NAPCRG 52nd Annual Meeting — Abstracts of Completed Research 2024.

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Title

Validation of Mood and Anxiety Disorder Case Definitions using Primary Care Electronics Medical Records

Priority 1 (Research Category)

Big Data

Presenters

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Abstract

Context: Mental health conditions have increasing prevalence, co-occurrence, and high management burden within primary care settings.

Objective: To validate and apply electronic medical record (EMR)-based definitions for mood and anxiety disorders (inc. depression, anxiety, bipolar disorder), and schizophrenia.

Study Design: Retrospective cross-sectional study. Setting: De-identified EMR data from 1,574 primary care providers participating in the Canadian Primary Care Sentinel Surveillance Network (CPCSSN).

Population: 1,692,987 patients from seven Canadian provinces with a visit between January 1, 2011, and December 31, 2021.

Intervention/Instrument: The reference set included 2,488 randomly selected patients, including 434 (17.4%) positive cases (i.e. depression n=249, anxiety n=261, bipolar disorder n=19, schizophrenia n = 6) and 2,054 (82.6%) negatives. A second reference set for schizophrenia was created that included 760 patients (30 [3.9%] positive and 730 [96.1%] negative).

Outcome Measures: We assessed agreement between 29 case definitions and the reference set using the following metrics sensitivity (sen), specificity (spec), positive predictive value (PPV), negative predictive value (NPV). Prevalence and 95% confidence limits were computed using exact binomial test. Exploratory analysis assessed co-occurrence of conditions.

Results: Definition 11 captured anxiety, depression, and bi-polar diagnoses with sen 80.7, spec 88.7, PPV 59.9, and NPV 95.7 and an estimated prevalence of 21.8% (21.7-21.9). When validated separately depression produced moderate agreement (sen 79.9, spec 94.2, PPV 60.5, NPV 97.7), whereas anxiety

and bipolar disorder had notably lower agreement (anxiety: sen 53.6, spec 87.9, PPV 34.2, NPV 94.2; bipolar: sen 89.5, spec 98.3, PPV 28.8, NPV 99.9). The inclusion of psychosis in mood and anxiety definitions did not improve agreement (sen 95.2, spec, 80.7, PPV, 51.0), however alone schizophrenia had high agreement (sen 93.3, spec 100, PPV 100, NPV 99.9). There was high co-occurrence of anxiety, depression and bipolar disorder with the majority of patients diagnosed with ≥2 conditions.

Conclusions: We found high co-occurrence of anxiety, depression and bipolar disorder. Algorithms to capture these conditions together produced stronger agreement compared to individual definitions. Application of validated algorithms to capture mental health conditions can inform disease surveillance and health system planning.