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ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

The Burden of disease attributable to mental and substance use disorders in Brazil: Global Burden of Disease Study, 1990 and 2015

A carga dos transtornos mentais e decorrentes do uso de substâncias psicoativas no Brasil: Estudo de Carga Global de Doença, 1990 e 2015

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ABSTRACT: ***Introduction:*** Mental and substance use disorders (MD) are highly prevalent and have a high social and economic cost. ***Objective:*** To describe the burden of disease attributable to mental and substance use disorders in Brazil and Federated Units in 1990 and 2015. ***Methods:*** Descriptive study of the burden of mental and substance use disorders, using age-standardized estimates from the Global Burden of Disease Study 2015: years of life lost due to premature mortality (YLL); years lived with disability (YLD); and disability-adjusted life year (DALY=YLL+YLD). ***Results:*** In Brazil, despite low mortality rates, there has been a high burden for mental and substance use disorders since 1990, with high YLD. In 2015, these disorders accounted for 9.5% of all DALY, ranking in the third and first position in DALY and YLD, respectively, with an emphasis on depressive and anxiety disorders. Drug use disorders had their highest increase in DALY rates between 1990 and 2015 (37.1%). The highest proportion of DALY occurred in adulthood and in females. There were no substantial differences in burden of mental and substance use disorders among Federated Units. ***Conclusion:*** Despite a low mortality rate, mental and substance use disorders are highly disabling, which indicates the need for preventive and protective actions, especially in primary health care. The generalization of estimates in all the Federated Units obtained from studies conducted mostly in the south and southeast regions probably does not reflect the reality of Brazil, indicating the need for studies in all regions of the country.

Keywords: Mental health. Mental disorders. Substance-related disorders. Disability-adjusted life years. Epidemiology, descriptive.

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RESUMO: ***Introdução:*** Os transtornos mentais e decorrentes do uso de substâncias psicoativas (TM) são altamente prevalentes, gerando elevado custo social e econômico. ***Objetivo:*** Descrever a carga dos TM no Brasil e Unidades Federativas (UFs), em 1990 e 2015. ***Métodos:*** Estudo descritivo da carga de doença dos TM, por meio de estimativas padronizadas por idade do *Global Burden of Disease Study* 2015: anos de vida perdidos por morte prematura (YLL); anos vividos com incapacidade (YLD); e anos de vida perdidos por morte ou incapacidade (DALY=YLL+YLD). ***Resultados:*** No Brasil, apesar da baixa taxa de mortalidade, observa-se alta carga para os TM desde 1990, com elevados YLD. Em 2015, esses transtornos foram responsáveis por 9,5% do total de DALY, ocupando a 3ª e a 1ª posições na classificação de DALY e YLD, respectivamente, com destaque para os transtornos depressivos e de ansiedade. Os transtornos decorrentes do uso de drogas apresentaram a maior elevação das taxas de DALY entre 1990 e 2015 (37,1%). A maior proporção de DALY ocorreu na idade adulta e no sexo feminino. Não houve diferenças substanciais na carga dos TM entre as UFs. ***Conclusão:*** Apesar da baixa mortalidade, os TM são altamente incapacitantes, indicando necessidade de ações preventivas e protetivas, principalmente na atenção primária em saúde. A homogeneidade das estimativas em todas as UFs, obtidas a partir de estudos realizados majoritariamente nas regiões Sul e Sudeste, provavelmente não reflete a realidade do Brasil, e indica necessidade de estudos em todas as regiões do país.

Palavras-chave: Saúde mental. Transtornos mentais. Transtornos relacionados ao uso de substâncias. Anos de vida perdidos por incapacidade. Epidemiologia descritiva.

INTRODUCTION

Mental and substance use disorders (MD) affect an average of 26.1% of the adult population in 17 countries worldwide[1], generating high social and economic costs, which in turn have important implications for health care planning[2-4]. Nevertheless, most low- and middle-income countries, such as Brazil, spend less than US$2.00 per capita on the treatment and prevention of mental disorders. High-income countries spend on average more than US$50.00[5]. In Brazil, data from the National Health Survey (acronym in Portuguese – PNS) demonstrated inequities in access to mental health care. In addition, it was found that the majority of Brazilians with clinically relevant depressive symptoms (78.8%) did not undergo any type of treatment[6].

With the publication of the results of the first Global Burden of Disease (GBD) study in 1996, the impact of prevalent and disabling disorders with lower mortality, such as MD, have emerged as a serious public health problem. In this study, 5 of the 10 leading causes of years lived with disability (YLD) worldwide were in the following category: depressive disorders (13.0%), alcohol use disorders (7.1%), schizophrenia (4.0%), bipolar disorder (3.3%), and obsessive compulsive disorder (2.8%)[7].

Since then, these disorders, especially depressive and anxiety disorders, have been classified as some of the main causes of disability-adjusted life years (DALY) and disability (YLD) in the world. [8-11] In 2010, MD accounted for 7.4% of total DALY and 22.9% of total YLD, making it the fifth leading cause of DALY and the leading cause of YLD worldwide[8].

In Brazil, there are few representative population studies that provide prevalence estimates for MD[12-20]. A study with a representative sample of adults from the city of São Paulo and its metropolitan region[21] found a prevalence of 29.6% of MD in the last 12 months with anxiety (19.9%) and mood disorders (11.0%) as the most prevalent, followed by impulse control disorders (4.2%) and substance use disorders (3.6%). However, there are few prevalence studies that evaluate different regions of the country combined with mortality data by MD[22-25]. In this respect, it is important to know and measure the impact of the MD burden on the different Brazilian Federated Units (FUs), considering the wide cultural and socioeconomic diversity in the country.

The objective of this study was to describe the data related to the burden of mental and substance use disorders, by age and sex, in the years 1990 and 2015, in Brazil and its FUs.

METHODS

A descriptive study was carried out with secondary data regarding MD burden estimated for Brazil in the GBD 2015 study, which was coordinated by the Metrics and Health Assessment Institute (IHME), University of Washington (United States of America – USA)[10]. In this study, the variations in burden according to type of mental disorder, age, sex, year (1990 and 2015), and FU of Brazil will be explored. More detailed information on the data and methods used to generate the estimates can be obtained in other publications[10,11].

In GBD 2015, MD were defined according to the diagnostic criteria described either in the International Statistical Classification of Diseases and Health Related Problems (ICD-10)[26] or in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR)[27], and their correlates for the 1990 data. In total, there are 12 groups of disorders:

1. schizophrenia,
2. depressive disorders,
3. bipolar disorder,
4. anxiety disorders,
5. eating disorders,
6. attention deficit hyperactivity disorder (ADHD),
7. conduct disorder,
8. autism spectrum disorders (autism and Asperger's syndrome),
9. mental retardation,
10. alcohol use disorders,
11. drug use disorders, and
12. other mental and substance use disorders[11].

Years of life lost (YLL) added to the YLD indicators resulted in the DALY measurement. For all estimates, uncertainty intervals of 95% (95% UI) were considered[10].

The YLL calculation, which expresses the effect of premature deaths on the population, was performed by multiplying the number of MD deaths, for each age group, by the highest life expectancy at that age, regardless of sex[28]. In Brazil, the main source of mortality data is the Ministry of Health's Mortality Information System (SIM). In estimating YLL, the GBD 2015 followed the ICD-10's[26] cause of death categories, in which deaths can only be attributed to a given condition when it is considered a direct cause of death. Details on the methodology used for the calculation of YLL in GBD 2015 can be seen in other publications[28].

YLLs were estimated only for schizophrenia, eating disorders, and substance use disorders considered by the ICD-10[26] as direct causes of death. For the other groups of mental disorders, the burden is solely due to the incapacity caused by such disorders, so that the DALY rates are matched to the YLD values[29,30].

The calculation of YLDs, which express morbidity in terms of unhealthy years of life due to health problems or disabilities, was performed by multiplying two components: the prevalence of mental disorders in the population and the "disability weight," which reflects the severity of health loss associated with the MD on a scale from 0 (perfect health) to 1 (equivalent to death). The prevalence of each disorder was obtained using data from Brazilian population-based studies. The GBD 2015 used the same weights assigned to the severity of each disorder as the GBD 2013. The methodology and the articles used as sources of data for the estimates and for the values of the weights assigned to each disease are available in other publications[11].

In this study, the focus of the results will be the presentation of the DALYs produced by the MD category, resulting from the sum of the YLLs and the YLDs. To compare the indicators between the years of 1990 and 2015, the age-standardized rates of DALY by the MD were estimated. In addition, the classification by disorder and by FU according to the values of DALY standardized by age was performed.

The Global Burden of Disease Study – GBD Brazil 2015 – was approved by the Research Ethics Committee of the *Universidade Federal de Minas Gerais* (CAAE Project – 62803316.7.0000.5149).

RESULTS

In the GBD 2015, the MD category accounted for 9.5% of the total DALY for all causes in Brazil. Depressive disorders accounted for the highest proportion of DALY (3.3%) and ADHD accounted for the lowest proportion (0.02%). In both sexes, changes in DALY between 1990 and 2015 were attributable to growth and aging of the population, as both age-standardized rates in the period were within the range of uncertainty (95% UI). However, it is important to highlight the 37.1% increase in DALY rates due to drug use disorders between 1990 and 2015 observed in both sexes (Table 1).

Among MD, depressive disorders accounted for the highest disease burden (35.0%), followed by anxiety disorders (28.0%), and alcohol use disorders (7.0%) (Figure 1A). The disorders that

Table 1. DALY[a] rates per 100,000 individuals attributable to each mental and substance use disorders and percentages of change from 1990 to 2015 in men, women, and both sexes in Brazil.

Disorders	DALY[a] rates standardized by age (per 100,000)									
	Both sexes				Male			Female		
	Proportion of DALY (%)[b]	1990	2015[c]	% change	1990	2015[c]	% change	1990	2015[c]	% change
Depressive disorders	3.32	975.76	978.18	0.25	741.95	734.01	-1.07	1,195.49	1,209.58	1.18
Anxiety disorders	2.66	687.40	785.84	14.32	432.10	470.41	8.87	931.20	1,089.29	16.98
Alcohol use disorders	0.72	214.41	210.70	-1.73	377.25	379.53	0.60	60.73	53.68	-11.61
Autistic spectrum disorders	0.47	136.99	137.43	0.32	205.42	205.52	0.05	70.95	71.10	0.21
Schizophrenia	0.57	164.06	168.31	2.59	167.35	172.59	3.13	160.97	164.34	2.09
Other mental disorders[d]	0.43	127.38	127.56	0.14	166.24	166.27	0.02	91.29	91.23	-0.06
Bipolar disorder	0.49	144.62	144.56	-0.04	128.34	128.51	0.13	160.28	160.13	-0.10
Drug use disorders	0.39	84.66	116.04	37.06	113.83	156.13	37.17	56.37	76.45	35.61
Conduct disorder	0.28	81.00	81.44	0.55	102.68	102.93	0.24	58.94	59.16	0.38
Mental retardation	0.09	24.92	28.03	12.47	24.29	27.21	12.06	25.51	28.8	12.86
Eating disorders	0.07	16.31	19.36	18.71	10.88	13.07	20.12	21.68	25.69	18.49
ADHD[e]	0.02	7.51	7.48	-0.34	9.82	9.74	-0.79	5.18	5.16	-0.35
Category of MD[d]	9.51	2,665.04	2,804.93	5.25	2,480.15	2.565.94	3.46	2,838.59	3,034.61	6.91

a) DALY: Disability-Adjusted Life Years; b) Percentage of total DALY for all causes, for both sexes; c) Interval rates of uncertainty (95% UI) with intersection; d) DM: Mental and substance use disorders; e) ADHD: Attention deficit hyperactivity disorder.

contributed most to the YLD were depressive disorders (37.0%), anxiety disorders (30.0%), schizophrenia (6.0%), and bipolar disorder (6.0%) (Figure 1B).

In relation to mortality, MD accounted for only 1.2% of total YLL in Brazil in 2015. Most of these deaths were attributed to disorders resulting from alcohol use (81.0%) (Figure 1C).

MD were the main cause of disability in Brazil, both in 1990 and in 2015, accounting for 24.9% of the total YLD for all causes (Table 2). In 2015, the category became the third leading cause of DALY in Brazil, rising three places in the ranking in relation to 1990. From 1990 to 2015, the entire category of MD and almost all disorders on their own rose in rank

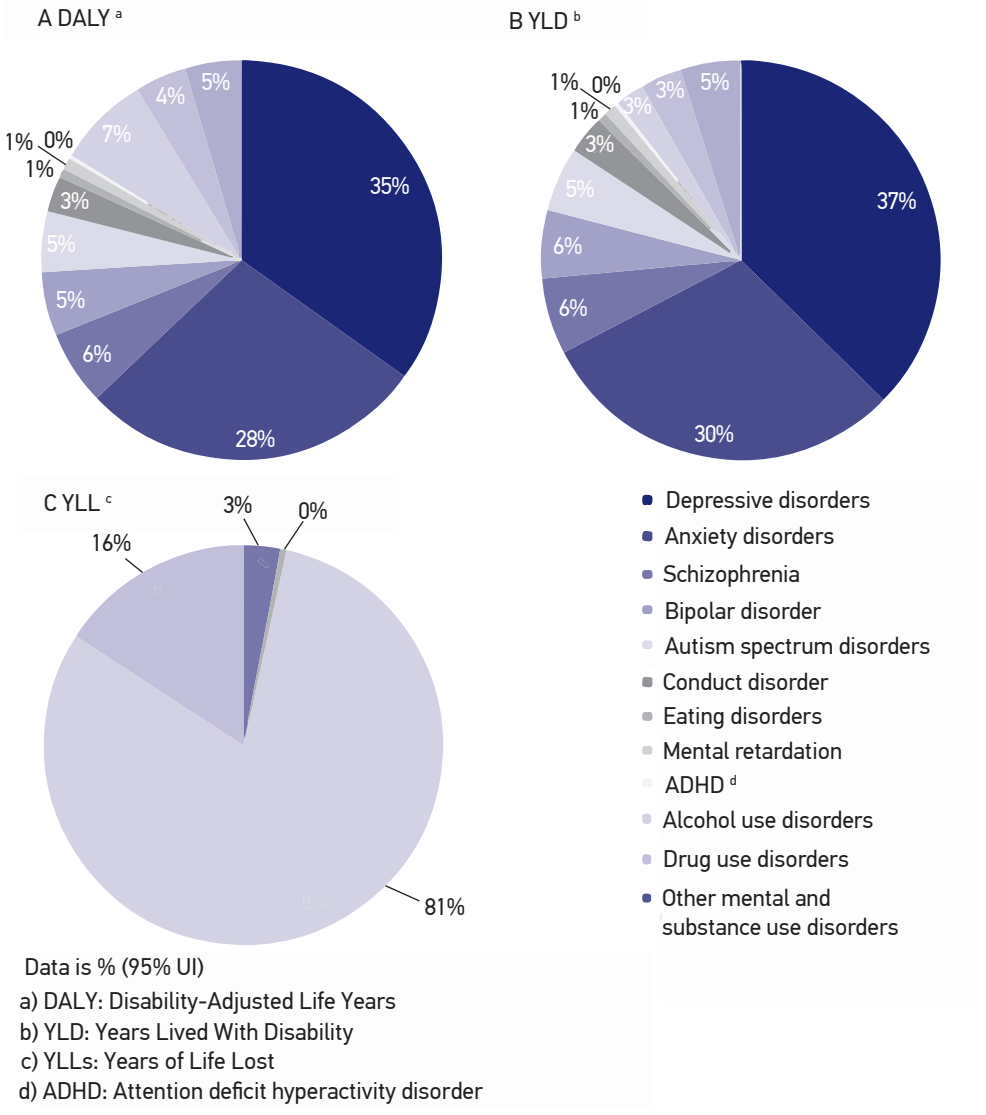


Figure 1. Proportion of DALY[a], YLD[b] e YLL[c] for each group of mental and substance use disorders in 2015.

in the classification of DALY and YLD. In particular, it is important to note the increase in the DALY positions of depressive and anxiety disorders from 12th and 14th positions in 1990 to 8th and 10th positions in 2015, respectively (Table 2).

MD affected all age groups, with the highest proportion of DALYs in both sexes occurring in adulthood (Figure 2). In both sexes, DALY rates for depressive disorders and for anxiety disorders peaked in adulthood. However, the burden of depressive disorders was greater among those aged 30–34 years, and the burden of anxiety disorders, was greater among those aged between 40 and 44 years.

The burden associated with less common chronic disorders, such as schizophrenia and bipolar disorder, gradually increased up until adulthood, with a peak between 40 and 44 years and 25 and 29 years of age, respectively. In relation to the drug use di orders, the burden was higher among young adults (20–24 years). For alcohol use disorders, the highest burden occurred between 45 and 49 years of age, followed by a gradual decline (Figure 2).

Boys younger than 10 years old had a higher proportion of DALYs than girls of the same age. This difference was more evident in the case of autism spectrum disorders and conduct disorder, with a load of 2.5 times higher than for girls. Among the age group of 10–14 years, women had a greater burden for depressive disorders and anxiety disorders than men. In all age groups, men presented a greater burden for schizophrenia

Table 2. Classification of DALY[a] and YLD[b] of each mental and substance use disorders in 1990 and 2015, in relation to the rates standardized by age.

	DALY[a]		YLD[b]	
	1990	2015	1990	2015
MD Category[c]	6	3	1	1
Depressive disorders	12	8	3	3
Anxiety disorders	14	10	4	4
Alcohol use disorders	41	37	35	32
Schizophrenia	52	42	16	15
Bipolar disorder	56	47	19	17
Autism spectrum disorder	58	49	20	20
Other MDs[c]	63	53	24	22
Drug use disorders	79	58	34	27
Conduct disorder	80	69	30	29
Mental retardation	120	107	51	45
Eating disorders	133	115	60	57
ADHD[d]	146	136	75	74

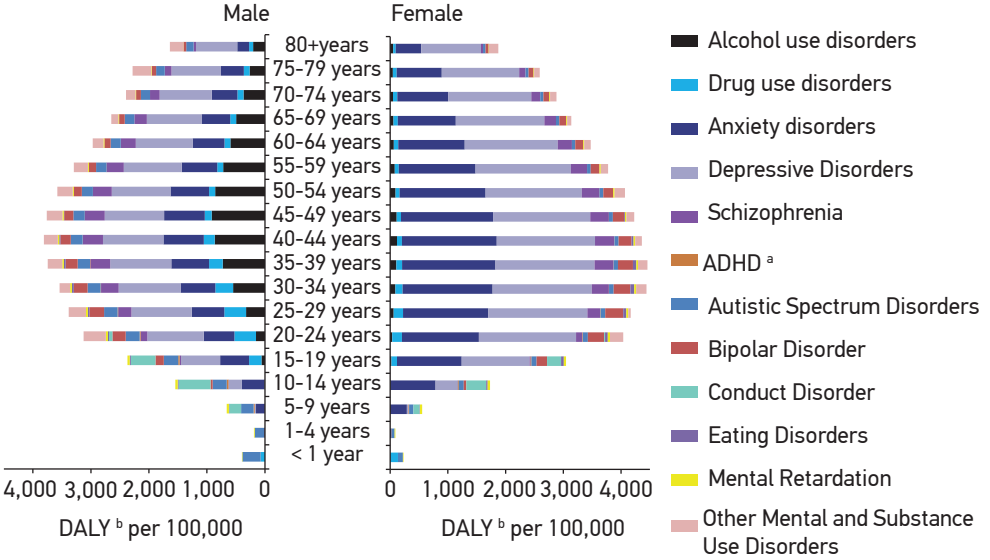
a) DALY: Disability-Adjusted Life Years; b) YLD: Years Lived With Disability; c) MD: Mental and substance use disorders; d) ADHD: Attention deficit hyperactivity disorder.

and substance use disorders. The highest proportion of DALYs in women occurred in the age range between 40 and 44 years, and in men, it occurred between the ages of 35 and 39 years (Figure 2).

Figure 3 shows the MD burden in Brazil and in each FU. Depressive disorders demonstrated the highest proportion of burden in all the FUs, followed by anxiety disorders. The DALYs of disorders resulting from alcohol use presented the greatest regional variation: DALY rates in Ceará and Sergipe were almost four times higher than in Pará. In contrast, the other mental disorders and the drug use disorders demonstrated homogeneous rates in terms of the proportion of DALYs (less than twofold among FUs) in 2015. With the exception of alcohol use disorders, the other age-standardized DALY rates for FUs did not differ substantially from the national average.

DISCUSSION

The results of the GBD 2015 indicate that MD are the third cause of disease burden in Brazil, behind only cardiovascular diseases and cancers. Furthermore, it was found that they contribute considerably to the loss of health in individuals of all ages. The GBD's study methodology, addressing both mortality and disability, has made MD more visible as a relevant public health problem, which has allowed for advances in research concerning their prevalence and associated risks.



a) ADHD: Attention deficit hyperactivity disorder
b) DALY: Disability-Adjusted Life-Years

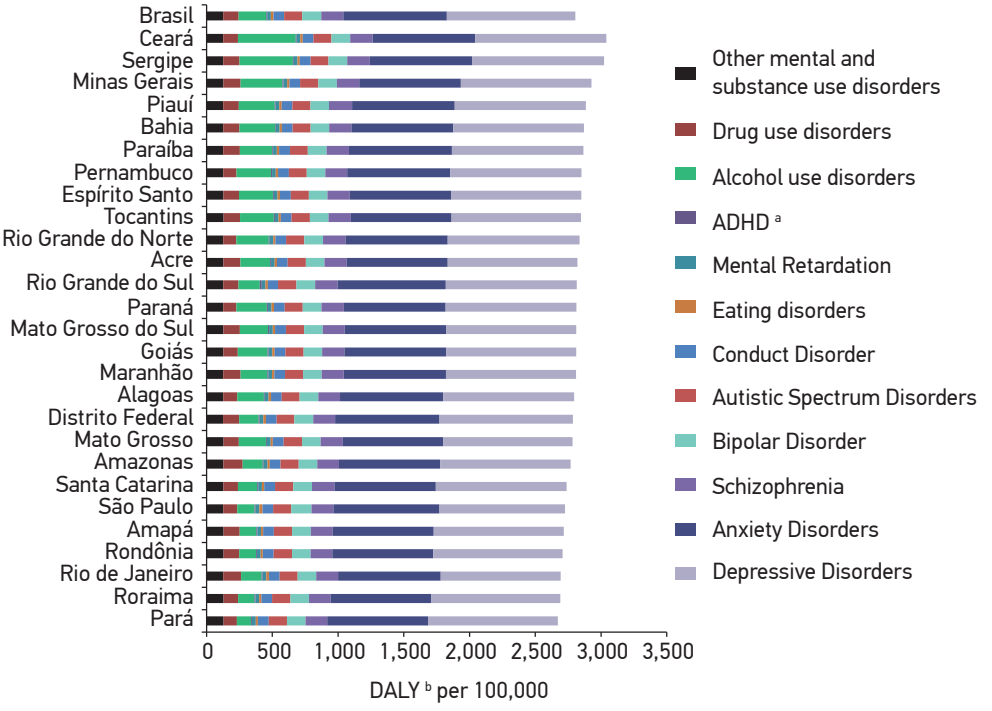
Figure 2. Years lost due to premature death or disability (DALY[b]), for each mental and substance use disorders in 2015, by sex and age, in Brazil.

By 2015, MD were responsible for a high burden of disease throughout the world[10]. MD jumped from eighth to sixth place between 1990 and 2015 in the DALY world ranking. In Brazil, DALY by MD moved from sixth to third position, indicating a more serious situation regarding mental health in the country.

DALY by MD is clearly related to disability – not mortality. Whereas throughout the world MD have placed second in the classification of disability since 1990, behind only musculoskeletal disorders, in Brazil they are already the main cause. Depressive and anxiety disorders continued to be among the top 10 causes of disability in Brazil and worldwide in 2015[11].

Depressive and anxiety disorders, which were highly prevalent and incapacitating, stood out in the classification of YLD and, consequently, DALY. However, some disorders, although very disabling for the individual, did not stand out in the YLD classification due to their low prevalence in the population, such as schizophrenia, which presented the highest disability weight of all diseases evaluated in 2015. However, it was not prominent in terms of YLD because of its low prevalence[11].

Notably in Brazil, anxiety disorders have the highest rates of YLD and DALY in the world[31]. These results are consistent with the studies[14,15,17,20,21] used by the GBD researchers to make such estimates. One of these studies[21] found a greater prevalence of anxiety disorders in



a) ADHD: Attention deficit hyperactivity disorder
b) DALY: Disability-Adjusted Life-Years

Figure 3. DALY[b] rate per 100 thousand individuals for : mental and substance use disorders in 2015, for Brasil and its Federated Units.

Brazil compared with 23 other countries. The possible explanations for the high prevalence in the country include widespread urban violence, adverse socioeconomic conditions, pollution, high noise level, and a lack of leisure areas in Brazilian cities.

In developing regions, such as in Brazil, there are a larger number of people in the age groups where MD are most prevalent. This demographic and epidemiological transition contributes to the increase in the absolute burden of these disorders in the population[8]. However, for most MD, the increase in the absolute number of DALYs was not accompanied by the increase in age-standardized DALY rates, which means that changes in DALY between 1990 and 2015 were almost entirely attributable to growth and the aging of the population. Nevertheless, the stability in the age-standardized rate demonstrates the need for the country to tackle this problem, which tends to grow with demographic transitions.

It is important to consider that the drug use disorders had the highest increase in DALY rates between 1990 and 2015 (37.1%) and affected mainly young men. Abdalla et al. (2014)[33] indicate that the prevalence rate of crack cocaine use among Brazilians aged 14 years and over, in 2012 was 2.2% in the last 12 months, and they suggest that the country is among the nations with the highest rates of annual consumption, as it is one the largest consumer markets of cocaine in the world.

The results of the GBD 2015 reflect the reality of Brazilian epidemiological studies[12-14,16,18,19,21,22] in which women are more affected by depressive disorders and anxiety disorders, whereas men are more affected by schizophrenia, alcohol and drug use disorders, and ADHD in childhood and adulthood. These results coincide with the results of most studies conducted in Western countries[16].

Another important result of the GBD 2015's Brazilian data was the high burden of mental disorders that occur in childhood and adolescence, such as autism spectrum disorders, ADHD, and conduct disorders. These results reinforce the need for prevention and treatment services aimed at children and adolescents, which are currently scarcely available in Brazil[34].

In this context, the results of this study highlight the challenge that MD represent for the country's health system. In Brazil, the implementation of the community mental health services network began in the 1990s and, although it is constantly growing, there are still insufficient services for effective care for the entire population[35]. In addition, there are cultural, financial, and structural barriers that prevent people from seeking psychiatric care, such as stigma, little knowledge of the disease, prejudice, disbelief in treatment, and lack of training for primary care teams in the identification of cases, among others[18].

The Brazilian territory is special because it is marked by important differences in the availability of mental health services depending on the region of the country. The national population-based survey (PNS) conducted in 2013, reported estimates of access to treatment for depression, and found that in the north region there is the largest proportion of untreated individuals (90.2%) whereas in the south region the lowest proportion of untreated individuals (67.5%)[6]. Nevertheless, the results of the GBD 2015 for Brazilian FUs were practically

homogeneous. This is because burden of disease estimates were generated based on data available from FUs, which traditionally tends to be performed in urbanized areas and in FUs in the southeast and south regions, which certainly do not reflect the reality of the entire country. It is important to note that the results of the GBD give the country an opportunity to critically assess the quality of its data, in a way that its limited availability needs to be considered when interpreting specific regions.

As a future possibility, the use of population-based data sources such as the National Household Sample Survey (acronym in Portuguese – PNAD) of the Brazilian Institute of Geography and Statistics (IBGE)[36] is compelling, as it is a survey that is representative on a national and an urban–rural level, and it covers approximately 150 thousand households and more than 350 thousand people in the 27 FUs of Brazil. The PNS, based on the PNAD database, unlike the GBD 2015, found important differences among Brazilian FUs regarding the presence of depressive symptoms in the population[37].

A characteristic of the GBD methodology, which had an impact on the low number of YLLs generated by the MD category, consists in attributing mortality to a single disease/cause, as well as in the fact that YLLs have only been estimated for schizophrenia, eating disorders, and alcohol and drug use disorders, considered by the ICD-10[26] as direct causes of death[28]. It is for this reason that, for most MD, the DALYs are basically YLD.

Globally, MD accounted for only 0.5% of deaths by all causes in 2015, according to the GBD. This finding provides a contrast with a recent systematic review study which, when considering the excess mortality associated with mental disorders, estimated that 14.3% of deaths worldwide are attributable to these disorders. According to this study[38], people with mental disorders have a mortality rate of 2.2 times higher than the general population. The reduction in the life expectancy of those with mental disorders is, on average, 10.1 YLL, regardless of the cause of death. These data suggest that there is a large burden of mental disorders associated with mortality that is underestimated.

Considering that many MD are frequently co-morbid with other highly prevalent and disabling diseases, such as cardiovascular diseases and diabetes[35] and are important risk factors for suicide (approximately 80% of suicide deaths are attributable to MD[8]), it is suggested that alternative approaches to methodology should be explored, such as the quantification of the proportion of death attributable to MD as risk factors for other health outcomes[8,39]. A study devoted to estimating the DALYs of suicide attributed to the category of MD in the GBD 2010 concluded that the inclusion of DALYs attributable to suicide would have increased the overall burden of these disorders from 7.4% to 8.3%. This would result in a change of category in the overall classification, from the fifth to the third cause of disease burden[39].

Finally, it is important to highlight that the standardized methodology of the GBD analysis makes it possible to produce indicators that allow for the comparison of data between different regions and countries of the world. In addition, estimates of temporal trends provide more consistent information for health planning, in the medium and long term, when compared to point estimates[40].

CONCLUSION

The results presented situate MD among the main health problems in Brazil, affecting both sexes and all age groups. They are still an important source of loss of quality of life rather than of mortality, which is generally invisible in the eyes of health managers. These data should be discussed primarily in the context of primary care, where mental disorders are very common and professionals are not prepared to provide adequate care to people. The training of professionals to identify and prevent mental health problems and provide comprehensive care that goes beyond diagnosis and medication management, could improve equity in the Brazilian health system.

There is a need to expand studies to other regions, in addition to the investigation of minorities, such as indigenous and riparian populations. This knowledge is necessary to support the implementation of mental health policies that promote the increase of the healthy years of life lived with functional independence for the entire population.

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REFERENCES

1. Kessler RC, Aguilar-Gaxiola S, Alonso J, Chatterji S, Lee S, Ormel J, et al. The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. Epidemiol Psichiatr Soc 2009; 18(1): 23-33.
2. Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. Bulletin of the World Health Organization 2004; 82(11): 858-66.
3. World Health Organization. Mental Health Action Plan 2013-2020. Geneva: WHO; 2013.
4. Chisholm D, Sweeny D, Sheehan P, Rasmussen B, Smit F, Cuijpers P, et al. Scaling-up treatment of depression and anxiety: a global return on investment analysis. Lancet Psychiatry 2016; 3(5): 415-24.
5. World Health Organization. Mental Health Atlas 2014. Geneva: WHO; 2015.
6. Lopes CS, Hellwig N, Silva GA, Menezes PR. Inequities in access to depression treatment: results of the Brazilian National Health Survey – PNS. Int J for Equity Health 2016; 15: 154.
7. Lopez AD, Murray CC. The global burden of disease, 1990-2020. Nat Med 1998; 4(11): 1241-3.
8. Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. Lancet 2013; 382: 1575-86.
9. Vigo D, Thornicroft G, Atun R. Estimating the true global burden of mental illness. Lancet Psychiatry 2016; 3: 171-8.
10. Kassebaum NJ, Arora M, Barber RM, Bhutta ZA, Brown J, Carter A, et al. Global, regional, and national disability-adjusted life-years (DALY) for 315 diseases and injuries and healthy life expectancy (HALE), 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016; 388: 1603-58.
11. Vos T, Allen C, Arora M, Barber RM, Bhutta ZA, Brown A, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016; 388: 1545-602.

12. Almeida-Filho N, Mari JJ, Coutinho E, França JF, Fernandes J, Andreoli SB, et al. Brazilian multicentric study of psychiatric morbidity: methodological features and prevalence estimates. Br J Psychiatric 1997; 171: 524-9.
13. Mari JJ, Jorge MR. Transtornos psiquiátricos na clínica geral. Psychiatry On-line Brazil 1997; 2(5). Disponível em: http://www.polbr.med.br/ano97/tpqcm.php (Acessado em 22 de setembro de 2016).
14. Andrade L, Walters EF, Gentil V, Laurenti R. Prevalence of ICD-10 mental disorders in a catchment area in the city of São Paulo, Brazil. Soc Psychiatry Psychiatr Epidemiol 2002; 37(7): 316-25.
15. Fleitlich-Bilyk B, Goodman R. Prevalence of child and adolescent psychiatric disorders in southeast Brazil. J Am Acad Child Adolesc Psychiatry 2004; 43(6): 727-34.
16. Andrade LHSG, Viana MC, Silveira CM. Epidemiologia dos transtornos psiquiátricos na mulher. Rev Psiq Clín 2006; 33(2): 43-54.
17. Anselmi L, Fleitlich-Bilyk B, Menezes AMB, Araújo CL, Rohde LA. Prevalence of psychiatric disorders in a Brazilian birth cohort of 11-year-olds. Soc Psychiatry Psychiatr Epidemiol 2010; 45(1): 135-42.
18. Santos EG, Siqueira MM. Prevalência dos transtornos mentais na população adulta brasileira: uma revisão sistemática de 1997 a 2009. J Bras Psiquiatr 2010; 59(3): 238-46.
19. Gonçalves DA, Mari JJ, Bower P, Gask L, Dowrick C, Tófoli LF, et al. Brazilian multicentre study of common mental disorders in primary care: rates and related social and demographic factors. Cad Saúde Pública 2014; 30(3): 623-32.
20. Petresco S, Anselmi L, Santos IS, Barros AJ, Fleitlich-Bilyk B, Barros FC, et al. Prevalence and comorbidity of psychiatric disorders among 6-year-old children: 2004 Pelotas Birth Cohort. Soc Psychiatry Psychiatr Epidemiol 2014; 49(6): 975-83.
21. Andrade LH, Wang Y-P, Andreoni S, Silveira CM, Alexandrino-Silva C, Siu ER, et al. Mental disorders in megacities: findings from the São Paulo megacity mental health survey, Brazil. PLoS One 2012; 7(2): e31879.
22. Menezes PR, Mann AH. Mortality among patients with non-affective functional psychoses in a metropolitan area of South-Eastern Brazil. Rev Saúde Pública 1996; 30(4): 304-9.
23. Sampaio ALP, Caetano D. Mortalidade em pacientes psiquiátricos: revisão bibliográfica. J Bras Psiquiatr 2006; 55(3): 226-31.
24. Marín-León L, Oliveira HB, Botega NJ. Mortalidade por dependência de álcool no Brasil: 1998 – 2002. Psicol Estud 2007; 12(1): 115-21.
25. Câmara FP. Mortalidade por transtornos mentais e comportamentais e a reforma psiquiátrica no Brasil contemporâneo - II: elementos para um debate. Rev Latinoam Psicopatol Fundam 2008; 11(3): 470-4.
26. Organização Mundial da Saúde. Classificação Estatística Internacional de Doenças e Problemas Relacionados à Saúde: CID-10 Décima revisão. 3ª ed. São Paulo: EDUSP; 1996.
27. American Psychiatric Association. DSM-IV-TR: Manual de Diagnóstico e Estatística de Transtornos Mentais. 4ª ed. Porto Alegre: Artmed; 2003.
28. Wang H, Naghavi M, Allen C, Barber RM, Bhutta ZA, Carter A, et al. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016; 388: 1459-544.
29. Baxter AJ, Vos T, Scott KM, Ferrari AJ, Whiteford HA. The global burden of anxiety disorders in 2010. Psychol Med 2014; 44(11): 2363-74.
30. Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G, Murray CJL, et al. Burden of Depressive Disorders by Country, Sex, Age, and Year: Findings from the Global Burden of Disease Study 2010. PLoS Medicine 2013; 10(11): e1001547.
31. Lynskey MT, Strang J. The global burden of drug use and mental disorders. The Lancet 2013; 382(9904): 1540-2.
32. Institute for Health Metrics and Evaluation. Data visualization. 2016. Disponível em: http://www.healthdata.org/results/data-visualizations (Acessado em: 29 de novembro de 2016).
33. Abdalla RR, Madruga CS, Ribeiro M, Pinsky I, Caetano R, Laranjeira R. Prevalence of cocaine use in Brazil: data from the II Brazilian national alcohol and drugs survey (BNADS). Addict Behav 2014; 39(1): 297-301.
34. Couto MCV, Duarte CS, Delgado PGG. A saúde mental infantil na Saúde Pública brasileira: situação atual e desafios. Rev Bras Psiquiatr 2008; 30(4): 390-8.
35. Costa PHA, Colugnati FAB, Ronzani TM. Avaliação de serviços em saúde mental no Brasil: revisão sistemática da literatura. Ciênc Saúde Coletiva 2015; 20(10): 3243-53.

36. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios. Um panorama da saúde no Brasil: acesso e utilização dos serviços, condições de saúde e fatores de risco e proteção à saúde 2008. Rio de Janeiro: IBGE; 2010.
37. Munhoz TN, Nunes BP, Wehrmeister FC, Santos IS, Matijasevich A. A nationwide population-based study of depression in Brazil. J Affect Disord 2016; 192(2016): 226-33.
38. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. JAMA Psychiatry 2015; 72(4): 334-41.
39. Ferrari AJ, Norman RE, Freedman G, Baxter AJ, Pirkis JE, Harris MG, et al. The Burden Attributable to Mental and Substance Use Disorders as Risk Factors for Suicide: Findings from the Global Burden of Disease Study 2010. PLoS One 2014; 9(4): e91936.
40. Marinho F, Passos VMA, França EB. Novo século, novos desafios: mudança no perfil da carga de doença no Brasil de 1990 a 2010. Epidemiol Serv Saúde 2016; 25(4): 713-24.

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