

Psychotropic Drug Use in Israel: Results From the National Health Survey

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Background: Despite increasing psychotropic drug prescriptions worldwide, little is known about utilization of these medications in the general population in Israel. We examined psychotropic drug use in the general population of Israel and the patterns of use among individuals with different DSM-IV diagnoses of 12-month mental disorders.

Method: A representative sample was derived from the National Population Register of noninstitutionalized residents aged 21 and older. Face-to-face interviews were conducted from May 2003 to April 2004. Individuals were asked about any psychotropic drug use in the past 12 months. DSM-IV disorders were assessed using a revised version of the World Health Organization's Composite International Diagnostic Interview.

Results: Psychotropic drug utilization was observed in 6.9% of the general population and in 19.6% of individuals with any 12-month psychiatric disorder. The extent of use varied according to sociodemographic variables and the specific DSM-IV diagnostic categories. Among individuals with a 12-month diagnosis of pure major depression, only 13.6% received any antidepressants within the same period; exclusive use of antidepressants was 5.7%, while 3.3% of the individuals used only anxiolytics.

Conclusion: Similar to findings in other European countries, our findings suggest that the majority of individuals diagnosed with a common mental disorder are not being treated with psychotropic drugs or are being inappropriately treated.

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During the past thirty years, psychotropic medication use became common and is increasing in all industrialized countries. The information on prevalence and patterns of drug use in the general population comes from pharmacoepidemiology investigating the interactions between drugs and populations.¹ This knowledge about the utilization and impact (benefits and risks) of pharmaceutical products at the level of population actually treated is necessary to inform mental health policies and service developments.² Several studies in Europe have explored the utilization of psychotropic drugs in representative samples from the general population, but most have been conducted at the national level.³⁻⁸ Only 2 large, recent, international surveys provided data for cross-national comparisons: the telephone-based, cross-national survey of the general populations of France, Germany, Italy, and the United Kingdom⁹ and the European Study of the Epidemiology of Mental Disorders/Mental Health Disability: a European Assessment (ESEMED/MHEDEA 2000), including the general populations of Belgium, France, Germany, Italy, the Netherlands, and Spain.¹⁰ The study reported here supplements the European findings with pharmacoepidemiologic data from Israel.

The Israel National Health Survey (INHS) is the first country-wide study designed to estimate the prevalence rates of common mental disorders and mental health services use, including psychotropic drug utilization in the adult population. Previous surveys were limited to population subgroups¹¹ or to populations in psychiatric treatment.^{12,13} None investigated the psychotropic medication utilization in the general population and its relationship to the common mental disorders.

The objectives of this report were (1) to evaluate a 12-month prevalence rate of psychotropic drug use in the general population of Israel; and (2) to assess the pattern of use in individuals with different *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) diagnoses of 12-month psychiatric disorders.

METHOD

Sampling and Subjects

The INHS, as a component of the World Mental Health Survey conducted in 27 countries, followed the uniform

procedures established.¹⁴ The sample was extracted from the National Population Register and comprised noninstitutionalized de jure residents aged 21 and older. The sample was designed to reflect the distribution of selected gender-age-population groups in the general population (Arabs and Jews: Israel-born and immigrants from the former Soviet Union or other countries since 1990). The sample was weighted back to the total population to compensate for unequal selection probabilities resulting from disproportionate stratification, clustering effects, and nonresponse. The weights were adjusted to make weighted sample totals conform to known population totals taken from reliable Central Bureau of Statistics (CBS) sources. Face-to-face interviews at the homes of respondents were conducted from May 2003 to April 2004 in Arabic, Hebrew, or Russian. The survey was administered using laptop computer-assisted personal interview methods by professional survey interviewers trained and supervised by the CBS. A letter signed by the Government Statistician, explaining the purpose of the survey and the rights of respondents, was sent to each potential respondent a few days prior to the first contact attempt. Upon making in-person contact with the sampled respondent, the interviewer explained the survey again and obtained verbal informed consent. Interviews took, on average, 60 minutes. The overall response rate was 73% (88% among Arab Israelis and 71% among Jewish Israelis), totaling 4859 completed interviews. There were no replacements. The Experimentation on Human Subjects Committee of the Ministry of Health (Jerusalem, Israel) approved the study.

Assessment of Psychotropic Drug Use

All respondents were asked about the use of any psychotropic medications during the 12 months preceding the survey, even if this occurred only once. Questions probing drug utilization were included in each diagnostic section dealing with specific psychiatric disorders. In addition, a section including 191 items specifically inquired about detailed characteristics of drug use, characteristics of the prescribing clinician(s), duration and frequency of use, reasons for discontinuation, and related issues. The analyses presented in this report refer to any episode of use in the 12 months preceding the interview and do not distinguish between occasional use (a single episode over the year) and a regular or systematic utilization of psychotropic drugs. To overcome recall bias that had often hampered drug utilization studies (especially in the case of prior, short-term use), a standard booklet including a show-card listing psychotropic drugs commonly used in Israel to treat mental health problems and psychiatric disorders was provided. Psychotropic drugs were recorded in the interviews using national brand names and then converted in a drug coding system based on the Anatomical Therapeutic Chemical classification system.¹⁵

Although data were collected regarding the specific compounds in each category of medication used, data presented in this report are limited to 5 main drug categories. These were (1) antidepressants (including tricyclics and new-generation antidepressants); (2) anxiolytics (including benzodiazepines and non-benzodiazepine anxiolytic agents, such as buspirone); (3) hypnotics of any pharmacologic class; (4) drugs used for the treatment of psychotic disorders, including antipsychotics (conventional and atypical antipsychotic agents, such as clozapine, olanzapine, quetiapine, ziprasidone, and risperidone), antipsychotic depot injections; and (5) mood stabilizers (including lithium, carbamazepine, valproate, gabapentin, topiramate, and lamotrigine). We expect that the estimate of mood stabilizer use may be higher as some of the drugs included are commonly used for other indications, e.g., chronic pain treatment.

Diagnostic Assessment

The diagnostic instrument used in the INHS was a revised version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI),¹⁴ a structured diagnostic interview for assessing the lifetime and recent prevalence of selected psychiatric disorders according to both the *International Classification of Diseases*, 10th Edition (ICD-10), and the DSM-IV classification systems. In our survey we assessed the following disorders: anxiety disorders (panic disorder, generalized anxiety disorder, agoraphobia without panic disorder, and posttraumatic stress disorder), mood disorders (major depressive disorder, dysthymia, and bipolar disorder I and II), and substance abuse disorders (alcohol abuse, alcohol dependence, drug abuse, and drug dependence). The anxiety disorders excluded specific phobias or social phobia. Prevalence estimates of mental disorders were determined using respondents' reports of past or current symptoms that met the 12-month diagnostic criteria for a DSM-IV disorder. For each disorder, a screening subquestionnaire was administered to each respondent. All participants responding positively to a specific screening item were asked the questions in the respective diagnostic section of the main questionnaire. All of the CIDI interviews were performed concurrently with the assessments of psychotropic drug utilization.

Statistical Analysis

The proportion of respondents in the general population who reported using psychotropic drugs in the 12 months preceding the interview was computed. Crosstabulations were used to calculate bivariate odds ratios (ORs) and 95% confidence intervals (CIs) to assess the strength of reported drug use and gender differences. The association of sociodemographic and clinical-diagnostic characteristics with psychotropic drug use was analyzed using univariate logistic regression analysis. All analyses

Table 1. Study Sample Characteristics (raw numbers and weighted proportions) and 12-Month Prevalence of Psychotropic Drug Use^a in the General Population

Characteristic	Total Sample		Psychotropic Drug Use	
	N	%	% (N) ^b	OR (95% CI) ^c
Overall	4859	...	6.9 (367)	...
Gender				
Male	2380	48.1	5.4 (138)	reference
Female	2479	51.9	8.4 (229)	1.6 (1.3 to 2.0)
Age, y				
21–29	1036	22.9	1.8 (21)	reference
30–39	987	21.2	3.4 (33)	1.9 (1.0 to 3.4)
40–49	879	18.7	4.1 (33)	2.3 (1.2 to 4.2)
50–59	836	16.7	8.5 (72)	5.0 (2.9 to 8.7)
60–69	525	10.7	12.6 (69)	7.8 (4.5 to 13.5)
70+	596	9.9	22.9 (139)	15.9 (9.4 to 26.9)
Region/district				
Jerusalem	354	8.0	5.4 (20)	reference
North	880	16.2	5.2 (48)	1.0 (0.6 to 1.7)
Haifa	707	14.0	7.9 (61)	1.5 (0.9 to 2.6)
Central	1218	25.1	6.8 (88)	1.3 (0.8 to 2.2)
Tel Aviv	974	20.4	8.9 (95)	1.7 (1.0 to 2.9)
South	668	13.7	7.1 (53)	1.3 (0.8 to 2.3)
West Bank	58	2.7	2.0 (2)	0.4 (0.1 to 1.7)
Marital status				
Married	3229	67.8	5.9 (205)	reference
Married before	730	13.4	16.8 (126)	3.2 (2.5 to 4.2)
Never married	900	18.7	3.7 (36)	0.6 (0.4 to 0.9)
Education, y				
Primary (0–4)	196	3.8	13.1 (24)	reference
Secondary (5–8)	521	10.4	12.5 (71)	0.9 (0.6 to 1.6)
Specialized secondary (9–12)	1825	38.6	6.3 (128)	0.4 (0.3 to 0.7)
Higher (13 and over)	2301	47.2	5.7 (143)	0.4 (0.2 to 0.6)
Missing data	16	0.4
Employment status				
Employed	2857	56.1	3.5 (110)	reference
Unemployed	298	6.5	5.2 (18)	1.5 (0.9 to 2.6)
Other ^d	1704	37.4	12.3 (239)	3.8 (3.0 to 4.8)
Religious observance, Jewish				
Orthodox	201	6.3	2.3 (6)	reference
Conservative, reformist	762	20.6	7.6 (68)	3.5 (1.5 to 8.4)
Atheist/traditional	3017	73.1	7.9 (259)	3.7 (1.6 to 8.6)
Religious observance, non-Jewish ^e				
Orthodox	50	6.7	4.8 (2)	...
Conservative	290	38.8	2.6 (7)	...
Traditional	229	30.9	2.9 (7)	...
Atheist	169	23.7	4.7 (7)	...
Immigrant status (since 1990)				
Former Soviet Union	845	15.8	11.3 (100)	2.0 (1.5 to 2.5)
Other countries	107	2.3	8.2 (11)	1.4 (0.7 to 2.7)
Israel-born	3906	81.9	6.1 (256)	reference
Missing data	1	0.03

^aUse of any psychotropic medication during the previous 12 months (antidepressant, anxiolytic, antipsychotic, mood stabilizer, or hypnotic).

^bNumber of psychotropic users in each demographic subgroup.

^cOdds ratios for gender are unadjusted, while all other ORs are adjusted by gender.

^dRetired, homemaker, student, maternity leave, illness leave, disabled, don't know, or refused.

^eOdds ratios for Moslems, Druzes, and Christians are not presented because of the small numbers in each subsample.

on weighted data were performed using the SAS-9.1 software package (SAS Institute Inc., Cary, N.C.).

RESULTS

Sociodemographic Characteristics

Table 1 presents the characteristics of the study sample (the left 2 columns) alongside with 12-month prevalence of psychotropic drug use distributed according to these characteristics. Mean age was 47.0 years (95% CI = 46.7 to 47.4), with the plurality of the respondents (23%) being between 21 and 29 years old. Men represented 48% of the sample. Nearly 68% were married, and 44% lived in urban areas. The plurality were more highly educated (47%) and in paid employment at the time of the interview (56%). Nearly 82% of the sample identified themselves as Jews and the remaining as belonging to non-Jewish confessions; 15.8% of respondents were recent (since 1990) immigrants from the former Soviet Union, and 2.3% immigrated from elsewhere.

Psychotropic Drug Use

Overall, 6.9% of the general population reported receiving at least 1 psychotropic drug in the 12 months preceding the survey. Use was approximately one and a half times as common in women as in men (OR = 1.6; 95% CI = 1.3 to 2.0). Anxiolytics were the medications most commonly used (3.2%), with a percentage of exclusive users of 2.3%. Hypnotics were the second most common psychotropics used, 2.3% of the sample reporting use in the previous year (OR for women = 1.5, 95% CI = 1.1 to 2.2); the percentage of exclusive hypnotics users was 1.5%. Antidepressants followed in third place, with 2.0% (OR = 1.4, 95% CI = 0.9 to 2.1). Further were mood stabilizers at 0.8% (OR = 1.4, 95% CI = 0.7 to 2.7) (recall, this estimate may be artificially higher as some drugs of this group could be used for other indications). Antipsychotic agents were much less commonly used (0.5%), with 0.3% of individuals using exclusively one of these medications in the previous year. The most frequent drug combination (albeit not necessarily simultaneous) included the use of antidepressants and anxiolytics (0.6%), being more likely used by women compared with men (OR = 1.7, 95% CI = 1.1 to 2.7) (Table 2).

The prevalence rates of psychotropic drug use in the general population according to sociode-

Table 2. 12-Month Psychotropic Drug Use by Gender According to Psychotropic Therapeutic Class^a

Drug	Total Sample (N = 4859), % (N)	Gender Comparison, OR (95% CI) ^b
At least 1 class ^c	6.9 (367)	1.6 (1.3 to 2.0)
Overall use		
Antidepressants	2.0 (100)	1.4 (0.9 to 2.1)
Anxiolytics	3.2 (179)	1.7 (1.2 to 2.3)
Antipsychotics	0.5 (25)	0.6 (0.3 to 1.4)
Mood stabilizers	0.8 (39)	1.4 (0.7 to 2.7)
Hypnotics	2.3 (125)	1.5 (1.1 to 2.2)
Exclusive use		
Antidepressants	1.1 (50)	1.7 (0.9 to 3.0)
Anxiolytics	2.3 (127)	1.8 (1.2 to 2.7)
Antipsychotics	0.3 (12)	0.6 (0.2 to 1.9)
Mood stabilizers	0.3 (14)	2.1 (0.7 to 6.3)
Hypnotics	1.5 (83)	1.7 (1.1 to 2.7)
Combination use		
Antidepressant + anxiolytic	0.6 (30)	1.7 (1.1 to 2.7)
Antidepressant + antipsychotic	0.1 (6)	0.5 (0.1 to 2.7)

^aRaw numbers and weighted proportions are shown.

^bGender comparison: male gender is the reference group. Includes those on combination therapy (i.e., antidepressants + anxiolytics).

^cUse of any psychotropic medication during the previous 12 months (antidepressant, anxiolytic, antipsychotic, or mood stabilizer).

mographic characteristics are presented in Table 1 (the right 2 columns). In both genders, the probability of drug use consistently enhanced with age, reaching its maximum in the group older than 70 years old (OR = 15.9, 95% CI = 9.4 to 26.9). Compared with the married, the highest proportion of users was among the previously married (OR = 3.2, 95% CI = 2.5 to 4.2) and the least proportion was among never married (OR = 0.6, 95% CI = 0.4 to 0.9) subjects. The use of psychotropic drugs was somewhat higher among those with low education (primary and secondary school graduates), and a trend was found of lower drug use as years of education increased. Likewise, we found a substantial difference in use patterns depending on employment status, in which the highest use rates were seen among the combined category including disabled, people on illness leave, and retired individuals (OR = 3.8, 95% CI = 3.0 to 4.8). With regard to use patterns in people with different religious observance status, atheists and traditionalists showed a similar, 3.5-fold prevalence rate compared with Orthodox subjects. Finally, compared with Israel-born respondents, immigrants from elsewhere but particularly from the former Soviet Union showed a 2-fold prevalence use pattern (OR = 2.0, 95% CI = 1.5 to 2.5).

Psychotropic Drug Use by Gender, Therapeutic Class, and 12-Month DSM-IV Diagnosis

Table 3 shows drug use for individuals with a 12-month psychiatric disorder according to 4 of the 5 therapeutic classes (i.e., antidepressants, anxiolytics, antipsychotics, and hypnotics), and Table 4 displays the percentage of exclusive use of antidepressants and anxi-

Table 3. 12-Month Psychotropic Drug Use by Gender According to 12-Month Mental Disorders

Disorder	Any Psychotropic Drug ^a			Any Antidepressant Drug			Any Anxiolytic Drug			Any Antipsychotic Drug			Any Hypnotic Drug		
	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b	
No disorder	5.6 (274)	1.8 (1.4 to 2.3)	1.1 (51)	1.3 (0.7 to 2.4)	2.6 (135)	1.7 (1.2 to 2.5)	0.3 (12)	1.0 (0.3 to 3.3)	2.1 (102)	1.9 (1.2 to 2.8)					
Any disorder	19.6 (93)	1.1 (0.7 to 1.7)	11.0 (49)	1.2 (0.6 to 2.2)	9.2 (44)	1.3 (0.7 to 2.5)	2.9 (13)	0.3 (0.1 to 0.9)	4.4 (23)	0.6 (0.3 to 1.5)					
Any mood disorder ^c	21.1 (68)	1.0 (0.6 to 1.7)	13.9 (41)	0.9 (0.4 to 1.8)	9.2 (30)	1.3 (0.6 to 3.0)	3.1 (10)	0.2 (0.05 to 0.9)	4.9 (18)	0.7 (0.3 to 2.0)					
Pure major depression	21.3 (64)	1.0 (0.6 to 1.9)	13.6 (38)	0.9 (0.5 to 2.0)	8.8 (27)	2.0 (0.8 to 5.3)	2.9 (9)	0.3 (0.1 to 1.0)	5.0 (17)	0.9 (0.3 to 2.4)					
Pure mood disorder	20.0 (4)	0.5 (0.2 to 1.3)	16.9 (3)	0.8 (0.3 to 2.3)	13.7 (3)	NA ^d	5.8 (1)	...	4.8 (1)	...					
Any anxiety disorder ^e	25.0 (37)	0.5 (0.2 to 1.1)	11.6 (17)	0.6 (0.2 to 1.7)	12.6 (19)	0.7 (0.3 to 1.7)	3.7 (5)	0.1 (0.1 to 0.4)	5.7 (9)	0.2 (0.1 to 1.0)					
Pure anxiety disorder	18.6 (16)	0.8 (0.3 to 2.5)	5.9 (5)	2.0 (0.2 to 18.4)	12.8 (11)	1.1 (0.3 to 4.2)	1.4 (1)	...	6.8 (6)	0.2 (0.0 to 1.3)					

^aUse of any psychotropic medication during the previous 12 months (antidepressant, anxiolytic, antipsychotic, or mood stabilizer).

^bGender comparison: male gender is the reference group.

^cMajor depressive episode or dysthymia.

^dNA = not applicable; all 3 subjects were men.

^eGeneralized anxiety disorder, agoraphobia, or panic disorder.

Table 4. 12-Month Exclusive Antidepressant and Anxiolytic Drug Use by Gender, According to 12-Month Mental Disorders^a

Disorder	Exclusive Antidepressant Drug Use		Exclusive Anxiolytic Drug Use	
	% (N)	Gender Comparison, OR (95% CI) ^b	% (N)	Gender Comparison, OR (95% CI) ^b
No disorder	0.7 (32)	1.4 (0.7 to 2.9)	2.0 (106)	1.8 (1.2 to 2.7)
Any disorder	4.3 (18)	1.9 (0.7 to 5.5)	4.2 (21)	1.7 (0.7 to 4.3)
Any mood disorder ^c	5.8 (16)	1.3 (0.4 to 3.7)	3.3 (12)	2.3 (0.6 to 8.7)
Pure major depression	5.7 (15)	1.0 (0.3 to 3.0)	3.3 (11)	3.4 (0.7 to 16.4)
Pure mood disorder	6.4 (1)	...	3.1 (1)	...
Any anxiety disorder ^d	3.8 (5)	0.8 (0.1 to 4.0)	6.5 (10)	1.1 (0.3 to 3.9)
Pure anxiety disorder	0.0 (0)	...	4.8 (4)	2.1 (0.2 to 20.4)

^aRaw numbers and weighted proportions are shown.

^bGender comparison: male gender is the reference group.

^cMajor depressive episode or dysthymia.

^dGeneralized anxiety disorder, agoraphobia, or panic disorder.

lytics. Antidepressants were the medications most commonly used, with 11.0% of individuals with any 12-month psychiatric disorder reporting use of one of these drugs during the same period; 4.3% had exclusively used antidepressants. Anxiolytics were the second most commonly used drugs, with 9.2% of individuals with a 12-month diagnosis of a psychiatric disorder reporting prior use (4.2% were exclusive users) within the year before interview. Both antidepressant use and anxiolytic use were only slightly higher in women compared to men (OR = 1.2, 95% CI = 0.6 to 2.2 and OR = 1.3, 95% CI = 0.7 to 2.5, respectively). Hypnotics and antipsychotics were used less frequently among people meeting criteria for any disorders (4.4% and 2.9%, respectively).

Among individuals with a 12-month diagnosis of pure major depression, 21.3% took a psychotropic medication, 13.6% took an antidepressant, and 8.8% took an anxiolytic during the same period. Twice as many women than men with this diagnosis took an anxiolytic in the same period (OR = 2.0, 95% CI = 0.8 to 5.3), while no gender differences in antidepressant use were noted (OR = 0.9, 95% CI = 0.5 to 2.0). The proportions of subjects with a diagnosis of pure major depression who received hypnotics and antipsychotics were substantially lower (5.0% and 2.9%, respectively), also without gender differences.

The exclusive use of antidepressants was substantially lower; only 5.7% of individuals with a 12-month diagnosis of pure major depression used exclusively antidepressants and 3.3% used only anxiolytics. The exclusive use of antipsychotics or mood stabilizers was negligible in individuals with this diagnosis.

Among people who had a 12-month diagnosis of pure anxiety disorder, 18.6% of individuals took any psychotropic drug in the same period and 12.8% had used an anxiolytic medication, with no gender differences in both cases. Compared with respondents diagnosed with major depression, a lower percentage (5.9%) used antidepressants, with a higher frequency in women (OR = 2.0, 95%

CI = 0.2 to 18.4); only one of the subjects diagnosed with pure anxiety disorder took an antipsychotic medication.

The exclusive use of anxiolytic medications was generally lower, with 4.8% of subjects with a 12-month diagnosis of pure anxiety disorders using only anxiolytics in the same period. None of those having this diagnosis used exclusively antidepressants within the year before the survey. The exclusive use of antipsychotics or mood stabilizers was negligible (data not shown).

Regarding 12-month exclusive antidepressant and exclusive anxiolytic drug use according to DSM-IV disorder status (Table 4), among people with any disorder, 4.3% used antidepressants exclusively. Individuals with pure major depression (5.7%) and with pure mood disorder (6.4%) showed higher proportions of use, but there were also substantial levels of drug usage among those with any anxiety disorder (3.8%). No gender differences in utilization were found, although a trend is suggested of a higher probability of use among women if a mood disorder was present and a lower probability of use among men if an anxiety disorder was the case.

Anxiolytic drugs were taken in an exclusive way by 2.0% of individuals with no disorder and by 4.2% of those with any disorder, with women having a nearly 2-fold probability of use compared to men. There were no great differences in anxiolytic use between specific disorders, with only one exception for any anxiety disorder (6.5%).

DISCUSSION

The INHS is the first study in Israel that directly examined the prevalence and patterns of psychotropic drug use in a representative sample of subjects from the general population. Apart from this, it is the first study to bind psychotropic drug utilization to the 12-month prevalence of common mental disorders. The study findings substantially supplement the picture of psychotropic drug utilization in Europe.

Sociodemographic Characteristics of Drug Users

In the present study, 5.4% of men and 8.4% of women received at least 1 psychotropic medication within the year before the survey. Other studies carried out in Europe^{4,5} have reported 1- or 2-week point prevalence estimates ranging from a low of 1.6% for men and 2.9% for women to a high of 9% and 18%, respectively. In the ESEMeD/MHEDEA 2000 study,¹⁰ 12-month prevalence rates were 8.2% for men and 16% for women. Studies that also provided gender aggregated data^{3,4,6,9} reported prevalence rates of psychotropic drug use ranging from 6% to 15%.

For both genders, psychotropic drug use substantially increased with age, approaching the maximum in the oldest age group (70 years and older), in which nearly 23% of subjects had used any drugs in the past 12 months, with an OR of 15.9 in female favor. Use of psychotropic drugs was higher among the previously married versus married individuals and among unemployed, disabled, and retired people compared with those employed. The rates were also higher in subjects with lower schooling and among those living in an urban environment.

Most of our findings are consistent with data of the relevant literature on European countries. For example, gender and age differences, with females and older people reporting higher rates of psychotropic drug utilization, have consistently been pointed out in previous studies.^{10,16} Several plausible explanations have been suggested for gender differences in drug pattern use^{17,18}: (1) higher psychiatric morbidity among women, particularly in relation to common mental disorders^{4,17,19}; (2) a greater proneness of females than males to experience psychological distress, complain of psychological symptoms, and seek professional help²⁰; and, conversely, (3) a greater proneness of males than females to alcohol use in stressful situations that interferes with psychotropic drug use.²¹

Likewise, each of the above reasons, alone or in combination, may help to explain the increased use of psychotropic drugs with age. Compared with younger individuals, older people demonstrate more subclinical depression syndromes and organic mood disorders leading to erroneously high prevalence rates of major depression,^{22,23} elevated levels of distress related to social isolation and loneliness,²⁴ and a decline in the prevalence of alcohol and other substance use disorders with age.²⁵ Factors reflecting social isolation have been shown to be associated with somatization and increased rates of medical utilization. A plausible explanation is that older persons turn to health care providers as an auxiliary social support system in times of stress.²⁶

Our findings indirectly confirm previous studies on the variation in mood disorders between rural and urban areas.²⁷ Overall, urbanicity seems to be linked to a higher risk of mental health disorders, particularly depressive disorders, whereas the link to anxiety disorders is only

moderate, and there is no link at all to alcohol disorders.²⁸ The lowest prevalence of psychotropic drug use in the West Bank inhabitants found in this study may be explained by their younger age, greater social cohesion, and ideological commitment to Israel, which enhance resilience to stress.^{29,30}

Indicators of social exclusion (unmarried status, unemployment, low education) as factors known to be associated with lower social support and elevated levels of psychological distress³¹⁻³³ were also correlated with higher drug utilization. Apart from this, lower prevalence of psychotropic medicine use found among more educated subjects and subjects with high occupation skills could be explained by their positive attitudes toward a healthy lifestyle, leisure time and occupational physical activity,^{34,35} prevention efforts rather than treatment of diseases, and, linked to these attitudes, the preference in the use of alternative/complementary medicines and interventions rather than pharmaceuticals.^{36,37}

Among variables most specific for Israel, immigration status and religious affiliation need to be considered. Regarding the first factor, we found that compared with native-born Israelis, the prevalence of psychotropic medicine utilization was higher among immigrants from the former Soviet Union, while newcomers from other countries have been placed in between. These findings could be explained by differences in adjustment efforts and related psychological distress between immigrants from different countries to Israel. As a rule, immigrants from the former Soviet Union must do their utmost to preserve or restore their former social and professional status in the host country,³⁸ while professional adjustment of newcomers from Western Europe and the United States occurs meaningfully easier, sometimes almost automatically.³⁹ Restoration of former social and professional statuses is not required from Ethiopian immigrants at all.^{40,41}

Regarding the factor of religious affiliation, we found that the prevalence of psychotropic drug use was substantially higher among secular people or individuals identifying themselves as belonging to traditional Jewish religion compared with those of Orthodox Jewish communities. There are at least 2 reasons for explaining this difference: (1) both social cohesion and social support in the ultra-orthodox communities enable resilience to psychological stress,⁴² and (2) negative (stigmatizing) attitudes toward mental disorders and treatment are expressed and mental health service utilization is lowered among these communities.^{43,44} These reasons fit also to explain lower psychotropic drug use among Arabs^{45,46} and, probably, other religious minorities in Israel.^{47,48}

Use Patterns in Different Countries

Since our survey is part of the World Mental Health (WMH) survey, comparisons with results from other countries are accessible. The overall prevalence rate of

psychotropic drug use in Israel (6.9%) falls in between the 2 lowest estimates among European countries surveyed: Germany (5.9%) and the Netherlands (7.4%), whereas the highest rate was shown in France (19.2%).¹⁰ Among others, one possible explanation for the observed diversity is differences in prevalence rates of common mental disorders in these countries. However, when prevalence estimates of mood disorders are compared across countries, this explanation seems to be inconsistent. While both prevalence rates (of mood disorders and drug utilization) are similarly low in Germany (3.8% and 5.9%, respectively), the obvious discrepancy between the 2 occurs in France (3.6% vs. 19.2%).¹⁰ In Israel, both rates are almost equal in magnitude (6.4% and 6.9%). In other words, there may be other factors, e.g., administrative or legal rules influencing prescription practices of psychotropic drugs and utilization of mental health services. Therefore, additional analyses are needed to understand the reasons for the between-country differences in the utilization of psychotropic drugs in the general population.

Patterns of Drug Use

In consistence with other studies, anxiolytic drugs were the most often used, with 3.2% of subjects reporting use of one of these drugs in the year preceding the survey, with higher usage among women. Hypnotics (2.3%) and antidepressants (2.0%) had been used less often; mood stabilizers (0.8%) and antipsychotics (0.5%) were used only minimally. The latter finding reflects, perhaps, the fact that psychiatric services in Israel were traditionally adjusted to needs patients with chronic, severe mental disorders, and only 2% of individuals in the general population use these services.⁴⁹ All of these findings are consistent with data of previous surveys.^{6,50,51}

Use of Psychotropic Drugs Among People With Mental Disorders

Nearly one fifth of individuals fulfilling DSM-IV criteria for a 12-month diagnosis of any mental disorder reported using any psychotropic drug during the same period. The corresponding figures for subjects diagnosed with pure anxiety disorder, any mood disorder, pure major depression, and pure mood disorder were very similar, ranging from 18.6% to 21.3%. All of these figures are substantially less than those reported in the ESEMed survey (25.5%–45.6%).¹⁰

Limitations and Strengths

The first limitation is that we do not analyze data on nonmedication treatment of psychiatric disorders. The fact that the vast majority of our respondents (75%–80%) who were diagnosed as having a common mental disorder reported not receiving psychotropic treatment in the same time period suggests that some could be treated with psychotherapy or alternative/complimentary treatment de-

vices. Given that a cognitive-behavioral therapy of common mental disorders is no less popular among patients and physicians than pharmacotherapy,^{52,53} it may be suggested that the extent of undertreatment is less than reported here.

Another limitation of the study is that we describe any drug and any dose taken during the previous year and we do not measure duration of medication treatment; hence, we cannot evaluate the appropriateness of treatment receiving for each of the specific psychiatric disorders. Further analyses we intend to conduct will evaluate these parameters of the study.

There are also methodological strengths of the study: (1) a relatively high response rate was achieved, (2) the interviews using the mother tongue (Hebrew, Arabic, and Russian) enabled the vast majority of the respondents to better understand the questions, (3) the interviews using computerized programs increased data quality by drastically reducing between-interviewer variation, and (4) the INHS as part of the WHO/WMH survey allowed an opportunity for cross-countries comparisons.

In conclusion, the INHS results suggest that the majority of individuals diagnosed with an identifiable, common mental disorder are not being treated with psychotropic drugs or are being inappropriately treated.

Drug names: buspirone (BuSpar and others), carbamazepine (Carbatrol, Equetro, and others), clozapine (Clozaril, FazaClo, and others), gabapentin (Neurontin and others), lamotrigine (Lamictal and others), lithium (Eskalith, Lithobid, and others), olanzapine (Zyprexa), quetiapine (Seroquel), risperidone (Risperdal), topiramate (Topamax and others), ziprasidone (Geodon).

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