Modifications in psychotropic drug use patterns in a Southern Brazilian city

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Psychotropic drugs, administration & dosage. Drug utilization, trends. Pharmacoepidemiology. Cross-sectional studies. Psychopharmacology.

Abstract

Objective
To assess the prevalence and patterns of psychotropic use by population and to compare the results with a study carried out in 1994.
Methods
This is a population-based cross-sectional study carried out in 2003 with 3,542 participants aged 15 or older who lived in an urban area in Southern Brazil. Two-week recall data were collected in household interviews through the same questionnaire used in the 1994 study. The variables studied were age, gender, race, education, family income, marital status, smoking, medical diagnosis of hypertension, and physician visit at last three months. Pearson's Chi-square and linear tendency were used in the bivariate analysis. Four levels of multivariate analysis was performed.
Results
The overall prevalence of psychotropic use was 9.9% (CI 95%: 8.9-10.9). There was no significant difference among standardized age groups when compared to the prevalence rates observed in 1994. Higher psychotropic use was associated with being female, older age, medical diagnosis of hypertension, and health service utilization. Of those interviewed, 74% of those drug users were using psychotropic drugs for over three months.
Conclusions
A decade later, prevalence remained high, yet psychotropic drug use did not increase. The association between health service utilization and consumption shows the importance of the appropriate prescription of psychotropic drugs and regular follow-up of those prescribed them by physicians.

INTRODUCTION

Psychotropic drug use has increased in the last few decades in various Occidental countries[4,13] and even in some countries in the Orient.[14,15] This increase has been attributed to an increase in the frequency of the diagnosis of psychiatric disturbances in the population, the introduction of new psychotropic drugs in the pharmaceutical market, and new therapeutic recommendations of already existent psychotropic drugs.

The prevalence of psychotropic use found in a 1988 study[1] in Ilha do Governador (state of Rio de Janeiro), was 5.2% and 10% in a 1993 study in the city of São Paulo.[7]

In Pelotas, a cross-sectional study* conducted in 1994 identified the prevalence rate of psychotropic drug use to be 11.9%. In this same year, the country established the Law of Generic Medicines, thereby reducing the cost of medicines. Also during this period, the appearance of new psychotropic drugs in the pharmaceutical market diversified the psychotropic drugs available.

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During this same period, the Pelotas mental health services were expanded through the creation of various Psychosocial Care Centers (CAPS). This was accompanied by the creation of the Municipal Pharmacy which caused an increase in free access to psychotropic drugs among those who use the One Health System (SUS).

Even though the facts cited indicate a likely increase in the use of psychotropic, there is no study in the country that has evaluated the use of psychotropic drugs among the same population group during a set amount of time. The objective of the current study was to verify the current prevalence and pattern of psychotropic drug use in comparison to the 1994 findings.

METHODS

The study was conducted in Pelotas, a mid-sized port city located in the extreme south of Brazil with a population of approximately 320,000, of which 93.2% reside in urban areas (Demographic Census 2000 IBGE*).

This cross-sectional study was conducted in 2003 with individuals 15 years and older who were residents in the urban areas of the city.

The process of defining the sample was conducted in various stages. The groups were selected based on the municipal districts defined in the 2000 IBGE Demographic Census. After excluding the collective districts, 144 of the 404 municipal districts were systematically sorted and stratified according to the average income of the head of household. Each district was then visited to identify the households. The households were chosen proportionately based on the size of each district, after the exclusion of those which were abandoned or commercial spaces, leading to the definition of a sample of 1,530 eligible households. All of those living in the households who were 15 or older were included in the sample.

The sample size calculation was established based on the largest value found between two calculations: estimate of the prevalence of psychotropic drug use and an evaluation of the associations between the dependent variable and the studied independent variables. The calculation included an increase of 10% for losses, 15% for confounders and 1.2% for the study delineation effect. The sample obtained permitted an estimate of the prevalence of psychotropic consumption of 9% with a 1% margin of error and 95% confidence interval. In addition, it permitted the detection of relative risks equal to or greater than 1.6 with 80% power for predictors with frequencies between 20% and 80% and psychotropic use prevalence rate of 7% for those unexposed, with a significance level of 5%. The calculation was estimated using EpiInfo 6.04d.

The data collection instrument used was the same instrument used in the 1994* study. It consisted of a structured and pre-coded questionnaire and included specific aspects of psychotropic drug use including demographic, socioeconomic, and health variables. Thirty-two interviewers were selected who were all 18 or older and had completed high school. They completed a 40 hour training session and a theory and practice exam. A pilot study to test the questionnaire, instructions manual, and interview training was conducted in a census district, which was not included in the sample.

Fieldwork was conducted during the months of October through December of 2003 and data was collected directly with eligible individuals through interviews in their homes. In cases of absence or refusal, the interviewers returned at least two more times to the household. In an attempt to revert refusals, the district supervisor made an attempt to encourage participation.

Data entry was conducted using EpiInfo 6.04d with double data entry and automatic checks for consistency and range.

The dependent variable was defined by the following question: “Since <day of the week> the week before last, have you taken any medication for nervousness or to sleep or any other medication that is only sold with a prescription?”. Respondents were asked to show their prescription, packaging, or instructions so that interviewers could note and code the medication in the future based on the Ministry of Health’s National Agency of Sanitary Vigilance (ANVISA) list of controlled medicines (A3, B1, B2, and C1). If the respondent took more than one medication, the one that was most recently used was included. The length of time using the medication, place of acquisition, person responsible for recommending the medication, and if the person used any other psychotropic drugs other than that already indicated were also included in the questionnaire. Chronic use was considered those who used the drug intermittently for at least three months.

The following independent variables were studied:

*Instituto Brasileiro de Geografia e Estatística. Censo demográfico de 2000. Available from: http://www.ibge.gov.br/cidadesat [2005 nov 18]
**Lima M. Morbidade Psiquiátrica Menor e Consumo de Psicofármacos em Pelotas, RS [Master’s dissertation]. Pelotas: Universidade Federal de Pelotas; 1995.

sex; age (years completed); skin-color (white or non-white); marital status (with, without companion, separated, or widowed; education (years of school completed); family income (monthly minimum wage according to the value of the national minimum wage during the period of data collection, in quartiles); smoking (non-smoker, smoker, or former smoker); medical diagnosis of hypertension, and medical consultation in the last three months.

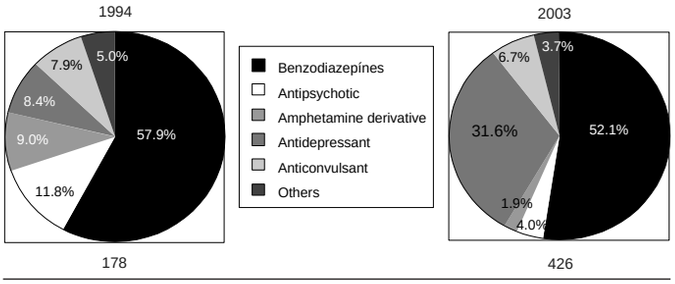

Figure - Distribution of psychotropic drug groups consumed within the 14 days prior to the interview. Pelotas, Brazil, 1994 and 2003.

Data analysis was conducted using Stata 8.0. First, a description of the sample was conducted. Pearson's Chi-square and linear tendency were used in the bivariate analysis.

The adjusted analysis was conducted using linear regression based on a conceptual linear analysis model composed of four levels. In the first level were the demographic variables (sex, age, skin color), the second level were the socioeconomic variables (marital status, education, family income), the third level included smoking status and medical diagnosis of systemic arterial hypertension, and in the fourth level, medical consultation in the last three months. The variables associated with exposure and the dependent variable were kept in the analysis with $p \leq 0.20$ for control of the confounders.

The comparison of total prevalence of psychotropic use and the proportion of usage in the variables of exposure of the 1994 and 2003 studies used the proportional comparison test.

The study was submitted to and approved by the Universidade Federal de Pelotas Commission of Ethics and Research. Before of the questionnaire was administered, verbal consent was obtained from the respondents and the confidentiality of the data collected was guaranteed.

RESULTS

A total of 3,542 individuals were included in the study, excluding those missing and refusals (3.8%). The medical diagnosis of hypertension variable had 446 missing values, of which 439 related to the group under 20 years old. Data for these individuals was only collected among those who used psychotropic drugs, which only was the case for three individuals of whom none of them had a medical diagnosis of hypertension. In 1994, the sample was 1,277 people.

The prevalence of psychotropic use was 9.9% (95% CI: 8.9-10.9), with a study delineation effect of 1.03 and intraclass correlation of 0.005. In 1994, the prevalence rate was 11.9% (95% CI: 10.1-13.7). After the standardization of the data by age, the prevalence went from 11.5% in 1994 to 10.0% in 2003 and there was no significant difference between the two ($p=0.13$).

In 1994, 92% of psychotropic drug users received a prescription for the medication from their physician. The remaining 8% decided to take the medication on their own. The percentage of psychotropic use with a medical prescription was 92%, of which 41% was through a general clinic, 20% through psychiatrists, and 31% through other specialists.

The figure shows the comparison by group of psychotropic drugs consumed in 1994 and 2003. In both studies, the benzodiazepines represent more than half of the psychotropic drugs consumed. In 2003, there was a reduction in the proportion of antipsychotic use ($p=0.09$) and anorexigens ($p=0.0006$), in comparison with the 1994 study. On the other hand, there was a significant increase in the antidepressant use in 2003 in comparison with 1994 ($p=0.0003$).

In 1994, 7.2% of the individuals utilized another psychotropic drug. The percentage increased significantly ($p<0.001$) to 22.2% in 2003. Chronic use did not vary significantly between the two studies even though it increased from 70.4% in 1994 to 73.9% in 2003 ($p=0.35$). Nonetheless, access to psychotropic drugs in the SUS pharmacy presented a highly significant increase from 3.5% in 1994 to 11.1% in 2003 ($p<0.001$).

Table 1 describes the study samples in 1994 and 2003 according to the demographic, socioeconomic, and health variables. The distribution of the characteristics between the variable categories was similar in both studies. More than half of the individuals were women in 1994 and in 2003. In 1994, 22% of the individuals were between 15 and 24, and in 2003, the percentage was 25%. In 1994, 59% had a partner and in 2003, the percentage was 56%. With regard to education, the percentage of individuals who reported be-

tween 9 and 11 years of education increased from 17% to 28% in 2003. Note that hypertension went from 20% in 1994 to 23% in 2003. With regard to medical visits in the last three months, note that the percentage went from 44% to 54% in 2003. In 2003, 55% of respondents did not smoke and 80% were white.

Table 2 presents the patterns of psychotropic drug use in 1994 and 2003, stratified by demographic, socioeconomic, and health variables. It examines their differences using the proportions comparison test.

The consumption of psychotropic drugs was significantly higher among females in both years analyzed and reached more than double that of the males in 2003. There was a statistically significant reduction in psychotropic use among men in 2003 when compared with the 1994 study.

Psychotropic use increased with age and presented a strong linear tendency in both years. In 2003, there was a reduction in use among the younger groups when compared to 1994, which was significant in the age brackets between 15 and 24 and 35 to 44. As the age group 15 to 24 was the reference category, the odds ratio increased in 2003 as compared to 1994. However, in both studies the levels of usage were similar among the age bracket 45 and older.

In 1994, the individuals with partners, separated, and widowed used significantly more psychotropic drugs than those without a partner. Marital status did not present a significant association with psychotropic use in 2003 due to the increase in usage within the reference category of "without partner". There was a statistically significant decrease in the widowed category in comparison with the 1994 study.

Education was not significantly associated with psychotropic use in 1994. In 2003, a reduction in psychotropic use was observed among individuals with high levels of education when compared to the group without education ($p<0.001$). This change occurred because there was a significant reduction in psychotropic use

Table 1 - Description of sample according to their demographic, socioeconomic, behavioral, and health characteristics. Pelotas, Brazil, 1994 and 2003.

Variable	1994		2003	
	N	%	N	%
Gender				
Male	568	44.5	1,551	43.8
Female	709	55.5	1,991	56.2
Age (years completed)				
15-24	278	21.7	875	24.7
25-34	246	19.2	632	17.8
35-44	254	19.8	686	19.4
45-54	181	14.1	610	17.2
55-64	151	11.8	354	10.0
65 or more	167	13.1	385	10.9
Skin color				
Non white			701	19.8
White			2,841	80.2
Marital status				
Without partner	340	26.6	1,065	30.1
With partner	759	59.4	1,989	56.2
Separated	104	8.2	228	6.4
Widowed	74	5.8	260	7.3
Education (years of school completed)				
0	118	9.5	227	6.4
1- 4	307	24.5	621	17.5
5- 8	439	35.1	1,222	34.5
9-11	217	17.3	1,005	28.4
≥12	170	13.6	465	13.1
Household income (minimum wages in quartiles)				
1	303	24.9	864	24.5
2	304	25.1	904	25.6
3	304	25.1	884	25.1
4	303	24.9	875	24.8
Smoking				
Non smoker			1,942	54.8
Smoker			888	25.1
Former smoker			712	20.1
Hypertension				
No	1,028	80.5	2,372	76.6
Yes	249	19.5	724	23.4
Medical consultation in last three months				
No	717	56.1	1,673	47.2
Yes	560	43.9	1,869	53.8
Total	1,277	100	3,542	100

Note: In 2003, the maximum number of missing values was 446 in the hypertension variable. In 1994, the maximum number of missing values was 63 in the household income variable.

in the categories of 1 to 4, 5 to 8, and 9 to 11 years of school in comparison to the 1994 study.

Psychotropic use was not significantly associated with family income in 1994 and 2003. However, a statistically significant reduction was observed in psychotropic use in the first and third quartiles of family income in 2003 when compared to the 1994 study.

Note that individuals with hypertension used more psychotropic drugs than those who did not have hypertension in both the 1994 and 2003 studies (p<0.001).

Individuals who had a medical consultation in the last three months reported significantly higher psychotropic use than those who had not in both studies. Nonetheless, in the 2003 study, a significant reduction in psychotropic use among those who had a medical consultation in the last three months was observed when compared to the 1994 study.

In 2003, white individuals reported higher psychotropic use than non-whites (p=0.003) and with regards to smoking, no association with psychotropic use was found. The smoking and skin color data from the 1994 study were not released.

After controlling for confounders, being female, older age, hypertension, and a medical consultation in the last three months continued to be significantly associated with psychotropic use in the 1994 and 2003 studies. Marital status was no longer significantly associated with psychotropic use in 1994. The adjustment made in 2003 maintained a significant association between white skin color with psychotropic use and found a significant association between smoking and psychotropic use.

DISCUSSION

Possible memory bias is inherent in a study of us-

Table 2 - Prevalence, unadjusted odds ratio for psychotropic use and comparison of prevalence rates between the two years studied. Pelotas, Brazil, 1994 and 2003.

Variable	1994			2003			Comparison
	Prevalence (%)	OR (95% CI)	p-value	Prevalence (%)	OR (95% CI)	p-value	p-value
Gender			<0.001*			<0.001*	
Male	7.9	1.00		5.5	1.00		<0.001
Female	15.1	1.90(1.37-2.65)		13.3	2.40(1.90-3.00)		0.23
Age			<0.001**			<0.001**	
15-24	3.2	1.00		1.8	1.00		<0.001
25-34	4.5	1.38(0.58-3.28)		5.2	2.86(1.55-5.27)		0.06
35-44	11.5	3.53(1.70-7.31)		9.0	4.94(2.71-9.01)		<0.001
45-54	15.8	4.85(2.35-10.01)		14.3	7.80(4.48-13.58)		0.62
55-64	23.8	7.34(3.63-14.82)		18.1	9.89(5.77-16.94)		0.14
≥65	22.8	7.00(3.48-14.11)		23.1	12.64(7.39-21.64)		0.94
Skin color						0.003*	
Non white				6.9	1.00		
White				10.7	1.56(1.16-2.09)		
Marital status			0.001*			0.87*	
Without partner	7.6	1.00		10.1	1		<0.001
With partner	12.0	1.57(1.03-2.38)		9.7	0.96(0.76-1.22)		0.15
Separated	18.9	2.47(1.36-4.50)		11.4	1.14(0.74-1.74)		0.07
Widowed	20.0	2.62(1.54-4.45)		10.0	1.00(0.65-1.52)		0.02
Education (years of education)			NS			<0.001**	
0	11.8	1.00		18.9	1.00		0.09
1-4	15.6	1.33(0.76-2.32)		10.6	0.56(0.38-0.83)		0.03
5-8	10.2	0.87(0.49-1.53)		9.4	0.50(0.36-0.69)		<0.001
9-11	11.1	0.94(0.51-1.76)		7.6	0.40(0.28-0.57)		<0.001
12 or more	10.0	0.85(0.44-1.66)		11.0	0.58(0.40-0.84)		0.72
Household income (minimum wage in quartiles)			NS			0.68**	
1	10.9	1.00		9.4	1.00		<0.001
2	12.1	1.11(0.71-1.73)		10.4	1.11(0.82-1.49)		0.41
3	9.6	0.88(0.55-1.41)		9.0	0.97(0.71-1.31)		0.001
4	13.9	1.28(0.83-1.96)		10.5	1.12(0.84-1.49)		0.11
Smoking						0.16	
Non smoker				9.2	1.00		
Smoker				11.2	1.22(0.99-1.50)		
Former smoker				10.4	1.13(0.89-1.45)		
Hypertension			<0.001			<0.001	
No	9.5	1.00		9.0	1.00		<0.001
Yes	21.7	2.63(1.82-3.79)		18.9	2.10(1.74-2.53)		0.34
Medical consultation (last three months)			<0.001*			<0.001*	
No	5.4	1.00		4.4	1.00		<0.001
Yes	20.2	4.40(3.00-6.45)		14.9	3.41(2.66-4.36)		0.003

Note: In 2003, the sample size was 3,542 and the maximum number of missing values was 446 in the hypertension variable. In 1994, the sample size was 1,277 and the maximum number of missing values was 63 in the household income variable.
OR: Odds ratio
NS: Not significant
*Chi square test
**Linear trend test

age relying on recall. Nonetheless, the time period of 14 days is short and various studies in this field have used this time period. The 1994 study used this same time period which allows for comparison.

The absence of a difference between the prevalence patterns of psychotropic use in 1994 and 2003 contrasts with the rest of global literature, which suggests an increase in psychotropic use in recent decades.[3,13] One possible explanation is that psychotropic use was already high in the city (11.9% in 1994*) when compared to findings in national (5.4% in a 1993 study[1] in Rio de Janeiro) and international (6.4% in a 2002 multi-center study[11] in various European countries) literature.

The percent of self-medication in 2003 was the same as in 1994, which shows that part of those who use psychotropic drugs (8%) continue to use them without medical orientation. This finding points to a need for educational campaigns regarding the risks of self-medication.

The increase in antidepressant usage in the last decade demonstrates a tendency supported by other research[3,12] which has shown an increase in the diagnosis of depressive diseases accompanied by an increase in new medications and an expansion of therapeutic uses for these medications.

The decrease in anorexigen use should be observed with caution. In the 1994 study it was investigated in more detail than in 2003, which increased the possibility of the respondents reporting its use.

The increase in the proportion of individuals using another kind of psychotropic medicine may indicate an increase in outpatient treatment for more serious mental disturbances, which takes advantage of the location of these individuals in their households.

The important increase in the percentage of individuals who received psychotropic medicines in the SUS pharmacy indicates that there was greater access to psychotropic drugs among individuals with lower wages. This finding suggests an increase in equal access to this medication and also assists in understanding why there was no association between psychotropic use and family income.

The risk of use increased among women even though there was no difference in use among females between 1994 and 2003 and a reduction in use among males. Psychotropic use was greatest among women, being twice that of men in 2003. This finding is supported by other literature[1,6,7] which relates this finding in part to the greater use of health services by women than men.[8] On the other hand, gender is also associated with a distinct medical perspective of the need to use psychotropics. In their evaluation of primary care medical visits, Moreno Luna et al[9] concluded that physicians address symptoms of anxiety and depression differently depending on the sex of their patients by prescribing more ansiolitic drugs and diagnosing more functional causes for women.

Psychotropic use increased with older age among the age groups analyzed. This is supported by the literature.[1,6] In contrast, the reduction observed in use among the age group of 15-24 is not supported by the literature. This finding may support a tendency found in industrialized countries of an increase in psychotropic use among younger people[16] that is still not observed in Brazil. On the other hand, the difficulties young people face in accessing specialized neurological public medical and mental health services may partly explain this finding. With regard to the elderly, the large usage psychotropic drugs is cause for alarm due to the increased risk of cognitive degeneration, syncope, breaks and fractures associated with these medicines, which are already more frequent within this group.

The greater use of psychotropic drugs observed among whites in 2003 may be related to cultural factors and inequality in the health care system. Olfson[12] had already detected lower indices of treatment for depression among blacks and Hispanics as compared to whites during a ten year period in the United States.

Even though psychotropic use was not associated with education in 1994 and 2003 in the adjusted analysis, use was greater among individuals without education in 2003. This finding may be related to the greater frequency of mental disturbances within this group, as observed by Ludermir.[5]

With regard to the increased use of psychotropic drugs among smokers in the adjusted analysis of the 2003 study, it is noteworthy that an association between mental illness and nicotine dependence has been documented[4,11] and considered an outcome of addictive behavior. As such, it is important to consider that psychotropic drugs are frequently prescribed in combination with treatment for tobacco dependence. The association between the medical diagnosis for hypertension and psychotropic use may indicate, similar to what was observed in a multi-center study,[11] that individuals who have a chronic organic disease may have an increased probability of receiving a psy-

*Lima M. Morbidade psiquiátrica menor e consumo de psicofármacos em Pelotas, RS [dissertação de mestrado]. Pelotas: Universidade Federal de Pelotas; 1995.

chotropic prescription due to the fact that they go to the doctor more frequently.

Further applying this perspective, it is possible to understand the strong connection between medical consultations in the last three months and psychotropic use in both the 1994 and 2003 studies. This shows the importance of the medical consultations, which should be valued by physicians and patients alike to ensure that the prescription of psychotropic drugs is the result of an adequate diagnosis. In conclusion, this study showed a panorama of current psychotropic use in this location, in addition to comparing findings with a previous study conducted in the same city. It is hoped that the findings will contribute to the advancement of mental health policies and pharmaceutical care including efforts related to services offered, permanent education for doctors and health professionals, and health education for psychotropic users and the general population.

The present study only researched the characteristics of psychotropic drug users. In the future, studies regarding other factors which influence the use of psychotropic drugs, such as the characteristics of the physicians and their relationship to the health care system, will be necessary in addition to the use of qualitative techniques to more extensively examine psychotropic drug use.

REFERENCES

1. Almeida L, Coutinho E, Pepe V. Consumo de psicofármacos em uma região administrativa do Rio de Janeiro: a Ilha do Governador. *Cad Saúde Pública* 1994;10(1):5-16.

2. Cherin P, Colvez A, Deville de Periere G, Sereni D. Risk of syncope in the elderly and consumption of drugs: a case-control study. *J Clin Epidemiol* 1997;50(3):313-20.

3. Hemels ME, Koren G, Einarson TR. Increased use of antidepressants in Canada, 1981-2000. *Ann Pharmacother* 2002;36(9):1375-9.

4. Leon J, Becona E, Gurpegui M, Gonzalez-Pinto A, Diaz FJ. The association between high nicotine dependence and severe mental illness may be consistent across countries. *J Clin Psychiatry* 2002;63(9):812-6.

5. Ludermir AB, Melo Filho DA. Condições de vida e estrutura ocupacional associadas a transtornos mentais comuns. *Rev Saúde Pública* 2002;36(2):213-21.

6. Magrini N, Vaccheri A, Parma E, D'Alessandro R, Bottoni A, Occhionero M et al. Use of benzodiazepines in the italian general population: prevalence, pattern of use and risk factors for use. *Eur J Clin Pharmacol* 1996;50(1-2):19-25.

7. Mari JJ, Almeida Filho N, Coutinho E, Andreoli SB, Miranda CT, Streiner D. The epidemiology of psychotropic use in the city of São Paulo. *Psychol Med* 1993;23(2):467-74.

8. Mendoza-Sassi R, Béria JU. Utilización de los servicios de salud: una revisión sistemática sobre los factores relacionados. *Cad Saúde Pública* 2001;17(4):819-32.

9. Moreno Luna ME, Clemente Lirola E, Pinero Acín MJ, Martinez Matías MR, Alonso Gómez F, Rodríguez Alcalá FJ. Influencia del género del paciente en el manejo de cuadros ansioso/depresivos. *Aten Primaria* 2000;26(8):554-8.

10. Neutel CI, Perry S, Maxwell C. Medication use and risk falls. *Pharmacoepidemiol Drug Saf* 2002;11(2):97-104.

11. Ohayon MM, Lader MH. Use of psychotropic medication in the general population of France, Germany, Italy and the United Kingdom. *J Clin Psychiatry* 2002;63(9):817-25.

12. Olfson M, Marcus SC, Druss B, Elinson L, Tanielian T, Pincus HA. National trends in the outpatient treatment of depression. *JAMA* 2002;287(2):203-9.

13. Pincus HA, Tanielian T, Marcus SC, Olfson M, Zarin DA, Thompson J et al. Prescribing trends in psychotropic medications: primary care, psychiatry, and other medical specialties. *JAMA* 1998;279(7):526-31.

14. Tajima O. Mental health care in Japan: recognition an treatment of depression and anxiety disorders. *J Clin Psychiatry* 2001;62 Suppl 13:39-44.

15. Ungvari GS, Chung YG, Chee YK, Fung-Shing N, Kwong TW, Chiu HF. The pharmacological treatment of schizophrenia in chinese patients: a comparison of prescription patterns between 1996 and 1999. *Br J Clin Pharmacol* 2002;54(4):437-44.

16. Zito JM, Safer DJ, Reis S, Gardner JF, Magder L, Soeken K et al. Psychotropic practice patterns for youth: a 10-year perspective. *Arch Pediatr Adolesc Med* 2003;157(1):17-25.