

## Which Psychotropic Medicines are Preferred by Iranian Psychiatrists as the most Accessible Ones under Sanctions?

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### ABSTRACT

**Background:** Accessibility of medicines is one of the main building blocks of health. As a consequence of the decision of the US president to withdraw from the Joint Comprehensive Plan of Action, harsh sanctions were instigated on Iran. Legally, medicines were exempted from the sanctions. But in practice, this action has caused serious shortage of medicines including psychotropics in Iran. As a domestic solution, the impact of this shortage on the patients could be mitigated by distributing the most needed medicines in pharmacies closest to public and private psychiatric clinics to reduce patients' sense of bewilderment. We tried to identify the top 10 psychiatric medicines for this purpose.

**Methods:** Through semi-structured interviews with all the 384 reachable psychiatrists of Iran, face to face or by phone, we prepared a list of psychiatric medicines preferred as priority. Data were analyzed using  $\chi^2$  for relationships with contributing factors and controlling for confounders.

**Results:** Medicines were ranked, and we ended up with a final list of ten. Sertraline ranked first followed by sodium valproate and risperidone. Age and years of experience were correlated with preferences. Comparison with the sales market ranking showed that the latter is mainly influenced by benzodiazepines not prescribed by psychiatrists.

**Conclusion:** We finalized a ranked list of psychiatric medicines useful for the food and drug administration of Iran to consider in distributing psychotropic medicines in the vicinity of public and private clinics. This will ease access and help in mitigating patients' stress. Other medical groups can follow suit.

**Keywords:** Psychotropic medicines, Access to medicines, Iran, US sanctions

**Citation:** Banihashem SS, Yasamy MT, Kheradmand A, Tavakoli-Ardakani M, Jafarian Bahri R, Sohrabi MR. Which psychotropic medicines are preferred by Iranian psychiatrists as the most accessible ones under sanctions? Journal of Kerman University of Medical Sciences 2022; 29(2): 134-138. doi: 10.22062/JKMU.2022.91890

**Received:** 18.04. 2021

**Accepted:** 18.09. 2021

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Published by Kerman University of Medical Sciences

## Introduction

Access to essential medicines is one of the six building blocks of health systems (1). Psychotropic medicines are widely used in the treatment of most psychiatric disorders in Iran. The recent upsurge of interest and skill development in community-based psycho-social interventions and psychotherapy for people with psychiatric conditions in Iran is shifting services towards a more comprehensive approach; but, it has not yet led to a decrease in the high demand for medicines (2). According to psychiatrists, pharmacists, patients and family organizations, a shortage of psychotropic medicines due to sanctions has created problems for both accessibility and affordability of these medicines (3-6).

Since about two years ago, after the unilaterally withdrew of the US president from the Joint Comprehensive Plan of Action (JCPOA) and imposed sanctions on Iran, a shortage of medicines took place as a consequence. Formally, American sanctions were not supposed to cover food and medicines. However, the shortage of medicines happened in real life (5,7). Formally, according to Mr. Brian Hook, the special representative for Iran, "The United States exempts medicine and medical devices from US sanctions" (US Department of Treasury, BBC 2019). However, BBC quotes from Mr. Richard Nephew, an expert in US Sanctions: "The problem is that you need to find banks willing to keep open the business lines and compliance functions to process those transactions...Often, they're seen as not worth the headache..." (8). Human Rights Watch has criticized US government accordingly (9).

Though Iran has been manufacturing most of the required essential medicines including psychotropics, there is a small but important proportion of medicines imported from other countries. Iran is also in need of some important ingredients of medicines for the production of generic medicines. Another important impact of sanctions on medicines has been the economic downturn as a consequence of sanctions on oil export; hence impacting the national funds and availability of imported ingredients and medicines as a consequence.

About half a dozen million patients in Iran suffering from non-communicable diseases had been deprived of their required medicines due to sanctions even before JCPOA (10,11). The present sanctions are even tighter than those before JCPOA (12). The shortage reportedly

affected at least 57 medicines in one way or the other (5). Psychotropic medicines have not been an exception. Shortage of medicines creates problems for people with psychiatric disorders too. For most patients, it becomes a real challenge to find a pharmacy that can offer all the prescribed items. For a person with mental illness, limited resources for transportation costs and his already distressed emotions and commonly challenged concentration, this could give rise to even more intensified feelings of uncertainty and bewildering. In addition, provision of medicines for mental disorders is very important as sudden withdrawal alone may lead to harmful and annoying side effects in addition to relapse of the illness itself (12). Last year a formal letter by the president of Iranian Psychiatric association to the Minister of Health and an open petition to the same authority by a high number of Iranian psychiatrists explained the shortage of a number of psychiatric medicines and asked for solutions (13).

Because of the shortage of psychotropic medicines, their availability is not consistent and changing such medicines for the patients is not either easy or professional. Often, some medicines are available in some pharmacies while absent in others. Though the MOH created an electronic system and phone lines to make the geographic localization of available medicines easier, not all patients are aware or able to make use of such facilities; and when they are, the long distance with the pharmacy becomes an important problem.

It would then be helpful to have the most needed psychotropic medicines in the shortest distance from outpatient clinics, public or private. As a first step, we need to identify the most needed medications so that, the distribution systems could adapt their plans to make them more accessible for those in need and reduce their bewilderment and apprehension.

## Material and Method

This was a survey based on prospective data collection from Iranian psychiatrists. Through convenience sampling, we collected data from psychiatrists who attended scientific and professional gatherings from 18<sup>th</sup> to 21<sup>st</sup> October 2018 and all other psychiatrists available in the contact list of Iranian Psychiatric Association reachable through their phones. Overall, we were able to collect data from 384 psychiatrists. Non-response rate was calculated for those who were contacted but did not cooperate. This

reached up to 15 persons (3.9%). Those with wrong or silent phone numbers were not counted as non-responders. Though the number of Iranian psychiatrists is estimated to be about 1800, only about 400 of them have been enrolled and are registered by the Iranian Psychiatric Association (IPA).

A questionnaire was developed by the researchers and semi structured interviews were conducted through face to face visits or telephone calls. Data collection was completed before Covid-19 Pandemic. The questionnaire included demographic variables in addition to the first five choices of psychiatric medicines. There were additional questions on different aspects of psychiatric services the participants were involved with.

### Statistical Analysis

Data were analyzed through SPSS software. Correlation between data was analyzed using Chi-Square Test. Additional analysis to check

for possible confounding effects also used additional Chi-Square tests.

### Results

Most of the psychiatrists were under 50 years of age as summarized in table 1. Though in recent years the number of female psychiatry residents is exceeding the males, still the number of practicing male psychiatrists is higher. Most psychiatrists are working in the area of general psychiatry; and most of them are also involved in both outpatient and inpatient services.

Data indicates that the most demanded medicine by Iranian psychiatrists has been Sertraline (Table 2). Four of the top ten medicines were antidepressants, two were mood stabilizers and three were second generation antipsychotics which also work as mood stabilizers. Table 1 shows the ranking of medicines based on their demand by psychiatrists.

**Table 1.** Characteristics of the Iranian psychiatrists participating in the study

Age (year)	≤30	31-40	41-50	51-60	61-70	>70	Unknown
Number	11	113	116	61	19	8	56
Per cent	2%	29%	30%	27%	5%	2%	15%
Sex	Female	Male					
	135	234					16
	35%	61%					4%
Years of psychiatric practice	≤10	11 -20	21 -30		>30		
	113	113	53		27		0
Per cent	29%	29%	15%		7%		0
Main field of work *	General Psychiatry	Child and adolescent	Psychotherapy		Other		
	284	15	35		50		0
Per cent	74%	4%	9%		13%		0
Involved with inpatient treatment /care	Yes	No					
	239	84					61
	62%	22%					16%

\* A participant who did not choose any additional specific area of work was considered a general psychiatrist. *Other* includes: liaison psychiatry Fellowship, psychosexual, sleep, addiction, military, and geriatric psychiatry.

Na valproate (P= 0.009) and Ritalin (P= 0.009) had a significant inverse relationship with years of psychiatric practice. Age of psychiatrist did not show to be confounding this relationship (P>0.05). Ritalin was mostly demanded by

younger psychiatrists (p=0.002) and those specialized in child and adolescent psychiatry (P= 0.001). Prescription of citalopram and sertraline was more common by older psychiatrists.

**Table 2.** The frequency of the top 10 most demanded medicines by Iranian psychiatrists

	Drug name	Number	Percent
1	Sertraline	215	56
2	Na Valproate	200	52
3	Risperidone	138	36
4	Lithium carbonate	137	35.6
5	Citalopram	85	22.2
6	Quetiapine	63	16.5
7	Methylphenidate	62	16.1
8	Olanzapine	56	14.6
9-1	Fluoxetine	53	13.7
9-2	Clonazepam	53	13.7
10	Escitalopram	38	9.8

### Discussion

Sertraline ranks first on the list of demand by Iranian psychiatrists. Iranian epidemiological studies also show that depression together with anxiety disorders are the most common mental

disorders in Iran (14,15). Sertraline is also the most common psychotropic medicine prescribed in US (16). Preference of psychotropics by Iranian psychiatrists does not match the sales rank in the country (Table 3).

**Table 3.** Psychiatrists' preference rank compared with the sales rank in Iran

Drug name	psychiatrists' preference rank	General sales rank in Iran *
Sertraline	1	8
Valproate	2	9
Risperidone	3	>10
Lithium carbonate	4	>10
Citalopram	5	7
Quetiapine	6	>10
Methylphenidate	7	>10
Olanzapine	8	>10
Fluoxetine Clonazepam	9	>10
		3
Escitalopram	10	>10

\* Sales rank of psychotropics in this column are respectively methadone, alprazolam, chlordiazepoxide, Gabapentin, Buprenorphine, Citalopram, Sertraline, Na Valproate and Carbamazepine.

This discrepancy may be reflecting the fact that general practitioners and non-psychiatrist medical doctors also prescribe such medicines. In Iran trained GPs run almost 7500 methadone maintenance centers and that is why methadone ranks first on the list. However, it is worrying that the second medicine used in the country is alprazolam, an addictive benzodiazepine.

### Conclusions

The present study identifies the most required psychotropic medicines that Iranian psychiatrists recommend to be available at their vicinity to reduce the bewilderment of the patients in a time of shortage because of the sanctions. It is possible that lack of local access to such

medicines might encourage patients to self-administer prescription drugs from the black market which has been reflected in the sale market list, with a disturbing overconsumption of benzodiazepines. Health and political authorities should do their best at the international level to prevent the negative impact of sanctions on people's access to professional medicines. Local strategies for better geographical distribution of psychotropics can mitigate the impact of unjustified sanctions affecting everyday life of the ordinary people and patients.

## Acknowledgements

We appreciate the Iranian Psychiatric Association and all psychiatrists who participated in this study. Thanks are also due to Taleghani Hospital Research Development Unit for supporting this research.

## Authors' contributions

SSB, MTY and AK conceived the presented idea. All authors contributed to the study design, the development of research questions and the

drafting of the paper. RB collected the data. SSB, MTY and AK led the work and wrote the first draft of the paper. MRS did the statistical analysis. All authors reviewed and approved the final draft.

## Funding

The study did not receive any funding.

## Conflict of interest

No conflict of interest

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