THE ROMANIAN MENTAL HEALTH STUDY

main aspects of lifetime prevalence and service use of DSM-IV disorders

Silvia FLORESCU1, MD, PhD, researcher, PHHM senior specialist
Marius CIUTAN1, MD, PHHM specialist
Georgeta POPOVICI1, MD, Family practice senior specialist
Mihaela GALAON1, MD, PHHM specialist, researcher
Maria LADEA2, MD, PhD, psychiatry senior specialist
Maria PETHUKOVA3, MD, PHD
Alison HOFFNAGLE3, WMH Project Manager, Harvard Medical School

1 National School of Public Health and Health Services Management
2 Psychiatry Clinical Hospital Prof. Dr. Al. Obregia
3 Departement of Health Care Policy, Harvard Medical School, Boston, MA, USA

Context:

In the last decades it was not available in Romania any nationally representative population based study about age of onset of DSM-IV disorders, life time prevalence and the services use related to these diseases.

A very important step in the help seeking process is making prompt initial contact with a treatment provider after first onset of a mental disorder [1].

The purpose of the current article is to present nationally representative estimates of lifetime prevalence and initial treatment contact of the DSM-IV disorders assessed in the Romanian Mental Health study.

Objective: To estimate lifetime prevalence and age-of onset distributions of DSM-IV disorders[2], to describe patterns of delay in making initial treatment contact after first onset of mental disorders in Romania.

Design and Setting

Nationally representative face-to face household survey conducted between 2005-2007 using World Health Organization World Mental Health Survey Initiative (WMH) version of the Composite International Diagnostic Interview (CIDI).

This is a fully structured interview designed to be administered by trained lay interviewers, known as (WMH-CIDI) [3].

The survey was administered as Computer Assisted Personal Interview (CAPI version).

The interviewers explained the study and obtained verbal informed consent prior to beginning each interview.

Sample

The Romanian Mental Health Study is a nationally representative survey of Romanian-speaking household residents aged 18 years and older in Romania.

Participants: 2537 subjects of 18 years or older. The sample contained 940 cases of 44 years old or less. Obsessive compulsive disorder (OCD) was estimated on a random subsample of 562 cases.

The response rate was 70.9%.

Diagnostic Assessment

The diagnoses are based on the World Mental Health Survey Initiative Version of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI), a fully structured lay-administered diagnostic interview that generates both International Classification of Diseases, 10th Revision [4] and DSM-IV diagnoses [5], [6].
The DSM-IV criteria are used here and diagnoses include:
- anxiety disorders, including panic disorder (PD), agoraphobia without panic (AG), specific phobia (SP), social phobia (SoP), generalized anxiety disorder (GAD), post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD) and separation anxiety disorder (SAD);
- mood disorders, including major depressive disorder (MDD), dysthymia (DYS), and bipolar disorder (BDP);
- impulse control disorders, including intermittent explosive disorder (IED), oppositional defiant disorder (ODD), conduct disorder (CD) and attention-deficit/hyperactivity disorder (ADHD);
- substance disorders, including alcohol abuse (AA), alcohol dependence (AD), drug abuse (DA), and drug dependence (DD).

The four disorders that require onset of symptoms in childhood (separation anxiety disorder, oppositional-defiant disorder, conduct disorder, and attention-deficit/hyperactivity disorder) were limited to respondents in the age range of 18 to 44 years because of concerns about recall bias among older respondents [5], [6].

Hierarchy was used for the following disorders: Major Depressive Disorder, Dysthymia, Generalized Anxiety Disorder, and oppositional-defiant disorder.

Substance use disorders were diagnosed without hierarchy (the abuse being frequently a stage in the way towards dependence).

Information about age of first professional treatment contact for each lifetime DSM-IV/WMH-CIDI disorder assessed in the survey was collected and compared with age at onset of the disorder in order to study typical duration of delay. Retrospective age-of-onset reports were obtained in the WMH-CIDI using a series of questions. The sequence began with a question designed to emphasize the importance of accurate responses: “Can you remember your exact age the very first time you (had the syndrome)?”

Respondents who answered “no” were probed for a bound of uncertainty by moving up the age range incrementally (e.g., “Was it before you first started school?” “Was it before you became a teenager?”).

Age of onset was set at the upper end of the bound (e.g., age 12 years for respondents who reported that onset was before they became a teenager). Although age-of-onset questions were asked about both important symptoms (e.g., first panic attack) and full syndromes, the ages used herein are for syndromes [7].

Close to the end of each WMH-CIDI diagnostic section, respondents were asked whether they ever in their life talked to a medical doctor or other professional about the disorder under investigation.

In asking this question, the interviewer clarified that the term “other professional” was meant to apply broadly to include psychologists, counselors, spiritual advisors, herbalists, acupuncturists, and any other healing professionals.

Respondents who reported ever talking to any of these professionals about the disorder in question were then asked how old they were the first time they did so.

The response to this question was used to define age of first treatment contact.

The typical duration of delay in initial treatment contact was defined as the median number of years from disorder onset to first treatment contact among cases that eventually made treatment contact [8].

Analysis Methods

By lifetime prevalence is understood the proportion of those in the population who had a disorder at some time in their life up to their age at interview. "The projected lifetime risk" is the estimated proportion of those in the population who will have the disorder by the end of their life. The lifetime risk estimates are useful in assessing societal burden.

Survival analysis was used to make estimated projections of cumulative lifetime probability of treatment contact from year of onset. The survival curves were also used to estimate the proportion of cases that made treatment contact in the year of first onset of the disorder and the median delay among people who eventually made treatment contact after the year of first onset. The data were weighted to adjust for differential probabilities of selection, differential non-response, and differences in socio-demographic variables between the sample and Census population. All significance tests were evaluated at .05 with two-sided tests [9].

Results

Lifetime prevalence

The lifetime prevalence of any disorder was 13.4%, while 4.5% of respondents had two or more lifetime disorders and 1.4% had three or more.

Anxiety disorders were the most prevalent class of disorders (6.9%), followed by mood disorders (4.3%), and substance disorders (2.1% and 2.9% for those 44 years old or less).

Among anxiety disorders, the most frequent is specific phobia (3.8%), followed by social phobia (1.3%) and post traumatic stress disorder (1.2%).

Of onset. The survival curves were also used to make estimated projections of cumulative lifetime probability of treatment contact from year of onset. The survival curves were also used to estimate the proportion of cases that made treatment contact in the year of first onset of the disorder and the median delay among people who eventually made treatment contact after the year of first onset. The data were weighted to adjust for differential probabilities of selection, differential non-response, and differences in socio-demographic variables between the sample and Census population. All significance tests were evaluated at .05 with two-sided tests [9].

Any impulse disorder lifetime prevalence is < 0.5% for ODD with hierarchy and CD (0.4%) and ADHD (0.2%).
Prevalence age group variation

Within each category of disease, generally, it was found out an increase of prevalence from the youngest (18-34 years) to the older (for the most part, 50-64 years) age group and then a decline in the oldest age group.

Will be considered the following age groups 18-34 years old, 35-49, 50-64 and 65 years and over.

For any anxiety disorder, the lifetime prevalence increases from 5.5% at 18-34 age group to 6.8% for 35-49 age group and to 10.3% for 50-64 group (almost double compared with those in 18-34 age group), consequently decreasing to 5.2% for those of 65 years old and over (Graph 1).

The same trend can be noticed for specific phobia, social phobia and posttraumatic stress disorder.

For specific phobia, the lifetime prevalence is increasing with 1.7 percentage points from 2.9% (18-34 age group) to 4.6% (for those of 35-49 years old), and further only with 0.6 percentage points for those of 50-64 years old (5.2%); it is sharply decreasing then, to 2.6% for those of 65 years old and over.

For social phobia, the lifetime prevalence is slowly but constantly increasing from one age group to another, being 1.2% for 18-34 group, 1.5% for 35-49 group, 1.9% at 50-64 group. It is halving decreasing to 0.8% for those of 65 years old and over.

For posttraumatic stress disorder, the lifetime prevalence is increasing with almost half percentage point for each of the first three age groups, registering the value 0.8% for 18-34 group, 1.4% for 35-49 years old, 1.9% for 50-64 years old, and decreasing 4 times for those older than 65 years (0.5%).

Discussing about anxiety disorders with lifetime prevalence under 1%, the pattern above is kept only for panic disorder (Graph 2): so, the lifetime prevalence is increasing, progressively with half percentage point from one age group to another, being 0.3% for 18-34 group, 0.7% for those of 35-49 years old, 1.2% for those of 50-64 years old, decreasing to 0.7% for those of 65 years old and over.

This pattern of progressive increase from youth to maturity and decrease at elderly is not anymore noticed for the others anxiety disorders.

For agoraphobia without panic, the values of lifetime are almost similar for 18-34 and 35-49 years old respondents (0.7 respectively 0.8%), decreasing 8 times for 50-64 years old (to 0.1%) and being zero for 65 and over age group.

The same small differences (0.1-0.2%) between age groups was noticed for obsessive compulsive disorder, the exception being registered for 35-49 age group where the value of prevalence was zero. The lifetime prevalence is 0.7% for 18-34 years old, 0.9-1% for those of 50-64 age group and those older than 65 years old.

Source of data presented in this article: Mental Health Study 2007, National School of Public Health and Health Services Management.

Graph 1. Lifetime prevalence variation by age for anxiety disorders with lifetime prevalence higher than 1%

Graph 2. Lifetime prevalence variation by age for anxiety disorders with lifetime prevalence under 1%

All ages 18-34 years 35-49 years 50-64 years 65+ years
Regarding the generalised anxiety disorder with hierarchy, a young from 100 meets the diagnostic criteria, the lifetime prevalence being 0.9% for 18-34 years old; is decreasing 3 times for those of 35-49 years (0.3%), becoming double at 50-64 age group (0.6%) and increasing almost 3 times for those of 65 years old and over (0.4%).

For separation anxiety disorder, equal values can be seen at 35-49 and 65 and over groups (0.9%), a little bit higher at 18-34 years (1.1%) and lower for 50-64 years old (0.6%).

Regardless the age group, the lifetime prevalence for major depressive episode is 2.9%.

The lifetime prevalence for dysthymia with hierarchy has low values of 0.1% for 35-49 age group, increasing to 0.7% for those of 50-64 years old and is decreasing to half of this value to 65 years old and over (0.4%).

When we consider all the mood disorders, the lifetime prevalence is 4.3% and by age is as following: close values for the age groups of 18-34 and 35-49 years old on one side (3.7, respectively 3.5%) and for the age groups 50-64 and 65 years old and over on the other side (5.1-5.7%).

From mood disorders, the number of cases was more consistent for major depressive episode.

Generally for impulsive disorders, the lifetime prevalence is higher at age 18-34, decreasing progressively at age 35-49, 50-64, registering a new increase after 65 years old (Graph 4).

The lifetime prevalence for impulsive disorders in general population is 2.1% but reaches 4.3% at 18-34; decreases 4 times for 35-49 (1.1%) and further for those 50-64 years old (0.7%), becoming double for 65 years old and over (1.3%).

The same pattern can be seen for intermittent explosive disorder; in the general population lifetime prevalence is 1.3%, for the age group 18-34, it records values of 2.3%, becoming less than half (0.9%) at 35-49 age group and decreasing continuously at 50-64 (0.6%), becoming double for those of 65 and over age group (1.2%).
The conduct disorder with a lifetime prevalence of 0.4% in the general population, registers values of 1.1% for 18-34 years old age group, 10 times less for the age groups of 50-64 and 65 years old and over (0.1%), becoming zero for those of 35-49 years old.

The oppositional defiant disorder has a lifetime prevalence of 0.4%, having a value of 1.3% for 18-34 age group.

Attention deficit/hiperactivity disorder has a lifetime prevalence of 0.2%, the value being 3 times higher for the age group 18-34 compared to 35-49 age group (0.6% compared to 0.2%).

As there are extremely few cases for attention deficit hiperactivity disorder, conduct disorder and oppositional defiant disorder, it is very difficult any data analysis.

The under discussion pattern, of progressive increase from younger to maturity age groups and decline after 65 years old, can be noticed for the alcohol abuse with or without dependence (Graph 5). The increase is minor for those of 35-49 years old compared to 18-34 age group (2.9% compared to 2.7%), being more pronounced to those of 50-64 years old (4.1%). For those of 65 years old and over, the lifetime prevalence is decreasing to 3% and still remaining to a value superior to that of younger age groups.

The lifetime prevalence for alcohol abuse with or without prevalence is 3.1% in general population.

The lifetime prevalence for any substance use disorder is 3.4% in general population.

For 18-34 age group the lifetime prevalence is 3.3%, decreasing slowly to 2.9% for 35-49 age group. It is increasing with 1.2 percentage points for those of 50-64 years old, reaching the value of 4.1% and further is decreasing to 3% for those older than 65 years.

The alcohol dependence with abuse has a lifetime prevalence of 0.7% for general population: is 0.4% for 18-34 years old age group. It is increasing 4 times for those of 50-64 years old (1.6%), decreasing to 1.1 for those of 65 years old and over.

The drug dependence with abuse has a low prevalence of 0.1%, with values 4 times higher for 18-34 years old group (0.4%). The alcohol abuse with or without dependence has a value of 0.2%, by three times higher compared with the values for those aged 18-34 (0.7%).

The number of cases within the sample is extremely low, making extremely difficult any interpretation.

As mentioned before, for the general population, the lifetime prevalence is 13.4%.

If for 18-34 years old, the lifetime prevalence is 13.2%, it decreases slowly for those of 35-49 (12.5%); it is increasing to 15.6% for those of 50-64 years old and decreasing again to 12.5% for those of 65 years old and over (Graph 6).

The lifetime prevalence for those with minimum 2 mental disorders is 4.5% in general population.
Among those with minimum 2 disorders, those of 18-34 years old group register a value of 5%; this value is decreasing for the 35-49 age group (3.5%), is increasing again to 5.5% for 50-64 group age and is decreasing to 3.8% for those of 65 years old and over.

Among those with minimum 3 mental disorders, we saw a lifetime prevalence in the general population of 1.4%, with similar values for 18-34 and 50-64 age groups (1.7, respectively 1.6%) and a lower value for 35-49 and 65 and over age groups (1% respectively 1.3%).

The median age of the onset
The median age of onset indicates up to what age half of cases had the onset for a certain mental disorder.

The median age of onset (e.g., 50th percentile on the age-of-onset distribution) was much earlier for specific phobia (age 9 years), any impulse-control disorders (age 14 years) or any anxiety (17 years) compared to substance use disorders (age 28 years), alcohol abuse with or without dependence (age 30 years), any mood disorders (age 34 years), PTSD (38 years) or mood disorder with hierarchy (44 years old).

From all lifetime cases, 25% started by age 13 years, half of all cases by age 25 years and 75% by age 45 years.

The interquartile ranges (IQRs) of the onset age
The interquartile ranges for the age-of-onset are the number of years between the 25th and 75th percentiles of the age-of-onset distributions, showing when had the onset 50% of all cases with a certain disorder, excluding those 25% who had the onset very early and 25% having the onset very late.

The interquartile ranges (IQRs) were 13-20 years for some disorders: of 13 years for specific phobia (age 5 and 18 years), of 15 years for any substance use disorders (age 21 and 36 years) and 20 years for alcohol abuse with/without dependence (age 21 and 41 years).

The projected lifetime risk by the age of 75 years compared with the observed lifetime prevalence
The estimated lifetime risk of psychiatric disorders at age 75 years are generally higher than the observed lifetime prevalence.

This situation can be noticed for each mental disorder.

From all lifetime cases, 25% started by age 13 years, half of all cases by age 25 years and 75% by age 45 years.

The interquartile ranges (IQRs) of the onset age
The interquartile ranges for the age-of-onset are the number of years between the 25th and 75th percentiles of the age-of-onset distributions, showing when had the onset 50% of all cases with a certain disorder, excluding those 25% who had the onset very early and 25% having the onset very late.

The interquartile ranges (IQRs) were 13-20 years for some disorders: of 13 years for specific phobia (age 5 and 18 years), of 15 years for any substance use disorders (age 21 and 36 years) and 20 years for alcohol abuse with/without dependence (age 21 and 41 years).

The interquartile range was larger (29-32 years) for: PTSD (21 - 50 years old), mood with hierarchy (28-58 years old), any mood disorder (24-55 years old), any mental disorder (13-45 years old). It was even larger (34-40 years) for: any impulse disorder (11-45 years old) and any anxiety (8-48 years old).

The projected lifetime risk by the age of 75 years compared with the observed lifetime prevalence
The estimated lifetime risk of psychiatric disorders at age 75 years are generally higher than the observed lifetime prevalence.

This situation can be noticed for each mental disorder.

From all lifetime cases, 25% started by age 13 years, half of all cases by age 25 years and 75% by age 45 years.

The median age of the onset
The median age of onset indicates up to what age half of cases had the onset for a certain mental disorder.

The median age of onset (e.g., 50th percentile on the age-of-onset distribution) was much earlier for specific phobia (age 9 years), any impulse-control disorders (age 14 years) or any anxiety (17 years) compared to substance use disorders (age 28 years), alcohol abuse with or without dependence (age 30 years), any mood disorders (age 34 years), PTSD (38 years) or mood disorder with hierarchy (44 years old).

From all lifetime cases, 25% started by age 13 years, half of all cases by age 25 years and 75% by age 45 years.

The interquartile ranges (IQRs) of the onset age
The interquartile ranges for the age-of-onset are the number of years between the 25th and 75th percentiles of the age-of-onset distributions, showing when had the onset 50% of all cases with a certain disorder, excluding those 25% who had the onset very early and 25% having the onset very late.

The interquartile ranges (IQRs) were 13-20 years for some disorders: of 13 years for specific phobia (age 5 and 18 years), of 15 years for any substance use disorders (age 21 and 36 years) and 20 years for alcohol abuse with/without dependence (age 21 and 41 years).

The projected lifetime risk by the age of 75 years, based on the age of onset distributions, was 13% higher than lifetime prevalence estimates for anxiety disorders-specific phobia, 24% higher for any impulse disorder, 26% higher for any anxiety disorders, 32% higher for any substance use disorders, and 37% higher for any disorder.

It was even much higher, 39% for alcohol abuse with/without dependence, 58% higher for PTSD, 67% for any mood and 90% higher for mood with hierarchy.

The observed prevalence was considered as 100% and the value of the projected risk was computed.

The disorders with the largest increases of prevalence and projected risk were: alcohol abuse with/without dependence, PTSD, any mood, mood disorder with hierarchy.

The projected lifetime risk at age 75 is for anxiety disorders 8.7% (versus the observed lifetime prevalence 6.9%), for mood disorders, 7.2% (versus 4.3%), for substance use disorders, 4.5% (versus 3.4%) for impulse control disorders is 2.6% (versus 2.1% for the general population and 2.9% for those having 44 or less) and 18.3% for any disorder (versus 13.4%) (Graph 7).
Graph 8  Proportional treatment contact in the year of disorder onset and by 50 years for anxiety disorders

Graph 9  Proportional treatment contact in the year of disorder onset and by 50 years for mood disorders
The largest increases of prevalence and projected risk can be noticed for major depressive disorder with hierarchy (89.7%), any mood disorder (67.4%), and posttraumatic stress disorder (58.3%).

It is between 23.8-38.7% for: alcohol abuse with or without dependence (38.7%), mental disorders (36.6%), any substance use disorders (32.4%), any anxiety disorders (26.1%), impulse disorders (23.8%). The smallest increase is for specific phobia (13.2%).

**Conclusions:**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Initial Treatment Contact</th>
<th>Failure and Delay in Initial Treatment Contact after the First Onset of Mental Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major depressive disorder</td>
<td>22-23 years</td>
<td>As follows: any disorder 13.4%, anxiety disorders 6.3%, any mood disorders 7.9%</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>3 years</td>
<td>The proportion becomes lower for agoraphobia (24.6%) and extremely low for specific phobia (13.2%).</td>
</tr>
<tr>
<td>Alcohol abuse with or without dependence</td>
<td>4 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>6 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Posttraumatic stress disorder</td>
<td>8 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Mood disorders</td>
<td>2 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>3 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Impulse disorders</td>
<td>4 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
<tr>
<td>Drug abuse</td>
<td>5 years</td>
<td>The proportion becomes lower for alcohol abuse (2.2%).</td>
</tr>
</tbody>
</table>

**Failure and delay in initial treatment contact after the first onset of mental disorders**

The proportion of cases that began treatment contact in the year of disorder onset is 2-3% for any substance disorder and any anxiety disorder and is 10.2% for any mood disorder.

Within anxiety disorders, is no treatment contact in the year of onset for social phobia obsessive compulsive disorder, adult separation anxiety disorder. Only for agoraphobia the proportion is higher of 24.6% but for other anxiety disorders is very low, under 10% as follows: 7.9% for panic disorder, 6.3% for generalized anxiety disorder, 4.8% for posttraumatic stress disorder and 3% for specific phobia (Graph 8).

Regarding the mood disorders, the proportion of cases making treatment contact in the year of onset is higher for bipolar disorder (32.5%) and dysthymia (40.8%) but much lower for major depressive episode (only 9.1%) (Graph 9).

Within the substance disorders, the proportion of cases making treatment contact in the year of onset is highest for drug abuse (63.2%) but much lower, under 10% for alcohol abuse with dependence (6.5%) and much lower for alcohol abuse (2.2%).
The delay among those who eventually make treatment contact ranges from 1 year to 32 years for anxiety disorders, from 1 to 13 years for mood disorders, from 1 year to 15 years for substance use disorders.

One can notice a delay in making initial treatment contact, which denotes the population lack of knowledge about disease and treatment opportunities, addressing barriers belonging to the patients and health services as well, finally being an aspect of unmet need for mental health care [10].

A high proportion of people with mental disorders in Romania are untreated, despite of the fact that their disorders are source of distress and impairment. It is very important for public health decision makers and psychiatrists specialists to be aware about the lack of treatment of a great part of the people with mental disorders.

Interventions to accelerate and accomplish timely the initial treatment contact could reduce the burden and various individual, medical and societal consequences of untreated mental disorders.

Giving the age of onset, interventions aimed to the prevention or early treatment need to focus on teenagers and young adults, on family and social close environment, as schools and workplaces.

**Acknowledgment**

The "Policies in Mental Health Area" and "National Study regarding Mental Health and Services Use" were carried out in conjunction with the World Health Organization World Mental Health (WMH) Survey Initiative.

We thank the WMH staff for assistance with instrumentation, fieldwork, and data analysis.

These activities were supported by the United States National Institute of Mental Health (R01MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the Eli Lilly & Company Foundation, Ortho-McNeil Pharmaceutical, Inc., GlaxoSmithKline, and Bristol-Myers Squibb, and Shire. A complete list of WMH publications can be found at [www.hcp.med.harvard.edu/wmh/](http://www.hcp.med.harvard.edu/wmh/).

The Romania WMH study projects “Policies in Mental Health Area” and “National Study regarding Mental Health and Services Use” were carried out by the National School of Public Health & Health Services Management (former National Institute for Research & Development in Health), with technical support of Metro Media Transilvania, the National Institute of Statistics-National Centre for Training in Statistics, SC. Cheyenne Services SRL, Statistics Netherlands and were funded by Ministry of Public Health (former Ministry of Health) with supplemental support of Eli Lilly Romania SRL.

**References**

6. American Psychiatric Association, 2000, Diagnostic and statistical manual of mental disorders, Fourth Edition, Text revision (DSM-IV, TR); Printed in Romanian by The Romanian Psychiatrists Association, Bucharest, under Scientific Coordination of Prof. Dr. Aurel Romilă