to the literature, in many countries of the world, the levels of AD consumption are increasing every year [10, 12], which may be related to the increase in the incidence of depression in the population. Along with other methods of determining the amount of drug consumption (the number of packages or the monetary equivalent), the ATC/DDD methodology is used, which is proposed by the WHO and is the most adequate for assessing the quality of pharmacotherapy, as it allows to determine the part of the population in the country that, over a certain period of time, took daily therapeutic doses of drugs, i.e., was effectively treated.

In our study, it was planned to conduct an analysis of the assortment of ADs that were registered in Ukraine during the study period, as well as calculations of AD consumption volumes in Ukraine and to compare the obtained AD consumption results with statistical data of well-known European countries – Estonia and Norway. The ATC/DDD-methodology of studying the consumption of medicines according to anatomic-therapeutic-chemical classification and defined daily doses (DDD) was used.

Drug consumption was determined according to the international relative indicator DID (DDDs per 1000 inhabitants per day), which makes it possible to compare the volume and structure of drug consumption in different countries.

3. Materials and methods

The analysis of the AD assortment was carried out using the resources of the State Register of Drugs of Ukraine. The range of trade names (TN) and the level of consumption of ADs with the ATC code N06A were analyzed according to the data of the drug market research system "Proxima Research" of the Morion company. The ATC/DDD methodology recommended by WHO [14] was used to study the consumption of ADs [14], as well as statistical data on the population of Ukraine for the period under study. To study the structure and level of AD consumption in Estonia and Norway and its comparison with the level of consumption in Ukraine for 2020–2021, published statistical data were used [15, 16].

For each antidepressant, the number of DDDs for each year studied was calculated, followed by DDDs/1000 inhabitants/day or DIDs (DDDs per 1000 inhabitants per day). DID was calculated according to formula 1 [14]:

$$DID = DDDs \times \times 1000 / \text{number of inhabitants in Ukraine} \times \times 365 \text{ days}, \qquad (1)$$

where DDDs is the number of defined daily doses taken by patients in total in Ukraine for the corresponding year.

This formula shows the number of DDDs per 1,000 people in a country that were consumed by a certain portion of the population each day during the years under study. The determined volumes of drug consumption are used to calculate the pharmacotherapeutic "load" per 1,000 inhabitants for each group of drugs under a certain INN according to their ATC classification.

4. Results

On the pharmaceutical market of Ukraine, drugs with antidepressant action are represented by three groups: N06AA "Non-selective monoamine reuptake inhibitors" (NIRIs), N06AB "Selective serotonin reuptake inhibitors" (SSRIs) and N06AX "Other antidepressants".

The assortment of this group of drugs on the pharmaceutical market of Ukraine for 2020–2021 was analyzed. The results of the study are presented in Table 1.

The next stage of the work is an analysis aimed at comparing the volume and structure of AD consumption in Ukraine, Estonia and Norway, which was conducted in the period 2020–2021 according to the indicator of DDDs/1000 inhabitants/day. The results of the consumption of 29 INN drugs were used for the analysis, of which only 18 INNs were registered and presented on the pharmaceutical market of Ukraine.

The obtained results are shown in Table 2.

Table 1

Analysis of the assortment of antidepressants on the pharmaceutical market of Ukraine for 2020–2021

No.	ATC code and INN of the drug	Research period, year	Number of trade names	Manufacturers: domestic/foreign
N06AA « Non-selective monoamine reuptake inhibitors»				
1	N06AA02 Imipramine	2020	1	0/1
		2021	1	0/1
2	N06AA04 Clomipramine	2020	2	0/2
		2021	2	0/2
3	N06AA09 Amitriptyline	2020	8	7/1
		2021	8	7/1
4	N06AA12 Doxepine	2020	3	1/2
		2021	3	1/2
N06AB « Selective serotonin reuptake inhibitors»				
5	N06AB03 Fluoxetine	2020	5	4/1
		2021	6	5/1
6	N06AB04 Citalopram	2020	2	1/1
		2021	1	0/1
7	N06AB05 Paroxetine	2020	5	0/5
		2021	5	0/5
8	N06AB06 Sertraline	2020	11	4/7
		2021	11	4/7
9	N06AB08 Fluvoxamine	2020	2	0/2
		2021	2	0/2
10	N06AB10 Escitalopram	2020	23	4/19
		2021	24	4/20
N06AX «Other antidepressants»				
11	N06AX03 Mianserin	2020	3	0/3
		2021	3	0/3
12	N06AX05 Trazodone	2020	3	3/0
		2021	3	3/0
13	N06AX11 Mirtazapine	2020	3	0/3
		2021	2	0/2
14	N06AX16 Venlafaxine	2020	10	3/7
		2021	10	3/7
15	N06AX21 Duloxetine	2020	14	2/12
		2021	16	4/12
16	N06AX22 Agomelatine	2020	1	0/1
		2021	2	1/1
17	N06AX23 Desvenlafaxine	2020	1	0/1
		2021	1	0/1
18	N06AX25 St. John's wort grass	2020	2	0/2
		2021	2	0/2
19	N06AX25 Vortioxetine	2020	1	0/1
		2021	1	0/1
Total TN of drugs on the market		2020	100	29/71
		2021	103	32/71

Table 2

Consumption volumes (DDDs/1000 inhabitants/day) of antidepressants in Ukraine, Estonia and Norway in 2020–2021

No.	Medicine INN	Years	Consumption in Ukraine	Consumption in Estonia	Consumption in Norway
			Consumption in DID indicators		
N06AA « Non-selective monoamine reuptake inhibitors » (NMRI)					
1	Imipramine	2020	0.013	0.00001	0.00001
		2021	0.013	0.0009	0.00001
2	Clomipramine	2020	0.029	0.10	0.15
		2021	0.030	0.091	0.15
3	Opipramol	2020	*	*	0.00001
		2021	*	*	0.00001

Continuation of Table 2

4	Trimipramine	2020	*	*	0.23
		2021	*	*	0.19
5	Lofepramine	2020	*	*	0.00001
		2021	*	*	0.00001
6	Amitriptyline	2020	0.40	1.50	3.03
		2021	0.40	1.55	3.34
7	Doxepin	2020	0.014	*	0.08
		2021	0.014	*	0.07
8	Nortriptyline	2020	*	0.33	0.15
		2021	*	0.30	0.16
Total in group		2020	0.46	1.93	3.64
		2021	0.46	1.94	3.91
N06AB «Selective serotonin reuptake inhibitors» (SSRI)					
9	Fluoxetine	2020	0.23	3.28	2.44
		2021	0.27	4.027	2.62
10	Citalopram	2020	0.0079	1.42	2.70
		2021	0.0080	1.40	2.52
11	Paroxetine	2020	0.41	2.32	2.14
		2021	0.46	2.34	2.04
12	Sertraline	2020	0.29	6.02	9.47
		2021	0.42	7.16	10.48
13	Fluvoxamine	2020	0.0032	0.01	0.08
		2021	0.0059	0.02	0.08
14	Escitalopram	2020	0.918	8.67	19.52
		2021	1.18	9.11	19.84
Total in group		2020	1.86	21.72	36.35
		2021	2.34	24.057	37.58
N06AF «Non-selective monoamine oxidase inhibitors» (NMAOI)					
15	Tranylcypromine	2020	*	0.01	0.01
		2021	*	0.011	0.01
16	Phenelzine	2020	*	*	0.01
		2021	*	*	0.01
Total in group		2020	*	0.01	0.02
		2021	*	0.011	0.02
N06AG « Monoamine oxidase A inhibitors»					
17	Moclobemide	2020	*	0.00001	0.10
		2021	*	0.0008	0.09
Total in group		2020	*	0.00001	0.10
		2021	*	0.0008	0.09
N06AX «Other antidepressants»					
18	Mianserin	2020	0.066	0.00001	1.14
		2021	0.084	0.0017	1.03
19	Trazodone	2020	0.054	0.10	0.00001
		2021	0.061	0.15	0.00001
20	Mirtazapine	2020	0.039	2.65	6.32
		2021	0.046	2.69	6.65
21	Bupropion	2020	*	0.88	1.18
		2021	*	1.10	1.23
22	Tianeptine	2020	*	1.25	0.00001
		2021	*	1.39	0.00001
23	Venlafaxine	2020	0.088	3.92	7.17
		2021	0.12	4.37	7.32
24	Milnacipran	2020	*	*	*
		2021	*	0.0002	*
25	Reboxetine	2020	*	0.00001	0.02
		2021	*	0.0004	0.02
26	Duloxetine	2020	0.087	2.56	0.93
		2021	0.16	2.8181	1.13

Continuation of Table 2

27	Agomelatine	2020	0.00001	1.25	0.00001
		2021	0.00001	1.23	0.000011
28	Desvenlafaxine	2020	0.012	*	*
		2021	0.015	*	*
29	Vortioxetine	2020	0.058	0.73	1.85
		2021	0.068	0.97	2.07
Total in group		2020	0.40	13.34	18.61
		2021	0.55	14.72	19.45
Total in all groups		2020	2.72	37.00	58.72
		2021	3.35	40.73	61.05

*Note: * – results on the consumption of INN data are not available*

5. Discussion

During the analysis of ADs on the pharmaceutical market of Ukraine for 2020–2021, it was established that the group of NMRI (N06AA) contains 4 INNs, based on which there were 14 TNs in 2020–2021. The group of SSRIs (N06AB) included 6 INNs, based on which 48 TNs were presented in 2020 and 49 TNs in 2021. The group "Other antidepressants" contained 9 INNs, based on which 38 TNs were calculated in 2020 and 40 TNs in 2021 (Table 1).

Drugs based on escitalopram (23–24 TN), duloxetine (14–16 TN) and sertraline (11 TN) were presented in the largest number of TNs on the market. During this period, drugs of foreign production had a great advantage on the pharmaceutical market of Ukraine. In 2020, the total number of AD produced by foreign manufacturers was 71 TN (71 %), domestic ones – 29 TN (29 %). In 2021, the total number of AD drugs produced by foreign manufacturers was 71 TN (68.93 %), domestic – 32 TN (31.07 %).

In the NMRI group (N06AA), the number of TN in 2020–2021 was 6 TN of foreign and 8 TN of domestic production. In the SSRIs group (N06AB), the number of TN in 2020 of foreign production was 35 TN, domestic – 13 TN, in 2021 – 36 TN and 13 TN, respectively. In the group "Other antidepressants" (N06AX), the number of TN in 2020 of foreign production – 30 TN, domestic – 8 TN, in 2021 – 29 TN and 11 TN, respectively.

In the NMRI group (N06AA), the largest number of TNs on the market of Ukraine was INN amitriptyline – 8 TNs in 2020–2021. In the SSRI group (N06AB) the leader was INN escitalopram – 23 TNs in 2020 and 24 TNs in 2021. In the group "Other antidepressants" (N06AX) was preceded by – duloxetine, which was 14 TN in 2020 and 16 TN in 2021.

The results of a comparative study of AD consumption (Table 2) showed that Norway in 2020–2021 significantly exceeded Ukraine and Estonia in terms of AD consumption in DID. According to the obtained results, in 2020 ADs were consumed in Ukraine 21.6 times less than in Norway, and in 2021 – by 18.2 times. Compared to Estonia, the consumption of AD in Ukraine in 2020 was 13.6 times lower, and in 2021 – by 12.2 times. In Estonia, AD consumption in 2020 was 1.6, and in 2021 – 1.5 times less than in Norway. Differences in consumption between countries were very significant. The undisputed leader in terms of consumption was Norway, followed by Estonia.

According to domestic researchers [2, 3], the very low level of drug consumption in Ukraine is due to the fact that a large number of people suffering from mental disorders do not receive the treatment they need, which is due to their irresponsibility. Many people, especially older people, deny the existence of any psychological problems. As the study showed, detection of cases of depression by general practitioners is also complicated by the fact that in almost half of cases patients try to keep silent about its symptoms [3, 6].

Currently, there are problems with diagnosis and treatment of depression in Ukraine. People with mental disorders are often not diagnosed in time: in 19 % of cases, other diagnoses are made instead of depression, in 26 % – the disorder is not diagnosed at all, and in 34 % – the diagnosis is made inaccurately, and only in 21 % of cases the diagnosis "depression" is set correctly. At the same time, less than 50 % of patients receive timely treatment, while only 10.7 % receive adequate therapy [2, 3].

According to the analysis of consumption volumes of the studied AD groups, it was determined that in 2020, the most ADs of the NMRI group (N06AA) were consumed in Norway. The results showed that in Ukraine, drugs of this group were used 7.9 times less than in Norway, and 4.2 times less than in Estonia. Consumption in Estonia in 2020 was 1.9 times lower than in Norway. In 2021, these indicators differed slightly. Consumption in Ukraine was 8.5 times lower than in Norway and 4.2 times lower than in Estonia. Estonia consumed 2 times less drugs of this group than Norway.

The analysis of AD consumption volumes showed that in 2020 the SSRI (N06AB) group of ADs was consumed the most in Norway. According to the results of the study, in Ukraine, drugs of this group were used 19.5 times less than in Norway, and 11.7 times less than in Estonia. Consumption in Estonia in 2020 was 1.7 times lower than in Norway. In 2021, consumption in Ukraine was 16.1 times lower than in Norway and 10.3 times lower than in Estonia. The population of Estonia consumed 1.6 times less drugs of this pharmacotherapeutic group than in Norway.

According to studies of the consumption of ADs, it was determined that in 2020 the most ADs of the N06AX group "Other antidepressants" were consumed

in Norway. In Ukraine, the indicators of consumption of drugs of this group differed significantly from the analyzed countries – 46.5 times less than in Norway, and 33.4 times less than in Estonia. Consumption in Estonia in 2020 was only 1.4 times less than in Norway. In 2021, consumption in Ukraine was 35.4 times lower than in Norway and 26.8 times lower than in Estonia. In turn, Estonia consumed 1.3 times less AD of this group than Norway.

The NMAOI group (N06AF) was not represented on the pharmaceutical market of Ukraine in any of the analyzed periods. No high rates of consumption of the analyzed pharmacotherapeutic group were found in Norway and Estonia. However, it occupies a certain share of the pharmaceutical market of these countries. According to the analysis, it was determined that the consumption of AD of this group in 2020 in Estonia was 2 times lower, and in 2021 – 1.8 times lower than in Norway.

According to the analysis, it was determined that the group of monoamine oxidase inhibitors type A (N06AG) was also not represented in Ukraine in 2020–2021 and in Estonia in 2020. In 2021, the consumption of moclobemide, which was the only representative of this group, in Estonia was 12.5 times lower than in Norway.

Analysis of the structure of AD consumption showed that among the 29 INN drugs of this group in 2020–2021 in all three countries, not all INN drugs were presented. It was determined that in 2020–2021 in Ukraine and Estonia, ADs from the group of NIRIs: opipramol, trimipramine, lofepramine are not registered and, accordingly, not consumed. Nortriptyline is also absent from this group in Ukraine, and doxepin is absent in Estonia.

In addition, the group "Non-selective inhibitors of monoamine oxidase" is not represented on the pharmaceutical market of Ukraine and, accordingly, there are two drugs: tranylcypromine and phenelzine, the latter is also not available in Estonia. Also, in Ukraine there is no group "Monoamine oxidase type A inhibitors" with the only INN in Norway and Estonia – moclobemide.

In the group "Other antidepressants" on the pharmaceutical market of Ukraine, there are four INN AD: bupropion, tianeptine, milnacipran and reboxetine. Among the ADs of this group in Norway and Estonia in 2020–2021, the INN desvenlafaxine and St. John's wort were not registered, in Norway there was also no INN milnacipran from this group.

In all countries, escitalopram (N06AB10) took first place in terms of consumption in 2020–2021. The results in the three countries differed significantly. In 2020, the consumption of escitalopram in Ukraine was 9.4 times less than in Estonia and 21.3 times less than in Norway. In 2021 – 7.7 times less than in Estonia and 16.8 times less than in Norway.

The second place in Ukraine was occupied by the SSRI representative – paroxetine (N06AB05), and in Estonia and Norway – the representative of the same group – sertraline (N06AB06).

So, it was determined that the largest amount of consumption among ADs in the three studied countries had a representative of the SSRI group – the modern AD escitalopram. This drug was introduced to the pharmaceutical market in a very short time (within 3.5 years) and was approved by the FDA in 2002. This became possible because escitalopram was created based on the well-studied citalopram based on the scientific theory of stereoisomerism [17]. Citalopram is a mixture of active S- and inactive R-stereoisomers, and escitalopram contains only the active S-stereoisomer, which is reflected in the name of the drug. The difference in the composition of the drugs forms the basis of a more pronounced pharmacological activity of escitalopram [18].

The mechanism of action of escitalopram is significantly different from other SSRIs. Since the mechanism is the basis of the properties of any drug, escitalopram has important features compared to drugs of this group.

All SSRIs have the same substrate for pharmacological action – the serotonin transporter protein (SERT). The physiological function of the SERT protein is the reuptake and transport of the neurotransmitter serotonin from the synaptic cleft back into the presynaptic neuron from which it was released. SSRIs bind to SERT, which leads to a violation of its ability to transport serotonin inside the neuron and an increase in the level of serotonin in the extracellular space of the synaptic cleft. It was established that the SERT protein has two types of binding sites, interaction with which changes its ability to transport serotonin. These are the orthosteric site (also called the primary site) and the allosteric site. Most SSRIs bind to an orthosteric site, resulting in some inhibition of SERT function. Escitalopram can bind to both orthosteric and allosteric binding sites of SERT. This unique mechanism allows escitalopram to carry out a more complete and stable inhibition of the reverse transport of serotonin in the presynaptic ending of the neuron, which leads to its higher extracellular level [18].

The effect of escitalopram on the mechanism of development of depression is not limited to blocking SERT and reducing the reuptake of serotonin. Several studies have revealed the ability of escitalopram to affect the second important link in the development of depression – neuroplasticity, that is, to affect the gene that codes for brain-derived neurotrophic factor (BDNF). It has been established that BDNF supports the viability of neurons, and stress, on the contrary, causes gene repression, which in turn contributes to a decrease in BDNF synthesis, which is the cause of depression. In clinical studies against the background of escitalopram treatment, a significant increase in the level of BDNF in the serum of elderly patients with depression was shown [19, 20] and a clear relationship between this increase and the positive dynamics of disease symptoms was established [21, 22]. Considering the available data on the effect of escitalopram on neuroplasticity, some authors suggest considering the level of BDNF in serum as a marker for predicting its effectiveness in patients with depression [21, 23].

Currently, there are also data confirming the effect of escitalopram on another possible link in the pathogenesis of depression – the state of microglia and neuroinflammation mediated by it [20]. It has been established that treatment with escitalopram reduces the level of inflammatory markers [24, 25]. Thus, escitalopram has a multifaceted mechanism of action, combining the properties of an antidepressant and a neuroprotector, which fundamentally distinguishes it from other SSRIs.

Study limitations. In our study, we analyzed the drugs on the market and calculated the consumption of AD in Ukraine only for monopreparations (not taking into account combined drugs), since there are very few such drugs in Ukraine and statistical data on their consumption in European countries – Estonia and Norway – are not presented.

Prospects for further research. The prospect of further research is the continuation of the study of the consumption of AD in Ukraine and the comparison of the level and structure of the consumption of drugs of this group with other countries of the world.

6. Conclusion

1. Antidepressants on the pharmaceutical market of Ukraine during 2020–2021 were presented based on 19 INNs, mostly drugs of foreign manufacturers. The assortment of AD ranged from 100 to 103 TN on the pharmaceutical market. Selective serotonin reuptake inhibitors were represented in the pharmaceutical market in the largest number of TNs – 48–49 TNs, among them escitalopram – 23–24 TNs and sertraline – 11 TNs predominated).

2. The level of AD consumption during 2020–2021 according to the indicator of DDDs/1000 inhabitants/day in Ukraine did not correspond to the level of consumption of drugs of this group in Estonia and Norway. Consumption volumes in Estonia exceeded indicators in Ukraine by 12.2–13.6 times, and in Norway, respectively, by 18.2–21.6 times. The selective serotonin reuptake inhibitor escitalopram was the leader in terms of consumption in both countries, but its consumption was 10.3–11.7 times higher in Estonia and 16.1–19.5 times higher in Norway. Such a difference in AD consumption may indicate unresolved problems in the diagnosis and treatment of depression in Ukraine.

Conflict of interests

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this article.

Availability of data
The manuscript has no associated data.

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