

# Burden of common mental disorders in a community health centre sample

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## Abstract

**Objective** To examine the rates of common mental disorders (CMDs) such as depression, anxiety, posttraumatic stress disorder (PTSD), and alcohol use in an urban community health care centre (CHC) serving vulnerable immigrant and ethnoracial communities in order to improve knowledge on the rates of CMDs specific to these groups accessing primary care settings.

**Design** English or Spanish, self-administered, tablet-based survey known as the Interactive Computer-Assisted Client Assessment Survey (iCCAS).

**Setting** Access Alliance Multicultural Health and Community Services CHC in Toronto, Ont.

**Participants** Adult patients waiting to see a clinician.

**Main outcome measures** The iCCAS screened for depression (using the PHQ-9 [Patient Health Questionnaire]), anxiety (using the GAD-7 [Generalized Anxiety Disorder 7-item scale]), PTSD (using the PC-PTSD [Primary Care PTSD Screen]), and alcohol dependency (using the CAGE questionnaire); those with an existing diagnosis and active treatment for one of these conditions were not asked to complete that condition-specific screening scale. An exit survey measured demographic characteristics and relevant indicators.

**Results** A response rate of 78.6% was achieved. The iCCAS survey was completed by 75 patients (26 men and 49 women) with a mean age of 36.5 years. Almost all were first-generation immigrants: 32.0% originated from Latin America, 28.0% from South Asia, and 17.3% from Africa or the Middle East. Major depression was found among 44.0% of participants (11 with diagnosis and treatment, 22 with a score of 10 or greater on the PHQ-9). Generalized anxiety disorder was present in 26.7% of participants (7 with diagnosis and treatment, 13 with a score of 10 or greater on the GAD-7 scale). Posttraumatic stress disorder was detected in 37.3% of participants (7 with diagnosis and treatment, 21 with a score of 3 or greater on the PC-PTSD tool). Alcohol dependency was found among 10.7% of participants (1 with diagnosis and treatment, 7 with a score of 2 or greater on the CAGE questionnaire).

**Conclusion** The high rates of probable depression, generalized anxiety, and PTSD that were found in the studied population suggest a need for systematic assessment of CMDs in CHCs, as well as training and resources to increase readiness to handle identified cases.

## EDITOR'S KEY POINTS

- Little is known about the rates of common mental disorders (CMDs) among specific ethnic and immigrant communities, which is concerning given the multiple settlement challenges experienced by immigrants and marginalized ethnoracial communities, increasing the risk of mental health problems. The primary aim of this study was to examine the rates of CMDs in a sample of community health centre (CHC) patients.
- This study found a 57.3% prevalence for 1 or more of 4 CMDs using the iCCAS (Interactive Computer-Assisted Client Assessment Survey) assessment tool at an urban CHC that serves vulnerable populations. Compared with recent data for the general Canadian population and other primary care groups, the rates of CMDs in this group were substantially higher for depression, generalized anxiety, and posttraumatic stress disorder.
- Given the high rates of probable depression, anxiety, and posttraumatic stress disorder identified in this study, a systematic approach to assessing mental health risk among patients in CHCs serving vulnerable communities should be considered.

This article has been peer reviewed.

*Can Fam Physician* 2016;62:e758-66

# Fardeau des troubles mentaux communs dans un échantillon de patients d'une clinique de santé communautaire

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## Résumé

**Objectif** Examiner le taux de troubles mentaux communs, comme la dépression, l'anxiété, le trouble du stress post-traumatique et la dépendance à l'alcool, dans une clinique de santé communautaire au service de communautés vulnérables d'immigrants et ethnoraciales, afin d'élargir les connaissances sur les taux de troubles mentaux communs spécifiques à ces groupes qui accèdent aux milieux de soins primaires.

**Conception** Un sondage en anglais ou en espagnol, auquel répond l'intéressé sur une tablette, connu sous le nom d'Interactive Computer-Assisted Client Assessment Survey (iCCAS ou sondage d'évaluation du client sous forme interactive et informatisée).

**Contexte** La clinique de santé communautaire Alliance Multicultural Health and Community Services à Toronto, en Ontario.

**Participants** Des patients adultes qui attendaient de consulter un clinicien.

**Principaux paramètres à l'étude** L'iCCAS a servi à dépister la dépression (à l'aide du questionnaire sur la santé du patient PHQ-9,

### POINTS DE REPÈRE DU RÉDACTEUR

- On ne connaît pas très bien les taux de troubles mentaux communs dans des communautés d'ethnies et d'immigrants spécifiques. La situation est inquiétante, compte tenu des multiples difficultés qu'éprouvent les communautés d'immigrants et ethnoraciales lorsqu'elles s'établissent, qui accroissent le risque de problèmes de santé mentale. Cette étude a pour but principal d'examiner les taux de troubles mentaux communs dans un échantillon de patients d'une clinique de santé communautaire.

- Dans cette étude, on a constaté une prévalence de 57,3% de 1 ou plusieurs des 4 troubles mentaux examinés, à l'aide de l'outil d'évaluation iCCAS (Interactive Computer-Assisted Client Assessment Survey), dans une clinique communautaire urbaine au service de populations vulnérables. Par rapport aux récentes données sur la population canadienne en général et à d'autres groupes de soins primaires, les taux de troubles mentaux communs dans le groupe étudié étaient considérablement plus élevés sur les plans de la dépression, de l'anxiété généralisée et du trouble du stress post-traumatique.

- Étant donné les taux élevés de dépression, d'anxiété et de troubles du stress post-traumatique probables cernés dans cette étude, il faudrait envisager une approche systématique de l'évaluation des risques de problèmes de santé mentale dans les cliniques de santé communautaires au service de communautés vulnérables.

Cet article a fait l'objet d'une révision par des pairs.  
*Can Fam Physician* 2016;62:e758-66

[version à 9 questions]), l'anxiété (au moyen du GAD-7 [trouble d'anxiété généralisée, version à 7 questions]), le trouble du stress post-traumatique (avec le PC-PTSD [dépistage en soins primaires]) et la dépendance à l'alcool (à l'aide du questionnaire CAGE); les personnes qui avaient reçu un diagnostic et étaient traitées activement pour l'un de ces problèmes n'ont pas eu à remplir le questionnaire portant sur ce trouble en particulier. Une enquête à la sortie mesurait les caractéristiques démographiques et les indicateurs pertinents.

**Résultats** Le taux de réponse se situait à 78,6%. Le questionnaire iCCAS a été rempli par 75 patients (26 hommes et 49 femmes) dont l'âge moyen était de 36,5 ans. Presque tous étaient des immigrants de première génération: 32,0% étaient originaires d'Amérique latine, 28,0% d'Asie du Sud et 17,3% d'Afrique ou du Moyen-Orient. Une dépression majeure a été détectée chez 44,0% des participants (11 diagnostiqués et traités, 22 avec un score de 10 ou plus au questionnaire PHQ-9). Un trouble d'anxiété généralisée était présent chez 26,7% des participants (7 diagnostiqués et traités, 13 avec un score de 10 ou plus à l'échelle GAD-7). Un trouble du stress post-traumatique a été détecté chez 37,3% des participants (7 diagnostiqués et traités, 21 avec un score de 3 ou plus au selon l'outil PC-PTSD). Une dépendance à l'alcool a été constatée chez 10,7% des participants (1 diagnostiqué et traité, 7 ayant un score de 2 ou plus dans le questionnaire CAGE).

**Conclusion** Les taux élevés de dépression, d'anxiété généralisée et de trouble du stress post-traumatique probables constatés dans la population à l'étude font valoir la nécessité d'une évaluation systématique des troubles mentaux communs dans les cliniques de santé communautaires, de même que d'une formation et des ressources nécessaires pour accroître la capacité de prendre en charge les cas identifiés.

Today, 20% of Canadians are first-generation immigrants, and since the mid-1980s more than 80% of new immigrants report a non-European origin.<sup>1-3</sup> Yet little is known about the rates of common mental disorders (CMDs) among specific ethnic and immigrant communities. This is of concern given that multiple settlement challenges are experienced by immigrants and marginalized ethnoracial communities, increasing the risk of mental health problems.<sup>4-6</sup> Studies also document that immigrants face more difficulties in accessing mental health care than Canadian-born individuals do.<sup>6,7</sup> National studies report that immigrants' general mental health undergoes rapid deterioration in the first years following arrival<sup>8</sup> and continues to worsen with length of stay in Canada.<sup>9-11</sup> However, only a handful of Canadian studies have examined rates of CMDs among different or specific ethnic groups, and the results are mixed. A systematic approach is needed to routinely collect information on CMDs among vulnerable immigrant and ethnoracial communities to improve practice and policy, especially in light of growing rates of CMDs worldwide.<sup>12-14</sup>

Primary care settings offer a window of opportunity to implement routine strategies. In Canada, community health centres (CHCs) are an integral part of the national primary care sector: they have a mandate to serve vulnerable communities (eg, low-income populations, refugees, and marginalized immigrants) and they provide integrated and interdisciplinary clinical care alongside social care (such as health education and promotion, support for settlement and housing, and community development programs).<sup>15</sup> Currently, there are about 75 CHCs in Ontario that serve approximately half a million people.<sup>16</sup> These CHCs have also been found to serve high numbers of individuals with serious mental illnesses compared with other primary care settings (eg, solo family physicians and family health teams) in both urban and rural areas.<sup>17</sup> However, prevalence data on specific CMDs is sporadically collected even within the CHC model, and mental health self-assessment tools that facilitate patient-provider communication are generally lacking. Leaving the initiation of mental health care solely to patients is problematic given the high social stigma associated with mental health issues, as well as patients' lack of knowledge about available care. These barriers are much higher for marginalized ethnoracial and immigrant communities,<sup>18</sup> contributing to lower detection of CMDs compared with mainstream populations.<sup>19</sup>

To address these knowledge gaps, the primary aim of this study was to examine the rates of CMDs in a sample of CHC patients. This work was part of a larger trial that developed and examined an Interactive Computer-Assisted Client Assessment Survey (iCCAS) in collaboration with a CHC (Access Alliance Multicultural Health and Community Services) in Toronto, Ont.

We anticipated that the anonymized mode of self-reporting CMD symptoms in iCCAS would offer comfort to patients, and that the preconsultation assessment with point-of-care reports would save providers time and inform comprehensive assessments as needed. Thus, a secondary aim of the reported work was to assess patient acceptance of the tool that might help to expedite access, diagnosis, and treatment of CMDs among vulnerable populations served by CHCs.

## METHODS

The study protocol was planned in collaboration with Access Alliance CHC, and research ethics approval was obtained from York University in Toronto.

### Setting

The study was conducted in Toronto, where more than half of residents are foreign born.<sup>20</sup> In the 2006 census, 42.9% of Toronto residents identified themselves as being part of a visible minority; the top 5 groups were South Asian (13.5%), Chinese (9.6%), black (6.9%), Filipino (3.4%), and Latin American (2.0%).<sup>21</sup> Our partnering CHC has 3 clinical sites that are located in inner-city and poor neighbourhoods of Toronto. The CHC primarily serves refugees, marginalized immigrants, and low-income populations. The multidisciplinary staff at the CHC includes family physicians, nurse practitioners, registered nurses, social workers, dietitians, settlement workers, outreach peers, and interpreters. During 2012 to 2013, Access Alliance had nearly 50 000 direct encounters: 47% were for primary care and 20% were for the newcomers' resource centre.<sup>22</sup>

### Interactive data capture

Mental health data were collected using iCCAS, a tablet-based, user-friendly, touch-screen survey that includes validated CMD screening scales (described below) along with questions about some social determinants of health. The interactive survey is completed by patients before meeting with their primary care providers, generating real-time individualized reports for patients and clinicians to use at the point of care. Our academic-community team worked collaboratively to develop the iCCAS tool. The process included a comprehensive literature review followed by use of a criteria-based matrix to select questions and topics, remaining mindful of the response burden for patients and providers. As English and Spanish are the most common languages spoken by clients at Access Alliance, iCCAS and all study materials were translated and back-translated into Spanish; any discrepancies were resolved through discussion and review of other available Spanish versions (eg, [www.coloradohealthpartnerships.com](http://www.coloradohealthpartnerships.com)).

A usability study was conducted with 7 patients (4 English, 3 Spanish) and 5 providers (all English) to refine the prototype; the changes were minimal.

### Participants and data collection procedures

Patients were recruited from the 3 clinics of the partnering CHC. English-speaking or bilingual research assistants approached potential participants in the waiting room and applied inclusion and exclusion criteria. To be eligible patients had to be at least 18 years of age, seeing a family physician or a nurse practitioner, and comfortable with communicating in English or Spanish. The exclusion criteria were being a new patient, patient feeling unwell (according to self-report), patient accompanied by a family member for interpretation, and those patients to whom the research assistants could not provide study details (eg, lack of privacy or comprehension difficulties). Eligible and willing patients received details in a separate room and 78.6% provided written informed consent. Study participants completed the touch-screen iCCAS survey before seeing their clinicians and they completed a paper-based exit survey after seeing their clinicians. All participants received an honorarium of \$30 and a resource list of health agencies in the community.

### Measurement and analysis

The iCCAS has 52 questions focused on 4 CMDs and items pertaining to social determinants of health (eg, education, language ability, housing, financial resources, immigration status, and social support). It includes the validated 9-item Patient Health Questionnaire (PHQ-9)<sup>23</sup>; the 7-item Generalized Anxiety Disorder (GAD-7) scale<sup>24</sup>; the Primary Care Posttraumatic Stress Disorder Screen (PC-PTSD)<sup>25</sup>; and the CAGE<sup>26</sup> questionnaire to assess alcohol use. The PHQ-9 has 9 items that screen for major depression with sensitivity of 88% and 86% and specificity of 88% and 94% when compared with a structured mental health professional interview<sup>27</sup> and the Schedules for Clinical Assessments in Neuropsychiatry interview, respectively.<sup>28</sup> The GAD-7 has 7 items that screen for generalized anxiety with sensitivity of 89% and specificity of 82% when compared with a structured clinical interview.<sup>24</sup> The PC-PTSD tool has 4 items that screen for 4 factors specific to posttraumatic stress disorder (PTSD). It has sensitivity of 83% and specificity of 85% when compared with a structured clinical interview.<sup>29</sup> The CAGE questionnaire has 4 items to screen for harmful alcohol consumption with sensitivity of 80% and specificity of 93% when compared with the Composite International Diagnostic Interview.<sup>30</sup> In our study, the iCCAS interactive survey skipped the CMD screening questions in cases where there was an existing diagnosis and active treatment. Also, participants who had not consumed any alcohol in the past year were not offered the CAGE questionnaire.

Through the paper-based exit survey, additional data were collected on demographic characteristics and on the patient's overall satisfaction with the visit, as well as the perceived benefits of iCCAS (6 items), perceived barriers to interaction with the provider (3 items), and perceived barriers to privacy (3 items) using a validated 5-point Likert scale.<sup>31,32</sup>

The reported cross-sectional study was embedded in a pilot randomized trial that aimed to recruit 75 patients per arm of the trial (ie, usual care and iCCAS). The data were analyzed using SPSS, version 22. We calculated descriptive statistics (proportions, means, and 95% CIs) and 2-group comparisons using  $\chi^2$  and Student *t* tests.

## RESULTS

In 2014, 75 patients (26 men and 49 women) completed the iCCAS survey. Overall, participants' mean age was 36.5 years and 98.7% were immigrants; the 3 most common birth regions were Latin America (32.0%), South Asia (28.0%), and Africa or the Middle East (17.3%). Almost half of participants reported college or higher education, but only 34.7% were employed (part time or full time) and 85.3% of the sample reported difficulty in meeting daily needs. More details on demographic characteristics are provided in **Table 1**.

Participant responses to measures of the tool's acceptance showed positive attitudes toward iCCAS. On average, they "agreed" with the perceived benefits of the tool, with a mean (SD) score of 4.08 (0.56); participants were "not sure" about the perceived privacy barriers and interaction barriers, with mean (SD) scores of 2.63 (0.79) and 2.81 (0.86), respectively. The mean (SD) level of participant satisfaction with the visit was 4.3 (1.3) on the 5-point scale.

### Mental health

Administration of iCCAS detected high rates of CMDs. While 19 patients reported previous diagnosis of and current active treatment for 1 or more of the 4 assessed CMDs, 36 patients also screened positive for 1 or more of the 4 CMDs. There was an overlap of 12 patients between these 2 groups, thus 43 individuals were identified as having 1 or more of the assessed CMDs.

Major depression was found among 44.0% (95% CI 32.8% to 55.2%) of the group (33 of 75): 11 were already diagnosed and receiving treatment and an additional 22 screened positive, scoring 10 or higher on the PHQ-9. Generalized anxiety disorder was identified in 26.7% (95% CI 16.9% to 37.1%) of participants (20 of 75): 7 were already diagnosed and receiving treatment and an additional 13 screened positive, scoring 10 or greater on the GAD-7. Posttraumatic stress disorder was detected among 37.3% (95% CI 26.1% to 47.9%) of the

**Table 1. Participant characteristics: N = 75.**

VARIABLE	VALUE
Mean (SD) age, years	36.5 (12.7)
Sex, n (%)	
• Male	26 (34.7)
• Female	49 (65.3)
• Transgender	0 (0.0)
Relationship status, n (%)*	
• Married or common law	37 (49.3)
• Separated, divorced, or widowed	11 (14.7)
• Single, not in relationship	18 (24.0)
• Single, in relationship	10 (13.3)
Immigrant, n (%)	74 (98.7)
Citizenship status, n (%)	
• Canadian citizen or permanent resident	54 (72.0)
• Other	21 (28.0)
Years lived in Canada, n (%)	
• <5	41 (54.7)
• ≥5	34 (45.3)
Highest level of education, n (%)	
• Up to grade 12	38 (50.7)
• College or more	37 (49.3)
Can read and write English, n (%)	
• Poor or fair	19 (25.3)
• Good, very good, or excellent	56 (74.7)
Employment status, n (%)*	
• Full time	15 (20.0)
• Part time	11 (14.7)
• Not employed	49 (65.3)
Annual household income before taxes, \$, n (%)	
• ≤20 000	48 (64.0)
• 20 001–30 000	12 (16.0)
• 30 001–40 000	8 (10.7)
• >40 000	7 (9.3)
Difficulty in monetary decisions to meet daily needs, n (%)	
• Sometimes or often	64 (85.3)
• Never	11 (14.7)
Computer use, n (%)	
• Every day	51 (68.0)
• Up to 3 times in a week	18 (24.0)
• Once a month	2 (2.7)
• Not at all	4 (5.3)
Mean (SD) self-rated health <sup>†</sup>	2.83 (1.02)
Experienced personal violence in past 5 years, n (%)	28 (37.3)
Social support, n (%)	
• Someone to talk about problems: no or not sure	22 (29.3)
• Someone to stay with overnight in emergency: no or not sure	29 (38.7)
• Someone to borrow money from when in need: no or not sure	54 (72.0)

\*Participants were allowed to select more than 1 response option.

<sup>†</sup>Rated on a 5-point Likert scale (poor, fair, good, very good, excellent).

population (28 of 75): 7 were already diagnosed and receiving treatment and an additional 21 had symptoms consistent with PTSD, scoring 3 or greater on the PC-PTSD. Alcohol dependency was the least prevalent of the CMDs at 10.7% (95% CI 3.9% to 18.1%) of the group (8 of 75): 1 participant reported a current diagnosis and receiving treatment and 7 scored 2 or greater on the CAGE questionnaire. The prevalence of the 4 CMDs is presented in **Figure 1**, and the co-occurrence of the 4 CMDs is captured in **Figure 2**.

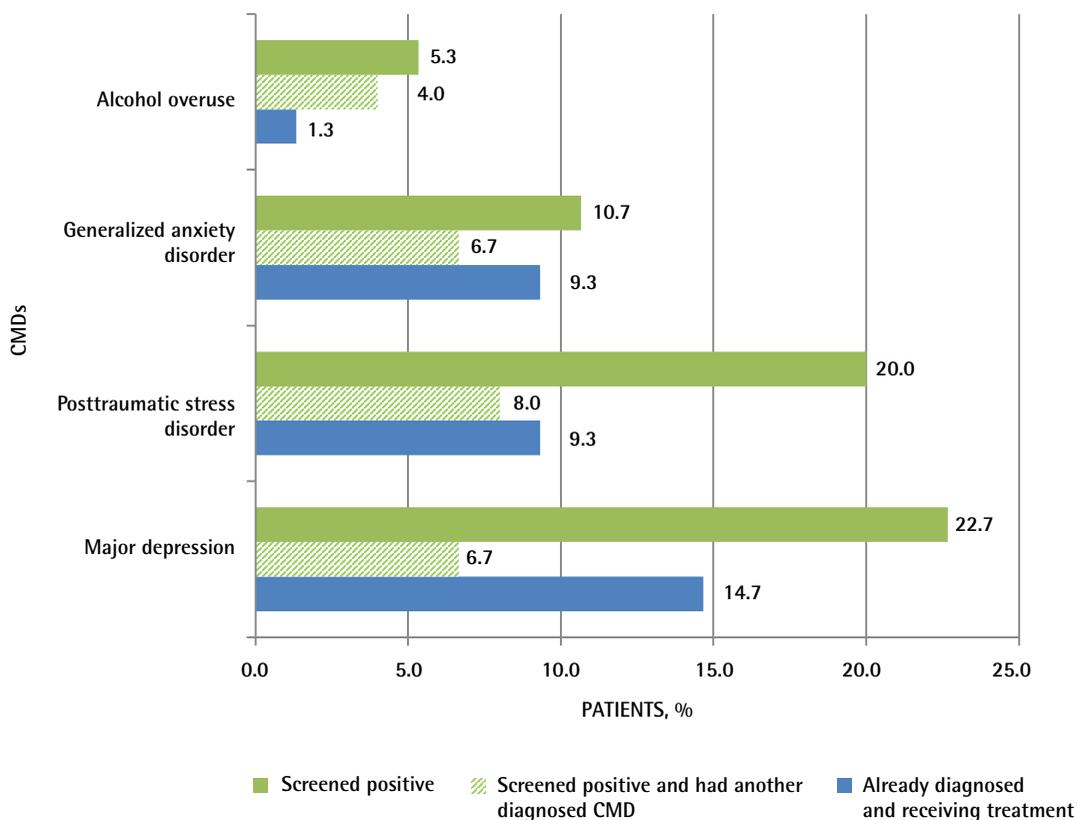
Participants having a CMD diagnosis or positive screening result (n=43, CMD group) were compared with participants having no CMD (n=32, non-CMD group) to examine similarities and differences in their demographic and social contexts. Only self-rated health and social supports were found to be significant. On a 5-point scale (poor to excellent), self-rated health was lower for the CMD group with a mean (SD) of 2.5 (0.89) compared with 3.3 (0.99) for the non-CMD group ( $t=3.9$ ,  $df=73$ ,  $P<.001$ ; Cohen  $d=0.85$ ). To determine overall social support, we derived a measure from yes responses to 3 items: having someone to talk with about

problems, having someone to stay overnight with in an emergency, and the ability to borrow money when in need. The level of social support was lower for the CMD group with a mean (SD) score of 1.4 (0.93) compared with 1.97 (1.0) for the non-CMD group ( $t=2.5$ ,  $df=73$ ,  $P<.01$ ; Cohen  $d=0.59$ ).

## DISCUSSION

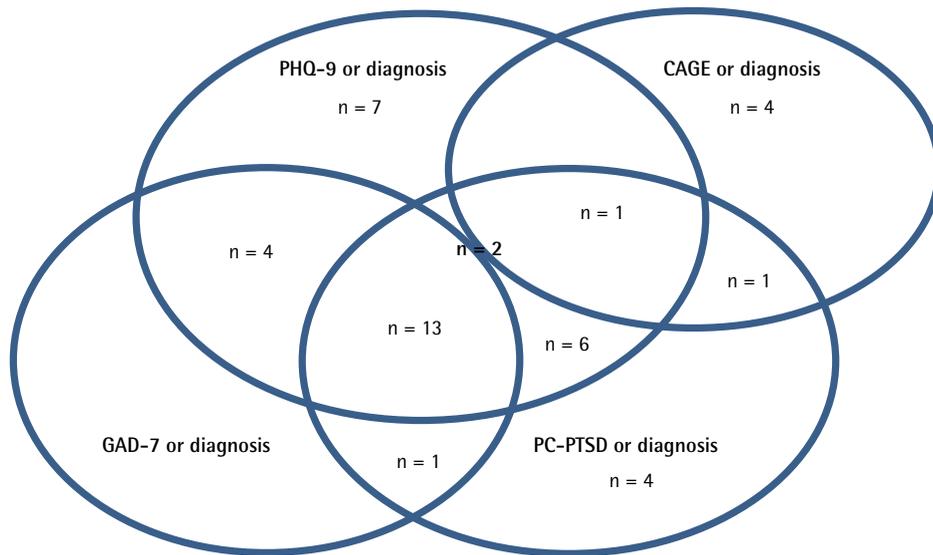
This study found a 57.3% (n=43) prevalence for 1 or more of 4 CMDs using the iCCAS assessment tool at an urban CHC that serves vulnerable populations. Our sample included a very vulnerable group, mostly low-income immigrants who had poor social support. Compared with recent data for the general Canadian population and other primary care groups,<sup>24,33-35</sup> rates of CMDs in this group were substantially higher for depression, generalized anxiety, and PTSD. Consistent with previous studies, only alcohol dependency appeared to be lower in this group than in the general population.<sup>33,36</sup> These findings have practice, policy, and research implications.

**Figure 1. Prevalence of 4 CMDs: N = 75.**



CMD—common mental disorder.

Figure 2. Co-occurrence of 4 CMDs: *N* = 43.



CMD—common mental disorder, GAD—Generalized Anxiety Disorder scale, PC-PTSD—Primary Care Posttraumatic Stress Disorder Screen, PHQ—Patient Health Questionnaire.

### Practice implications

Given the high rates of probable depression, anxiety, and PTSD identified in our study, a systematic approach to assessing mental health risk among patients in CHCs serving vulnerable communities should be considered. This is particularly relevant for CMDs for which evidence-based, effective treatment is available through interdisciplinary care. The CHCs employ an integrated approach to care wherein patients identified as being at risk of mental health conditions can be referred to on-site support from social workers, making CHCs ideal sites for early identification and treatment of CMDs through regular assessments.<sup>37-39</sup>

The results of our study also suggest that questions about social support and self-rated health could be used as triggers to assess symptoms of CMDs. Further, identification of one CMD should increase clinicians' sensitivity toward other CMDs owing to the possibility of co-occurrence, as found in our study participants. Our positive findings regarding the acceptability of iCCAS and visit satisfaction among study participants also suggest that the CHC integrated model of care can be further enhanced by using interactive, user-friendly, computer-assisted assessment tools. These strategies could play an important role in reducing patient-provider communication barriers. Stigma associated with mental health issues, inadequate knowledge about care, and language difficulties are frequently cited

barriers for patients.<sup>5-7</sup> On the other side, providers often face time constraints. The average consultation time in family practices has been documented to be 12.8 minutes.<sup>40</sup> Others report that during these time-pressed consultations family physicians manage 3 health problems on average<sup>41</sup> and spend only 1 minute on preventive services including screening, assessment, and counseling for risky health behaviour.<sup>42</sup> There is a strong need to identify efficient and effective modes of engaging both patients and practitioners to improve timely access, diagnosis, and treatment of CMDs, especially among vulnerable communities.

### Research and policy implications

The high rates of probable CMDs identified in our study highlight the need to examine the underlying reasons for poor mental health, such as the poor self-rated health, weak social support, and low income reported by this and other populations served by CHCs. From a policy perspective, the findings here suggest a strong need for intersectoral collaboration to address social determinants of mental health—an area of growing emphasis internationally.<sup>43</sup>

### Strengths and limitations

Our study has both strengths and limitations. The high rates of positive screening results should take into account the possibility of symptom overlap and co-occurrence across

the conditions. However, the acceptability results pertaining to patients' perceived privacy barriers indicate that these CMD rates might also be underreported. Further, culture-specific symptoms might not have been captured as the used scales are primarily developed for and validated in Western countries. The measurement of patient acceptability and its multiple dimensions should also be expanded in future work by conducting qualitative interviews. The data were collected from a single urban CHC, and the participants were literate and comfortable with English or Spanish; caution is necessary when considering the applicability to other sites. Given the diversity in participants' countries of birth, we could not compare rates for all ethnoracial groups. Nonetheless, the collection of data from 3 clinics of the CHC with an overall patient response rate of 78.6% enhances our confidence in the reported results.

## Conclusion

The high rates of probable depression, generalized anxiety, and PTSD that were found in the studied population suggest a need for systematic assessment of CMDs in CHCs and a readiness to handle identified cases. Advances in interactive e-health-mediated assessments could enhance primary care capacity to measure mental health and identify trends on an on-going basis. 🌿

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## Contributors

All authors made important contributions to this work. **Drs Ahmad, Shakya, Ginsburg, Lou, Ng, Rashid,** and **McKenzie** and **Mr Ledwos** contributed to the conception and design of the study; **Drs Ahmad, Shakya** and **Mr Ledwos** contributed to the acquisition of data; **Drs Ahmad, Shakya, Ginsburg, Lou, Ng, Rashid, McKenzie,** and **Ferrari** and **Mr Ledwos** contributed to the analysis and interpretation; **Drs Ahmad, Shakya,** and **Ferrari** prepared the early drafts, which were then critically reviewed and revised by all authors. All authors approved the final version for publication.

## Competing interests

None declared

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