PROBLEM LIST AND QUESTIONNAIRE USE IN PATIENTS PRESCRIBED MEDICATIONS FOR MAJOR DEPRESSIVE DISORDER AND GENERALIZED ANXIETY DISORDER IN A MULTI-PHYSICIAN FAMILY PRACTICE

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Problem List and Questionnaire Use in Patients Prescribed Medications for Major Depressive Disorder and Generalized Anxiety Disorder in a Multi-Physician Family Practice

Introduction:

According to Statistics Canada, 11.3% and 8.7% of Canadians 15 years of age and older meet criteria for a major depressive episode or Generalized Anxiety Disorder at least once in their lifetime, making these the most common mental health disorders affecting Canadians.[1,2] Most often, people with depression and anxiety seek care at primary health centres, as 90% of patients receive care for depression from family practitioners.[3]

As measures of evaluating and monitoring the severity of MDD and GAD in patients, the PHQ-9 and GAD-7 questionnaires have been shown to be valid and reliable.[4–6] Since they are brief and simple to administer, they can be quite practical and valuable in primary care settings.

In order to improve care in patients with depression and anxiety, the Manitoba Primary Care Quality Indicators Guide includes quality indicators for obtaining a PHQ-9 or GAD-7 assessment at least every 12 months in patients identified as having a diagnosis of MDD or GAD, and either a moderate (≥10) PHQ-9 or GAD-7 score in the past 24 months, or a prescribed medication for one of these conditions in the past 24 months.[7] There are also quality indicators for offering management services (ie. medication or therapy) to these patients every 12 months.[7] An incoming billing code, to be set in place for Manitoba physicians on Sept. 1 2020, will likely follow these quality indicators.

Therefore, with quality improvement in mind, the purpose of this audit was two-fold. First, to document MDD and GAD in the active problem list for those patients of Steinbach Family Medical who were prescribed medications for these conditions between Sept. 1, 2019 and June 1, 2020. Second, this audit aimed to determine the use of depression and anxiety screening tools (PHQ-9 & GAD-7 questionnaires) in these patients.

Methods:

A search was conducted using the analytics search engine in Input Health, the Electronic Medical Record system used by Steinbach Family Medical, in order to identify charts of patients prescribed common antidepressant medications (Sertraline, Citalopram, Escitalopram, Venlafaxine, and Fluoxetine) between September 1, 2019 and June 1, 2020. The search included both generic and trade names of the medications. The search results were then filtered with the qualifier "Does not contain Major Depressive Disorder or Generalized Anxiety Disorder" to determine which of those patients were prescribed medications, but did not have a diagnosis of Major Depressive Disorder (MDD) or Generalized Anxiety Disorder (GAD) in their active problem list.

Each patient chart identified by this search method was reviewed to determine if the patient met the criteria to have MDD and/or GAD added to their problem list. Criteria for adding MDD or GAD to the problem list was based on the Canadian Primary Care Sentinel Surveillance Network's (CPCSSN) working definition of depression, and included:

1. Antidepressant / antianxiety medication prescribed

Plus at least one of the following:

2. Billing code for depression or anxiety
3. Clinical encounter note supports diagnosis
4. PHQ-9 or GAD-7 administered and supports diagnosis (score ≥ 10)

If a patient met these criteria, the diagnosis was manually added to their problem list in the EMR. If the indication for a prescription was unclear and/or the patient's diagnosis was unclear, the family physician of the patient was emailed to clarify.

Charts were also reviewed to determine if PHQ-9/GAD-7 screening tools were ever completed by these patients. The scores and timing of the questionnaires were recorded (prior to or within two weeks of initiating the medication, and at least two weeks after initiating the medication – based on comparing dates of medication prescriptions and questionnaire completion). If multiple questionnaires were completed, both the first score and most recent score identified in the chart were recorded.

Due to the way the search was undertaken, there inevitably were patients found in more than one medication search. These patients would be those who had been prescribed more than one of the antidepressants in our chart search between Sept. 1, 2019 and June 1, 2020. Since we performed the audit one medication at a time, the number of these patients was made evident through rising numbers of patients containing a diagnosis of MDD/GAD, in the medications not yet audited. For example, the number of patients prescribed sertraline who had a diagnosis of MDD/GAD in their chart increased by 21 after auditing the charts in citalopram/escitalopram - ie. before beginning to audit sertraline prescriptions. This was attributed to these patients having been prescribed both citalopram or escitalopram, as well as sertraline. Thus, among these patients, once a diagnosis was added to a chart in the citalopram/escitalopram cohort, a diagnosis was also added to the sertraline cohort. Therefore, these 21 were thought to represent duplicate patient charts, and were excluded from the sertraline cohort so as not to be counted twice.

There were also some, though significantly fewer, patients prescribed more than one of the medications used for the search who did not have a diagnosis of MDD/GAD added to their chart in this audit. These charts would have remained in the other medication cohorts, so these chart IDs were manually identified and eliminated in subsequent medication cohorts to prevent being counted more than once. Any likely duplicate diagnoses were subtracted from the results, in an attempt to prevent inflation of any of the numbers reported in this paper.

It is also possible that some of these diagnoses (ie. the extra 21 in sertraline) could have been added by someone else (presumably the patients' physician), but we do not know how often this may have happened, and we have assumed this number to be negligible due to the relatively short amount of time it took for any one medication cohort to be audited.

Statistics were calculated in Microsoft Excel and Google Spreadsheets.

Results:

Between September 1, 2019 and June 1, 2020, a total of 3,364 prescriptions for the antidepressants citalopram, escitalopram, sertraline, venlafaxine, and fluoxetine were written for patients at SFM (Figure 1, next page).
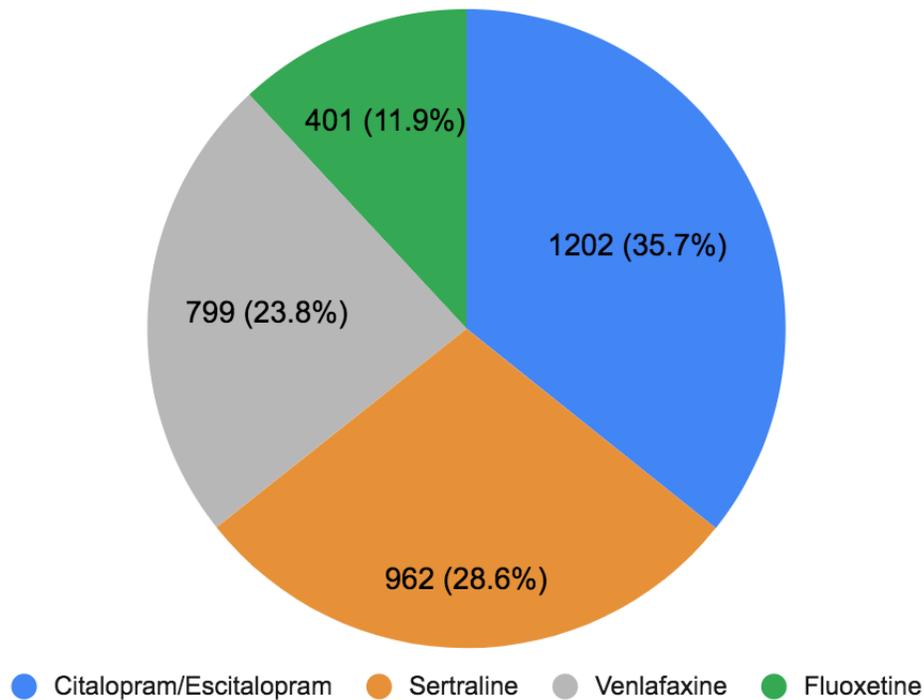
Figure 1. Amounts of different antidepressant medications prescribed at SFM between September 1, 2019 and June 1, 2020. (Absolute values listed, with percentages in brackets)

These prescriptions were given to a total of 1644 patients, 753 (45.8%) of whom had a diagnosis of MDD/GAD already in their problem list and were therefore excluded from the chart audit (Figure 2, next page). A total of 891 (54.2%) patients did not already have a diagnosis of MDD or GAD in their problem list (Figure 2, Table 1, next page); these charts were included in the audit.

Of the patients whose charts were reviewed, 774 patients (86.9%) fit the working definition of depression and/or anxiety and had a diagnosis of MDD and/or GAD added to their problem list (Figure 2). 117 patients (13.1%) did not meet this criteria as they had different reasons for the prescription. The vast majority of these were for alternative mental health diagnoses, while 4 patients had an unclear diagnosis even after emailing their family physicians, and 2 of the patients' prescriptions were charting errors. (Figure 2, Figure 3).

Problem List and Questionnaire Use in Patients Prescribed Medications for Major Depressive Disorder and Generalized Anxiety Disorder in a Multi-Physician Family Practice
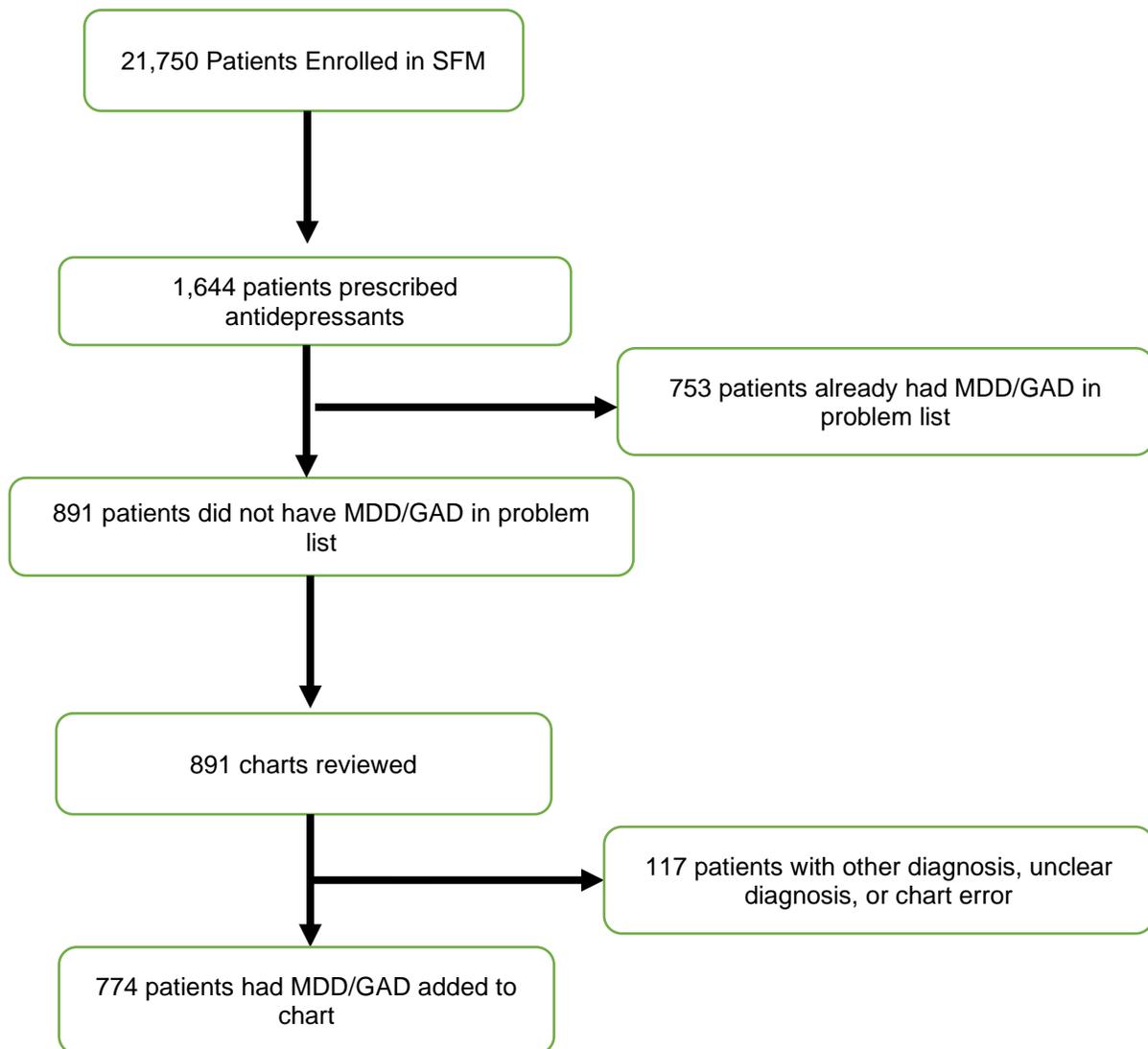

Figure 2. Flowchart of patient charts reviewed

Table 1. Patients with and without MDD/GAD in problem list at start of audit, by medication.

MDD/GAD in problem list	Citalopram/Escit	Sertraline	Venlafaxine	Fluoxetine	Total
Yes	318	164	194	77	**753**
No	418	245	126	102	**891**
Total	736	409	320	179	**1,644**

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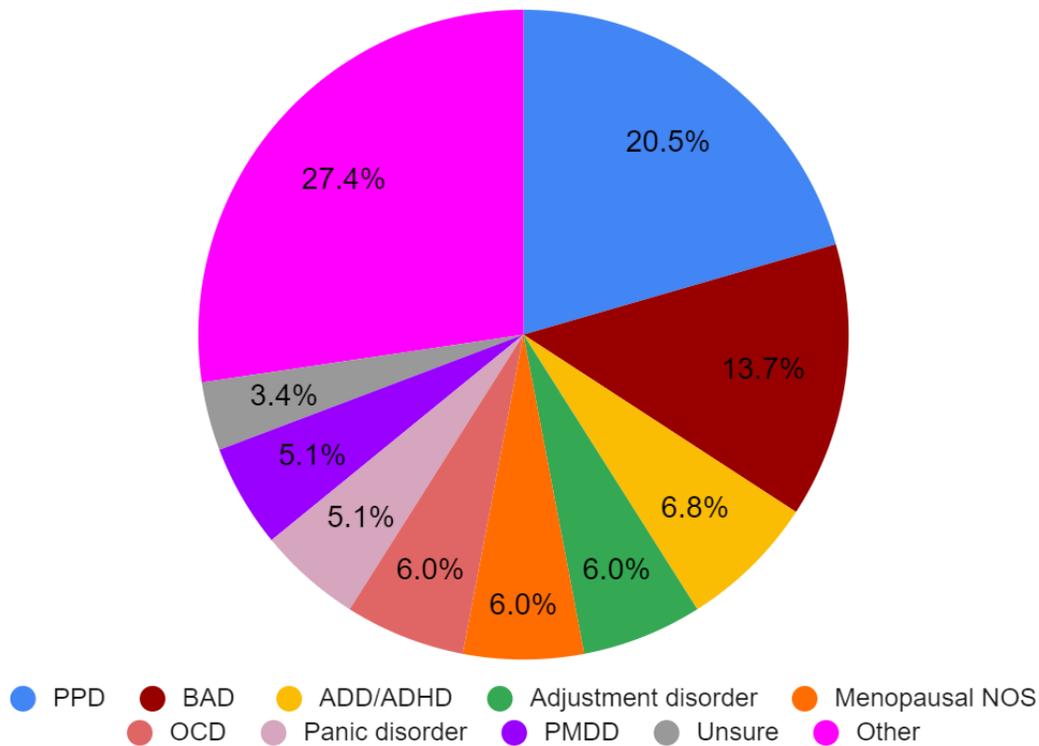

Figure 3. Alternative diagnoses of patients prescribed antidepressants. PPD - Postpartum Depression, BAD - Bipolar Affective Disorder, ADD/ADHD - Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder, NOS - Not Otherwise Specified, OCD - Obsessive Compulsive Disorder, PMDD - Premenstrual Dysphoric Disorder. Unsure indicates patients whose current doctor does not know why they were originally given the medication. Other diagnoses include (in descending prevalence): PTSD (Post-Traumatic Stress Disorder), SAD (Seasonal Affective Disorder), Social Anxiety Disorder, Chronic Pain Syndrome, Migraines, ASD (Autism Spectrum Disorder), Alcohol Use Disorder, Post-Concussion Syndrome, Premature Ejaculation Syndrome, Schizophrenia, Stiff Person Syndrome, Stress Reaction, and Tic Syndrome.

At the end of the audit, of all the patients prescribed antidepressants in the chosen time period, a total of 1,527 out of 1,644 (92.9%) patients had a diagnosis of MDD and/or GAD in their active problem list (Figure 4, next page). The remaining 117 patients (7.1%) did not have a diagnosis of MDD or GAD in their active problem lists. This includes the aforementioned patients with alternative mental health diagnoses, patients with unsure diagnoses, and charting errors.
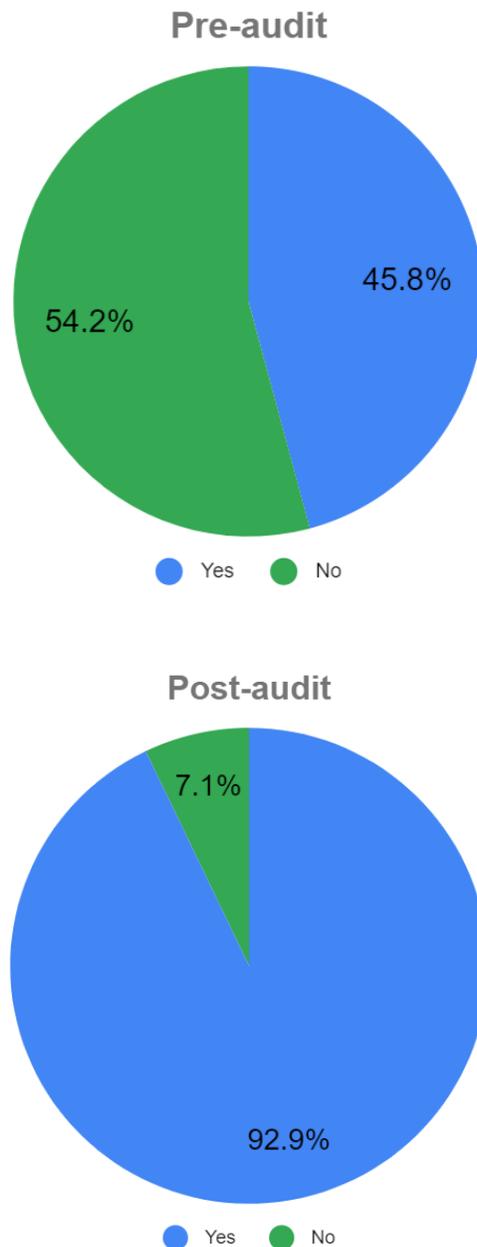
Pre-audit

Post-audit

Figure 4. Diagnosis of MDD and/or GAD in problem list before and after chart audit. This is including all patients prescribed one of the antidepressants during the specified time period.

By the end of the audit, physicians were emailed concerning 40 patients, as their diagnoses were not clear after reviewing their charts for billing codes, clinical encounter notes, or PHQ-9/GAD-7 questionnaire completion. As mentioned above, only 4 patients remained without a clear diagnosis.

Of the 774 patients who had a diagnosis of MDD and/or GAD added to their problem list, a total of 244 (31.5%) patients completed a PHQ9 or GAD7 at least once. Of these, 158 patients

completed a questionnaire once and 86 patients completed questionnaires on more than one occasion. 137 of the 244 (56.1%) patients who were administered a questionnaire only completed the PHQ-9, 33 (13.5%) completed only the GAD-7, and 74 (30.3%) completed both (Figure 5). For patients who were administered a questionnaire on a single occasion, 92 were tested prior to treatment and 66 during treatment. Average scores can be seen in Tables 3 & 4.
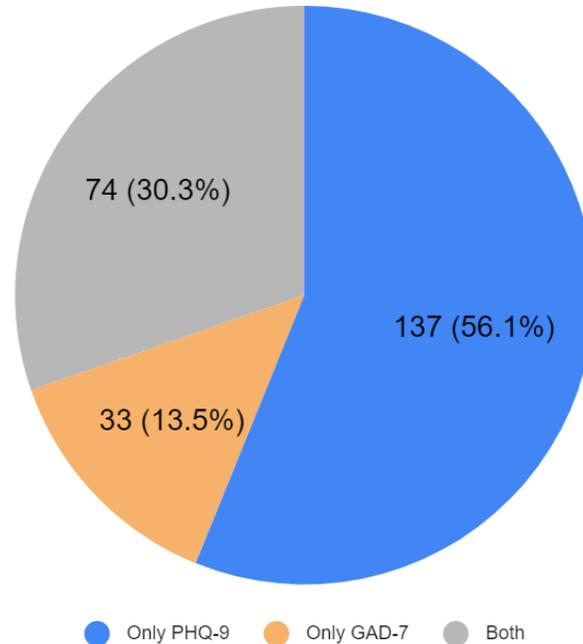

Figure 5. Questionnaire completion in patients who had a diagnosis of MDD and/or GAD added to the problem list.

Table 3. Average scores of patients who completed a questionnaire on one occasion. Range of scores is shown in brackets. 'Prior' indicates scores obtained before or within 2 weeks of starting the corresponding medication; 'during' indicates scores obtained at least 2 weeks after starting the medication.

	Citalopram/Escitalopram		Sertraline	
	PHQ-9	GAD-7	PHQ-9	GAD-7
Prior	15.3 (5, 24)	14.7 (5, 21)	13.7 (3, 22)	13.3 (10, 19)
During	11.2 (3, 24)	11.7 (3, 20)	14.0 (1, 26)	13.8 (4, 21)
	Venlafaxine		Fluoxetine	
	PHQ-9	GAD-7	PHQ-9	GAD-7
Prior	17.1 (12, 22)	15.5 (15, 16)	16.7 (3.5, 26)	17.6 (14, 21)
During	11.7 (6, 20)	13.5 (13, 14)	10.7 (5, 20)	5.5 (5, 6)

Scores of the 86 patients who were administered the questionnaire on more than one occasion are shown in Table 4 (next page).

Table 4. Average scores of patients who completed a questionnaire on more than one occasion. Range of scores is shown in brackets.

	Citalopram/Escitalopram		Sertraline	
	PHQ-9	**GAD-7**	**PHQ-9**	**GAD-7**
First score	15.5 (5, 22)	14.0 (6, 20)	17.0 (8, 24)	13.8 (9, 18)
Recent score	9.67 (0, 25)	7.65 (1, 21)	14.9 (4, 27)	12.8 (4, 21)
	Venlafaxine		Fluoxetine	
	PHQ-9	**GAD-7**	**PHQ-9**	**GAD-7**
First score	15.5 (3, 27)	12.8 (5, 21)	17.5 (7, 26)	13.6 (6, 21)
Recent score	13.8 (2, 26)	11.4 (0, 21)	11.9 (4, 23)	10.4 (4, 17)

Of the 244 patients who were assessed with a PHQ-9 or GAD-7, 206 patients (84.4%) had a score of ≥ 10 on at least one occasion.

Discussion:

The first goal of this audit was to document MDD and/or GAD in charts of patients who were prescribed medications for these conditions. 54.2% of patients who were prescribed an antidepressant did not have a diagnosis of MDD or GAD in their active problem list at the start of the audit. This decreased to 7.1% by the end of the audit. It was found that the majority (86.9%) of charts reviewed met the working definition of depression and/or anxiety and therefore had a corresponding diagnosis added to the problem list. That left a small proportion (13.1%) without a diagnosis, the majority of which were patients with other mental health conditions. Therefore, the use of the problem list to document a diagnosis of MDD or GAD is most likely related to practitioner preference or charting habits, rather than stemming from how certain a diagnosis is. Furthermore, we only contacted physicians with regards to 40 patients for diagnosis clarification - all but 4 were resolved.

A systematic review and thematic analysis by Hodge & Narus concerning problem lists suggests their use is inconsistent, most likely due to inconvenience, incompleteness, and clutter.[8] Despite this, the same review also reported that mental health was listed as one of the top 10 problems that should be included in problem lists.[8] This is supported by a survey of practitioner attitudes in which 99% of respondents agreed that a sensitive diagnosis such as depression should be included in a problem list.[9]

While we didn't survey clinicians at this site, lack of utilization of the problem list could be due to documentation of problems elsewhere in the chart. Anecdotally, it was noted during this audit that many patients had a diagnosis of anxiety or depression in clinical encounter notes corresponding to the date that the prescription was issued. Since the problem list exists in a separate area of the patient chart in the EMR, it requires deliberate action to add a diagnosis to it. It would be more convenient for clinicians in time-limited appointment settings if the EMR were able to suggest automatically adding the diagnosis to the problem list.

Additionally, due to the fluctuating course, overlapping symptoms, and comorbidity of anxiety and depression with each other and other mental health conditions, it is also possible that clinicians felt it was difficult to nail down a specific diagnosis and therefore declined to document a diagnosis in the active problem list. During this chart audit, it was noted that combined diagnoses of "anxiety/depression" were often recorded in clinical notes. When asking

for clarification of one particular diagnosis, a clinician commented, "Sometimes it's difficult to know if this is depression with features of anxiety or anxiety with features of depression."

Either way, accurate problem lists can be utilized to improve patient care by enhancing workflow and team member communication and by tracking quality improvement.[8,10,11] There is evidence that a complete and accurate problem list can increase the likelihood that appropriate medications are prescribed, compared to patients who do not have a diagnosis in their problem list.[10] There is also evidence that problem lists may encourage more follow-up of the problem compared to not including it in the list, as a study showed that when obesity was added to a patient's problem list, they were more likely to have obesity addressed at future visits.[12]

In addition to this, new billing codes for the management of MDD and GAD, scheduled to be in effect on Sept. 1, 2020, will likely require a diagnosis in the problem list, since the billing codes will most likely be based on the MDD/GAD indicators found in the Manitoba Primary Care Quality Indicators Guide.[7] Furthermore, one indicator also includes a requirement that physicians assess their MDD/GAD patients with a yearly PHQ-9 or GAD-7 questionnaire, and another requires offering treatment each year (whether through medications or otherwise).[7] Billing criteria are still to be finalized, but since having the diagnosis in the problem list is consistently mentioned in the quality indicators, this requirement will likely appear in the billing codes as well.

The second goal of this audit was to document PHQ-9 and GAD-7 use in patients identified by our search. We found that 31.5% of the patients who had a diagnosis of MDD or GAD added to their chart had completed a PHQ-9 or GAD-7 questionnaire at some point during their care. This differs from and appears to be an improvement from a prior unpublished study done by residents at Steinbach Family Medical, who reported 8.4% of depressed patients had outcomes monitored by PHQ-9.[13] Our number is most likely higher because we included both PHQ-9 and GAD-7 in our analysis. Furthermore, it is possible that their efforts to promote awareness and use of questionnaires at the clinic were successful.

It is also worth mentioning that during this audit, any questionnaire completion found in the chart was documented, whether it was given by a physician or other healthcare professional (ex. community mental health workers). This contributed significantly to the number of questionnaires found to have been completed, as the community mental health workers often used the PHQ-9 in their initial patient assessments.

Since we did not review the charts of patients with a diagnosis of MDD or GAD already in their problem list, we cannot comment on the incidence of questionnaire completion in those patients compared to the patients without a diagnosis documented in the problem list. Considering first that PHQ-9 and GAD-7 are validated measurement tools that have been shown to improve patient outcomes[14] and second, that inclusion of diagnoses in problem lists has shown to improve patient outcomes in certain settings,[11,12] we think it's reasonable to wonder if the addition of depression or anxiety to a problem list is associated with increased utilization of the PHQ-9/GAD-7 and therefore, improved patient outcomes.

Lastly, the GAD-7 seems to have been used significantly less often than the PHQ9, as shown in figure 5 above. Even in cases where a patient's primary diagnosis was only GAD, they were sometimes given a PHQ-9, but not a GAD-7 (this happened 20 times), whereas patients with a primary diagnosis of only MDD were never found to have been given a GAD-7 without a PHQ-9. This discrepancy could be due to less awareness of the GAD-7 questionnaire overall, or the fact that the GAD-7 has been validated more recently[6], and thus has not been recognized and adapted into clinical practice to the same extent as of yet. That being said, it did seem during this audit that its use has increased substantially in the recent past.

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Limitations:

Our study has several limitations. For one, since we identified patients by prescription of antidepressant medications, we failed to include patients with a diagnosis of depression or anxiety who are not receiving medical management. Our search also only included certain antidepressant medications. Therefore, we cannot say for certain that we accurately captured all of the patients of SFM with depression or anxiety. Secondly, since this audit was conducted at a single primary care centre in rural Manitoba, external validity is also a limitation as this patient population may not reflect those at other sites. Lastly, addition of a diagnosis of MDD or GAD to a patient problem list was based on our subjective interpretation of clinical records. Without clinical correlation, it is impossible to know for certain if we were truly accurate in identifying patients with MDD or GAD.

Conclusion:

Ultimately, over half of patients prescribed antidepressants did not have a diagnosis of MDD/GAD in the active problem list before the audit began. Of these patients, the majority still met the working definition for anxiety or depression and had a diagnosis added to the active problem list. Additionally, over two-thirds of patient charts audited did not have a documented PHQ-9 or GAD-7 questionnaire completed. This is important for SFM and other sites to consider, as upcoming billing codes will likely reflect the Manitoba Primary Care Quality Indicators Guide, which contains indicators requiring the administration of a questionnaire every 12 months in patients with MDD or GAD who either have had a moderate score (≥ 10) in the previous 24 months, or who have been prescribed an antidepressant in the past 24 months.[7]

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