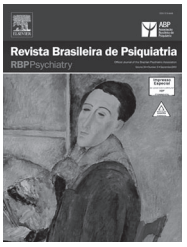
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ORIGINAL ARTICLE

Lifetime Prevalence, Age and Gender Distribution and Age-of-Onset of Psychiatric Disorders in the São Paulo Metropolitan Area, Brazil: Results from the *São Paulo Megacity Mental Health Survey*

Maria Carmen Viana,[1,2] Laura Helena Andrade[2]

[1] Department of Social Medicine and Post-Graduate Program in Public Health, Health Sciences Center, Universidade Federal do Espírito Santo, Vitória, Brazil
[2] Section of Psychiatric Epidemiology - LIM-23, Department and Institute of Psychiatry, Faculdade de Medicina, Universidade de São Paulo, São Paulo, Brazil

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Abstract
Objectives: To estimate prevalence, age-of-onset, gender distribution and identify correlates of lifetime psychiatric disorders in the São Paulo Metropolitan Area (SPMA). *Methods:* The *São Paulo Megacity Mental Health Survey* assessed psychiatric disorders on a probabilistic sample of 5,037 adult residents in the SPMA, using the World Mental Health Survey Version of the Composite International Diagnostic Interview. Response rate was 81.3%. *Results:* Lifetime prevalence for any disorder was 44.8%; estimated risk at age 75 was 57.7%; comorbidity was frequent. Major depression, specific phobias and alcohol abuse were the most prevalent across disorders; anxiety disorders were the most frequent class. Early age-of-onset for phobic and impulse-control disorders and later age-of-onset for mood disorders were observed. Women were more likely to have anxiety and mood disorders, whereas men, substance use disorders. Apart from conduct disorders, more frequent in men, there were no gender differences in impulse-control disorders. There was a consistent trend of higher prevalence in the youngest cohorts. Low education level was associated to substance use disorders. *Conclusions:* Psychiatric disorders are highly prevalent among the general adult population in the SPMA, with frequent comorbidity, early age-of-onset for most disorders, and younger cohorts presenting higher rates of morbidity. Such scenario calls for vigorous public health action.

Corresponding author: Maria Carmen Viana, MD, PhD. Departamento de Medicina Social, Centro de Ciências da Saúde, Universidade Federal do Espírito Santo. Av. Marechal Campos 1468; Vitória/ES - Brazil. CEP 29043-900. E-mail: mcviana@uol.com.br

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DESCRITORES:
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Pesquisa Mundial de Saúde Mental;
Epidemiologia psiquiátrica;
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Prevalência em toda a vida, distribuição por idade e sexo e idade de início de transtornos psiquiátricos na área metropolitana de São Paulo, Brasil: Resultados do *Estudo Epidemiológico de Transtornos Mentais São Paulo Megacity*

Resumo
Objetivos: Estimar a prevalência, idade de início, distribuição por sexo e idade e identifica fatores correlacionados à morbidade psiquiátrica na Região Metropolitana de São Paulo (RMSP). *Métodos:* O *Estudo Epidemiológico de Transtornos Mentais São Paulo Megacity* avaliou transtornos psiquiátricos em uma amostra probabilística composta por 5.037 adultos (18+) residentes na RMSP, utilizando o *Composite International Diagnostic Interview*, versão *World Mental Health Survey*. A taxa global de resposta foi de 81,3%. *Resultados:* A prevalência de pelo menos um transtorno mental ao longo da vida foi de 44,8% e o risco estimado aos 75 anos de idade foi de 57,7%; comorbidade ocorreu com frequência. Depressão maior, fobias específicas e abuso de álcool foram os transtornos mais prevalentes; transtornos de ansiedade foi a classe de transtornos mais frequente. Fobias específicas e transtornos do controle de impulsos tiveram idade de início precoce, enquanto transtornos do humor tiveram início mais tardiamente. Mulheres apresentaram maior risco para transtornos do humor e de ansiedade, e homens para transtornos decorrentes do uso de álcool e drogas. Com exceção de transtornos da conduta, que foram mais frequentes em homens, não se observou diferenças de gênero na distribuição de transtornos do controle de impulso. Observou-se uma tendência consistente entre os diferentes transtornos de maiores taxas de morbidade nas coortes mais jovens. Baixa escolaridade mostrou-se associada a transtornos decorrentes do uso de álcool e drogas. *Conclusão:* Transtornos psiquiátricos na população geral adulta da RMSP são altamente prevalentes, com comorbidade frequente, idade de início precoce na maior parte dos transtornos avaliados, e taxas mais elevadas nas coortes mais jovens. Tal cenário suscita ações vigorosas de saúde pública.

Introduction

In an attempt to have more accurate information on the epidemiology of psychiatric disorders in different cultures, the WHO launched the World Mental Health (WMH) Surveys Initiative,[1] with over 30 participating countries, using an extended and expanded version of the WHO-Composite International Diagnostic Interview (WMH-CIDI),[2] based on diagnostic criteria from the International Classification of Diseases and Injuries 10th Revision (ICD-10)[3] and the Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV).[4] This manuscript is based on the São Paulo Megacity Mental Health Survey (SPMHS),[5] carried out in conjunction with the WMH Surveys Initiative,[5] which assessed the general population living in the São Paulo Metropolitan Area (SPMA).

So far, few population-based surveys assessing psychiatric morbidity in the community have been conducted in Brazil. In the early 90's, the Brazilian Multicentric Study of Psychiatric Morbidity was carried out in three cities, using screening questionnaires in two-phase surveys, reported lifetime prevalence rates of 31% in São Paulo, 42.5% in Porto Alegre and 50.5% in Brasília.[6,7] Two later studies used fully structured diagnostic interviews (CIDI-1.1), yielding DSM-III-R and ICD-10 diagnoses. The *São Paulo Epidemiologic Catchment Area Study* (ECA)[8,9] assessed 1,464 residents of two boroughs in the city of São Paulo; lifetime and 12-month prevalence for at least one disorder were 33.1% and 18.5%, respectively. The Bambuí Health and Aging Study assessed 1,041 adults living in a small town in Minas Gerais.[10-12] Lifetime prevalence of major depression and social phobia were 12.8% (17.0% among females and 7.3% in males) and 11.8% (females 13.0% and males 10.0%), respectively. These studies used rigorous sampling procedures. Nonetheless, the results were not generalizable to larger proportions of the general population, as the ECA study was limited to middle and upper socioeconomic neighborhoods, and the Bambuí survey only included the assessment of depression and social phobia among the population of a small town in a rural area.

The SPMHS was designed to address these limitations and fulfill the gaps in knowledge regarding the epidemiology of mental disorders in the Brazilian general population, and produce information that can be compared to other regions of the world. In this report, we present lifetime prevalence estimates, projected lifetime risks, age-of-onset (AOO) distributions, intercohort variation, and sociodemographic correlates of a wide range of DSM-IV disorders of adult residents in the São Paulo Metropolitan Area (SPMA), the largest urban area in South America. The SPMA is formed by 39 municipalities and is among the five most populous areas in the world, with a population of 19.7 million people. The concentration of economic activities has attracted a large number of migrants from all Brazilian regions in the last decades, which have led to a decline in the overall quality of life, and increasing social and economic inequality in the region.

Methods

Study overview

As described in more detail elsewhere,[5] the SPMHS is a cross-sectional population-based epidemiological study of psychiatric morbidity, assessing a probabilistic sample of household

residents in the SPMA, aged 18 years and over. Respondents were selected from a stratified multistage clustered area probability sample of households, covering all 39 municipalities, without replacement. Data were collected between May/2005 and April/2007 by trained lay interviewers, using the paper-and-pencil version of the WMH-CIDI, which is composed by clinical and non-clinical sections, arranged in Part I and Part II. Core disorders (anxiety, mood, impulse-control and substance use disorders) and sociodemographic risk factors were assessed in all respondents (Part I sample). WMH-CIDI non-core clinical modules as well as non-clinical sections were applied in a subsample composed by all core disorder cases and a 25% random sample of non-cases (Part II sample). A total of 5,037 individuals received WMH-CIDI Part I and 2,942 were also given Part II. The global response rate was 81.3%.

The study was approved by the Ethical and Research Committee, School of Medicine/São Paulo University.

Diagnostic Assessment

Psychiatric diagnoses were based on the WMH-CIDI,[2] a fully structured diagnostic interview. The paper-and-pencil version (PAPI) was translated and adapted into Brazilian Portuguese,[13] following international guidelines, and administered in face-to-face household interviews by trained non-clinical interviewers. DSM-IV diagnostic criteria were used and diagnoses include anxiety disorders [panic, agoraphobia, specific phobia, social phobia, generalized anxiety (GAD), post-traumatic stress (PTSD), obsessive-compulsive (OCD), and separation anxiety], mood disorders [major depression (MDD), dysthymia, bipolar I and II], impulse-control disorders [intermittent explosive, oppositional-defiant (ODD), conduct (CD), and attention-deficit/hyperactivity (ADHD)], and substance use disorders (alcohol and drug abuse and dependence). PTSD and OCD were assessed in Part II; all other disorders in Part I. Organic exclusion rules were used for the ascertainment of all diagnoses, and hierarchy rules were used for MDD, dysthymia, GAD and ODD. Retrospective information on AOO for all disorders was obtained using a series of questions designed to avoid recall bias or answers beyond the range.

Sociodemographic correlates

Correlates of psychiatric morbidity assessed included: 1) cohort defined by age at interview 18-34, 35-49, 50-64, or 65+ years; 2) gender as female or male; 3) education was defined according to the Brazilian school system, categorized as "0-4 years of education" (equivalent to: none - less than half primary school), "5-8 years" (more than half primary school - primary school complete), "9-11 years" (some high school - high school complete), or "12+ years of education" (some college or university - complete college or university). As it varies with time/age, education was also coded as a time-varying predictor by assuming an orderly educational history, with 8 years of education corresponding to being a student up to age 14; other durations were based on this reference point.

Statistical Analysis

Weights were applied to adjust differences in the probability of selection, differential non-response, and post-stratifying the final sample to approximate the year 2,000 population census regarding gender and age distribution,[14] which were applied to data from the Part I sample. An additional weight adjusted for Part II selection - oversampling cases - was used to analyze Part II data. Weighting procedures are described in more detail elsewhere.[5] Lifetime prevalence was estimated as the proportion of respondents who had ever fulfilled DSM-IV diagnostic criteria for a given disorder up to their age at interview. AOO and projected lifetime risk as of age 75 years (PLR) were estimated using the two-part actuarial method contained in the SAS[15] version 8.2.12, assuming a constant conditional risk of onset during a given year of life across age cohorts. Sociodemographic predictors were examined using discrete-time survival analysis with person-years as the unit of analysis.[16] Sociodemographic variables that change over time (educational attainment) were treated as time-varying predictors. Changes in the effects of predictors across cohort were evaluated by including interactions between predictors and cohort. Standard errors of prevalence estimates and survival coefficients were estimated with the Taylor series linearization method,[17] using the Survey Data Analysis (SUDAAN)[18] software. Multivariate significance tests were made with Wald c^2 tests using Taylor series design-based coefficient variance-covariance matrices. Standard errors of lifetime risk were estimated using the jackknife repeated replication method[19] in SAS. All results were based on the total sample (Part 1; N = 5,037 respondents) except OCD and PTSD as stated in the corresponding tables' footnotes - where Part 2 sample was analyzed (N = 2,942). All tests were two-sided with significance set at 5%.

Results

Lifetime Prevalence: Age and Gender Distributions

The global prevalence of at least one DSM-IV lifetime disorder (Table 1) was 44.8% (SE 1.4), while 23.2% (SE 0.9) of respondents had two or more lifetime disorders and 13.4% (SE 0.7) had three or more. The most prevalent lifetime disorders were major depressive disorder (16.9%), specific phobia (12.4%) and alcohol abuse (9.8%). Anxiety disorders were the most prevalent class of disorders (28.1%), followed by mood disorders (19.1%), substance use disorders (11.0%) and impulse-control disorders (8.4%). For most disorders, prevalence rates varied significantly with age, generally with a steady increase from the youngest age groups and a decrease in the older group (65+). No age variation was seen for agoraphobia, PTSD, ODD, dysthymia and alcohol abuse.

Overall, prevalence rates were higher among women compared to men (51.5% vs. 37.3%; OR = 1.8, 95%CI 1.4-2.2) (Table 1). Women were more likely to have had anxiety and mood disorders than men, with odds ratios around 3 for PTSD, agoraphobia, panic and depression. In turn, men were more likely to have substance use disorders than women (18.0% vs. 4.7%; OR = 4.4, 95%CI 3.3-5.8), with significantly higher odds ratios (alcohol abuse 4.7; alcohol dependence 6.0; drug abuse 2.9; drug dependence 2.5). No gender differences were seen for impulse-control disorders, with the exception being for conduct disorders, which were more frequent in men (OR = 2.9; 95%CI 1.8-4.5).

Age-of-Onset (AOO)

The distributions of cumulative lifetime risk estimates were standardized and examined for selected percentiles (Table 2). The median AOO (50th percentile on the AOO distribution)

Table 1 Lifetime prevalence of DSM-VI WMH-CIDI disorders in the *São Paulo Megacity Survey* total sample, by age and gender

	Age group											Gender				
	Total		18-34		35-49		50-64		65+		$\chi^{2\#}$	Male		Female		OR (95%CI)
	%	SE	%	SE	%	SE	%	SE	%	SE		%	SE	%	SE	
Anxiety Disorders																
Panic Disorder	1.7	0.2	1.1	0.2	2.5	0.5	2.2	0.7	1.0	0.6	12.3[§]	0.9	0.18	2.5	0.38	2.9 (1.7- 5.0) [&]
Generalized Anxiety Disorder	3.7	0.3	2.5	0.5	4.8	0.5	4.1	0.7	4.5	1.6	8.9	2.6	0.34	4.6	0.37	1.8 (1.3-2.4) [&]
Social Phobia	5.6	0.4	6.5	0.6	5.2	0.6	5.2	0.7	2.0	0.4	58.5[§§]	4.2	0.53	6.7	0.58	1.6 (1.2-2.3) [&]
Specific Phobia	12.4	0.6	10.2	0.9	14.6	1.1	16.3	1.2	8.9	1.3	34.9[§§]	7.9	0.85	16.5	0.73	2.3 (1.8-2.9) [&]
Agoraphobia Without Panic	2.5	0.3	2.6	0.6	2.4	0.4	2.6	0.5	2.4	0.9	0.1	1.3	0.42	3.6	0.53	2.9 (1.4-6.1) [&]
Post-Traumatic Stress Disorder*	3.2	0.2	2.9	0.5	3.3	0.4	4.0	0.9	2.5	1.1	1.1	1.6	0.42	4.6	0.40	3.0 (1.6-5.7) [&]
Obsessive Compulsive Disorder*	6.7	0.5	7.3	0.9	6.7	1.1	7.6	1.0	2.4	0.8	78.8[§§]	5.8	0.58	7.6	0.83	1.3 (0.98-1.8)
Separation Anxiety Disorder	7.7	0.4	8.6	0.6	8.2	0.9	6.8	1.0	2.7	0.9	34.6[§§]	6.7	0.55	8.6	0.57	1.3 (1.04-1.6) [&]
Any Anxiety Disorder**	28.1	0.9	27.5	1.5	27.8	1.8	35.0	4.4	19.8	2.5	11.8[§]	19.5	1.29	35.8	1.45	2.3 (1.9-2.8) [&]
Mood Disorders																
Major Depressive Disorder	16.9	0.9	16.2	1.2	19.0	1.3	17.2	1.2	11.8	2.2	11.1[§]	10.0	0.67	23.0	1.31	2.7 (2.3-3.1) [&]
Dysthymia	1.6	0.3	1.6	0.3	1.7	0.4	0.8	0.3	2.9	1.2	8.0	0.9	0.34	2.2	0.44	2.5 (1.5-5.3) [&]
Bipolar Disorder (I and II)	2.1	0.2	2.4	0.4	2.6	0.4	1.3	0.5	0.8	0.5	11.3[§]	2.2	0.40	2.1	0.28	0.96 (0.6-1.5)
Any Mood Disorder	19.1	0.8	18.6	1.4	21.7	1.1	18.5	1.2	12.8	2.3	16.4[§§]	12.3	0.82	25.2	1.25	2.4 (2.0-2.9) [&]
Impulse-Control Disorders																
Oppositional Defiant Disorder	1.4	0.2	1.9	0.4	1.0	0.3	1.2	0.4	0.5	0.3	6.4	1.4	0.30	1.5	0.26	1.2 (0.7-1.9)
Conduct Disorder	2.1	0.2	2.8	0.5	1.8	0.3	0.9	0.4	1.3	0.9	19.0[§§]	3.2	0.43	1.1	0.20	0.4 (0.2-0.5) [&]
Attention-Deficit/Hyperactivity Disorder	1.7	0.2	2.2	0.4	1.5	0.4	1.5	0.5	0.3	0.3	12.7[§]	1.9	0.28	1.5	0.29	0.8 (0.5-1.3)
Intermittent Explosive Disorder	4.9	0.3	6.5	0.7	4.0	0.6	2.5	0.5	4.2	1.9	22.2[§§]	4.7	0.49	5.1	0.51	1.1 (0.8-1.6)
Any Impulse-Control Disorder	8.4	0.4	11.1	0.7	6.8	0.7	4.9	0.8	6.0	2.1	44.6[§§]	8.9	0.51	7.9	0.76	0.9 (0.7-1.2)
Substance Use Disorders																
Alcohol Abuse	9.8	0.6	9.2	1.0	11.9	1.1	8.4	1.1	7.9	1.9	7.8	16.4	1.12	4.0	0.51	0.2 (0.2-0.3) [&]
Alcohol Dependence	3.3	0.3	2.4	0.5	4.6	0.6	3.7	0.8	2.1	0.6	12.3[§]	5.8	0.69	1.0	0.15	0.2 (0.1-0.2) [&]
Drug Abuse	2.9	0.4	4.1	0.6	3.0	0.6	0.8	0.3	0.0	0.0	72.7[§§]	4.4	0.62	1.6	0.34	0.3 (0.2-0.6) [&]
Drug Dependence	1.4	0.3	1.8	0.5	1.7	0.4	0.2	0.1	0.0	0.0	27.3[§§]	2.0	0.47	0.8	0.22	0.4 (0.2-0.7) [&]
Any Substance Use Disorder	11.0	0.6	11.1	1.1	12.8	1.2	8.5	1.1	7.9	1.9	9.3[§]	18.0	1.11	4.7	0.58	0.2 (0.2-0.3) [&]
Any Disorder																
Any Disorder**	44.8	1.4	44.4	2.1	46.3	2.4	48.8	4.8	33.1	3.0	16.0[§§]	37.3	2.08	51.5	1.83	1.8 (1.4-2.2) [&]
Two or more disorders**	23.2	0.9	23.6	1.5	24.1	1.8	23.7	2.5	16.8	2.6	11.1[§]	20.3	1.56	25.8	1.24	1.4 (1.1-1.7) [&]
Three or more disorders**	13.4	0.7	14.0	1.3	15.0	1.2	12.2	1.2	6.2	1.5	31.3[§§]	12.7	1.17	14.0	1.02	1.1 (0.8-1.5)

Abbreviations: WMH-CIDI, World Mental Health Survey version of the Composite International Diagnostic Interview; SE, Standard Error.
Part I sample size = 5,037; Part II sample size = 2,942.
* Part II disorder, estimated in the Part II sample.
** Includes Part I and Part II disorders. These summary measures were analyzed in the full Part II sample (N = 2,942).
[§] Significant age difference ($p \leq 0.05$); [§§] Significant age difference ($p \leq 0.01$).
[#] The χ^2 test evaluates the statistical significance of age-related differences in estimated prevalence; df = 3 for all disorders.
[&]Significant gender difference ($p \leq 0.05$).

was earlier for anxiety disorders (age 13) and impulse-control disorders (age 14) compared to substance use disorders (age 24) and mood disorders (age 36). The median AOO for anxiety disorders varied greatly, from around 40 years of age for GAD, panic and PTSD, to 14 and 8 years for social and specific phobia, respectively. In the other group disorders, the range of the median AOO was narrower: 31-51 for mood disorders, 8-16 for impulse-control disorders and 21-30 for substance use disorders.

The interquartile ranges (IQR) (number of years in between the 75th and the 25th percentiles in the AOO distribution) were smaller for impulse-control disorders (5 years for ODD, CD and ADHD; 9 years for IED) and drug abuse and dependence (age 8 and 10); and much wider for mood disorders (age 21-39) and some of the anxiety disorders (age >25 years for PTSD, OCD, agoraphobia, separation anxiety and GAD).

Table 2 Age at selected percentiles on the standardized age-of-onset distributions of DSM-IV WMH-CIDI disorders, and projected lifetime risk at age 75 years

	Age at Selected Age-of-Onset Percentiles (years)								Projected Lifetime Risk at Age 75 years, % (SE)
	5%	10%	25%	50%	75%	90%	95%	99%	
Anxiety Disorders									
Panic Disorder	11	14	24	37	43	62	65	65	3.0 (0.6)
Generalized Anxiety Disorder	14	17	26	41	61	65	73	73	8.5 (1.8)
Social Phobia	5	7	11	14	17	29	41	54	6.1 (0.4)
Specific Phobia	5	5	5	8	13	26	51	56	13.5 (0.7)
Agoraphobia Without Panic	5	9	13	19	41	54	67	67	3.3 (0.4)
Post-Traumatic Stress Disorder*	11	15	24	40	49	57	65	73	6.3 (0.6)
Obsessive Compulsive Disorder*	8	10	13	21	38	49	51	64	8.9 (0.8)
Separation Anxiety Disorder	6	7	11	19	37	59	68	68	9.8 (0.6)
Any Anxiety Disorder**	5	5	7	13	26	49	54	65	33.8 (1.6)
Mood Disorders									
Major Depressive Disorder	14	17	24	38	51	63	65	69	31.9 (2.4)
Dysthymia	13	15	26	51	65	65	75	75	4.7 (1.4)
Bipolar I and I Disorder	13	15	19	31	40	62	62	68	3.3 (0.4)
Any Mood Disorder	13	16	23	36	50	62	65	72	35.2 (2.4)
Impulse-Control Disorders									
Oppositional Defiant Disorder	5	5	8	10	13	16	16	19	1.4 (0.2)
Conduct Disorder	8	8	9	12	14	16	18	20	2.1 (0.2)
Attention-Deficit/Hyperactivity Disorder	5	5	5	8	10	13	13	16	1.7 (0.2)
Intermittent Explosive Disorder	8	12	14	16	23	31	39	47	5.4 (0.3)
Any Impulse-Control Disorder	5	7	9	14	18	25	31	43	8.9 (0.4)
Substance Use Disorders									
Alcohol Abuse	16	18	20	26	39	49	53	57	13.8 (0.8)
Alcohol Dependence	18	19	21	30	41	55	55	61	5.2 (0.7)
Drug Abuse	15	17	19	21	27	34	39	51	3.5 (0.5)
Drug Dependence	15	18	20	24	30	39	41	51	1.7 (0.4)
Any Substance Use Disorder	16	17	20	24	36	48	51	57	14.8 (0.8)
Any Disorder									
Any Disorder**	5	5	9	18	35	51	57	65	57.7 (2.5)

Abbreviations: WMH-CIDI, World Mental Health Survey version of the Composite International Diagnostic Interview; SE, Standard Error.
Part I sample size = 5,037; Part II sample size = 2,942.
* Part II disorder, estimated in the Part II sample.
** Includes Part I and Part II disorders. These summary measures were analyzed in the full Part II sample (N = 2,942).

Projected lifetime risk

The distribution of standardized cumulative lifetime risk estimates produced a projection of lifetime risk at age 75 (PLR) (Table 2), based on the AOO distributions. The PLR for any disorder was 12.9% higher than lifetime prevalence estimates reported in Table 1 (57.7% vs 44.8%), meaning that almost 80% of the new PLR onsets occurred to respondents that had already had a disorder. The individual disorders with the highest PLR were the same as with the highest prevalence rates (depression, specific phobia and alcohol abuse), with a two-fold increased risk for major depressive disorder (31.9%). Overall, the PLR was 5.7% higher for anxiety disorders, (with a PLR of 33.8% vs. 28.1% prevalence), 16.1% for mood disorders (35.2% vs. 19.1%), 0.5% for impulse-control disorders (8.9% vs 8.4%) and 3.8% higher for substance use disorders (14.8% vs. 11.0%).

Cohort Effects

Cohort was defined by age at interview, and dummy variables defining age groups 18-34 years, 35-49, 50-64, and 65+ were used to predict lifetime disorders using discrete-time survival analysis. These groups roughly corresponded to cohorts born in the years 1972 or later, 1957-1971, 1942-1956, and earlier than 1941. Cohort effect was significant for most disorders,

with a consistent positive association between recency of cohort and odds ratio of onset (Table 3). The largest cohort effects were associated with drug dependence, bipolar disorder, MDD and drug abuse. The only disorder with a significant negative cohort effect was specific phobia.

A cohort model (Table 4) was elaborated to evaluate whether inter-cohort differences decreased significantly with increasing age, a pattern that might be expected either if lifetime risk was actually constant across cohorts but appeared to vary with cohort due to onsets occurred earlier in more recent rather than in older cohorts (either due to secular changes in environmental risk factors or age-related differences in AOO recall accuracy) or if differential mortality had an increasingly severe effect on sample selection bias with increasing age. The actual distribution of AOO among those with the various disorders (any mood, any anxiety, any substance) was used, and this distribution was broken into tertiles to create the categories "early", "middle" and "late" AOO. For anxiety disorders, early AOO are 4-6 years, middle is 7-13, and late is 14+; for mood disorders are 4-18, 19-31, and 32+, respectively; and for substance use disorders are 4-18, 19-23, and 24+, respectively. Impulse-control disorders were not included due to small numbers and a narrow AOO time window. The cohort model shown in Table 4, examining differences separately for first onsets across life course, compares odds of onset within each period of life (early, middle and late) across cohorts, to test if the inter-cohort effect varies as a function of AOO of disorders, indirectly monitoring

Table 3 Cohort (age at interview) as a predictor of lifetime risk of DSM-VI WMH-CIDI disorders in the *São Paulo Megacity Survey* □

	Lifetime Risk by Age at Interview (Years) Compared With Respondents Aged ≥ 65 years, Odds Ratio (95% CI)			$c^{2\gamma}$	p^{γ}
	18-34	35-49	50-64		
Anxiety Disorders					
Panic Disorder	4.1 (0.7-23.0)	4.6 (0.9-23.6)	2.6 (0.6-10.9)	3.8	0.287
Generalized Anxiety Disorder	3.0§ (1.1-7.9)	2.7§ (1.3-5.9)	1.4 (0.6-3.1)	14.7	0.002
Social Phobia	3.9§ (2.4-6.2)	2.8§ (1.9-4.3)	2.6§ (1.5-4.7)	39.7	< 0.001
Specific Phobia	1.3 (0.9-1.9)	1.8§ (1.3-2.6)	2.0§ (1.3-3.0)	25.4	< 0.001
Agoraphobia Without Panic	2.0 (0.7-5.7)	1.4 (0.6-3.2)	1.2 (0.5-3.0)	3.7	0.293
Post-Traumatic Stress Disorder*	7.1§ (2.1-24.5)	3.3§ (1.3-8.3)	2.0 (0.6-6.1)	23.5	< 0.001
Obsessive Compulsive Disorder*	5.9§ (3.1-11.4)	4.0§ (2.0-8.1)	3.5§ (1.9-6.2)	32.5	< 0.001
Separation Anxiety Disorder	7.4§ (3.5-15.6)	5.3§ (2.4-11.5)	3.4§ (1.5-7.7)	43.3	< 0.001
Any Anxiety Disorder*	2.1§ (1.5-2.9)	1.8§ (1.3-2.5)	2.1§ (1.3-3.5)	20.2	< 0.001
Mood Disorders					
Major Depressive Disorder	13.9§ (9.7-19.8)	5.9§ (4.2-8.2)	2.4§ (1.7-3.3)	246.5	< 0.001
Dysthymia	3.7§ (1.6-8.3)	2.3 (0.9-5.5)	0.5 (0.2-1.3)	37.7	< 0.001
Bipolar I and I Disorder	14.8§ (4.2-51.3)	6.8§ (2.1-22.0)	2.3 (0.6-8.9)	25.5	< 0.001
Any Mood Disorder	13.2§ (9.3-18.9)	5.9§ (4.4-8.0)	2.4§ (1.7-3.2)	244.9	< 0.001
Impulse-Control Disorders					
Oppositional Defiant Disorder	3.7 (0.8-16.1)	1.9 (0.5-6.9)	2.3 (0.5-9.9)	5.5	0.142
Conduct Disorder	2.2 (0.5-9.3)	1.4 (0.3-6.1)	0.7 (0.1-6.5)	18.2	< 0.001
Attention-Deficit/Hyperactivity Disorder	6.8 (0.8-56.6)	4.5 (0.5-38.0)	4.6 (0.6-35.3)	4.8	0.187
Intermittent Explosive Disorder	2.0 (0.7-5.9)	1.0 (0.4-2.6)	0.6 (0.2-1.8)	26.6	< 0.001
Any Impulse-Control Disorder	2.2§ (1.0-4.6)	1.2 (0.6-2.4)	0.8 (0.3-2.0)	41.6	< 0.001
Substance Use Disorders					
Alcohol Abuse	2.8§ (1.5-5.2)	2.1§ (1.2-3.7)	1.1 (0.6-2.2)	55.9	< 0.001
Alcohol Dependence	3.5§ (1.4-8.8)	3.4§ (1.7-6.8)	2.0 (0.9-4.5)	17.8	< 0.001
Drug Abuse	9.5§ (3.9-22.8)	4.3§ (1.5-12.9)	1.0 (1.0-1.0)	58.3	< 0.001
Drug Dependence	16.3§ (6.7-39.7)	8.4§ (3.1-22.4)	1.0 (1.0-1.0)	43.2	< 0.001
Any Substance Use Disorder	3.2§ (1.6-6.2)	2.2§ (1.2-3.9)	1.1 (0.6-2.3)	82.2	< 0.001
Any Disorder					
Any Disorder**	2.9§ (2.2-3.7)	2.2§ (1.8-2.8)	1.9§ (1.3-2.9)	76.1	< 0.001

Abbreviations: WMH-CIDI, World Mental Health Survey version of the Composite International Diagnostic Interview; OR, Odds Ratios; CI, Confidence Interval. Part I sample size = 5,037; Part II sample size = 2,942.

□ Based on discrete-time survival models with person-years as the unit of analysis. Time intervals were used as controls in this model.

* Part II disorder, estimated in the Part II sample (N = 2,942).

** Includes Part I and Part II disorders. These summary measure were analyzed in the full Part II sample (N = 2,942).

§ Significant difference compared with those aged 65 years or older ($p \leq 0.05$, 2-sided test).

γ Testing for global inter-cohort differences (3 degrees of freedom).

Table 4 Variation in the effects of cohort (age at interview) in predicting lifetime risk of DSM-VI WMH-CIDI Disorders in the *São Paulo Megacity Survey* □

	Lifetime risk by age at interview (years), Odds Ratio (95%CI)		
	Age of Onset[A]		
	Early	Middle	Late
	Anxiety Disorders		
Age at Interview (years)			
18-34	1.4 (0.7-2.6)	3.0* (1.5-6.0)	3.0* (1.8-5.2)
35-49	1.7 (0.96-3.08)	2.5* (1.2-5.3)	1.8 (0.9-3.5)
50-64	2.1 (0.9-5.2)	3.2* (1.4-7.2)	1.9 (0.99-3.6)
65+	1.0	1.0	1.0
χ^2	5.7 (df = 3, p = 0.129)	12.6 (df = 3, p = 0.006)	24.1 (df = 3, p ≤ 0.001)
Global χ^2¥		22.34(df = 6, p = 0.001)	
	Mood Disorders		
Age at Interview (years)			
18-34	8.8* (3.2-24.5)	26.3* (9.2-75.2)	16.7* (7.1-39.5)
35-49	4.2* (1.5-12.1)	10.9* (3.8-30.8)	5.9* (4.1-8.5)
50-64	2.4 (0.8-7.2)	3.7* (1.2-11.1)	2.3* (1.6-3.2)
65+	1.0	1.0	1.0
χ^2	35.2 (df = 3, p ≤ 0.001)	73.2 (df = 3, p ≤ 0.001)	101.8 (df = 3, p ≤ 0.001)
Global χ^2¥		10.18 (df = 6, p = 0.117	
	Substance Use Disorders		
Age at Interview (years)			
18-34	50.5* (6.6-385.8)	1.6 (0.5-4.7)	2.1 (0.9-5.2)
35-49	23.7* (3.2-176.4)	1.4 (0.6-3.2)	2.0 (0.8-4.5)
50-64	9.5* (1.04-87.2)	0.8 (0.3-2.2)	1.1 (0.5-2.7)
65+	1.0	1.0	1.0
χ^2	26.1 (df = 3, p ≤ 0.001)	9.0 (df = 3, p = 0.029)	8.3 (df = 3, p = 0.040)
Global χ^2¥		13.06 (df = 6, p = 0.042)	

Abbreviations: WMH-CIDI, World Mental Health Survey version of the Composite International Diagnostic Interview; CI, Confidence Interval.

□ Based on discrete-time survival models with person-years as the unit of analysis. Total sample models evaluated the significance of interactions between cohort and person-years in the lives of respondents. This was not done for impulse-control disorders because the vast majority of such disorders have onsets in a very narrow time window. Model includes time intervals and gender as controls. All analysis were carried out using the Part II sample (n = 2,942).

[A] For anxiety disorders, early onset is 4 to 6 years of age, middle onset is 7 to 13, and late onset is 14+; for mood disorders is 4-18, 19-31, 32+, respectively; and for substance use disorders is 4-18, 19-23, 24+, respectively.

* Significant difference compared with the cohort born before 1941 –those aged 65 years or older (p ≤ 0.05, 2-sided test).

¥ Testing for global inter-cohort differences (6 degrees of freedom: test for the difference between onsets at different ages for different cohorts, all 3 categories of age of onset in the late onset are the reference group).

differential recall or mortality. Inter-cohort differences with higher risks for younger cohorts remain significant for most disorders (apart from early onset anxiety disorders) independently of time of disorder onset and age at interview.

Sociodemographic predictors

Several sociodemographic variables were significantly associated with lifetime risk of DSM-IV WMH-CIDI disorders (Table 5). Women had significantly higher risk of anxiety and mood disorders compared to men, while male gender was a predictor of substance use disorders (OR = 3.8 95%CI 3.3-5.0). Overall, there was no association between gender and impulse-control disorders (OR = 0.8), although gender differences for individual disorders were seen in Table 1, with higher prevalence of CD among men (OR = 5.0). Low education level was associated only with substance use disorders. Younger ages were significant predictors for all disorder classes (cohort effects). The associations with gender and education were also examined by age, to test if there were variations in predicting psychiatric disorders across cohorts (results available upon request). Significant interactions between gender and age were found only in predicting substance use disorders, as female rates, though still much smaller, are becoming more similar to male´s in more recent cohorts [OR = 0.32 (95%CI 0.21-0.48) for age 18-34; OR = 0.22 (0.13-0.37) 35-49; OR = 0.101 (0.04-0.25) 50-64; OR = 0.15 (0.02-1.01) for 65+ years of age].

Table 5 Sociodemographic Correlates of Lifetime DSM-VI WMH-CIDI Disorders in the São *Paulo Megacity Survey* □

	Lifetime Risk, Odds Ratio (95%CI)			
	Any Anxiety Disorder	**Any Mood Disorder**	**Any Impulse-Control Disorder**	**Any Substance Use Disorder**
Gender				
Female	2.2* (1.8-2.7)	2.5* (1.8-3.4)	0.8 (0.6-1.1)	0.26* (0.2-0.3)
Male	1.0	1.0	1.0	1.0
Gender χ^2	60.8 (df = 1, p ≤ 0.001)	34.4 (df = 1, p ≤ 0.001)	1.6 (df = 1, p = 0.207)	97.5 (df = 1, p ≤ 0.001)
Age at Interview				
18-34	2.3* (1.6-3.4)	12.9* (7.9-21.1)	2.5* (1.1-5.6)	2.6* (1.2-5.5)
35-49	2.0* (1.4-3.0)	5.9* (3.6-9.6)	1.3 (0.6-2.7)	1.7 (0.9-3.3)
50-64	2.6* (1.6-4.2)	2.8* (1.7-4.5)	0.9 (0.4-2.3)	0.7 (0.4-1.4)
65+	1.0	1.0	1.0	1.0
Age χ^2	24.5 (df = 3, p ≤ 0.001)	123.3 (df = 3, p ≤ 0.001)	43.3 (df = 3, p ≤ 0.001)	65.6 (df = 3, p ≤ 0.001)
Education§				
Current Student	1.7 (0.8-3.5)	1.1 (0.6-2.1)	2.8 (0.7-11.3)	1.4 (0.8-2.5)
0-4 years	1.5 (0.6-3.5)	1.1 (0.7-1.7)	3.4 (0.9-12.4)	2.0* (1.1-3.5)
5-8 years	3.0* (1.1-8.3)	1.3 (0.8-2.3)	3.8 (0.8-17.7)	3.1* (1.6-5.9)
9-11 years	1.2 (0.6-2.5)	1.1 (0.7-1.8)	1.9 (0.4-9.1)	1.3 (0.7-2.6)
12+ years	1.0	1.0	1.0	1.0
Education χ^2	7.1 (df = 4, p = 0.133)	1.3 (df = 4, p = 0.865)	8.5 (df = 4, p = 0.075)	27.4 (df = 4, p ≤ 0.001)

Abbreviations: WMH-CIDI, World Mental Health Survey version of the Composite International Diagnostic Interview; CI, Confidence Interval.
□ Based on discrete-time survival models with person-years as the unit of analysis. All analysis were carried out using the Part II sample (n = 2,942).
* Significant difference (p ≤ 0.05, 2-sided test).
§ Time-varying predictor.

Gender differences in anxiety and mood disorders did not differ across cohorts. For impulse-control disorders, a higher risk was observed among men only among the oldest cohort; there was also significant interaction between education and age at interview, with stronger negative associations in more recent cohorts.

Discussion

Lifetime prevalence and projected risk [biro:tit2]

This study showed that mental disorders are common in the SPMA, with 44.8% of the general adult population having experienced at least one disorder at some time in their lives prior to the interview, and 57.5% are projected to experience a mental disorder by the age of 75 years. These estimates are amongst the highest reported in the world. Higher levels of psychiatric morbidity are associated with poor living conditions in large urban conglomerates,[20] as social groups living in adverse situations under chronic stress would be more likely to present mental disorders. Social exclusion, amplified by poor access to education, was reported to be an important risk factor for mental disorders.[21] According to the map of social exclusion in the city of São Paulo,[22] 89.0% of its population live below desirable standard of living conditions: aside from low income, there is poor access to education, sanitation, and housing, among other services. Moreover, social tension and urban violence may arise from inequity, due to poverty and wealth extremes being sharing space within the city.[22]

Nevertheless, the prevalence estimates reported herein are high compared to those found in the São Paulo Catchment Area Study[8,9] (33.1%), a previous survey conducted in two boroughs from the catchment area of a large hospital complex in the city of São Paulo. Aside from the fact that fewer psychiatric disorders were assessed, differences could also be explained by the higher socioeconomic status of the population studied, with better housing and living conditions, and easier access to health services.[8,9] Albeit using different methodology, comparable lifetime prevalence estimates were found in Brasília (50.5%) and Porto Alegre (42.5%) in the Brazilian Multicentric Study.[6,7] When compared to estimates obtained in other WHO-WMH Survey Initiative participating countries, using comparable methodology,[23-34] the overall prevalence estimate for any lifetime disorder in the SPMA (44.8%) was only exceeded by that obtained in the National Comorbidity Survey Replication (NCS-R) conducted in the U.S. (47.4%), and followed closely by the rates in New Zealand (39.3%), Colombia (39.1%), France (37.9%) and Ukraine (36.1%). However similar the methodological procedures might have been, the only two countries that used all WMH-CIDI clinical modules and, thus, assessed a wider range of mental disorders were the U.S. and Brazil, which can partly explain the higher rates. For instance, New Zealand did not assess OCD, separation anxiety (either adult or childhood) and none of the impulse-control disorders,

and France, as well as other Western European countries, did not assess OCD, separation anxiety, drug abuse or dependence, bipolar disorder, dysthymia and intermittent explosive disorder. Indeed, there is a wide variation in the estimated lifetime prevalence of mental disorders in the WMH surveys, possibly more than what could be explained only by such differential assessments. Furthermore, there is great variation in the prevalence estimates of individual disorders, which could be due to the assumption that the WMH-CIDI does not adequately or consistently capture psychopathological syndromes in different cultures[35,36], as the lowest prevalence rates were found in non-Western countries (Nigeria 12%, China 13.2% and Japan 18.1%), with the exception of Israel with an overall prevalence rate of 17.6% (but only including the assessment of mood and substance use disorders, and few anxiety disorders). Finally, the lifetime prevalence estimate of OCD in our study was high (6.7%, SE = 0.5), compared to the NCS-R (2.3%, SE = 0.3).[37] Although the instrument used was the same, it was found to show little sensitivity in the NCS-R, and the skip patterns were modified to keep respondents in the section, answering more questions, with a greater probability of picking up otherwise false-negatives, or conversely, identifying more false-positives. This issue will be further investigated by analyzing the SPMHS clinical reappraisal data collected in 780 subjects using the SCID for DSM-IV.[38] This reappraisal study may also be able to address the accuracy of the Brazilian WMH-CIDI in identifying cases in the general population. Since the CIDI is based on the assessment of symptoms that compose diagnostic criteria for psychiatric disorders, it may have detected mild cases with no clinical relevance, contributing to the high prevalence rates.

Nevertheless, widely consistent with earlier prevalence studies and most WHO-WMH surveys, anxiety disorders are the most frequent class and mood disorders are also common, with major depressive disorder, phobias and alcohol abuse being the most prevalent individual disorders. The gender distribution observed in this study also replicates the general findings, with women having more anxiety and mood disorders and men having higher rates of substance use disorder. However, there were no gender differences for impulse-control disorders, reported to be higher among men in most previous studies (Colombia, Mexico, NCS-R, France, Germany, Italy, China); the only exception being conduct disorders, which were 3 times more prevalent among men.

Lifetime comorbidity was also quite common, with the sum of prevalence rates for all disorders almost doubling the prevalence for any disorder (91.6% vs. 44.8%) and 21.8% higher across the four disorder classes (66.6%). Within class, co-occurrence was higher among anxiety disorders (43.5% vs. 28.1%).

Finally, it is worth noting that non-affective psychoses were not assessed in this survey, which may not be highly prevalent, but are, nevertheless, usually severe, greatly impairing and associated with enormous social and family burden. Although questions regarding psychotic-like experiences were asked, these data were not used herein.

Age-of-Onset

Standardized AOO distributions in our study showed strong consistency with most WMH surveys, with impulse-control disorders having the earliest AOO distribution, especially attention-deficit and oppositional defiant disorders. Anxiety disorders also followed the same pattern of other countries, falling into two distinct sets, with phobias and separation anxiety having early AOO, while GAD, panic disorder and PTSD having a much later AOO, similar to those in mood disorders. For substance use disorders, it is also consistent with the international pattern, with earlier AOO for drug abuse and dependence and later for alcohol dependence. Although the WHO-WMH version of the CIDI included questions encouraging precision in answering AOO of symptoms and syndromes, the possibility of recall bias has to be considered, especially as a function of age at interview, with older respondents tending to have more imprecise recall of onset of long-time past events. As co-morbidity is common, one may argue that the bulk of disorders occur within the first decades of life and that late-onset disorders largely occur as secondary comorbid conditions.

It is worthwhile to emphasize that the results reported herein corroborate the increased burden associated with mental disorders, as they occur early in life, have a long course, are associated with disability and often present with other mental comorbid disorders,[38,39] distinct from chronic physical disorders, which mostly occur later in life.

Projected lifetime risk

The projected lifetime risk of having presented any DSM-IV lifetime disorder at age 75 is 28.8% higher than estimated lifetime prevalence, with almost 57.7% of the population having had at least one disorder. These projections were also calculated for other WMH survey countries[35] and are the highest so far, closely followed by the U.S.A. (55.3%), Colombia (55.3%), Ukraine (48.9%), New Zealand (48.6%), South Africa (47.5%) and France (47.2%). The highest proportional increase was observed in countries exposed to sectarian violence (Israel 68.8%, Nigeria 62.5% and South Africa 56.8%). There was no strong difference in proportional increase in developed countries (17%-49%) compared to developing countries (28%-41%),[35] including Brazil (28.8%).

The PLR was estimated on the assumptions of constant conditional risk of first onset of a disorder in a given year of life, ascertained among people with different ages at interview. Since there were cohort differences in lifetime prevalence, the PLR for younger cohorts is likely to be underestimated, as it was based on the assumption of constant inter-cohort conditional risk. Since the sum of individual disorder projected prevalences within disorder classes is much higher than the overall PLR estimate, it also corroborates that late-onset disorders are likely to be onsets of secondary comorbid conditions. These considerations, coupled with the magnitude of such projections point out to the important role of early treatment of early-onset disorders, in order to prevent later comorbidity and more severely impairing conditions, as well as greater individual and societal burden which has tremendous public health implications.

Cohort Effects

Previous findings have already pointed out that younger cohorts may present higher rates of psychiatric morbidity.[38] This was indirectly estimated from cross-sectional data using retrospective information on AOO of assessed disorders. The same approach was used in estimating the cohort effects in the WMH surveys, using discrete-time survival analysis to predict onset of disorders across age groups, similar to that of this

study. Information available from 17 WHO-WMH participating countries showed that younger cohorts presented higher rates of anxiety disorders in all but three countries (Italy, Ukraine and China), of mood disorders in all countries but South Africa, and of substance use disorders in all but three countries (South Africa, Italy and Japan), whereas in most countries there were no observed cohort effects for impulse-control disorders (except for Mexico). Similar results were obtained in our study, and cohort differences remained significant after controlling for time of disorder onset in the lifespan and age at interview. We did not test, however, for impulse-control disorders, as the numbers were too small and the age of onset range too narrow. Although only prospective studies can directly and accurately appraise cohort effects, it can be persuasively argued that we were successful in obtaining a fine approximation.

Sociodemographic correlates

Our findings are similar to most previous population-based reports regarding gender and age predicting mental disorders, as discussed above. When gender and age interactions were explored, new features were seen only for substance use disorder, with women rates of abuse and dependence increasing in more recent cohorts, approximating male patterns. Similar behavior was observed in impulse-control disorders, where gender differences were only seen in older cohorts. It is worth noting that these analyses were performed only taking into account disorder classes (i.e. anxiety, mood, etc), and not individual disorders. These findings are consistent with international reports.[23-35,38] The association of low social class with poor mental health was not seen in this report, as far as the proxy for social class used (education) could demonstrate, which was only associated with substance use disorders. It is possible that education favors better reporting on psychiatric symptoms. Respondents with low education might be less capable of understanding long and complex research questioning, while underestimating the risk posed by the symptoms. Other socioeconomic correlates, such as personal and family income and occupational history, will be further examined.

Limitations of the study

Finally, the results reported in this paper should be interpreted taking into account several limitations. First, there is no clinical gold-standard assessment to check the consistency of the diagnoses produced by the WMH-CIDI on the disorders assessed in this study. The concordance of the WMH-CIDI with the Structured Clinical Interview for DSM-IV (SCID)[40] was found to be unbiased for 12-month WMH-CIDI prevalence estimates, but generally conservative for lifetime disorders.[41] The reliability of a previous Brazilian version of the CIDI (CIDI 2.1) showed high Kappa values for lifetime disorders, ranging from 076 (for OCD) to 1.0 (for alcohol and substance-related disorders).[42] Further considerations also point out that the prevalence estimates reported herein, however high, are likely to be conservative. Not all psychiatric disorders were assessed by the WMH-CIDI and, besides, systematic error might have occurred. Embarrassing behaviors or emotional contents, including psychological suffering or symptoms, suicide-related conduct, and substance abuse among others, are likely to be underreported, especially in cross-sectional assessments,[43] and even more so in non-clinical interviews conducted within the respondent´s household. Recall bias may also impair the accuracy of retrospective information, especially when the occurrence is likely to have happened long before the interview. Although the WMH-CIDI was rebuilt taking into consideration a series of strategies to minimize recall bias and information bias while approaching sensitive issues or preceding information,[2] it is unlikely that they were completely ruled out. Selection bias leading to underestimating the true general population prevalence rates also likely occurred, as people with mental illness are less likely to be truly represented in the adopted sampling frame (excluding the homeless and individuals living in institutions), more likely to be exclude from selection as ineligible to participate (due to impeding physical, mental or cognitive conditions) or may present differential mortality. Moreover, people with mental problems are known to be more reluctant to participate in epidemiological surveys of this sort.[44,46] It is not possible, however, to evaluate this hypothesis and determine its impact, as information on non-responders was limited to the household listing (age, gender, and family relation to household informant). All these plausible biases were, therefore, likely to have yielded conservative rates of psychiatric morbidity, according to the adopted system of classification.

Conclusion

The SPMHS, the Brazilian component of the WHO-WMH Surveys Consortium, provides the first population-based estimates of lifetime prevalence and age-of-onset of DSM-IV disorders in Brazil. It is the first epidemiological study providing population-based information on several disorders in Brazil, such as of post-traumatic stress disorder, obsessive-compulsive disorder, separation anxiety disorder, dysthymia, as well as on all impulse-control disorders (oppositional-defiant, conduct, attention-deficit and intermittent explosive disorders). Although the lifetime prevalence estimates and projected risks are likely to be conservative, almost half of the population met the DSM-IV criteria for one or more disorders at some point in their lives prior to the interview and almost 60% will do so by the age of 75 years. Major depression, specific phobias and alcohol abuse are the most common individual disorders, and anxiety disorders are the most frequent class of disorders. Women are more likely to have anxiety and mood disorders than men, and men are more likely to present substance use and conduct disorders compared to women. More recent cohorts seem to have higher rates of psychiatric morbidity compared to older cohorts. Most primary disorders have early AOO, with later co-occurrence of comorbid conditions, progressing to more severe and impairing outcomes, contributing to long-lasting disability and enormous personal and societal burden. The analyses on clinical significance show that even milder disorders are associated with impairment and the lack of adequate treatment is the rule, even for more severe disorders.[47,48] Therefore, the present results may be point toward a cumbersome reality: there may be many more people in need of care than treatment resources which can be made available or which the health budget can provide. Even considering that not all mental disorders are cost-effectively treatable and that not all milder cases need treatment, the deficit of resources will probably still be huge, especially assuming younger cohorts will continue to present higher rates of morbidity. These considerations can be used to orient public health efforts in implementing preventive

strategies that target individuals at risk, averting otherwise future illness, and focusing on early detection and intervention of mental disorders. Aiming at preventing the progression of primary disorders and the late-onset occurrence of comorbid conditions will allow to decrease the burden associated with mental disorders in the long run.

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Disclosures

Maria Carmen Viana

Employment: *Section of Psychiatric Epidemiology - LIM-23; Health Sciences Center (CCS from Portuguese), Universidade Federal do Espírito Santo, Brazil.* **Research Grant:** *Secretaria de Segurança Pública do Estado de SP**, Fundo de Apoio à Ciência e Tecnologia do Município de Vitória (FACITEC)**, Fundação de Amparo à Pesquisa do Espírito Santo (FAPES)** , Brazil.* **Other research grant or medical continuous education:** *FAPES**, Brazil .***Other:** *WHO*, Fundação de Amparo à Pesquisa de São Paulo (FAPESP)*, Harvard University*, Michigan University*, Eli Lilly*, Boeringher*, AstraZeneca*.*

Laura Helena Andrade

Employment: *Section of Psychiatric Epidemiology - LIM-23, Department and Institute of Psychiatry, Universidade de São Paulo, Brazil.* **Research Grant:** *Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)**.* **Other research grant or medical continuous education:***Secretaria Nacional de Politicas sobre Drogas (Brazilian Secretariat for Drug and Alcohol Policies-SENAD)***, Conselho Nacional de Desenvolvimento Científico e Tecnológico (National Counsel of Technological and Scientific Development-CNPq)***, Brazil.* **Other:** *WHO*, FAPESP*, Harvard University*, Michigan University*, Eli Lilly*.*

** Modest*

*** Significant*

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