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CONSUMPTION OF PSYCHOTROPIC DRUGS IN THE VARNA DISTRICT AND IN BULGARIA DURING THE PERIOD 1985-1990

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The aim of the present study was to analyze and compare the consumption of psychotropic drugs in the Varna district and in Bulgaria during the period 1985-1990 and to obtain data to be used for the marketing and planning of psychotropic drugs utilization in the new situation of free market and trading. The utilization of tranquilizers, neuroleptics, antidepressants, lithium salts, nootropic drugs and phenylethylamine psychostimulants was studied. The measurement of drug consumption was based on the total sales data obtained from the Bulgarian National Organization for Drug Supply. The unit of measurement were the Defined Daily Doses /1000 inhabitants/ day. The total consumption of psychotropic drugs both in the Varna district and in Bulgaria was 22 DDD/ 1000 inhabitants/ day in 1985 and increased by about 35 % during the period under study. The proportional share among the different drug groups in the Varna district was similar to that in Bulgaria. Benzodiazepine tranquilizers were the most used psychotropic drugs, followed by nootropic drugs, antidepressants and neuroleptics. The total consumption in Bulgaria shows certain similarities with other European countries in the profile and the trends but differs significantly in DDD values.

Key-words: Psychotropic drugs, consumption, Defined Daily Doses, Varna district, Bulgaria

Detailed epidemiological information on drug consumption in the community provides useful criteria for estimating the health services of the population, serves as an empirical basis for the assessment of efficacy, safety and economy of drug therapy. It also offers an opportunity to prognosticate the future drug necessities (8,11,12). Psychotropic drugs represent a considerable share of the international drug market. Their consumption in modern societies is widespread and increasing thus requiring adequate evaluation (3,8). Much research has been conducted in the English-speaking countries, as well as in Scandinavia, while the information from the Eastern European countries is very insufficient (2).

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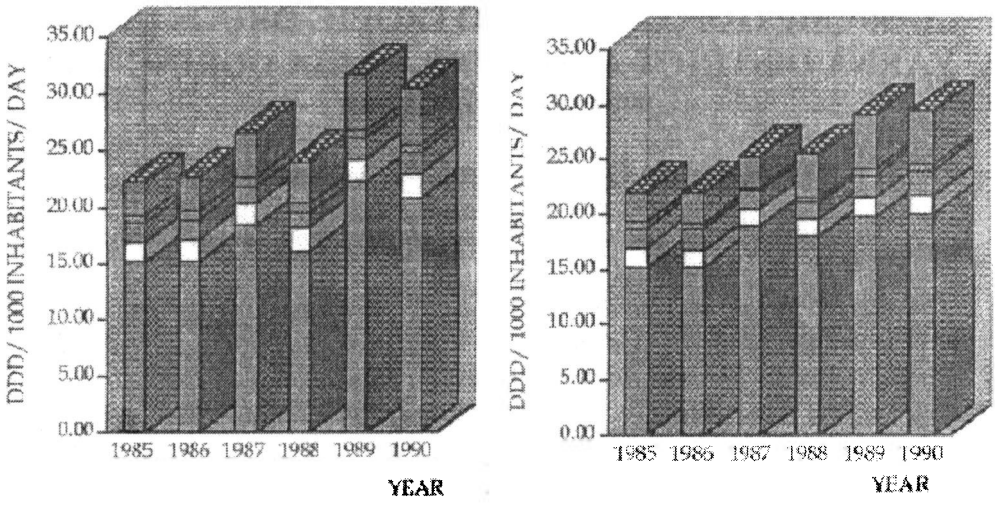

Panel A *Panel B*

Fig. 1. *Consumption of psychotropic drugs in the Varna district (panel A) and in Bulgaria (panel B) between 1985 and 1990 in DDD/ 1000 inhabitants / day*

MATERIAL AND METHODS

This survey investigates the consumption of psychotropic drugs in the Varna district in comparison with Bulgaria as a whole during the period 1985-1990. All drugs reported are classified as psychotherapeutic agents and are grouped in five drug classes:

a) tranquilizers
b) neuroleptics
c) antidepressants
d) lithium salts
e) nootropic drugs and phenylethylamine psychostimulants.

The measurement of drug consumption is based on the total sales data obtained from the National Organization for Drug Supply during a period of six years. The unit of measurement in all these statistics is the number of Defined Daily Doses (DDD) per 1000 inhabitants per day (DDD/1000 inhabitants/day). DDD is the assumed average dose per day for the drug used on its main indication in adults (9). This unit of measurement provides possibilities for comparison of drug consumption between and within countries; between and within regions; between and within health institutions. Using the same technique every year one can obtain trends (7).

RESULTS AND DISCUSSION

Total consumption of psychotropic drugs

The total consumption of psychotropic drugs in the Varna

Table1
Consumption of tranquilizers in the Varna district and in Bulgaria between 1985-1990, in DDD/1000 inhabitants/ day

	1985	1986	1987	1988	1989	1990
Varna district						
Benzodiazepines						
Bromazepam					2,50	2,10
Chlordiazepoxide	1,10	1,20	1,80	1,30	1,50	1,60
Diazepam	9,30	9,40	11,10	9,50	12,30	11,50
Medazepam	4,30	4,20	5,00	4,90	5,50	5,20
Oxazepam	0,10	0,210	0,20	0,20	0,20	0,20
Benzodiazepines Total	**14,80**	**14,90**	**18,10**	**15,90**	**22,00**	**20,60**
Hydroxyzine	0,10	0,10	0,10	0,10	0,10	0,10
Meprobamate	0,20	0,20	0,20	0,10	0,10	
Tranquilizers Total	**15,10**	**15,20**	**18,40**	**16,10**	**22,20**	**20,70**
Bulgaria						
Benzodiazepines						
Bromazepam			0,10	1,20	1,80	1,80
Chlordiazepoxide	1,00	1,30	1,40	1,10	1,10	1,10
Diazepam	9,10	9,00	11,70	10,40	11,30	11,30
Medazepam	4,30	4,20	5,00	4,60	4,90	5,30
Oxazepam	0,30	0,20	0,20	0,20	0,20	0,20
Benzodiazepines Total	**14,70**	**14,70**	**18,40**	**17,50**	**19,30**	**19,70**
Hydroxyzine	0,30	0,30	0,30	0,30	0,30	0,30
Meprobamate	0,20	0,20	0,20	0,10	0,10	
Tranquilizers Total	**15,20**	**15,20**	**18,90**	**17,90**	**19,70**	**20,00**

district in 1985 was equal to that in the whole country - 22 DDD / 1000 inhabitants / day. In 1990 the comsumption in the Varna district increased by 36 % and became 30 DDD / 1000 inhabitants / day. At the same time the consumption in Bulgaria increased by 33 % and became 29 DDD /1000 inhabitants / day. The proportional share among the different groups was similar in the Varna district as in the whole of Bulgaria. Tranquiizers were the most used psychotropic drugs, followed by nootropic drugs and neuroleptics (Fig. 1).

Table 2
Consumption of neuroleptics in the Varna district and in Bulgaria between 1985-1990, in DDD/1000 inhabitants/day

	1985	1986	1987	1988	1989	1990
Varna district						
Chlorpromazine	0,30	0,30	0,30	0,25	0,25	0,25
Levomepromazine	0,20	0,20	0,15	0,20	0,20	0,20
Thioridazine	0,25	0,20	0,20	0,20	0,20	0,20
Trifluoperazine	0,25	0,30	0,35	0,30	0,20	0,25
Fluphenazine	0,01	0,01	0,01	0,01	0,01	0,01
Thioproperazine	0,01	0,01	0,01	0,01	0,01	<0,01
Chlorprothixen	0,10	0,15	0,15	0,15	0,15	0,15
Flupenthixol	0,10	0,10	0,10	0,10	0,10	0,10
Haloperidol	0,60	0,60	0,70	0,80	0,90	0,80
Pimozid	<0,01	<0,01	0,01	0,01	0,01	0,01
Fluspirilen	<0,01	<0,01	<0,01	0,01	0,01	0,05
Clozapin					0,05	0,10
Total	**1,84**	**1,89**	**1,99**	**2,04**	**2,09**	**2,13**
Bulgaria						
Chlorpromazine	0,25	0,25	0,25	0,20	0,20	0,20
Levomepromazine	0,10	0,10	0,10	0,10	0,10	0,10
Thioridazine	0,10	0,25	0,30	0,25	0,20	0,25
Trifluoperazine	0,25	0,25	0,25	0,25	0,25	0,25
Fluphenazine	0,01	0,01	0,01	0,01	0,01	0,01
Thioproperazine	0,01	0,01	0,01	<0,01	0,01	0,01
Chlorprothixen	0,10	0,10	0,10	0,05	0,10	0,10
Flupenthixol	0,05	0,05	0,05	0,05	0,05	0,05
Haloperidol	0,90	0,40	0,45	0,50	0,70	0,60
Pimozid	0,01		0,05	0,05	0,05	0,05
Fluspirilen	0,01	0,01	<0,01	0,01	0,01	0,01
Clozapin	0,01	0,01	0,05	0,05	0,05	0,10
Total	**1,80**	**1,44**	**1,58**	**1,58**	**1,73**	**1,73**

Tranquilizer consumption

The consumption of tranquilizers in the Varna district was very similar to that in Bulgaria as a whole. It formed an average of 70 % of total and increased gradually

Table 3
Consumption of antidepressants and of lithium carbonate in the Varna district and in Bulgaria between 1985-1990, in DDD/1000 inhabitants/day

	1985	1986	1987	1988	1989	1990
Varna district						
Amitriptyline	**0,50**	0,60	0,40	0,60	0,70	0,60
Clomipramine	**0,01**	0,01	0,01	0,01	0,01	
Imipramine	0,40	0,40	0,30	0,15	0,25	0,30
Opipramol	0,07	0,80	0,80	0,60	0,90	1,10
Trimipramine	0,01	0,01	0,01	0,01	0,01	0,01
Maprotiline	0,01	0,01	0,01	0,01	0,01	0,01
Dibenzepin	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01
Total	**1,63**	**1,83**	**1,53**	**1,38**	**1,88**	**2,03**
Lithium caxbonate	**0,70**	**0,70**	**0,70**	**0,70**	**0,70**	**0,70**
Bulgaria						
Amitriptyline	0,50	0,50	0,50	0,50	0,60	0,70
Clomipramine	0,05	0,05	0,10	0,10		
Imipramine	0,30	0,30	0,30	0,20	0,20	0,30
Opipramol	0,90	1,10	0,80	0,90	1,20	1,30
Trimipramine	0,01	0,01	0,01	0,01	0,01	0,01
Maprotiline	0,01	0,01	0,01	0,01	0,01	0,01
Dibenzepin	<0,01	<0,01	<0,01	<0,01	0,01	0,01
Total	**1,73**	**2,02**	**1,64**	**1,60**	**2,18**	**2,29**
Lithium carbonate	**0,50**	**0,50**	**0,40**	**0,40**	**0,50**	**0,50**

during the whole period under study thus reflecting the consumption of all psychotropic drugs. The benzodiazepine derivatives were about 98 % of all tranquilizers. Diazepam and medazepam were the most commonly used drugs. The consumption of oxazepam was very low and decreased further with the years. The consumption of bromazepam increased steadily since its introduction to the Bulgarian drug market in 1987. A minor use of the non-benzodiazepine tranquilizers was observed (Table 1).

Neuroleptic drug consumption

Table 4
Consumption of antidepressants and of lithium carbonate in the Varna district and in Bulgaria between 1985-1990, in DDD/1000 inhabitants/day

	1985	1986	1987	1988	1989	1990
Varna district						
Amphetaminil	0,07	0,07	0,07	0,07	0,10	0,07
Aminalone	1,20	1,20	1,70	1,70	21,0	1,80
Meclophenoxate	0,30	0,30	0,40	0,30	0,30	0,40
Mesocarb	0,10	0,10	0,10	0,10	0,10	0,10
Piracetam	1,40	1,40	1,80	1,70	2,20	2,50
Total	**3,07**	**3,07**	**4,07**	**3,87**	**4,80**	**4,87**
Bulgaria						
Amphetaminil	0,03	0,03	0,04	0,04	0,07	0,07
Aminalone	1,80	1,80	1,50	2,20	2,60	2,30
Meclophenoxate			0,10	0,10	0,10	0,10
Mesocarb	0,10	0,10	0,10	0,10	0,10	0,10
Piracetam	0,90	0,95	1,10	1,50	2,10	2,30
Total	**2,83**	**2,88**	**2,84**	**3,94**	**4,97**	**4,87**

The consumption of neuroleptics in the Varna district was equal to that in Bulgaria - about 2 DDD / 1000 inhabitants / day - and did not show any significant changes from 1985 to 1990 (Table 2). The proportional share of the different antipsychotic agents in the Varna district was very similar to that in Bulgaria. Haloperidol, chlorpromazine, trifluoperazine, thioridazine, levomepromazine and chlorprothixen were the leading antipsychotic medications throughout this period. Haloperidol constituted about 35 % of all neuroleptics. Its consumption in the Varna district increased by 34 % from 1985 to 1990, while a decrease by 33 % was observed in Bulgaria. The consumption of the other neuroleptics was very low and did not show any trends to increase.

Antidepressant consumption

The utilization of antidepressants in the Varna district as well as in Bulgaria was about 2 DDD/ 1000

inhabitants/ day (Table 3). The highest proportion of the total consumption of antidepressants was for the tricyclic derivatives opipramol (50 % of all antidepressants), amitriptyline (30 %) and imipramine (15 %). The consumption of both opipramol and amitriptyline increased, while imipramine had a constant rate of consumption. The tetracyclic derivatives had a very low level of consumption (about 0,01 DDD/ 1000 inhabitants/ day) and did not show tendency to increase throughout the years.

Lithium carbonate consumption

The consumption of lithium carbonate, the only lithium salt used against mania in Bulgaria, was about 0.4 DDD/ 1000 inhabitants/ day and remained unchanged from 1985 to 1990. Its consumption in the Varna district was about two-fold higher - 0,7 DDD/1000 inhabitants/ day.

Nootropics and phenylethylamine psychostimulants consumption

Nootropics and phenylethylamine psychostimulants in the Varna district showed the same pattern of consumption as in Bulgaria (Table 4). Piracetam and aminalone, both nootropic drugs, were most used. The consumption of piracetam in the Varna district as well as in Bulgaria increased twice from 1985 to 1990. The consumption of aminalone also increased with the years. Because of the special way of prescribing of amphetamine the collected data were not informative enough and the consumption of this drug was not taken under consideration. From the phenylethylamine psychostimulants available, amphetaminil deserved attention because its consumption in Bulgaria, although very low, increased twice from 1985 to 1990.

The profile of consumption of psychotropic drugs in the Varna district is very similar to that in Bulgaria as a whole. The total consumption in Bulgaria shows certain similarities with other European countries in the profile and trends of consumption, benzodiazepine derivatives being the most used psychotropic drugs, but differs significantly in DDD values. Comparative statistics from other countries reveal that, for example the total consumption of psychotropic drugs in 1985 in Finland was 51, in East Germany - 61, in Norway - 78 and in Denmark - 130 DDD/ 1000 inhabitants/ day, while in Bulgaria it was only 20 DDD/ 1000 inhabitants/ day (6).

The data about tranquilizer consumption both in the Varna district and in Bulgaria as a whole are comparable to the drug statistics in other countries. The only exception is oxazepam, which consumption in Bulgaria was significantly lower during the whole period under study (1, 4, 5, 8, 10, 14, 15). This high level

of tranquilizer consumption with the trends of increase is a source of concern and debate. It has been reported that abuse and dependence might account for a substantial proportion of benzodiazepine use (15).

The consumption of neuroleptics both in the Varna district and in Bulgaria is low (about 2 DDD/1000 inhabitants/ day) compared, for example with Finland, where the usage of this group is nearly eight-fold that in Bulgaria at the same time (4). The pattern of consumption of antipsychotic drugs in Bulgaria is similar to that reported for the USA (13) and Germany (8). The overall usage of antidepressants in the Varna district is similar to that in Bulgaria. Preference towards tricyclic antidepressants could be noted in both areas. The low rate of consumption of tetracyclic compounds in Bulgaria is difficult to be explained. The situation in Germany is slightly different, as amitriptyline and maprotiline are the most used drugs there (8). Nootropic drugs are the second most used drugs after benzodiazepine tranquilizers. In the beginning of the period their consumption in the Varna district was higher compared to the whole country, mainly due to the usage of piracetam. The total consumption increased both in the Varna district and in Bulgaria. The greatest increase in the consumption occurred, however, on a national level between 1987 and 1990 (two-fold). Data about nootropic drug consumption in other countries are difficult to be obtained. According to a national survey of drug prescriptions in Germany piracetam is the preferred drug there as well (8).

The results from this survey reveal that the total consumption of psychotropic drugs in Bulgaria shows similarities with other countries in the profile and the trends of consumption. Certain differences in the rate of consumption of antidepressants and neuroleptics between Bulgaria and other European countries could be noted, however. These differences between the countries might be due to different health care systems; different prescribing patterns and physician related variables; different attitudes towards drug use; different patterns of morbidity.

This study summarises data on the consumption of psychotropic drugs in Bulgaria for a period of six years and could provide basic information in the process of planning and marketing of this drug group in the situation of free market and trading. Moreover, it is an important premise for the assessment of the trends in the utilisation of this group of drugs.

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Употреба на психотропни лекарства във Варненска област и в България през периода от 1985 до 1990 година

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Резюме: Цел на настоящото проучване е да се анализира в сравнителен аспект употребата на психотропни лекарства във Варненска област и в България между 1985 и 1990 година с оглед данните да бъдат използвани при рационалното планиране на употребата на психотропни лекарствени средства в условията на пазарна икономика. Проучена е употребата на транквилизатори, невролептици, антидепресанти, литиеви соли, ноотропни средства и фенилетиламинови психостимуланти. Данните за консумация на лекарствените средства са получени от Държавно Аптечно Обединение. Като критерий за измерване на употребата се

използва международната техническа единица Дневна Дефинирана Доза (ДДД)/ 1000 жители/ ден. Общата употреба на психотропни средства във Варненска област през 1985 година е еднаква с тази в България - 22 ДДД/1000 жители/ ден. Тя показва тенденция за нарастване с 35 % през проучвания период. Пропорционалният дял на отделните групи психотропни лекарства във Варненска област е сходен с този в България. Бензодиазепиновите транквизизатори са най-използваната група, следвани от ноотропни средства, антидепресанти и невролептици. Общата употреба на психотропни лекарства в България показва сходства с тази в други европейски страни в профила и тенденциите на употреба, но показва съществени различия по отношение на обема.