

Inequities in Medical Follow-Up for Depression: A Population-Based Study in Montreal

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Objectives: The aim of this study was to measure the quality of medical follow-up of depression in a universal-access health care system and identify its main correlates. **Methods:** This retrospective cohort study of adult patients who received diagnoses of depression between April 2003 and March 2005 in Montreal used administrative data to measure the quality of medical follow-up within the first three months of diagnosis. Indicators of adequate follow-up care included having at least one outpatient visit to a family physician or a psychiatrist, the first follow-up visit within 30 days of diagnosis, more than half of follow-up visits with the same physician, and at least three follow-up visits. **Results:** During the study period, 41,375 Montrealers aged 18 and older received a new diagnosis of depression. Among those, 90% (N=37,071) had at least one visit with a physician (family practitioner or psychiatrist) within the first three months of diagnosis, 59% (N=24,295) benefited from continuity with their usual provider, 50% (N=20,846) received a prompt follow-up visit, and 48% (N=19,819) had optimal contacts with practitioners. Medical follow-up was less adequate for older patients, male patients, patients living in very deprived neighborhoods, and patients with high morbidity levels. The quality of medical follow-up was better when both a family physician and a psychiatrist were involved. **Conclusions:** The results suggest that universal access facilitates optimal practitioner contacts during the acute treatment phase of depression. However, despite universal access, the findings revealed that some inequities persist. (*Psychiatric Services* 61:258–263, 2010)

Each year, approximately 8% of Canadians experience an episode of major depression (1). Without treatment, depression can lead to severe disabilities and an in-

creased risk of death (2). A rapid, sustained, and appropriate medical response is required to properly treat depression, particularly in the acute phase of treatment, which is the first

three months after diagnosis (3–5). We lack data on the quality of medical treatment provided to Canadians suffering from depression. The data that exist are based on cross-sectional self-report surveys and subject to self-reporting bias, diagnostic uncertainties, and the inability to establish a time sequence in health service utilization (6,7). There is a critical need for better assessment of the quality of medical follow-up provided to people with depression in order to determine where changes are most needed.

Our study used administrative data to evaluate the adequacy of practitioner contacts in the three months after the onset of a new episode of depression. Our cohort was large (N=41,375) and included all patients who received medical services in the Montreal region, an urban center comparable in size to other large Canadian cities, such as Toronto and Vancouver. In Montreal, services available to persons with depression have several components. In addition to the care provided by physicians—both primary care physicians and psychiatrists—persons can also receive mental health services from professionals who are not physicians, such as psychologists, psychiatric nurses, or social workers. In Montreal, physicians work in a variety of settings; the region has 20 hospitals, more than 400 medical private offices, and 12 health and social services centers. All the services provided by physicians are covered by universal-access health care insur-

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ance. Mental health services from nonphysician professionals that are delivered in hospitals or in health and social services centers are also universally covered, but waiting lists often hinder access. People can receive treatment from psychologists or social workers in private practices, but they will have to pay for those services if they do not have private insurance to cover those fees.

Previous studies examined the care provided for depression in various organizational models in the United States, where medical coverage depends on sociodemographic characteristics such as employment status or income. Such models include Medicaid, health maintenance organizations, the Veterans Health Administration, and the private sector. This study was based on data from a Canadian population, which benefits from a universal health care system that provides access to all medical and hospital services without copayments. All citizens receive the same health coverage. In the United States, the quality of depression management varies from one organizational model to the next; for example, the private sector usually provides better management than the Medicaid system (8). Because the Canadian system provides universal coverage, such socioeconomic disparities should not occur. To our knowledge this is the first study to have used administrative databases to examine this issue.

Four recognized indicators were used to assess the quality of medical follow-up: occurrence of follow-up, promptness of follow-up, continuity of follow-up by usual provider, and optimal frequency of practitioner contacts (8,9). In contrast to previous U.S. studies that used pharmaceutical databases to produce quality indicators of effective acute-phase treatment based on an adequate duration of antidepressant prescriptions (8–12), our administrative database for drug prescriptions was incomplete; the public drug insurance program does not cover the entire population. It covers only individuals aged 65 and older, recipients of social assistance (welfare recipients), and workers and their families (participants) who do not have access to

private insurance. For this reason we focused on medical follow-up, which is a crucial dimension of quality in the care provided for depression (6). We had two objectives: to determine the quality of medical follow-up for depression in a universal access health care system and to identify the main correlates of quality of medical follow-up, including patient characteristics (sex, age, socioeconomic status, and comorbidity profile) and the type of physician involved (provider specialty).

Methods

Study design and data sources

This was a retrospective cohort study of adults living in the Montreal area of Quebec. We obtained denormalized person-level variables from two sources: the database of physician claims for payment made to the Régie de l'Assurance maladie du Québec (RAMQ) and the Med-Echo database of hospital discharge information. These two databases have complete medical records of all Montreal residents who are aged 18 and older. The study was approved by the Commission d'Accès à l'information du Québec and the Centre hospitalier de l'Université de Montréal Ethics Board.

Case selection

The study sample came from the population of all residents in the Montreal administrative region who were 18 or older and who had consulted a physician at least once between April 2003 and March 2005. This population consisted of 1,972,529 individuals. The following inclusion criteria were used to identify patients who had experienced a new episode of depression: one inpatient or two outpatient visits with a primary diagnosis of depression according to the ICD-9 (codes 296.2–296.6, 300.4, 308, 309, and 311.9) and a six-month period free of any diagnosis of depression before the first visit with a depression diagnosis (the index visit). To prevent false positives, a confirmation visit was required in which depression was diagnosed in an outpatient visit (10). This requirement was essential because we lacked information on the use of antidepressants. We did not

use the prescription drug database of the RAMQ because it does not cover the entire population of the Montreal region. Individuals whose consultations with a physician led to a diagnosis of schizophrenia (ICD-9 codes 295.00–295.95) during the study period were excluded.

Measures

Dependent variables. Quality of medical follow-up was measured during the first three months after the index visit; this is the acute treatment phase of depression (8). Four indicators of quality were used. Occurrence of follow-up was considered adequate if the patient had at least one outpatient visit to a family physician or a psychiatrist in the acute phase. Promptness of follow-up was considered adequate if the first follow-up visit occurred within 30 days of the depression diagnosis (9). Continuity with usual provider was considered adequate when more than half of a patient's outpatient visits were with the same physician (9,13). Frequency of practitioner contacts was considered optimal when at least three follow-up visits occurred in the three-month acute phase (8).

Independent variables. The cohort was divided into two age groups: those under 65 years and those 65 years of age or older. Socioeconomic status was assessed with postal codes to estimate neighborhood socioeconomic status and to assign a material deprivation index rating. The index spanned five categories, from 1, for very low deprivation, to 5, for very high deprivation (14). Disease burden was measured in the year before the index visit with the use of the resource utilization band (RUB) of the Johns Hopkins adjusted medical group case-mix system. The RUB assigns each individual to one of five morbidity levels according to type of disease and quantity of resources used (15). Given the importance of psychiatric comorbidities for mental health service utilization, psychiatric comorbidity was measured separately by classifying each patient into one of four groups: anxiety disorder, indicated by the presence of one inpatient or two outpatient ICD-9 codes among 300.0–300.9, except

Table 1

Population characteristics of 41,375 Montrealers newly diagnosed as having depression

| Characteristic | N | % |
|---|--------|------|
| Age | | |
| <35 | 12,567 | 30.4 |
| 35–49 | 15,756 | 38.1 |
| 50–64 | 9,416 | 22.8 |
| 65–79 | 2,560 | 6.2 |
| ≥80 | 1,076 | 2.6 |
| Male | 15,655 | 37.8 |
| Material deprivation ^a | | |
| Very high | 7,031 | 17.0 |
| High | 7,204 | 17.5 |
| Medium | 7,375 | 17.9 |
| Low | 8,252 | 20.0 |
| Very low | 11,414 | 27.7 |
| General medical comorbidity levels | | |
| Healthy | 4,883 | 11.8 |
| Low | 7,571 | 18.3 |
| Moderate | 23,367 | 56.5 |
| High | 4,096 | 9.9 |
| Very high | 1,458 | 3.5 |
| Psychiatric comorbidity | | |
| Anxiety disorder | 4,635 | 11.2 |
| Substance use disorder | 552 | 1.3 |
| Anxiety disorder and substance use disorder | 171 | .4 |
| Neither anxiety nor substance use disorder | 36,017 | 87.1 |

^a N=41,276

300.8; substance use disorder, indicated by presence of one inpatient or two outpatient *ICD-9* codes among 291, 292.1–292.9, 303, 304,

305.0, and 305.2–305.7; comorbid anxiety disorder and substance use disorder; and none, meaning that no *ICD-9* codes were present for anxi-

ety disorder or substance use. Three mutually exclusive categories were used for follow-up provider's specialty: family physician only, psychiatrist only, and both family physician and psychiatrist.

Statistical analysis

The four binomial categorical outcome variables (occurrence of follow-up, promptness of follow-up, continuity with usual provider, and optimal frequency of contacts) were analyzed in separate binary logistic regressions. Chi square tests were used to compare proportions. The significance level was set at .05 and tested with two-tailed tests.

Results

Population characteristics

Between April 2003 and March 2005, a total of 41,375 Montrealers aged 18 years or older received a new diagnosis of depression. This represents 2.1% of the eligible population (N=1,972,529). Table 1 provides a profile of the population. The newly depressed population consisted mainly of women (62.2%), and the mean age of persons with depression was 43.6±14.9. Only 12.9% of the newly depressed population had a comorbid psychiatric diagnosis in the year before the depression diagnosis, whereas 13.4% had a high or very high burden of general medical disease.

Health service utilization

Table 2 indicates the services used in the first three months of the index visit. A large majority (79.8%) of patients newly diagnosed as depressed consulted a family physician during the acute treatment phase, whereas only 23.4% met with a psychiatrist. Nearly one patient in ten (10.4%) did not have a follow-up visit during this period. Less than a third (N=12,839; 31.0%) of the sample received a follow-up that satisfied all four quality criteria.

Predictors of follow-up quality

As shown in Table 3, several patient characteristics were significantly associated with quality indicators. Age was inversely associated with the likelihood of adequate medical follow-up on all four measures, whereas male gender was associated with a lower

Table 2

Health service utilization during the acute treatment phase of 41,375 Montrealers newly diagnosed as having depression

| Service utilization | N | % |
|---|--------|------|
| Family physician visits | | |
| 0 | 8,354 | 20.2 |
| 1 | 9,162 | 22.1 |
| 2 | 8,504 | 20.6 |
| ≥3 | 15,355 | 37.1 |
| Psychiatrist visits | | |
| 0 | 31,703 | 76.6 |
| 1 | 3,852 | 9.3 |
| 2 | 1,981 | 4.8 |
| ≥3 | 3,839 | 9.3 |
| Type of provider consulted during follow-up | | |
| Family physician alone | 27,399 | 66.2 |
| Psychiatrist alone | 4,050 | 9.8 |
| Both family physician and psychiatrist | 5,622 | 13.6 |
| Neither family physician nor psychiatrist | 4,304 | 10.4 |
| Quality indicator met | | |
| Occurrence of follow-up | 37,071 | 89.6 |
| Continuity with usual provider ^a | 24,295 | 58.7 |
| Prompt follow-up | 20,846 | 50.4 |
| Optimal practitioner contacts | 19,819 | 47.9 |

^a N=40,606

Table 3

Predictors of quality of follow-up among 41,375 Montrealers newly diagnosed as having depression, by binary logistic regression analysis

| Covariate | Occurrence of follow-up (N=41,375) | | Continuity with usual provider (N=37,071) | | Promptness (N=37,071) | | Optimal contacts (N=37,071) | |
|--|------------------------------------|-----------|---|-----------|-----------------------|-----------|-----------------------------|-----------|
| | OR | 95% CI | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| Age ≥65 (reference: <65) | .69** | .62–.76 | .88* | .82–.96 | .69** | .64–.74 | .71** | .65–.76 |
| Male (reference: female) | .60** | .56–.64 | .87** | .83–.91 | .98 | .94–1.02 | .88** | .84–.92 |
| Socioeconomic status (reference: medium deprivation) | | | | | | | | |
| Very high deprivation | .75** | .69–.82 | .92* | .87–.98 | .98 | .92–1.03 | .96 | .91–1.02 |
| Very low deprivation | .86** | .80–.93 | .95 | .91–1.00 | .96 | .92–1.01 | .90* | .85–.94 |
| High or very high levels of general medical comorbidity (reference: healthy, low, or moderate) | .76** | .70–.84 | .95 | .89–1.02 | .78 | .73–.83 | 1.17** | 1.09–1.25 |
| Psychiatric comorbidity (reference: none) | | | | | | | | |
| Anxiety disorder | 1.96** | 1.72–2.22 | 1.20** | 1.12–1.29 | .75** | .71–.80 | 1.25** | 1.17–1.34 |
| Substance use disorder | .72* | .57–.90 | .88 | .72–1.07 | .77* | .64–.93 | 1.30* | 1.06–1.59 |
| Anxiety disorder and substance use disorder | 1.12 | .70–1.78 | .97 | .69–1.36 | .51** | .37–.72 | 1.69* | 1.17–2.44 |
| Providers involved in follow-up (reference: family physician only) | | | | | | | | |
| Psychiatrist only | | | .93 | .87–.99 | .87** | .81–.93 | .91* | .85–.97 |
| Family physician and psychiatrist | | | 1.85** | 1.73–1.98 | 1.19** | 1.13–1.27 | 6.21** | 5.74–6.71 |

*p<.05

**p<.01

likelihood of meeting three of the criteria (with the exception of promptness). Surprisingly, very high and very low material deprivation levels were associated with a lower likelihood of follow-up. Patients living in a very deprived neighborhood were also less likely to have continuity with a usual provider, and those living in neighborhoods of high socioeconomic status were less likely to have optimal frequency of practitioner contacts. High to very high levels of general medical comorbidity as well as substance use disorder were associated with a lower likelihood of receiving a follow-up and receiving a follow-up promptly, but they were associated with a greater likelihood of optimal contact frequency. Conversely, comorbid anxiety disorder was associated with adequate follow-up on three of the four indicators (except promptness). The specialty of the providers involved in the follow-up was an important predictor of quality. Compared with family-physician-only follow-up, psychiatrist-only follow-up was less likely to be prompt and of optimal frequency. However, the quality of the medical follow-up was better when both a family physician and a psychiatrist were involved.

Discussion

The quality of medical follow-up is a key aspect of treatment of depression (6). Our study found that 90% of patients newly diagnosed as having depression received some kind of follow-up during the acute phase of depression treatment, but less than one-third (31.0%) received follow-up care that satisfied all four quality criteria (occurrence of follow-up, promptness of follow-up, continuity with the usual provider, and optimal frequency of practitioner contacts). This latter finding is lower than the percentage described by Duhoux and colleagues (6), whose study was based on data from the Canadian Community Health Survey, Cycle 1.2: Mental Health and Well-Being (CCHS 1.2). They reported that 71.1% of patients with a major depressive disorder self-reported receiving at least four visits for mental health reasons in the previous 12 months. The discrepancy with our results may be at least partially explained by the fact that our study assessed the optimal number of contacts over a much shorter period (the first three months after the diagnosis) and used an objective measure of contacts rather

than self-report. In addition, the CCHS 1.2 data do not indicate whether these visits followed or preceded the diagnosis. Finally, as in all studies based on an analysis of administrative databases, our sample excluded the significant proportion of depressed patients who are not detected by primary care physicians or psychiatrists, whereas cross-sectional population surveys usually include them.

In this study, the indicator for optimal practitioner contacts was the same as the one used to evaluate the quality of care provided for depression in the United States by the Health Care Effectiveness Data and Information Set (HEDIS) of the National Committee for Quality Assurance. With this indicator, marked differences were observed between the Canadian data and the U.S. data; in our Montreal sample, 47.9% of participants had at least three physician visits in the 12-week acute treatment phase, and this was the case for only 20.0% of U.S. patients with private insurance, 11.4% in the Medicare system, and 21.3% in the Medicaid system. This difference likely reflects the fact that access to medical services is easier in Canada because finan-

cial barriers are lower. People with depression can visit a physician as often as they choose and without any fees. The difference could also be partially explained by the fact that our sample included people newly diagnosed as having depression but not necessarily being treated with antidepressant medication, as in the HEDIS study. It is possible that the physicians preferred seeing patients again before prescribing an antidepressant or that patients were seen on a walk-in basis and the physician, not knowing them, preferred to wait before writing a prescription.

Our data show that most patients who received a diagnosis of depression received their follow-up solely from a family physician. This finding confirms the key role played by family physicians in the treatment of mental disorders seen in primary care (16). In contrast to the findings of U.S. studies (17), we found that individuals treated solely by family physicians received better follow-up than those treated solely by psychiatrists. However, it would appear that a follow-up performed jointly by a family physician and a psychiatrist is the optimal solution. Through an examination of the services received by an entire population of patients with newly diagnosed depression, this study adds to the evidence from randomized clinical trials that collaborative care provides better-quality treatment of depression and may provide better health outcomes for patients (18). However, our findings also confirm what many observers already suspected: this type of collaboration is rare in practice, because only 13.6% of patients in the Montreal region with a new episode of depression benefited from collaborative care. It would be helpful in understanding the added value of collaborative care if future population-based studies were able to include data on processes of care (referral, communication, and collaboration).

Our findings reinforce the results of previous studies that have found poor depression treatment among elderly patients (19,20) and men (21). The elderly population and men tend to be more fearful of being stigmatized because of their depression (22–24) and are less likely to consult a

physician for a mental health problem (25–27). This fear of social stigma may lead them to reject a diagnosis of depression and the recommended medical follow-up. Given that the suicide rate for men is three times that for women (28) and that the rate of suicide in the elderly population has risen alarmingly (29), the poorer quality of follow-up for depression in these groups is cause for considerable concern. More proactive strategies, such as telephone follow-ups and house calls, should be pursued when a patient does not appear at a follow-up visit after having received a diagnosis of depression. On the other hand, it is also possible that individuals aged 18–64 receive more intensive treatment for depression because it has a negative impact on their work and productivity. It is imperative that workers on sick leave meet with their physician on a regular basis so that they can have their leave extended (this is not the case for people who are retired). Finally, because elderly persons are more likely than younger persons to be dealing with chronic physical diseases, their family physicians must juggle competing priorities, which could lead them to treat the other diseases of their elderly patients at the expense of adequate treatment for depression (30). Managing depression in the context of general medical comorbidity can be very challenging. This could explain why we found that patients with a high or very high level of general medical comorbidity were less likely to receive a first appointment and to receive it promptly.

On the other hand, we found that people living in neighborhoods characterized by great deprivation were less likely to have received follow-up treatment or to have benefited from continuity with their usual provider. The fact that socioeconomically disadvantaged persons are less likely to have a regular source of care from a family physician (31) could explain at least part of this result. In Canada, 25% of the population aged 12 and older does not have a family physician (32), so these persons are obliged to seek care at walk-in clinics and emergency departments. Receiving follow-up care is probably more difficult for

patients who lack a regular source of primary care. A recent study has shown that persons with untreated depression were 1.55 times more likely than nondepressed persons to be without a usual source of care (33). According to Menec and colleagues (34), “Having a long-term relationship with a single physician makes a difference even in a universal health care system.” As a result, one way to reduce the inequities in medical follow-up for depression would be to ensure that the entire population, particularly socioeconomically disadvantaged members of society, benefits from the care of a physician whom patients can see regularly.

Surprisingly, we observed that persons in socioeconomically advantaged neighborhoods were also less likely to receive a medical follow-up for depression and less likely to have an optimal number of visits. It is possible that higher-income persons are more likely to turn to psychotherapy as treatment for their depression rather than pursue a medical follow-up. The literature suggests that socioeconomically advantaged persons use more specialized mental health services than disadvantaged persons and report fewer barriers to these kinds of resources (35). In Quebec, the services of psychologists and other psychotherapists are usually not covered under the universal health care system and, therefore, are not free of charge to the patient (36). Psychotherapy is covered when it is provided at government-funded mental health centers (community health clinics and outpatient psychiatric clinics), but there are waiting lists and priority is given to the more serious cases. Private psychotherapy services are therefore very popular, and it is easier for wealthier patients than low-income patients to pay the cost of such services. The lack of valid administrative data on consultations with non-physician professionals prevented us from testing this hypothesis.

We could not measure the entire spectrum of follow-up care for depression because we did not have information about prescriptions for antidepressants (type, dose, or duration). It is always possible that, despite otherwise good-quality medical

follow-up, some patients did not receive effective treatment for their depression. Future studies should examine the link between the quality of the follow-up provided and the effectiveness of the care received in terms of improvement in depression. Second, the use of other health professionals, such as psychologists, nurses, and social workers, is an important aspect of treatment for depression that has not been documented in this study. Finally, although administrative databases document the frequency of medical visits, they do not provide any information on the types of services provided during these visits.

Conclusions

Our results suggest that universal access to health care provides better optimal practitioner contacts during the acute treatment phase of depression. However, despite universal access, our study has revealed that some inequities persist based on age and sex, with elderly persons and men being less likely to receive adequate follow-up.

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The authors report no competing interests.

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