ORIGINAL ARTICLE

Twelve-month utilization rates and adequacy of treatment for mental health and substance use disorders in Argentina

Alfredo H. Cia,[1] Juan C. Stagnaro,[2] Sergio Aguilar-Gaxiola,[3] Sebastián Sustas,[2] Edith Serfaty,[4] Martin Nemirovsky,[5] Ronald C. Kessler,[6] Corina Benjet[7]

[1]Centro de Investigaciones Médicas en Ansiedad, Buenos Aires, Argentina. [2]Facultad de Medicina, Universidad de Buenos Aires, Buenos Aires, Argentina. [3]Davis School of Medicine, University of California, Sacramento, CA, USA. [4]Centro de Estudios Epidemiológicos, Buenos Aires, Argentina. [5]Proyecto SUMA, Buenos Aires, Argentina. [6]Department of Health Care Policy, Harvard Medical School, Boston, MA, USA. [7]Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico City, Mexico.

Objective: To estimate the 12-month prevalence of mental health services utilization (overall and by type of service sector), the adequacy of treatment provided, and sociodemographic correlates in the Argentinean Study of Mental Health Epidemiology (ASMHE).
Methods: The ASMHE is a multistage probability household sample representative of adults in urban areas of Argentina. The World Health Organization World Mental Health Composite International Diagnostic Interview (WMH-CIDI) was used to evaluate psychiatric diagnosis and service utilization.
Results: Among those with a disorder, 27.6% received any treatment in the prior 12 months. Of these, 78.3% received minimally adequate treatment using a broad definition and only 43.6% using a stringent definition. For individuals with a disorder, more services were provided by mental health professionals (17.7%) than by general medical professionals (11.5%) or non-healthcare sectors (2.6%). Younger individuals with low education and income were less likely to receive treatment; those never married and those with an anxiety or mood disorder were more likely to receive treatment. Among those in treatment, treatment was least adequate among younger individuals with low education and low income.
Conclusions: Policies to increase access to services for mental health disorders in Argentina are needed, as is training for primary care practitioners in the early detection and treatment of psychiatric disorders.

Keywords: Epidemiology; mental disorders; health services; Argentina

Introduction

Mental and substance use disorders are important and increasing causes of years of life lived with disability (YLDs), disability-adjusted life years (DALYs), and years of life lost (YLLs).[1-3] For example, depression and anxiety disorders are among the ten leading causes of YLDs globally.[1] In Argentina, DALYs attributed to mental and substance use disorders have increased 9.7% from 2005 to 2013, and self-harm is the tenth leading cause of YLL.[2,3] To meet the challenges posed by mental and substance use disorders and to adjust healthcare organization and policies accordingly, an understanding of treatment use and adequacy is imperative.

While the availability of effective treatments for psychiatric disorders is increasing worldwide, it is difficult to extend these advances to the majority of people in all countries, and a significant portion of the population with mental health disorders does not receive treatment. According to the World Mental Health (WMH) surveys conducted in 17 countries by the World Health Organization (WHO),[4] 12-month service utilization for mental disorders was generally lower in developing than developed countries, ranging from 1.6% in Nigeria to 17.9% in the United States. Most treatment was provided by a general medical provider in all countries except Colombia, Mexico, and Israel, where more individuals received treatment from mental health specialists. Among those initiating care, most had at least one follow-up session, but not even half received minimally adequate care. The sociodemographic factors associated with seeking treatment for mental health disorders in other Latin American countries – namely, Mexico and Colombia – included female sex; having a severe disorder; being separated, widowed, or divorced (only for Colombia); and high income (only for Colombia).[4]

A survey conducted in Mexico[5] with methods and measurement instruments similar to those of the current study found that less than one in five respondents with any psychiatric disorder during the 12 months preceding the interview had used any mental health service during that time. Approximately one in every two respondents who used services received minimally adequate care, mostly in the mental health specialty sector. Rates of service utilization were higher for severe disorders and mood disorders in particular.

The Argentinean Study of Mental Health Epidemiology is the first general-population survey to provide a panorama of treatment utilization for mental health and substance use disorders in Argentina. The objectives of this report are to retrospectively estimate the 12-month prevalence of service utilization (overall and by type of service sector), the adequacy of treatment for specific mental health disorders, and sociodemographic correlates of service utilization.

Methods

Sample

The Argentinean Study of Mental Health Epidemiology was conducted in 2015. Based on the methodological requirements established by the WMH Survey Initiative,[6] it employed a complex multistage probability sampling design[7] to represent the non-institutionalized adult population (aged 18 and over), with stable residence, living in the eight largest urban agglomerations of Argentina: the metropolitan areas of Buenos Aires, Córdoba, Corrientes-Resistencia, Mendoza, Neuquén, Rosario, Salta, and Tucumán. The response rate for the first phase of the survey was 77% (n=3,997). All respondents who were positive on initial screening, as well as a random subsample of those who were not, completed the second phase of the survey, which collected data on service utilization and treatment adequacy. The following analyses are based on this second-phase subsample of 2,116 participants.

Instrument

Psychiatric diagnosis and service utilization was measured with the WHO WMH Composite International Diagnostic Interview (CIDI), pilot-tested by the Argentinean team to adapt it to the local language and culture.[8] This structured diagnostic interview was administered face-to-face by trained interviewers, using the Computer-Assisted Personal Interviewing (CAPI) survey technique. The CIDI has demonstrated adequate concordance with clinical diagnoses[9] based on the Structured Clinical Interview for DSM-IV (SCID).[10]

Diagnostic evaluation

The CIDI provides diagnoses based on DSM-IV diagnostic criteria.[11] For this article, we report on mental disorders present in the 12 months prior to the interview. These disorders include: 1) Mood disorders (major depressive episode, bipolar disorder I or II, and dysthymia); 2) Anxiety disorders (panic disorder, agoraphobia without panic disorder, social phobia, specific phobia, separation anxiety disorder, generalized anxiety disorder [GAD], and post-traumatic stress disorder); 3) Substance disorders (alcohol and drug abuse and dependence); and 4) Disruptive behavior disorders (oppositional-defiant disorder, conduct disorder, and attention-deficit/hyperactivity disorder).

Treatment contact

Respondents were asked if they had, in the past 12 months, consulted any of several different types of professionals for problems with emotions, nerves, mental health, or use of alcohol or drugs. The type of service provider was classified into healthcare sector and non-healthcare sector. The healthcare sector was further classified into mental health professionals and general medical professionals. Mental health professionals were further grouped into psychiatrists and other mental health professionals (consisting of psychologists, counselors, psychotherapists, mental health nurses, and social workers in a mental health specialty setting). General medical professionals consisted of family physicians, general practitioners, and other medical doctors, such as cardiologists, or gynecologists (for women) and urologists (for men), as well as nurses, occupational therapists, or other healthcare professionals. The non-healthcare sector was classified into human services (including social workers or counselors in any setting other than a specialty mental health setting, as well as religious or spiritual advisors, such as a minister, priest, or rabbi), and complementary-alternative medicine (CAM) (including internet use, self-help groups, any other healer – such as an herbalist, a chiropractor, or a spirit medium – and other alternative therapy).

Minimally adequate treatment

Based on the definition established in prior WMH Surveys,[4] we defined minimally adequate treatment during the previous 12 months as either: 1) four or more outpatient psychotherapy visits to any provider; or 2) two or more outpatient pharmacotherapy visits to any healthcare provider and treatment with any medication for any length of time; or 3) reporting still being "in treatment" at the time of the interview. Although this definition is broader than that used in previous WMH Surveys, it allowed us to obtain conservative estimates of minimally adequate treatment across sectors. In sensitivity analyses, a more stringent definition of minimally adequate treatment was also used, in which we required: 1) eight or more visits to any service sector for psychotherapy; or 2) four or more visits to any service sector and 30 or more days taking any medication for pharmacotherapy.

Correlates

Sociodemographic correlates of any 12-month treatment contact and minimally adequate treatment examined here included sex, age at interview (18-34 years, 35-49 years, 50-64 years, and 65 years or older), educational attainment

(low, low-average, high-average, and high), income (low, low-average, high-average, and high), and marital status (never married, separated/widowed/divorced, married/cohabiting). These correlates were chosen to allow comparisons with the findings of other WMH Surveys, particularly those conducted in other Latin American countries.[4-5]

Procedures

Fieldwork was coordinated and directed by the Universidad Nacional de Tres de Febrero (UNTREF). Interviewers with experience in the health sector were trained for this survey and distributed across local teams. All interviews were administered at the respondents' households. The selected participants were told that participation was voluntary and anonymous and that the information obtained would only be used for prevention and public health purposes, and were asked to give their informed consent.

Ethics

Research design and procedures for the present study were approved by the ethics committee of the Facultad de Medicina, Universidad de Buenos Aires.

Analyses

Post-stratification to the urban Argentinean population in the target age and sex range (according to the 2010 census) was performed. Data for respondents in the second-phase subsample were weighted to adjust for the differential probability of selection. Estimates of standard errors for proportions were obtained by the Taylor series linearization method with SUDAAN software.[12] Logistic regression analysis was performed to study sociodemographic correlates.[13] Two parallel analyses were performed: one for receiving any treatment among those with disorders and a second one for receiving minimally adequate treatment among those with disorders who received any treatment. Estimates of standard errors of odds ratios and corresponding standard errors from logistic regression coefficients were also obtained with SUDAAN, and 95% confidence intervals were adjusted for design effects. Statistical significance was evaluated with two-sided design-based tests, at the 0.05 level.

Results

As shown in Table 1, 11.6% of respondents reported having used any service for the treatment of mental health problems in the 12 months prior to the interview. As expected, the proportion of any service utilization was lower among respondents without any 12-month mental disorder (8.8%) and higher among respondents with any 12-month disorder (27.6%). Respondents with mood and anxiety disorders had the highest rates of service utilization (35.5% and 30.1%, respectively). The individual disorders with the highest service utilization rates were panic disorder (53.7%), GAD (48%), dysthymia (44.2%), and posttraumatic stress disorder (42.6%); alcohol abuse with dependence accounted for the lowest service

utilization (14.5%). For some specific disorders with unweighted n < 30, the prevalence of service utilization could not be calculated.

Among those with any disorder, more services were provided by mental health professionals (17.8%) than by general medical professionals (11.5%) or non-healthcare sectors (2.6%), irrespective of type of disorder. More specifically, other mental health professionals (i.e., non-psychiatrists) provided the greatest proportion of services for all disorders. The second and third sources of treatment differed by type of disorder. Respondents with any mood disorders made more use of psychiatrists than general medical professionals, whereas respondents with any anxiety disorders tended to use more general medical professionals than psychiatrists. Among respondents with any substance disorders, psychiatrists and general medical professionals had a similar proportion of use.

The median number of 12-month visits (Table 2) among those receiving any treatment was 4.45. Due to cells with unweighted n < 30 or where the standard error could not be calculated, the median number of service visits in the past year is shown on Table 2 for classes of disorders rather than individual disorders across type of treatment provider. For the same reason, the median number of visits for those with any substance use disorder could not be calculated. The mean numbers of visits (data not shown, but available upon request) was consistently much higher than the median, due to a small number of respondents who attended a large number of visits. For example, among the total sample of respondents, the mean number of visits for any treatment in the previous year was 16.62, with very small differences in the mean number of visits among respondents with or without psychiatric disorders (16.07 and 16.91, respectively). Other mental health professionals had the highest mean number of visits (19.93), followed by psychiatrists (13.64 visits) and general medical professionals (6.60 visits). Patients with anxiety disorders had a higher mean number of visits for any treatment than patients with mood disorders (17.43 vs. 14.09 visits). The greater magnitude of means than medians implies that comparatively few patients receive a disproportionately high share of all visits.

Table 3 presents the adequacy of treatment over the 12-month period of analysis. Overall, 78.4% of those receiving any services obtained treatment that could be considered at least minimally adequate. There were generally only minor differences across anxiety and mood disorders. Again, due to limitations with cell sizes, only classes of disorders are shown rather than individual disorders, and the proportion of those getting minimally adequate treatment for any substance use disorder could not be estimated. Among those with any disorder, treatment adequacy was greater when provided by mental health professionals (81.5%) vs. general medical professionals (69.7%). There were insufficient cases of service utilization in the non-healthcare sectors among those with disorders to calculate adequacy. Of those with no disorder, treatment adequacy was greater in the non-healthcare sector (95.6%) than in the healthcare sector (80.8%). In sensitivity analyses with our more stringent definition of adequacy, the proportion of respondents obtaining

Table 1 Twelve-month prevalence of treatment utilization by individuals with mental health disorders, stratified by service type (Argentinean Study of Mental Health Epidemiology [ASMHE], 2015)

Disorder (n)	Psychiatrist	Other mental healthcare	Any mental healthcare	General medical	Any healthcare	Human services	CAM	Any non-healthcare	Any treatment
Anxiety									
Generalized anxiety disorder (n=97)	18.91 (4.82)	27.88 (4.72)	34.61 (5.15)	17.14 (5.72)	45.98 (6.14)	1.52 (0.84)	3.28 (1.73)	4.80 (1.73)	48.04 (5.63)
Panic disorder (n=38)	20.69 (6.45)	28.28 (8.41)	38.01 (10.86)	29.47 (8.68)	53.70 (13.58)	0.00 (0.00)	1.82 (1.39)	1.82 (1.39)	53.70 (13.58)
Agoraphobia (n=13)	-	-	-	-	-	-	-	-	-
Social phobia (n=59)	9.89 (3.71)	19.81 (7.47)	25.08 (7.53)	14.41 (6.33)	31.65 (9.57)	0.00 (0.00)	0.37 (0.38)	0.38 (0.38)	31.67 (9.57)
Specific phobia (n=200)	6.86 (2.40)	12.38 (3.07)	15.76 (3.45)	13.74 (2.93)	27.47 (3.65)	0.60 (0.42)	0.66 (0.56)	1.25 (0.70)	28.17 (3.67)
Adult separation anxiety (n=28)	-	-	-	-	-	-	-	-	-
Obsessive compulsive (n=27)	-	-	-	-	-	-	-	-	-
Posttraumatic stress (n=50)	17.93 (8.88)	23.56 (9.69)	25.90 (9.82)	17.24 (8.88)	39.16 (1.96)	1.25 (0.93)	4.87 (3.21)	5.63 (3.32)	42.64 (10.90)
Any anxiety disorder (n=378)	8.35 (1.82)	15.61 (2.76)	18.55 (2.81)	14.54 (1.99)	29.16 (2.90)	0.91(0.32)	1.16 (0.54)	2.01 (0.64)	30.10 (2.93)
Mood									
Major depressive episode (n=211)	12.94 (2.77)	23.43 (3.68)	29.76 (3.69)	10.54 (2.63)	35.65 (5.15)	1.71 (0.79)	3.15 (1.47)	4.86 (1.65)	38.55 (5.02)
Dysthymia (n=58)	24.95 (6.10)	18.44 (5.28)	32.66 (8.19)	8.20 (3.17)	38.83 (8.99)	2.03 (1.50)	5.33 (4.93)	7.36 (5.01)	44.15 (8.14)
Bipolar (broad) (n=89)	9.37 (3.43)	18.93 (4.38)	24.17 (4.91)	5.32 (1.76)	28.17 (4.35)	3.00 (2.25)	4.28 (3.22)	7.28 (3.98)	34.12 (6.21)
Any mood disorder (n=261)	11.24 (2.29)	21.14 (3.21)	26.87 (3.17)	9.37 (2.02)	32.54 (4.15)	1.99 (0.89)	2.51 (1.19)	4.50 (1.65)	35.49 (4.20)
Substance									
Alcohol abuse (n=48)	7.94 (3.50)	10.21 (5.82)	13.90 (5.82)	5.98 (3.13)	17.33 (6.17)	2.55 (2.52)	4.25 (3.06)	4.25 (3.06)	17.33 (6.17)
Alcohol abuse with dependence (n=38)	6.88 (4.05)	10.01 (6.20)	11.76 (6.44)	5.81 (3.48)	14.49 (6.73)	3.08 (3.03)	5.12 (3.68)	5.12 (3.68)	14.49 (6.73)
Alcohol dependence (n=12)	-	-	-	-	-	-	-	-	-
Drug abuse (n=28)	-	-	-	-	-	-	-	-	-
Drug abuse with dependence (n=16)	-	-	-	-	-	-	-	-	-
Drug dependence (n=16)	-	-	-	-	-	-	-	-	-
Any substance disorder (n=73)	7.71 (3.42)	10.58 (3.73)	14.81 (4.31)	7.42 (4.12)	20.61 (5.74)	3.10 (2.26)	2.70 (1.99)	4.18 (3.16)	22.09 (5.82)
Composite									
Any disorder (n=563)	7.45 (1.40)	14.51 (2.38)	17.77 (2.43)	11.49 (1.84)	26.10 (2.98)	1.32 (0.44)	1.57 (0.42)	2.58 (0.61)	27.62 (2.98)
No disorder (n=1,553)	1.87 (0.29)	5.12 (0.69)	6.29 (0.69)	2.43 (0.35)	8.23 (0.79)	0.85 (0.36)	0.70 (0.19)	1.55 (0.43)	8.84 (0.84)
All (n=2,116)	2.68 (0.33)	6.48 (0.74)	7.96 (0.74)	3.75 (0.35)	10.87 (0.82)	0.92 (0.31)	0.83 (0.20)	1.70 (0.41)	11.57 (0.88)

Data presented as % (standard error).
CAM = complementary-alternative medicine.
Percentages not calculated for disorders with unweighted n < 30.

Table 2 Median number of service visits in the preceding year (Argentinean Study of Mental Health Epidemiology [ASMHE], 2015)

Disorder (group)	Psychiatrist	Other mental healthcare	Any mental healthcare	General medical	Any healthcare	Any treatment
Any anxiety	3.6 (2.0) (n=45)	11.54 (4.28) (n=63)	11.4 (4.98) (n=84)	1.64 (0.32) (n=62)	2.16 (1.00) (n=125)	1.96 (0.95) (n=130)
Any mood	3.89 (1.49) (n=43)	9.94 (2.93) (n=54)	9.95 (3.68) (n=78)	(n=26)	5.42 (2.21) (n=94)	3.96 (2.01) (n=101)
Any substance	(n=11)	(n=7)	(n=15)	(n=6)	(n=20)	(n=21)
Any	3.92 (1.86) (n=63)	11.45 (3.01) (n=87)	11.39 (3.48) (n=121)	1.65 (0.15) (n=74)	3.95 (1.47) (n=170)	3.03 (1.02) (n=180)
None	5.24 (1.20) (n=65)	11.29 (2.85) (n=112)	10.43 (3.22) (n=156)	1.53 (0.25) (n=89)	5.8 (1.76) (n=229)	5.21 (1.74) (n=249)
All	4.96 (0.85) (n=128)	11.33 (2.27) (n=199)	11.25 (1.85) (n=277)	1.59 (0.13) (n=163)	5.39 (1.47) (n=399)	4.45 (0.96) (n=429)

Data presented as median (standard error).
Medians not shown for cells with unweighted n < 30 or where standard error could not be calculated.
Human services, CAM, and any non-healthcare service not included because n < 30.

Table 3 Proportion getting minimally adequate treatment among individuals receiving treatment (Argentinean Study of Mental Health Epidemiology [ASMHE], 2015)

Disorder (unweighted n)	Psychiatrist	Other mental healthcare	Any mental healthcare	General medical	Any healthcare	Human services	CAM	Any non-healthcare	Any treatment
Any anxiety (n=378)	80.63 (7.88)	78.24 (6.04)	76.42 (5.47)	74.9 (7.14)	72.49 (5.10)	-	-	-	71.38 (5.15)
Any mood (n=261)	87.71 (6.42)	85.16 (5.14)	83.19 (5.54)	-	74.34 (5.50)	-	-	-	72.92 (5.16)
Any substance (n=73)	-	-	-	-	-	-	-	-	-
Any (n=563)	82.87 (6.10)	83.23 (4.54)	81.52 (4.25)	69.73 (8.61)	74.08 (4.61)	-	-	-	72.89 (4.61)
None (n=1,553)	85.4 (7.34)	87.49 (4.35)	85.75 (4.13)	71.59 (5.40)	80.83 (3.47)	-	-	95.58 (2.95)	81.27 (3.34)
All (n=2,116)	84.38 (4.79)	86.1 (3.35)	84.38 (3.24)	70.76 (5.55)	78.48 (2.88)	89.12 (6.50)	-	90.38 (4.28)	78.37 (2.74)

Data presented as % (standard error).
CAM = complementary-alternative medicine.
Percentages not calculated for disorders with unweighted n < 30.

minimally adequate treatment was 48.5%; that represents roughly 30% less than when using the broad definition of adequacy. Those with disorders receiving any minimally adequate services decreased to 43.7% with our more stringent definition. This proportion was 42.3% among respondents with anxiety disorders and 44.4% among those with mood disorders (data not shown, but available upon request).

Table 4 presents the results of two multiple logistic regression models, one for the sociodemographic and disorder type correlates of any 12-month service utilization and another for the sociodemographic and disorder type correlates of minimally adequate treatment among respondents with any service utilization. Being younger (age < 35 years) and having lower educational level and income were associated with lower odds of receiving any treatment. Having never been married and having an anxiety, mood, or substance use disorder was associated with 1.7-, 3.2-, 3.6-, and 1.9-fold odds of service utilization, respectively. Being younger, having a lower educational level, and having a lower income were also associated with lower odds of receiving minimally adequate treatment among those receiving treatment; however, type of disorder was not related to the likelihood of receiving adequate treatment.

Discussion

Most individuals in the survey who had a mental disorder in the 12 months preceding the interview did not receive any treatment during this period. This finding indicates a high level of unmet need for treatment in the urban population of Argentina. Further research and policies are needed to reduce treatment barriers and increase treatment access. At 27.6%, the proportion of those with a disorder who had received treatment in the 12 previous months was somewhat higher than the proportions found in the other Latin American countries included in the WMH Surveys.[4] Furthermore, the higher mean than median number of visits implies that comparatively few patients received a disproportionately high share of all visits.

Of the cases that received treatment, three-quarters received minimally adequate treatment based on a broad definition, but less than half received minimally adequate treatment according to our more stringent definition. The proportion receiving adequate treatment was higher among patients seen by mental health professionals than among those seen by general medical professionals. This points to the need for further training of primary healthcare providers in basic mental health treatment guidelines. That 8.8% of respondents that did not meet full diagnostic criteria for any disorder but received treatment nonetheless may reflect individuals with subthreshold symptoms, receiving follow-up for relapse prevention, or in psychoanalysis for self-actualization.[14] In fact, for individuals not meeting diagnostic thresholds, treatment adequacy was greater when provided by non-healthcare professionals, perhaps suggesting health professionals' greater dismissal of their concerns or efforts at "gatekeeping" for rational use of services.[15]

Individuals with 12-month disorders who were aged < 35 years, with low education, and low income were less likely than other cases to receive any treatment. Whether this is due to economic factors or other barriers (such as attitudes, beliefs and knowledge about psychiatric disorders and their treatment, or structural barriers to access)

Table 4 Sociodemographic and disorder-type predictors of any and minimally adequate treatment (Argentinean Study of Mental Health Epidemiology [ASMHE], 2015)

Model effect	Any treatment given any 12-month disorder	Minimally adequate treatment given any treatment and 12-month disorder
Age (years)		
18-34	0.2 (0.1, 0.6)	0.1 (0.0, 0.9)
35-49	0.5 (0.2, 1.3)	0.3 (0.1, 2.2)
50-64	0.8 (0.3, 2.2)	0.3 (0.0, 1.7)
65+	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 3 df = 25.5, p = 0.000	Wald-chi 3 df = 7.7, p = 0.052
Any anxiety disorder		
Yes	3.2 (1.6, 6.2)	0.6 (0.2, 1.7)
No	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 1 df = 12.1, p = 0.001	Wald-chi 1 df = 1.1, p = 0.301
Any mood disorder		
Yes	3.6 (2.0, 6.4)	0.9 (0.4, 2.1)
No	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 1 df = 19.0, p = 0.000	Wald-chi 1 df = 0.1, p = 0.765
Any substance disorder		
Yes	1.9 (0.7, 5.0)	1.4 (0.4, 5.5)
No	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi df = 1.9, p = 0.164	Wald-chi 1 df = 0.3, p = 0.590
Educational attainment		
Low	0.4 (0.2, 0.8)	0.1 (0.0, 0.5)
Low-average	0.4 (0.2, 0.7)	0.3 (0.1, 1.5)
High-average	0.7 (0.4, 1.1)	0.2 (0.1, 0.9)
High	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 3 df = 20.9, p = 0.000	Wald-chi 3 df = 15.4, p = 0.002
Income	0.4 (0.2, 0.9)	1.1 (0.3, 4.4)
Low	0.4 (0.2, 1.1)	2.8 (1.0, 8.2)
Low-average	0.7 (0.3, 1.6)	1.8 (0.6, 5.4)
High-average	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
High	Wald-chi 3 df = 6.7, p = 0.081	Wald-chi 3 df = 8.3, p = 0.040
Overall test of effect		
Marital status		
Never married	1.7 (1.0, 2.8)	1.4 (0.4, 4.9)
Separated/widowed/divorced	0.8 (0.4, 1.6)	1.3 (0.2, 6.3)
Married/cohabitating	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 2 df = 6.8, p = 0.033	Wald-chi 2 df = 0.3, p = 0.842
Sex		
Male	0.9 (0.5, 1.5)	1.2 (0.5, 2.9)
Female	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Overall test of effect	Wald-chi 1 df = 0.1, p = 0.728	Wald-chi 1 df = 0.2, p = 0.680

df = degrees of freedom.
Minimally adequate treatment was defined as receiving four or more visits to any service sector or receiving two or more visits to any service sector plus at least 1 month of medication or ongoing treatment at interview.

is an important area for future inquiry.[16] On the other hand, those who had never been married and those who had an anxiety or mood disorder were more likely than other 12-month cases to receive treatment. Greater utilization of services by never-married respondents has also been found in five of the 17 other WMH Survey countries, a finding that has been proposed to indicate how social impairments and relationship discord may motivate individuals to seek help.[4] Our findings that anxiety and mood disorders, but not substance use disorders, were more likely to prompt treatment suggests that a greater effort to get those with substance use disorders into treatment is needed. Only 22.1% of those with a substance use disorder and only 17.3% of those with alcohol abuse had received any treatment in the 12 months preceding

the interview. This may be due to a low perceived need for treatment among substance users, especially those with alcohol use disorders. One national study of U.S. adults found only 10% of individuals with an alcohol use disorder felt the need for treatment, and that perceived need for treatment was predicted most by diagnostic variables rather than sociodemographic variables, with alcohol-related legal problems being the greatest predictor.[17] Of course, stigma towards substance use disorders may also play a role in this large treatment gap.[18]

Among those who received treatment, younger individuals (18-34 years) and those with low education and a low average income were provided less adequate treatment. However, the type of disorder was not related to adequacy of treatment. Interestingly, and at odds with

10 of the 17 WMH Survey countries, there were no gender differences in treatment use or adequacy.[4]

The study had limitations that should be considered in interpreting its results. The first concerns the fact that institutionalized people (whether in general hospitals, psychiatric centers, correctional facilities, etc.), individuals under the age of 18, and individuals living outside the largest metropolitan areas were excluded from the sampling frame. Many of these people are likely to have experienced mental health problems as well, but we have no information on their service utilization. A second limitation is that we did not take into account the cost or insurance coverage of healthcare providers (i.e., if they were from a prepaid medical care program, from the patient's health insurance network, affiliated with a hospital or outpatient center, etc.) or the number of healthcare centers available in the studied areas, all of which could influence access to care. Additionally, because quality of treatment is difficult to measure, especially across such a wide array of disorders and treatment types, our definitions of treatment adequacy reflect quantity and continuity of treatment rather than quality. The purpose of evaluating minimally adequate treatment is to determine whether the treatment individuals receive has any likelihood of being effective. While determining whether the treatment is evidence-based would be helpful, many individuals are unable to name the type of treatment they receive in a way that would permit establishing whether it is evidence-based. However, we can more objectively estimate whether treatment was continuous enough to potentially produce a change, although we recognize this may also be reflective of treatment adherence or treatment coverage.

Despite these limitations, this study provides – for the first time – empirical data on service utilization and treatment adequacy for mental health and substance use disorders in the greater urban areas of Argentina. Data of this sort are essential for public health policy and planning. Our findings suggest widespread undertreatment of psychiatric disorders, particularly substance use disorders, with an especially high treatment gap among the young, uneducated, and poor. Additionally, we provide evidence that one-fourth to over one-half (depending on whether one uses a broad or more stringent definition of treatment adequacy) of patients receive treatment that is unlikely to be effective. Most services are provided by mental health specialists, which suggests that greater training of general medical practitioners and integration of mental health services within primary care settings is recommended.

Acknowledgements

Disclosure

RCK has received support for his epidemiological studies from Sanofi-Aventis; has served as a consultant for Johnson & Johnson Wellness and Prevention, Sage Pharmaceuticals, Shire, and Takeda; has served on an advisory board for the Johnson & Johnson Services Inc. Lake Nona Life Project; and is a co-owner of DataStat, Inc., a market research firm that carries out healthcare research. The other authors report no conflicts of interest.

References

1 Global Burden of Disease Study 2013 Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2015;386:743-800.

2 GBD 2013 DALYs and HALE Collaborators, Murray CJ, Barber RM, Foreman KJ, Abbasoglu Ozgoren A, Abd-Allah F, et al. Global, regional, and national disability-adjusted life years (DALYS) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990-2013: quantifying the epidemiological transition. Lancet. 2015;386:2145-91.

3 GBD 2013 Mortality and Causes of Death Collaborators. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2015;385: 117-71.

4 Wang PS, Aguilar-Gaxiola S, Alonso J, Angermeyer MC, Borges G, Bromet EJ, et al. Use of mental health services for anxiety, mood, and substance disorders in 17 countries in the WHO world mental health surveys. Lancet. 2007;370:841-50.

5 Borges G, Medina-Mora ME, Wang PS, Lara C, Berglund P, Walters E. Treatment and adequacy of treatment of mental disorders among respondents to the Mexico National Comorbidity Survey. Am J Psychiatry. 2006;163:1371-8.

6 Kessler RC, Ustun TB. The WHO world mental health surveys: global perspectives on the epidemiology of mental disorders. New York: Cambridge University; 2008.

7 Lohr SL. Sampling: design and analysis. Pacific Grove: Duxbury; 1999.

8 Kessler RC, Üstün TB. The world mental health survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). Int J Methods Psychiatr Res. 2004;13:93-121.

9 Haro JM, Arbabzadeh-Bouchez S, Brugha TS, de Girolamo G, Guyer ME, Jin R, et al. Concordance of the composite international diagnostic interview version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO world mental health surveys. Int J Methods Psychiatr Res. 2006;15:167-80.

10 First MB, Spitzer R, Gibbon M, Williams JBW. Structured clinical interview for DSM-IV-TR axis I disorders, research version. New York: Biometrics Research, New York State Psychiatric Institute; 2002.

11 American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Arlington: American Psychiatric Publishing; 1994.

12 SUDAAN: Professional software for survey data analysis [computer program]. Version 8.0.1. Research Triangle Park: Research Triangle Institute; 2002.

13 Efron B. Logistic regression, survival analysis, and the Kaplan-Meier curve. J Am Stat Assoc. 1988;83:414-25.

14 Bonnin JE. Treating without diagnosis: psychoanalysis in medical settings in Argentina. Commun Med. 2014;11:15-26.

15 Forrest CB. Primary care in the United States: primary care gatekeeping and referrals: effective filter or failed experiment? BMJ. 2003;326:692-5.

16 Andrade LH, Alonso J, Mneimneh Z, Wells JE, Al-Hamzawi A, Borges G, et al. Barriers to mental health treatment: results from the WHO world mental health surveys. Psychol Med. 2014;44:1303-17.

17 Edlund MJ, Booth BM, Feldman ZL. Perceived need for treatment for alcohol use disorders: results from two national surveys. Psychiatr Serv. 2009;60:1618-28.

18 Yang LH, Wong LY, Grivel NM, Hasin DS. Stigma and substance use disorders: an international phenomenon. Curr Open Psychiatry. 2017;30:378-88.