Nine-year Trends in the Morbidity of Mental Disorders and Psychotropic Drug Utilization in Croatia: Over-diagnosis and Over-utilization?

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ABSTRACT

Overall drug overuse, including psychotropic, is the Croatian reality. Therefore, in between 2000 and 2012, the interventions to control drug overspending were undertaken. The main aims of the study are: to determine the morbidity trends of mental disorders registered in family medicine (FM), the trends in psychotropic drug utilization and to identify whether the trends of utilization have any relation to the interventions. The results indicate that mental disorders represent a high disease burden in Croatia. It was also present a higher burden of psychotropic drug utilization; second ranked in the total drug utilization during the nine-year follow up period. The utilization of psycholeptic’s, was even higher; from 2004 to 2008; those drugs were ranked first in terms of utilization. Between 20–25% of Croatia’s total health care budget is usually spent on drugs. The interventions that are currently being implemented to control drug utilization have not brought about any changes.

Key words: mental disorders, psychotropic drug, over-diagnosis, over-utilization, Croatia

Introduction

Several years ago, the British Medical Journal started a campaign of «Too Much Medicine» based on the literature documenting cases of over-investigation, over-diagnosis and over-treatment1–6. A similar situation is occurring in Croatia; overall drug overuse, including psychotropic drugs, is well documented in the literature7,8. Therefore, between 2000 and 2012, three groups of interventions or regulations to control drug overspending were undertaken, mainly by the Croatian Health Insurance Fund (CHIF). The first group of interventions targeted family doctors (FDs) that were under contract with CHIF, as the main prescribers of medications. In 2003, a restriction on the number of prescriptions that FDs could prescribe annually per patients was introduced by CHIF. In the beginning, the number of the prescription refill forms was restricted to five for each patient, then that restriction was increased to eight for each patient on the list. A restriction was also placed on the physical availability of the prescription refill forms in order to obtain the allotted yearly number in four portions, every three months8. In 2007, this then changed to a financial restriction, based on the age-related amount of money that should be spent each year for each patient on the list10. A restriction, accompanying by financial penalties, still exists as a part of the FD’s contract with CHIF11.

The second group of interventions was related to the insurers, the publicly insured patients, through the introduction of a co-payment. It has always been a rule that publicly insured patients must individually contribute to their medical costs. The amount of money they had to pay was usually symbolic for the majority of them and furthermore, many patients were released, primarily based on their socio-economic status12. Gradually, the sum became greater and additional voluntary insurance was introduced in 2000 to cover medical costs, including the costs of a prescription13. However, many patients did not accept that option, and a much higher level of partici-
pation, known as administrative taxes, was introduced in 2005. The third group of interventions was related to the lists of basic drugs that were available for the insured patients and additional lists of drugs that should be partially paid. Negotiations that were made with the pharmaceutical firms to lower the drug costs also belong in this group of interventions.

Until now, no research studies have investigated longer trends in the consumption of psychotropic drugs, especially in relation to the interventions and regulations for controlling consumption. Therefore, this study was undertaken with the following aims: 1) to determine the morbidity trends of mental disorders registered in family medicine (FM) in Croatia; 2) to determine the trends in psychotropic drug utilization; and 3) to identify whether the trends in psychotropic drug utilization have any relation to the regulations introduced in between 2000 and 2012.

**Methods**

The study is observational and retrospective, based on routinely collected data. From the Croatian Health Service Yearbooks, the Croatian Institute of Public Health, from 2004 to 2012, the morbidity data recorded in family medicine (FM) were extracted. Data from the Yearbooks were based on FM electronic records and the morbidity data were registered based on the Instructions for data registrations and collection. Due to those Instructions, the first visit of a patient suffering from a chronic condition in a calendar year is registered as a morbidity case. If a patient suffers from an acute disease, only the first visit is registered as a morbidity case. All subsequent, follow-up visits are not registered as morbidity. This could continue until a disease was cured, and if the patient felt well the case would be closed. If the same patient returns in the consecutive year for the same acute diagnosis, it is registered as a new morbidity case. In Croatia, the International Disease Classification, version X, (ICD-X) is used to register morbidity. Mental health problems are registered under F diagnoses.

However, not all F diagnoses are registered within the Croatian Health Service Yearbooks. Mental health problems are grouped into seven broad categories: dementia (F00-F03), alcohol problems (F10), illicit drug problems (F11-F19), schizophrenia and psychosis (F20-F29), neurosis, stress and affective disorders (F40-F48), mental retardation (F70-F79) and other mental and behavioral disorders, in which depressive and personality disorders are included. Morbidity is registered according to the patient’s age group: 0–6 years, 7–19 years, 20–64 years and over 65 years. All data were collected exactly in the way they were presented in the yearbooks and for the consecutive years.

The following data were obtained from the Yearly Reports of the Croatian Agency for Medicinal Products and Medical Devices (HALMED): total drug utilization and the utilization of psychotropic drugs, types and amounts of drugs presented in DDD per 1000 inhabitants, per days (DDD/TID) for the years ranging from 2004 to 2012. The types of drugs are registered using the ATC classification index in which psychotropic drugs are listed under label N as psycholeptics N05 and psychoanaleptics N06. All the data on total drug utilization and of the utilization of psycholeptics N05 and psychoanaleptics N06 were collected. However, data on particular drugs from those two groups were missing if some of the drugs did not belong to the 30 most commonly used drugs for the years ranging from 2004 to 2012. The missing data were the reason why the data on drugs labelled as N06 were collected from the year 2006 and why data on hospital utilization and out-of-hospital utilization were collected from the years ranging from 2007 to 2012.

All of the collected data were related to the psychotropic drugs that are usually covered by the Croatian Institute of Health Insurance, as these are part of the reimbursement for the prescriptions issued for out-of-hospital care or are part of the hospital reimbursement. In addition, there is a possibility that a doctor could issue a permanent receipt and the patient would have to directly pay the pharmacy for the medication. The data on that type of utilization was also collected. To determine financial utilization, DDD/TID was used as the measure for drug utilization and to indicate the amount of money (kunas) required to pay for the drugs.

The collected data were analyzed using Microsoft Office (Excel and Access) software. The results are presented in the form of frequency and, graphically, the trends are displayed as line charts.

**Results**

The results are presenting in two categories: morbidity trends and psychotropic drug utilization.

**Morbidity trends for mental illnesses registered in Croatian FM**

In terms of morbidity, between 2004 and 2012, mental disorders were usually ranked fifth or sixth. In 2012, 20.3% of adult patients visiting FDs were diagnosed as having mental disorders.

The number of mental disorders registered in FP nearly doubled from 1995 to 2012. This is especially the case from 2008 to 2011 and then the number of mental disorders decreased from 2011 to 2012. The most prominent increase (3.3 times) occurred in the group of disorders labelled as other mental and behavioral disorders, including depressive and personality disorders. The prevalence of neurosis, stress and affective disorders (F40-F48) increased 1.6 times. Only alcohol problems (F10) showed a decreased trend, while the number of cases of illicit drug problems (F11-F19) increased as well (Figure 1).

A large number of the mental disorders registered in FP were diagnosed in people in the following two age groups: 20–64 year and over 65 years, with similar increased trends during the entire follow-up period; 1.9 times in age group 20–64 and 2.0 times in the group over 65.
65 years. Less than 5% of all cases belong to the 0–6 year and 7–19 year age groups (Figure 2).

A morbidity structure for the two groups of mental disorders with the highest increase in morbidity in relation to age is presented at Figure 3 and Figure 4.

A slightly higher increased trend of neurosis, stress and affective disorders is registered in the over 65 age group (2.0 times) than in the 20–64 age group (1.6 times). Only 1.4% of the morbidity cases are registered in children and young people (0–19 years) (Figure 3).

The increased trends of mental and behavioral disorders labelled as others in the over 65 age group were higher (4.4 times) than the trends in the 20–64 age group (3.2 times). These increased trends were also registered in children, aged 0–6 years (1.7 times), and in young people, aged 7–19 years (2.2 times) (Figure 4).

**Utilization of psychotropic drugs**

As seen in Figure 5 and Figure 6, the total utilization of psychotropic drugs and the utilization of the mostly frequently used psychotropic drugs, psycholeptics (N05) and psychoanaleptics (N06), are presented as DDD/TID. The financial utilization of psychotropic drugs (based on kunas) is presented at Figure 7.

Total utilization of psychotropic drugs shows that the trends continuously increased from 103.6 DDD/TID in 2005 to 148.4 DDD/TID in 2010. During the rest of the follow-up years, that trend was stable. Much of the utili-
zation belongs to the psycholeptics (N05). After a slight decrease until 2006, the utilization continuously increased until 2012: ranging from 66.9 DDD/TID in 2005 to 90.3 DDD/TID in 2012. The trend in the utilization of the psychoanaleptics (N06) increased even more, from 11.3 DDD/TID in 2005 to 26.4 DDD/TID in 2012 (Figure 5).

In the nine-year follow-up period, psychotropic drugs ranked second in total overall drug utilization, just after cardiovascular drugs. In 2012, full daily doses of psychotropic drugs were used by 50,282,135 people, or 14.8% of the Croatian adult population. As a separate group, psycholeptics (N05) were ranked first in utilization from 2004 to 2008; after that, they were ranked second. At the same time, the utilization ranking of psychoanaleptics (N06) increased from 16 to 11.

Within the group of psycholeptic drugs, anxiolytics, particularly benzodiazepines, were the mostly widely used drugs, and their utilization trends continuously increased, especially after 2008. Of that class of drugs, diazepam was most frequently used and its utilization increased from 18.7 DDD/TID in 2004, to 31.6 DDD/TID in 2012. The utilization trends for oxazepam decreased, while the utilization trends for alprazolane increased, from 10.8 DDD/TID in 2004 to 23.7 DDD/TID in 2012. The utilization trends for psychoanaleptic (N06) drugs increased as well, including use of the antidepressants, sertraline and paroxetin; however, until 2007, those drugs were not among the 30 most utilized medications (Figure 6).

The total financial utilization (spending) for psychotropic drugs steadily increased 1.4 times, from 608,881,055 kunas in 2004, to 810,530,218 kunas in 2012. The increase in the financial utilization trends was slightly higher for the psycholeptics (N05) than it was for the psychoanaleptics (N06) (Figure 7).

In 2004, the overall financial outlay for drugs in Croatia was 3.82 billion HRK (around 501 million EUR). Approximately 90% of that total cost was spent on drugs in the prescription regime and, therefore, the drugs were reimbursable by CHIF. The total costs were relatively uniform from 2004 to 2007, while in the last few years the costs increased by 32.7%, from 3.82 billion HRK in 2004 to 5.07 billion HRK in 2012. In 2004, 15.9% of the total spending went to psychotropic drugs and in 2012 the total spending for psychotropic drugs increased to 21.5%.

Beginning in 2007, all hospital and out-of-hospital utilization of psychotropic drugs were recorded in yearly reports. However, in general, the data on out-of-hospital utilization is more important. For example, in 2007, those drugs were utilized 54.2 DDD/1000/day in out-of-hospital settings and 1.3 DDD/TID in hospital settings. In 2012, utilization of those drugs in out-of-hospital settings was 53.5 DDD/TID, and in hospital settings it was 2.43 DDD/TID. In comparison, the most used out-of-hospital drugs were benzodiazepines, among them diazepam, while hospitals used different psychotropic drugs, including anti-psychotics.

The out-of-hospital utilization of psychotropic drugs that patients had to pay for on their own was a part of the total utilization data. Again, the most frequently used type of those drugs were benzodiazepines, among them diazepam. However, the utilization trend slightly decreased beginning in 2005. In 2005, the utilization data for those drugs was: 8.5 DDD/TID for benzodiazepine and 3.5 DDD/TID for diazepam. In 2012, the utilization for those drugs was: 5.8 DDD/TID for benzodiazepine and 2.0 DDD/TID for diazepam.

Discussion
The results indicate that mental disorders represent a high disease burden in Croatia. Approximately 20% of the adult population was labelled as having a mental disorder and most of the diagnoses were for mental and behavioral disorders labelled as others, in which depressive and personality disorders were included. The neurosis and affective disorders were also with high proportion; this is especially true for patients in the over 65 age group. The results also indicate a higher burden of psychotropic drug utilization; which ranked second in the
total drug utilization during the nine-year follow up period. While the number of mental disorders decreased from 2011 to 2012, the same decreased is not observed in drugs consumption in 2012 compared to 2011.

The utilization of psycholeptics, as a separate group, was even higher; from 2004 to 2008; those drugs were ranked first in terms of utilization; after that, those drugs were ranked second in total utilization. Among the psycholeptic drugs, benzodiazepines, particularly diazepam, were most often used. It seems that the previously mentioned interventions that were introduced to control drug utilization did not result in lower utilization for psychotropic drugs. In contrast, a continuous increase in utilization was present when the first intervention was introduced in 2003, and the utilization increased even faster, especially after 2008, when many other interventions were introduced, including restrictive measures that were applied to the contracted FPs.

According to WHO, the incidence of mental disorders is increasing all over the world. In Croatia, mental disorders are common, occupied the fourth place in 1995 and fifth in 2012, with 5.8% of the total morbidity recorded in FP. The results of a study on people in the city of Zagreb, conducted by Poliç-Vižintin and associates, showed similar results. Neurosis and affective disorders were ranked as the eighth most common mental health condition. It is difficult to judge the role of the Diagnostic and Statistical Manual of Mental Disorders. Even DSM-4 classification has raised many questions, and the DSM-5 classification has raised even more. Dowrick and Frances reanalyzed the results of American studies on depression among Medicare beneficiaries applying DSM-5. They found that although the prevalence of major depression remained the same, the prevalence of mild and moderate depression increased rapidly. One of their major conclusions was: «Turning grief and other life stresses into mental disorders represents medical intrusion on personal emotions».

With a high level of certainty, it could be said that the phenomenon of over-utilization of psychotropic drugs does exists in Croatia. The second ranking for total utilization of drugs, the first ranking for utilization of psycholeptic drugs and the high use of benzodiazepines, particularly diazepam, are obvious arguments in favor of such a consideration. The results from other studies in Croatia are similar to the results from this study. In the study conducted by Štimac and associates, nervous system agents were among the sixth most often used drugs in Croatia in 2009, with great variations between the counties. In the study comparing the utilization of psycho-pharmaceuticals in Croatia and in Scandinavian countries, the consumption of psycholeptic drugs was three times higher in Croatia than it was Finland and Denmark, and it was 5.6 times higher in Croatia than in Norway. Of the psycholeptics, diazepam was the drug that was most often used.

The cost of those drugs also places a high burden on financial expenditures. Between 20–25% of Croatia’s total health care budget is usually spent on drugs. Around 16% of the total drug costs are spent on psychotropic drugs. The costs for psycho-pharmaceuticals are increasing all over the world, and the burden is even more serious because of the global financial crisis, especially in Croatia.

The strengths of this study come from its nine-year follow-up, which is a time line long enough to determine the permanent nature of the over-utilization of psychotropic drugs. This study’s strength also arises from the fact that the data were collected from the official sources usually used for planning different levels of health services. This study also makes it possible to compare the findings of different studies, because other studies are very often based on the same sources. However, the nature of the data only allows for the determination of the trends. Deeper insights, especially in terms of causal relations, are not possible in this type of research. Furthermore, some data were missing; which limited the study’s results; but, that also indicates that reporting should be improved and made completely accessible to the public.

Even with those limitations, the results of this study should be seriously taken into the considerations by different stakeholders within the health care system. A higher level of decision makers should be aware that the types of interventions that were implemented between 2000 and 2010 did not result in any changes. Therefore, evidence-based effective interventions should be taken into consideration for the future. The role of patients at both the individual and public levels should not be neglected and prevention interventions should also be addressed.

Conclusions

Four main conclusions related to the Croatian situation can be drawn from the study results. The first is that the prevalence of mental disorders is rapidly increasing. The second conclusion is that the over-utilization of psychotropic drugs is already present in Croatia. The third conclusion is that the interventions that are currently being implemented to control drug utilization have not brought about any changes. The fourth conclusion is that new research studies are needed in Croatia to gain a deeper understanding of these two phenomena: over-diagnosis of mental disorders and over-utilization of psychotics.

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DEVTGODIŠNJE KRETANJE POBODA OD DUŠEVNIH BOLESTI I KORIŠTENJA PSIHOHTRPNIH LIJEKOVA U HRVATSKOJ: PREVJEŠE DIJAGNOZA I PREVJEŠE KONZUMACIJE?

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S AŽE T A K

Istraživanje je provedeno s ciljem da se utvrdi trend poboda od mentalnih bolesti registriranih u ordinacijama liječnika obiteljske medicine u Hrvatskoj, da se utvrđi potrošnja psychofarmaka od 2004. do 2012. godine, te da se procijeni da li je potrošnja psychofarmaka povezana s regulatornim mjerama donešenim u tom razdoblju. U istraživanju je korisna statističko-deskriptivna retrospektivna metoda, temeljena na podacima o poboljšanju registriranim u ambulantima obiteljske medicine u Hrvatskoj. U istraživanju je korisna statističko-deskriptivna retrospektivna metoda, temeljena na podacima o poboljšanju registriranim u ambulantima obiteljske medicine u Hrvatskoj.