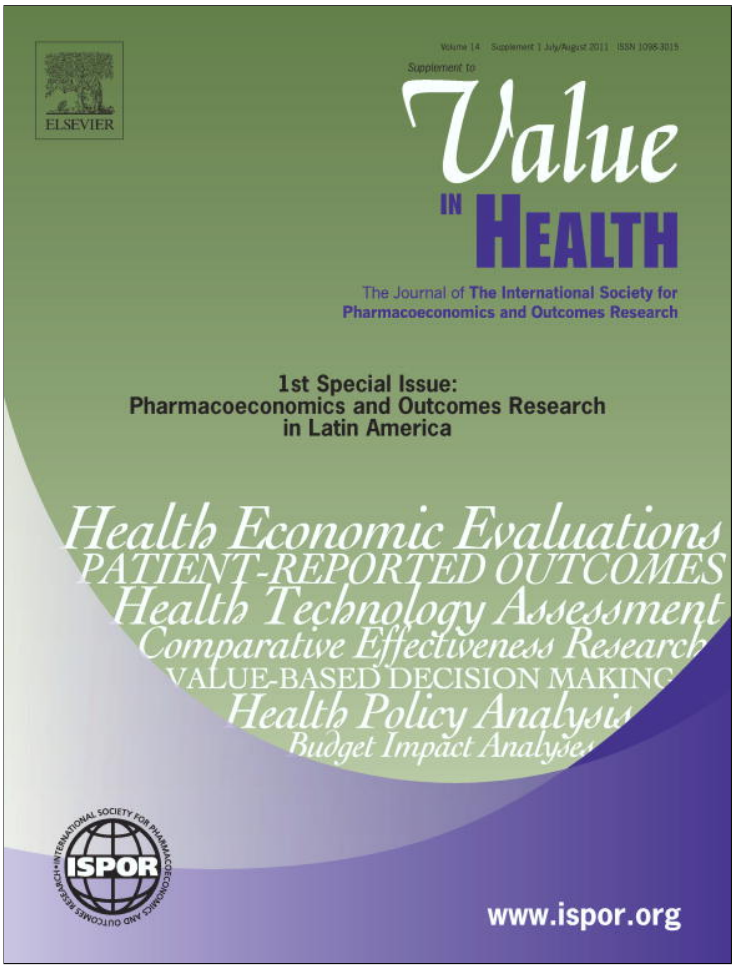
Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

http://www.elsevier.com/copyright

Author's personal copy

VALUE IN HEALTH 14 (2011) S13–S15

available at www.sciencedirect.com

SCIENCE DIRECT®

journal homepage: www.elsevier.com/locate/jval

Insurance Status and Demographic and Clinical Factors Associated with Pharmacologic Treatment of Depression: Associations in a Cohort in Buenos Aires

Gerardo Machnicki, MSc, PhD[1], *Carol Dillon, MD, PhD*[1], *Ricardo F. Allegri, MD, PhD*[1,2,*]

[1]*Memory Research Center, Department of Neurology, Zubizarreta General Hospital, GCBA Buenos Aires, Argentina;* [2]*Department of Cognitive Neurology, Instituto de Investigaciones Neurológicas Raúl Carrea, Buenos Aires, Argentina*

ABSTRACT

Objective: There is a paucity of evidence about insurance status and the likelihood of receiving medical services in Latin America. The objective of this analysis was to examine the association between insurance status and pharmacologic treatment for depression. **Methods:** Patients referred to a memory clinic of a public hospital in Buenos Aires, Argentina, and identified with any of four types of depression (subsyndromal, dysthymia, major, and due to dementia) were included. Age, years of education, insurance status, Beck Depression Inventory score, and number of comorbidities were considered. Associations between these factors and not receiving pharmacologic treatment for depression were examined with logistic regression. Use of prescription neuroleptics, hypnotics, and anticholinesterase inhibitors was also explored. **Results:** Out of 100 patients, 92 with insurance status data were used. Sixty-one patients (66%) had formal insurance and 31 patients (34%) lacked insurance. Twenty-seven (44%) insured patients and 23 (74%) uninsured patients did not receive antidepressants ($P = 0.001$). Controlling for other factors, uninsured patients had 7.12 higher odds of not receiving treatment compared to insured patients (95% confidence interval 1.88–28.86). Older patients and those with more comorbidities had higher odds of not receiving treatment. More educated patients, those with higher Beck Depression Inventory score, and those without subsyndromal depression had lower odds of not receiving treatment. None of those associations were statistically significant. **Conclusions:** These results suggest a potential negative effect of the lack of formal insurance regarding pharmacologic treatment for depression. These findings should be confirmed with larger samples, and for other diseases.

Keywords: antidepressants, depression, insurance, Latin America.

Copyright © 2011, International Society for Pharmacoeconomics and Outcomes Research (ISPOR). Published by Elsevier Inc.

Introduction

Depression represents a concern to public health because it is one of the most burdensome diseases [1] and it also exacts a considerable economic [2] and humanistic burden [3]. Pharmacologic and other mental health treatment rates remain low and variable in international comparisons [4]. Out-of-pocket costs [4] and lack of insurance [5] have been identified as factors associated with lower treatment rates. A Latin American city involved in an international study ranked among the lowest in terms of antidepressant therapy rates and was among the first citing financial barriers as a reason for not receiving treatment [4]. More than 40% of Argentineans rely on public infrastructure for their health care [6]. Although during the past decade federal coverage of essential medicines has been developed [7], the scope of the plan is limited.

Evidence supports a link between lack of insurance (or reduced coverage) and reduced access to pharmacologic or nonpharmacologic medical treatment, as well as with impaired medication persistence. Latin American data coincide with these findings. An analysis of Mexican elderly patients [8] showed that presence of health insurance was associated with improved access to medications. Lack of insurance was identified as a risk factor for catastrophic health expenditures in Mexico [9] and Colombian data support the link between no insurance or lower quality insurance and reduced human immunodeficiency virus/autoimmune deficiency syndrome medication adherence [10]. To our knowledge few investigations addressed care for depression in low income, uninsured individuals in Latin America [11–14].

The primary objective of this research was to assess the association between antidepressant pharmacotherapy and insurance status, controlling for demographic and clinical factors. The secondary objective was to explore the associations between insurance status and other factors and treatment with prescription neuroleptics, hypnotics, and anticholinesterase inhibitors.

Conflicts of interest: The authors have indicated that they have no conflicts of interest with regard to the content of this article.

* *Address correspondence to:* Ricardo F. Allegri, Department of Cognitive Neurology, Instituto de Investigaciones Neurológicas Raúl Carrea, Montañeses 2325, (C1428AQK) Buenos Aires, Argentina.

E-mail: rallegri@fleni.org.ar.

1098-3015/$36.00 – see front matter Copyright © 2011, International Society for Pharmacoeconomics and Outcomes Research (ISPOR). Published by Elsevier Inc.

doi:10.1016/j.jval.2011.05.014

Author's personal copy

Methods

Patient population

The study population consisted in patients evaluated at the Memory Clinic at Zubizarreta Hospital in Buenos Aires, Argentina. A clinical database with the data collected as part of the initial visit of the patient was used [15–16].

This was a cross-sectional study. Patients referred for impaired memory and depressive symptoms and assessed in the period 2005 to 2009 were included. All of them were assessed using a semistructured neuropsychiatric interview (administered by specialized psychiatrists and neurologists). Depressive syndromes were categorized into different diagnoses according to the DSM IV [17] and ICD-10 criteria [18] using SCAN 2.1: Schedules [19] for clinical assessment in neuropsychiatry.

Four types of depression were confirmed. These were: 1) subsyndromal depression (diagnosed when patients experience depressive symptoms but do not meet standard diagnostic criteria); 2) dysthymia (a syndrome of depression of mild or moderate severity that lasts at least 2 years); 3) major depression; and 4) depression associated with dementia (Alzheimer disease and vascular and mixed dementia).

Patients were included if they had a minimum age of 55 years and were younger than 80 years old, if they presented depressive symptoms due to psychiatric causes or related with dementia (with clinical dementia rating scale [CDR] [20] score of 1) and if they had a Hamilton Depression Scale [21] score greater than 9 points.

Exclusion criteria covered: 1) drug or alcohol abuse; 2) presence of neurologic diseases (except dementia); 3) dementia and CDR score of 2 or CDR score of 3; and 4) schizophrenia or schizoaffective disorder.

Written informed consent was obtained from each subject after they had been given a full explanation of the study. The research was performed in accordance with the International Conference on Harmonisation Good Clinical Practice guidelines [22], the latest revision of the 1964 Helsinki Declaration [23], and the Buenos Aires Government Health Authorities.

Study variables

Patients' demographic data included age, sex, education level, and income. Health insurance status was recorded as: PAMI (Medicare-like system for retired persons aged $>$ 65 years and special groups), sickness fund (insurance linked to employment), and privately paid insurance or public system.

Patient depression severity was assessed with the Beck Depression Inventory (BDI), a questionnaire with a 0 to 63 total score [24]. Higher scores indicate more depressive symptoms. The Mini-Mental Scale Examination (MMSE) for cognitive impairment was used (0 to 30 score, with lower scores indicating higher cognitive impairment) [25]. Patient comorbidities were recorded and included hypertension, diabetes, cardiovascular and cerebrovascular disease, dyslipidemia, tobacco use and alcohol abuse, hypo- and hyperthyroidism, encephalo cranial traumatism, epilepsy, Parkinson's disease, and other concomitant diseases. Assessed medications included antidepressants (trycyclics and serotonin-reuptake inhibitors), anticholinesterase inhibitors, neuroleptics, and hypnotics.

Statistical analysis

All analyses were performed with R version 2.11.1 [26].

Patients were aggregated in two groups. Group 1 were those with PAMI, sickness-fund, or private insurance and group 2 were those relying on public services (labelled as uninsured due to the lack of formal insurance services). Depression diagnosis was collapsed into two groups: subsindromal depression and all other diagnoses. Bivariable analysis used Wilcoxon tests for continuous variables and Pearson's chi-square tests for categorical variables. Primary multivariable analyses used as outcome not being prescribed an antidepressant. Independent variables included insurance status, age in years, education in years, depression diagnosis, total BDI, and count of comorbidities. Models were repeated with use of neuroleptics and hypnotics. A separate model was used for anticholinesterate inhibitors (MMSE was included as independent variable while BDI and depression diagnosis were dropped).

Results

One hundred patients were initially included in the study and 92 were retained due to missing insurance data. Patients not insured were younger (median 59 vs. 70 years, $P < 0.001$, mean 70.3 vs. 60.3), which is explained by the proportion of elderly insured patients. A higher proportion of uninsured patients had subsyndromal depression (26% vs. 21%) and major depression (39% vs. 23%) (Table 1, in Supplemental Material found at: doi:10.1016/j.jval.2011.05.014).

A higher proportion of uninsured patients were not receiving antidepressants compared to insured patients (74% vs. 44%; $P = 0.006$). The proportion of patients not treated with anticholinesterase inhibitors was similarly high among uninsured and insured (92% vs. 94%; $P = 0.76$). Eighty-one percent of uninsured patients and 89% of insured patients were not receiving neuroleptics, whereas 45% of uninsured patients and 34% of insured patients were not receiving hypnotics.

A logistic regression model indicated that patients without insurance had 7.12 (95% confidence interval 1.88–26.86) higher odds of not being prescribed an antidepressant compared to patients with insurance (Table 2 in Supplemental Material found at: doi:10.1016/j.jval.2011.05.014). No other point estimate reached statistical significance. Increasing age and more comorbidities were associated with higher odds of not receiving treatment whereas more years of schooling, diagnosis other than subsyndromal depression, and higher BDI were associated with lower odds of not receiving treatment.

No health care insurance was also associated with higher odds of not being prescribed neuroleptics or hypnotics and with lower odds of being prescribed anticholinesterase inhibitors, although the results were not statistically significant. Older age was associated with higher odds of not being prescribed hypnotics and lower odds of not being prescribed anticholinesterase inhibitors. More years of education were associated with lower odds of not being prescribed neuroleptics, hypnotics or anticholinesterase inhibitors (and it was the only statistically significant finding for this endpoint). Higher BDI was associated with lower odds of not receiving neuroleptics or hipnotics. A higher MMSE score was associated with lower odds of being prescribed an anticholinesterase inhibitor.

Conclusions

The associations between insurance status and pharmacologic treatment for depression in a clinic in Buenos Aires were investigated. To our knowledge, this is the one of the first reports about this topic in South America. Previously, a study in Botucatu, Brazil [14], showed that patients earning less than the minimum wage had five times the odds of not receiving antidepressants compared to people earning more than four times the minimum wage, even though essential medicines were in principle accessible to all socioeconomic strata. In a multivariable model that accounted for demographic and clinical factors uninsured patients had 7.12 higher odds of not receiving antidepressant therapy, and the result was statistically significant. This association was more important than the lower odds of receiving treatment resulting from varying patient age from 59 to 74 years or from the effect of being a subsindromal patient compared to any other diagnosis (Fig. 1 in Supplemental Material found at: doi:10.1016/j.jval.2011.05.014). The mean annual treatment rate for chil-

Author's personal copy

dren and adolescent with depression in the United States was approximately half the rate of insured children [5]. The relative treatment proportions reported in this study are of similar magnitude. Although comparability is impaired by different endpoints and settings, this odds ratio of 7.12 is similar to the odds ratio for reporting cost-related non adherence for uninsured patients [27] and lower than the odds in the city of Botucatu [14]. Even if not statistically significant, other associations had the expected direction. Older patients and those with more comorbidities had higher odds of not receiving antidepressant treatment, which may be due to the complexity of dealing with several conditions. Low treatment rates for older patients have been reported in Latin America [28]. Patients with a higher BDI (more severe depression) had lower odds of not being treated and patients with subsindromal depression had higher odds of not being treated. More educated patients had lower odds of not being treated. This may be a related to higher likelihood of insurance, higher income, or more health-oriented behavior. This study had some limitations. Sample sizes were small but in contrast to a bigger sample of a single subsystem, this cohort had a variety of exposure to different insurance status. Selection bias was present. Representativeness of the city of Buenos Aires or beyond may be in doubt even for the studied age group. It was not possible to estimate the same relationships regarding nonpharmacologic treatment for depression. Confounding bias may have affected the findings. Some of the differences may be due to observed or unobserved patient imbalances; however, it is unlikely that unobserved confounders would change such a strong relationship between lack of insurance and lack of antidepressant treatment. Finally, limitations arise from the cross-sectional design. Depression history was not assessed. In the extreme, if all uninsured cases were detected at the clinic and the insured depressive cases were already diagnosed, higher treatment rates may be explained by the higher depression diagnosis rate for insured patients. This may dilute part of the association but it is unlikely that all of the association observed would be due to this. This was probably not the first interaction with the health care system for the uninsured patients in this study, because these patients were referred to the clinic. There were also some imbalances in the type of depression but these seem to be in a direction that would favour more treatment in the uninsured group, because a higher proportion of patients had major depression, although this was balanced with a higher proportion of insured patients with dysthymia. Measurement bias leading to misclassification may have occurred for medication use if patients reported no use of medication but they dropped out of current treatment or were not adherent to it. It is unlikely that such bias would greatly affect the main finding, given its numerical strength.

Interventions to enhance access and improve outcomes for patients with depression can succeed. A primary care program designed for low-income women in Chile showed its effectiveness and efficiency [11–12]. In the past 20 years, Brazil has made important progress toward ensuring appropriate mental health care, including enhanced access to essential psychotropic medication [29]. There is a need to monitor such policies to evaluate their effects and detect remaining access gaps.

Lack of insurance with comprehensive pharmaceutical coverage was associated with much higher odds of not receiving pharmacologic treatment for depression in a cohort in Buenos Aires. Future studies should explore this relationship in larger samples with broader geographical scope, and into other areas of medical care.

Supplemental Materials

Supplemental material accompanying this article can be found in the online version as a hyperlink at doi: 10.1016/j.jval.2011.05.014 or if hard copy of article, at www.valueinhealthjournal.com/issues (select volume, issue, and article).

REFERENCES

[1] Murray CJ, Lopez AD. Alternative projections of mortality and disability by cause 1990–2020: Global Burden of Disease Study. Lancet 1997;349:1498–504.
[2] Luppa M, Heinrich S, Angermeyer MC, et al. Cost-of-illness studies of depression: a systematic review. J Affect Disord 2007;98:29–43.
[3] Scazufca M, Menezes PR, Almeida OP. Caregiver burden in an elderly population with depression in Sao Paulo, Brazil. Soc Psychiatry Psychiatr Epidemiol 2002;37:416–22.
[4] Simon GE, Fleck M, Lucas R, Bushnell DM. Prevalence and predictors of depression treatment in an international primary care study. Am J Psychiatry 2004;161:1626–34.
[5] Olfson M, Gameroff MJ, Marcus SC, Waslick BD. Outpatient treatment of child and adolescent depression in the United States. Arch Gen Psychiatry 2003;60:1236–42.
[6] Cavagnero E. Health sector reforms in Argentina and the performance of the health financing system. Health Policy 2008;88:88–99.
[7] Homedes N, Ugalde A. Improving access to pharmaceuticals in Brazil and Argentina. Health Policy Plan 2006;21:123–31.
[8] Maurer J. Assessing horizontal equity in medication treatment among elderly Mexicans: which socioeconomic determinants matter most? Health Econ 2008;17:1153–69.
[9] Sesma-Vazquez S, Perez-Rico R, Sosa-Manzano CL, Gomez-Dantes O. [Catastrophic health expenditures in Mexico: magnitude, distribution and determinants]. Salud Publica Mex 2005;47(Suppl. 1):S37–46.
[10] Arrivillaga M, Ross M, Useche B, et al. Social position, gender role, and treatment adherence among Colombian women living with HIV/AIDS: social determinants of health approach. Rev Panam Salud Publica 2009;26:502–10.
[11] Araya R, Flynn T, Rojas G, Fritsch R, Simon G. Cost-effectiveness of a primary care treatment program for depression in low-income women in Santiago, Chile. Am J Psychiatry 2006;163:1379–87.
[12] Araya R, Rojas G, Fritsch R, et al. Treating depression in primary care in low-income women in Santiago, Chile: a randomised controlled trial. Lancet 2003;361:995–1000.
[13] Arredondo A, Ramos R, Zuniga A. [Economic evaluation of the demand of medical care for mental health in Mexico: schizophrenia and depression, 1996-2000]. Rev Invest Clin. 2003;55:43–50.
[14] Lima MC, Menezes PR, Carandina L, et al. [Common mental disorders and the use of psychoactive drugs: the impact of socioeconomic conditions]. Rev Saude Publica 2008;42:717–23.
[15] Allegri RF, Butman J, Arizaga RL, et al. Economic impact of dementia in developing countries: an evaluation of costs of Alzheimer-type dementia in Argentina. Int Psychogeriatr. 2007;19:705–18.
[16] Machnicki G, Allegri RF, Dillon C, et al. Cognitive, functional and behavioral factors associated with the burden of caring for geriatric patients with cognitive impairment or depression: evidence from a South American sample. Int J Geriatr Psychiatry 2009;24:382–9.
[17] Diagnostic and Statistical Manual of Mental Disorders. (4th ed.). Washington, DC: American Psychiatric Association, 2000.
[18] ICD 10-Internacional Codification of Diseases. (10th ed.). Geneva: World Health Organization, 1990.
[19] Wing JK, Babor T, Brugha T, et al. SCAN. Schedules for clinical assessment in neuropsychiatry. Arch Gen Psychiatry 1990;47:589–93.
[20] Hughes CP, Berg L, Danziger WL, et al. A new clinical scale for the staging of dementia. Br J Psychiatry 1982;140:566–72.
[21] Hamilton M. Rating depressive patients. J Clin Psychiatry 1980;41:21–4.
[22] ICH Guidelines. 2005. Available from: http://www.ich.org/cache/compo/276-254-1.html. [Accessed August 14, 2010].
[23] WMA Declaration of Helsinki. 2008. Available from: http://www.wma.net/en/30publications/10policies/b3/index.html. [Accessed August 14, 2010].
[24] Steer RA, Ball R, Ranieri WF, Beck AT. Dimensions of the Beck Depression Inventory-II in clinically depressed outpatients. J Clin Psychol 1999;55:117–28.
[25] Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 1975;12:189–98.
[26] R: A language and environment for statistical computing. Available from: http://www.R-project.org. [Accessed August 14, 2010].
[27] Kennedy J, Morgan S. Cost-related prescription nonadherence in the United States and Canada: a system-level comparison using the 2007 International Health Policy Survey in Seven Countries. Clin Ther 2009; 31:213–9.
[28] Guerra M, Ferri CP, Sosa AL, et al. Late-life depression in Peru, Mexico and Venezuela: the 10/66 population-based study. Br J Psychiatry 2009; 195:510–5.
[29] Jacob KS, Sharan P, Mirza I, et al. Mental health systems in countries: where are we now? Lancet 2007;370:1061–77.