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Title	**Psychiatric morbidity and cervical cancer screening: a population-based case-cohort study**
Authors	Michael Ouk BSc, Jodi D. Edwards PhD, Jessica Colby-Milley MSc, Alexander Kiss PhD, Walter Swardfager PhD, Marcus Law MD
Reviewer 1	Donna Stewart
Institution	University Health Network, Psychiatry, Toronto, Ont.
General comments	A methodologically strong study. Clearly written. Important practice message.
Reviewer 2	Paul Kurdyak
Institution	Centre for Addiction and Mental Health, Centralized Assessment, Triage and Support, Toronto, Ont.
General comments (author response in bold)	This is a population-based study that looks at relative rates of cervical cancer screening amongst women with schizophrenia or bipolar disorder compared to matched controls from the general population in Ontario. The authors do a good job reviewing the literature on cervical and other types of cancer screening anong individuals with severe mental illnesses (SMIs) compared to individuals without SMIs. In general, the literature consistently shows a reduced rate of screening amongst individuals with SMIs with some exceptions. The methods outline a number of health administrative data bases that are linked to be able to ascertain the exposure (a diagnosis of schizophrenia or bipolar disorder), the outcome (cervical CA screening) and a number of covariates (age, income, a number of different measures of comorbidity). The exposure is a bit confusing. The authors refer to a supplemental table that reveals the ICD10 codes used to capture cases of bipolar disorder and schizophrenia. However, the various databases they are using to capture cases use different types of data. For example, OHIP uses ICD9 codes and will generate the majority of cases because even for a schizophrenia population, the majority do not have a psychiatric hospitalization. Additionally, the ICD9 codes in OHIP can be used to capture schizophrenia, but it is not obvious how one would use the same codes to capture bipolar disorder. Bipolar disorder is captured using ICD9 code 296. But differentiating bipolar disorder from major depressive disorder requires coding beyond the ICD9 decimal point, making a distinction between bipolar disorder and major depression (a condition with a 4-fold higher prevalence rate compared to bipolar disorder, and probably higher only among women) very challenging. Thus, more detail is required to understand how the ambulatory codes within OHIP were used to ascertain bipolar cases. The analytic approach seems appropriate – the authors use a variety of approaches (conditional logistic regression, Poisson regression, and Cox proportional hazard modelling) to model relative likelihood and rates of screening depending on the structure of the outcome. All point to a lower likelihood of screening for women with bipolar disorder and schizophrenia after adjusting for covariates. One issue that was not addressed is access to care. Screening is contingent upon access to care. It may be that women with bipolar disorder and schizophrenia have higher rates of primary care visits, which would make the lower likelihood of screening more perplexing (and the current models may

	underestimate the screening rate disparity if that were the case). By contrast, access to primary care may be lower, in which case there is no possibility to have screening if a woman has no access to primary care. In essence, I think there is more that could be done with the administrative data to better understand mechanistically (from a health service perspective) what is happening related to the lower screening rates. In summary, this study shows that women with bipolar disorder or schizophrenia have lower rates of cervical cancer screening. This is not a new finding, but an important discrepancy to highlight. The issues related to using OHIP for case ascertainment of bipolar disorder raise issues about the capacity to capture a population-based sample of women with bipolar disorder given the majority of bipolar disorder cases would enter the cohort via outpatient/OHIP billings. **With the helpful suggestions of the Editorial team, and of Reviewer 2, we have further examined the issue of access to primary care as a barrier to cancer screening among women with psychiatric disorders.** **We have determined that 95% of the cohort was attached to a family physician, and we matched women with and without a psychiatric disorder on this variable. Thus we show that the estimated practice gap is not explained by access to primary care, indicating that the disparity is potentially actionable within primary care – a novel message that could be brought to the attention of a broad medical audience.** **To further examine the impact of access to primary care, we broke down the cohort into subgroups who were attached to a family physician vs. those who were not. The effect of psychiatric morbidity was much greater among the 5% of women without a family physician: among women attached to a family physician, those with psychiatric morbidity took 5.7 years to receive a screen on average (which was 1.4 years longer than women without psychiatric morbidity); however, among women not attached to a family physician, those with psychiatric morbidity took 21.6 years to receive a screen (7.3 years longer than women without psychiatric morbidity). Furthermore, the odds of receiving at least one screen in the follow-up period were 35% lower for women with psychiatric morbidity among women who had a family physician, but 45% lower for those without a family physician. Therefore, a lack of access to primary care did not explain the effect of psychiatric morbidity, but it did compound it in some cases – a second novel message of broad potential importance.** **The findings offer new information that 1) advances our mechanistic understanding of this health services utilization gap as requested by Reviewer 2, and 2) offers 2 new and actionable messages that might be considered by family healthcare providers and policy makers.** **We were able to address all other comments by providing clarifications, discussion points, or additional analytical details.**