Effectiveness of an educational strategy to improve family physicians' detection and management of depression: a randomized controlled trial

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Abstract

Background: Depression, a common disorder often treated by family physicians, may be both underdiagnosed and undertreated. The objective of this study was to determine whether the diagnosis and treatment of depression by family physicians could be improved through an educational strategy.

Methods: In this study, conducted between July and December 1997, 42 family physicians in Newfoundland were randomly assigned to an intervention group (3-hour case-based educational session on clinical practice guidelines [CPGs] for depression and access to a psychiatrist for consultation) or to a control group (receipt of CPGs without educational session or access to the psychiatrist). Physicians were asked to keep a log of patients with newly diagnosed depression and to record information on severity of depression, medications and referrals to mental health professionals. Patients were asked to complete the Centre for Epidemiologic Studies Depression (CES-D) scale before treatment and after 6 months of follow-up. The primary outcome measure was the "gain" score (difference between first and last CES-D scores).

Results: During the study period physicians in the intervention group diagnosed 91 new cases of depression (mean 4.1 per physician) and those in the control group diagnosed 56 (mean 2.8 per physician); the difference was not significant. Most patients (91.2% in the intervention group and 89.3% in the control group received a prescription for an antidepressant on their first visit. Similar proportions (46.2% in the intervention group and 37.5% in the control group) took their medication for the full 6 months; however, significantly more patients in the intervention group were taking an antidepressant at the 6-month follow-up (56% v. 39.3%, $p = 0.02$). The mean number of visits per patient was similar in the 2 groups (7.7 in the intervention group and 7.6 in the control group). Physicians in the intervention group consulted the psychiatrist 9 times. The overall rate of referrals to psychiatrists and other mental health professionals was 10.9%; however, referrals were significantly higher in the intervention group (15.4% v. 3.5%, $p = 0.05$). After 6 months of follow-up, a significant difference in gain scores was detected between the intervention and control groups for both the patient's self-rated CES-D scores (mean gain score 19.3 v. 15.5 respectively, $p = 0.04$) and the physicians' ratings of depression severity before treatment and at 6 months (mean gain 1.1 v. 0.7 respectively, $p = 0.02$).

Interpretation: The educational strategy had a modest beneficial effect on the outcomes of patients with depression, but there are still concerns regarding the low rates of drug treatment and referral to mental health professionals by family physicians.

Depression is a common disorder often treated by family physicians.[1–4] In Canada depression is related to about 60% of suicides[5] and causes an annual loss of 123 000 potential life-years, with an estimated cost of $1.6 billion per year.[6] The annual incidence of major depression is at least 2.5 cases per 1000 primary care patients.[7] According to the 1994–1995 Canadian National Popu-

Evidence

Études

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lation Health Survey, 6% of adults had a major depressive episode in a 1-year period, and only 43% of those affected contacted a health care professional.[8] Given the prevalence of depression and the fact that it often goes unrecognized[9] and untreated,[10] better detection and treatment strategies would be of enormous benefit.[11–13]

Clinical practice guidelines (CPGs) are developed using explicit principles of evidence review.[14,15] However, there is uncertainty concerning the ideal way to introduce guidelines into clinical practice[16] and, once introduced, how effective they actually are.[17] Guidelines are more likely to be effective if they are easily accessible and involve an educational component[18] and if more than one guideline implementation strategy is used.[19] The use of CPGs by physicians may improve patient care,[16] but whether these improvements lead to lasting positive results remains to be determined.[20]

The objective of our study was to assess whether a workshop on CPGs and the provision of follow-up consults with a psychiatrist improved the process of care and outcomes for patients with depression diagnosed by their family physician.

Methods

This study was approved by the Human Investigations Committee of Memorial University of Newfoundland. After a 3-month pilot project, 42 fee-for-service physicians, members of a family practice research network, were recruited. The physicians were assigned to the intervention or control group by the use of random number tables. The design of the randomized controlled trial is depicted in Fig. 1. To avoid possible contamination, only one physician per practice was included in the study, and to avoid cointervention, only one physician in each town was recruited (except St. John's).

Physicians in the intervention group attended a small educational workshop where they were introduced to the CPGs formulated by the Canadian Medical Association for the detection and treatment of depression.[21] Workshops were led by a psychiatrist with a special interest in treating depression in the community (J.A.) and an academic family physician (G.W.) and were attended by physicians in groups of 2–4. The 3-hour session included information on the epidemiology of depression, an explanation of the CPGs and a discussion of prepared cases. Physicians were also invited to discuss their own cases with reference to specific difficulties they had in diagnosing and treating depression. In addition to the workshop, a psychiatrist was readily available for advice on patient management at a specific time each week.

Family physicians in the control group were mailed a copy of the CPGs but were given no specific instructions on their use. They did not attend an educational workshop, and they were not paired with the consulting psychiatrist.

All physicians were asked to keep a log of new cases of depression diagnosed during the study period and were contacted regularly by a research assistant to encourage protocol compliance. The diagnosis was subjective; each patient was rated on a 4-point ordinal scale (4 = severe depression, 1 = absence of depressive symptoms). Physicians were asked to explain the study protocol to each patient, to obtain informed consent from each patient and to recruit them for the 6-month duration of the study.

All patients with depression were treated as usual. If they gave informed consent once the study was explained, they completed the Centre for Epidemiologic Studies Depression (CES-D) scale,[22] a 20-item self-report questionnaire. The threshold score for depression on the CES-D scale is 16. The physician also completed a symptom checklist for each patient. In addition to the 2 major and 7 minor diagnostic criteria listed in the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV),[23] 4 other dummy variables were included in the checklist in random order.

For the 6 months following diagnosis, the physicians recorded the number of office visits during the acute phase (first 3 months) and the continuation phase (3–6 months) of the illness and all information regarding antidepressant medication. Physicians also noted any referrals made to a psychiatrist or other mental health professional.

At the end of the 6-month period, each patient completed the CES-D again and a "gain" score (the difference in score since the first visit) was calculated. This was the primary outcome measure for the study; a higher gain score indicated greater improvement in the patient's condition. Physicians also rated (on the ordinal scale) the patient's condition at this time and a physician gain score was calculated.

Descriptive statistics on age, sex and number of years in practice for each physician, as well as the type (group or solo) and location (urban or rural) of each practice, the age and sex of each patient and end points were compiled. Means were compared using *t*-tests and Fisher's exact tests, and proportions were compared using χ^2 tests. Given the physician sample size, there was enough power to detect a mean difference of 3.6 points in the CES-D gain score, a mean difference of 0.6 in the ordinal gain score and a mean difference of 0.9 in the DSM-IV symptoms recorded by physicians ($\alpha = 0.05$, $\beta = 0.2$). Similarly, assuming a mean of 8 diagnoses (standard deviation [SD] 2.0) per physician, there was power to detect a difference of 1.6 diagnoses.

Results

There were no significant differences between physi-

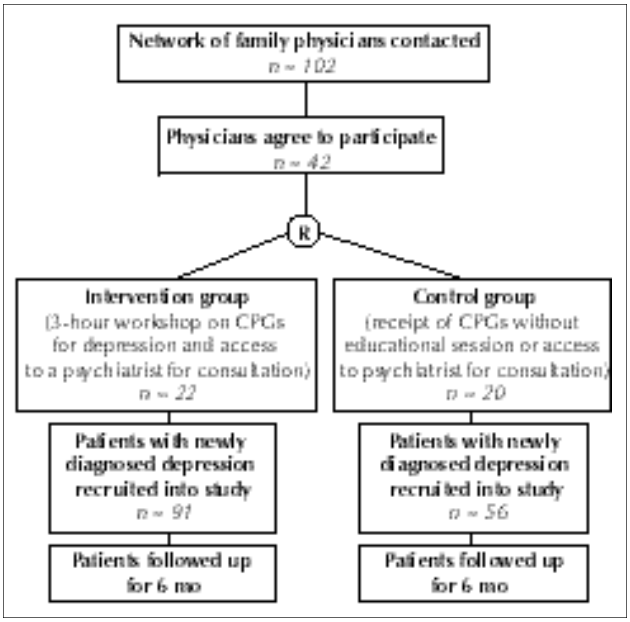

Fig. 1: Design of randomized controlled trial to improve family physicians' use of clinical practice guidelines (CPGs) for the detection and management of depression. R = randomization.

cians in the intervention group (n = 22) and those in the control group (n = 20) in mean number of years in practice or practice location. The number of female patients did not differ between the intervention and the control groups (60 [65.9%] and 43 [76.8%] respectively). The mean age of patients in the intervention group was 43.2 and in the control group, 45.7 (p = 0.03).

Physicians in the intervention group diagnosed 91 new cases of depression (mean 4.1 [SD 3.2] per physician), and those in the control group diagnosed 56 (mean 2.8 [SD 3.6] per physician); the difference was not significant. Using DSM-IV criteria, physicians in the intervention group and the control group correctly diagnosed similar numbers of cases (93.4% and 94.6% respectively). There were no significant differences between physicians in the number of major and minor diagnostic criteria assigned per patient, nor were there differences in the mean number of office visits per patient (Table 1).

Eighty-three (91.2%) of the patients in the intervention group and 50 (89.3%) in the control group were given a prescription for an antidepressant at the first office visit. The proportion of patients in each group who took medication for the full 6 months was similar (46.2% in the intervention group and 37.5% in the control group), but more patients in the intervention group were taking antidepressants at the 6-month follow-up visit (56.0% v. 39.3%, p = 0.02).

The study psychiatrist was consulted by physicians in the intervention group a total of 9 times during the study. Only 8 (5.4%) of the 147 patients were referred to a psychiatrist (6 in the intervention group and 2 in the control group; difference not significant). There were 8 referrals to other mental health professionals, all made by physicians in the intervention group. In total, 14 patients in the intervention group and 2 in the control group were referred elsewhere (p = 0.05).

Before treatment the mean CES-D score for patients did not differ significantly between groups (Table 1). The mean scores at 6 months were lower overall but again did not differ significantly between the 2 groups. However, the resulting mean gain scores for patients in the intervention group were significantly higher than those for patients in the control group (p = 0.04). A significant difference between the 2 groups was also detected in the mean gain scores for physicians' ratings of depression severity (p = 0.02).

Interpretation

The results of our study suggest that it is possible to change physicians' behaviour and improve patient care with a relatively simple educational intervention based on CPGs for managing depression. Significant differences between gain scores calculated from patients' self-ratings and the ratings of physicians indicated that the patients in the intervention group improved more than those in the control group. Gain scores have been used to measure improvement in the psychological condition of patients in other studies as well.[24,25]

There were several nonsignificant but encouraging trends in this study. Similar to the results of others,[24,26]

Table 1: Process and outcome measures of a randomized controlled trial to improve family physicians' use of clinical practice guidelines for the detection and management of depression

Measure	Control group	Intervention group
Process		
Mean no. (and SD) of diagnoses per physician	2.8 (3.6)	4.1 (3.2)
Mean no. (and SD) of DSM-IV criteria used per patient		
Major criteria	1.9 (0.3)	1.9 (0.2)
Minor criteria	4.2 (1.5)	4.6 (1.8)
No. (and %) of correct diagnoses of depression	84 (94.6)	53 (93.4)
Mean no. (and SD) of office visits per patient	4.2 (7.6)	3.6 (7.7)
No. (and %) of patients prescribed an antidepressant on first visit	50 (89.3)	83 (91.2)
No. (and %) of patients who took antidepressant for full 6 mo	21 (37.5)	42 (46.2)
No. (and %) of patients taking medication at 6-mo follow-up	22 (39.3)	51 (56.0)*
No. of referrals to		
Psychiatrist	2	6
Other mental health professional	0	8
Outcome		
Mean patient CES-D score (and SD) at baseline	38.7 (8.1)	37.3 (8.9)
Mean patient CES-D score (and SD) at 6 mo	22.2 (11.7)	19.4 (13.6)
Mean patient CES-D gain score† (and SD)	15.5 (14.8)	19.3 (14.6)*
Mean physician rating (and SD) at baseline	2.7 (0.4)	2.9 (0.5)
Mean physician rating (and SD) at 6 mo	2.0 (0.7)	1.8 (0.7)
Mean physician rating gain score (and SD)	0.7 (0.1)	1.1 (0.1)*

Note: SD = standard deviation, DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition.
*Significant difference between control and intervention group, $p \leq 0.05$.
†Mean gain score is not the exact difference between mean CES-D scores at baseline and at 6 mo because not all patients completed the CES-D at 6 mo.

physicians who received the educational intervention diagnosed depression more often than physicians in the control group. Also in accordance with the results of others,[25–27] a greater proportion of patients in the intervention group took their medication for the duration of the study. It was concerning, however, that 44% of the patients in the intervention group and 61% of those in the control group were not taking antidepressants at the end of the study. We are uncertain why this was the case, but perhaps the type of depression treated by family physicians is of shorter duration and lesser severity than that seen by psychiatrists.[28]

The psychiatrist available to physicians in the intervention group received 9 calls. Although it is rare for a psychiatrist to receive direct calls from family physicians, many of the physicians were pleased to meet the psychiatrist and said that the personal contact reinforced their confidence in dealing with difficult cases of depression.

Strengths of this study included the randomized design, the primary care setting and the attempt to measure not only the process but also the outcome of care. Our study had limitations as well. It is often difficult to assess one's own behaviour without bias; however, we designed the study with outcome variables that we felt would be recorded accurately and validly in the charts. It is also possible that the behaviour of the patients was influenced by the Hawthorne effect — the tendency for subjects to perform better when they know they are being observed. If this was the case, the differences between the groups would have been reduced. Finally, the duration of the study was short; we are following these patients for a longer period to determine whether the beneficial effects of treatment are maintained.

Although patients of physicians in the intervention group benefited, less than half of the patient population remained on antidepressant medication for the full 6 months of the study, and the rate of referral to a psychiatrist was only about 5%. These rates seem low and are areas of concern in the treatment of patients with depression.

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