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Title	The diagnosis of depression and its treatment in Canadian primary care practices: an epidemiological study
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Reviewer 1	**Murray Finkelstein**
Institution	Mt Sinai Hospital, Department of Family and Community Medicine
General comments	I am concerned about "time" issues in this analysis. The title calls this a "cross-sectional" analysis. To borrow the words from Wikipedia, 'Cross-sectional studies (also known as cross-sectional analyses, transversal studies, prevalence study) are one type of observational study that involves data collection from a population, or a representative subset, at one specific point in time.' (Italics theirs). This analysis is definitely not cross-sectional. Your inclusion criteria state that: "All patients... visited... between Jan 1, 2000 to Dec 31, 2012 were included. I take this to mean that a diagnosis of depression recorded any time during this 13-year period was counted. However, in the analysis section you say you examined the prevalence of depression among those who had visited in the last 2 years (Jan 1/10 - Dec 31/12) (THIS IS ACTUALLY 3 YEARS). Now, depression is a relapsing/remitting disorder. Did you count an individual as a case if they had a single diagnosis of depression in 2001? (I suspect that you did). This would count towards lifetime prevalence, but certainly not towards prevalence in 2010-2012 if that individual were no longer depressed. (You call this a 24-month point prevalence in the first paragraph of the Discussion... to me this looks like a 3-year prevalence). So, I think that this paper would be improved by a clearer approach to time issues. This is definitely not a cross-sectional analysis because it covers an extended period of time. For a 3-year prevalence, you need to sort out whether or not your subjects were actually depressed during this 3-year window. Life-time prevalence (to age X) (which is what I suspect you are analyzing) could count any diagnosis of depression to the end of follow-up even if that individual were no longer depressed. Chronic Conditions: Your chronic conditions were collected from 2000 or earlier through 2012. It is possible that some of these were diagnosed before depression had been diagnosed, while some were diagnosed after depression had been diagnosed (and possibly remitted). I think that the time sequence should be clarified. Smoking: Again time issues. Smoking status might have changed between the diagnosis of depression and the end of follow-up. Depression Case Definition: Your algorithm is sensitive and specific for mention of depression in the EMR, but, regrettably, says nothing about the validity of the original diagnosis. Many studies of depression use a validated tool, such as the Ham-D, to make the diagnosis. Here the diagnosis is made, or recorded, by your sentinels. These physicians are unlikely to have similar diagnostic criteria. Many will not have used any "instrument" to make the diagnosis. If the diagnosis was made from the medication list, then this is not specific since some of these meds are used to treat other disorders, such as anxiety.
Reviewer 2	**Jean-Pierre Pellerin**
Institution	Centre Hospitalier de Verdun, Unité de médecine familiale
General comments	Now what will we learned about this work? 1- Depression is less diagnosed in Rural regions. So, the countryside may have a protective effect from depression. 2- Men are less diagnosed than women so the prevalence in women is much higher 3- Smoking and BMI are associated with depression. So, more often, we found depression in people who are smoking (or have quit smoking) or in women which BMI is large. 4- 36.6% of the depressive patients show two or more co-morbidities 5- 85% of the patients received medication most often SSRI. These data be the result of a large data bank realised to give the clinician a picture of an health problem. In fact this data bank does not contain all the variables that a searcher may like to comment but collect data from a large population. In this study, 304,412 patients had an encounter during the last two years and from these 41,274 patients with a depression. Such a large population give information that helped a

	clinician. For example, be more sensitive and proactive for depression in men. --- In page #7, line 28: Medication. We developed... (see Table 2): change Table 2 for Table 1 In page # 8, line 50: There are more men and women who have depression when they also have another chronic condition: precise your idea because it is not what the Table 3 shows: 57.2% of the patients have only depression diagnosis. 42.8% have one or more chronic conditions.
Author response	Reviewer: Dr. Murray Martin Finkelstein, Mt Sinai Hospital Comments to the Author 1. I am concerned about "time" issues in this analysis. The title calls this a "cross-sectional" analysis. To borrow the words from Wikipedia, 'Cross-sectional studies (also known as cross-sectional analyses, transversal studies, prevalence study) are one type of observational study that involves data collection from a population, or a representative subset, at one specific point in time.' (Italics theirs). This analysis is definitely not cross-sectional. Your inclusion criteria state that: "All patients... visited... between Jan 1, 2000 to Dec 31, 2012 were included. I take this to mean that a diagnosis of depression recorded any time during this 13-year period was counted. **Response: There was a typo in the year. We have now corrected this. It now reads: between Jan. 1, 2011 to Dec. 31, 2012.** However, in the analysis section you say you examined the prevalence of depression among those who had visited in the last 2 years (Jan 1/10 - Dec 31/12) (THIS IS ACTUALLY 3 YEARS). Now, depression is a relapsing/remitting disorder. Did you count an individual as a case if they had a single diagnosis of depression in 2001? (I suspect that you did). This would count towards lifetime prevalence, but certainly not towards prevalence in 2010-2012 if that individual were no longer depressed. (You call this a 24-month point prevalence in the first paragraph of the Discussion... to me this looks like a 3-year prevalence). **Response: As you have correctly identified, the 2-year encounter window was used to define the cohort of patients attached to the practices while the prevalence is lifetime prevalence of the diagnosis of depression. This has been clarified throughout the manuscript, particularly in the methods section.** So, I think that this paper would be improved by a clearer approach to time issues. This is definitely not a cross-sectional analysis because it covers an extended period of time. Response: The title has been revised to delete the word cross-sectional. We use the word epidemiological now. For a 3-year prevalence, you need to sort out whether or not your subjects were actually depressed during this 3-year window. Life-time prevalence (to age X) (which is what I suspect you are analyzing) could count any diagnosis of depression to the end of follow-up even if that individual were no longer depressed. **Response: Yes, we are examining life time prevalence.** 2. Chronic Conditions: Your chronic conditions were collected from 2000 or earlier through 2012. It is possible that some of these were diagnosed before depression had been diagnosed, while some were diagnosed after depression had been diagnosed (and possibly remitted). I think that the time sequence should be clarified. **Response: We added a sentence to the limitations section (2nd to last sentence in the limitations paragraph)** 3. Smoking: Again time issues. Smoking status might have changed between the diagnosis of depression and the end of follow-up. **Response: We have clarified that we used the latest recorded patient characteristics (last sentence in the 'Patient Characteristics' section)** 4. Depression Case Definition: Your algorithm is sensitive and specific for mention of depression in the EMR, but, regrettably, says nothing about the validity of the original diagnosis. Many studies of depression use a validated tool, such as the Ham-D, to make the diagnosis. Here the diagnosis is made, or recorded, by your sentinels. These physicians are unlikely to have similar diagnostic criteria. Many will not have used any "instrument" to make the diagnosis. **Response: You are correct; we are capturing physician-diagnosed depression and not validating their diagnosis through the use of a validated tool or psychiatric assessment, etc. Since we are capturing physician diagnosed depression, instead of using "depression" we have revised throughout the manuscript, including the title, the use of "diagnosis of depression".**

	5. If the diagnosis was made from the medication list, then this is not specific since some of these meds are used to treat other disorders, such as anxiety. **Response: We agree with your comment. However, a physician diagnosis of depression was made based on a combination of ICD9 codes and free text searches within the problem list, billing and encounter diagnoses and the medication history (2nd sentence, Depression Case Definition). We had provided a reference [10] to work that was under review (now it has been published) at the time this reviewer provided comments on this manuscript. We have previously undertaken work to validate the diagnosis using a chart review (Williamson T, Green M, Birtwhistle R, et al. (2014) Expanding opportunities for using electronic medical record data: Validation of eight case definitions for chronic disease surveillance in the Canadian Primary Care Sentinel Surveillance Network database. Annals of Family Medicine, 12(4), 367-372.) We added some clarifying text to the 2nd sentence in the Depression Case Definition section.** Reviewer: Dr. Jean-Pierre Pellerin, Centre Hospitalier de Verdun Comments to the Author Now what will we learned about this work? 1- Depression is less diagnosed in rural regions. So, the countryside may have a protective effect from depression. 2- Men are less diagnosed than women so the prevalence in women is much higher 3- Smoking and BMI are associated with depression. So, more often, we found depression in people who are smoking (or have quit smoking) or in women which BMI is large. 4- 36.6% of the depressive patients show two or more co-morbidities 5- 85% of the patients received medication most often SSRI. These data are the result of a large data bank realised to give the clinician a picture of an health problem. In fact this data bank does not contain all the variables that a searcher may like to comment but collect data from a large population. In this study, 304,412 patients had an encounter during the last two years and from these 41,274 patients with a depression. Such a large population give information that helped a clinician. For example, be more sensitive and proactive for depression in men. --- 1. In page #7, line 28: Medication. We developed... (see Table 2): change Table 2 for Table 1 **Response: Thank-you, we have now revised this.** 2. In page # 8, line 50: There are more men and women who have depression when they also have another chronic condition: precise your idea because it is not what the Table 3 shows: 57.2% of the patients have only depression diagnosis. 42.8% have one or more chronic conditions. **Response: We state, "Over half of those with a diagnosis of depression had no other co-morbidities recorded (Table 3) [1st sentence, second paragraph on page 8].**