**ONLINE-ONLY MATERIAL**

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**eFigure 1.** Distribution of PHQ-9 scores among individuals with and without major depression.

**eMethods1.** **Details on the methodology used to identify, obtain, and synthesize the data included in the present study**

**Study selection**

In the main IPDMA, datasets from articles in any language were eligible for inclusion if (1) they included PHQ-9 scores; (2) they included diagnostic classifications for current Major Depressive Episode (MDE) or Major Depressive Disorder (MDD) based on DSMA1-A3 or International Classification of DiseasesA4 criteria, using a validated semi-structured or fully structured interview; (3) the PHQ-9 and diagnostic interview were administered within two weeks of each other, since diagnostic criteria for major depression are for symptoms in the last two weeks; (4) participants were ≥ 18 years and not recruited from youth or school-based settings; and (5) participants were not recruited from psychiatric settings or because they were identified as having symptoms of depression, since screening is done to identify unrecognized cases. Datasets where not all participants were eligible were included if primary data allowed selection of eligible participants.

**Data sources and searches**

A medical librarian searched Medline, Medline In-Process & Other Non-Indexed Citations and PsycInfo via Ovid as well as Web of Science from January 1, 2000 to May 9, 2018, using a peer-reviewedA5 search strategy (eMethods2). We also reviewed reference lists of relevant reviews and queried contributing authors about non-published studies. Search results were uploaded into RefWorks (RefWorks-COS, Bethesda, MD, USA). After de-duplication, unique citations were uploaded into DistillerSR (Evidence Partners, Ottawa, Canada) for processing review results.

Two investigators independently reviewed titles and abstracts for eligibility. If either investigator deemed a study potentially eligible, full-text review was done by two investigators, independently, with disagreements resolved by consensus, consulting a third investigator when necessary. Translators were consulted for languages other than those for which team members were fluent.

**Data contribution and synthesis**

Authors of eligible datasets were invited to contribute de-identified primary data, including PHQ-9 scores and major depression status. We emailed corresponding authors of eligible primary studies at least three times, as necessary, with at least two weeks between each email. If we did not receive a response, we emailed co-authors and attempted to contact corresponding authors by phone.

Individual participant data were converted to a standard format and synthesized into a single dataset. We compared published participant characteristics and diagnostic accuracy results with results from raw datasets and resolved any discrepancies in consultation with the original investigators.

For defining major depression, we considered MDD or MDE based on the DSM or ICD. If more than one was reported, we prioritized MDE over MDD, since screening would attempt to detect depressive episodes and further interview would determine if the episode were related to MDD, bipolar disorder, or persistent depressive disorder, and DSM over ICD.

**Search results and inclusion of primary datasets**

Of 9,670 unique titles and abstracts identified from the database search, 9,199 were excluded after title and abstract review and 297 after full-text review, leaving 174 eligible articles with data from 118 unique participant samples, of which 91 (77%) contributed datasets. In addition, authors of included studies contributed data from nine unpublished studies, for a total of 100 datasets (N participants = 44,503 participants; N major depression = 4,541).

**eMethods2. Search Strategies**

**MEDLINE (OvidSP)**

1. PHQ\*.af.

2. patient health questionnaire\*.af.

3. 1 or 2

4. Mass Screening/

5. Psychiatric Status Rating Scales/

6. "Predictive Value of Tests"/

7. "Reproducibility of Results"/

8. exp "Sensitivity and Specificity"/

9. Psychometrics/

10. Prevalence/

11. Reference Values/

12.. Reference Standards/

13. exp Diagnostic Errors/

14. Mental Disorders/di, pc [Diagnosis, Prevention & Control]

15. Mood Disorders/di, pc [Diagnosis, Prevention & Control]

16. Depressive Disorder/di, pc [Diagnosis, Prevention & Control]

17. Depressive Disorder, Major/di, pc [Diagnosis, Prevention & Control]

18. Depression, Postpartum/di, pc [Diagnosis, Prevention & Control]

19. Depression/di, pc [Diagnosis, Prevention & Control]

20. validation studies.pt.

21. comparative study.pt.

22. screen\*.af.

23. prevalence.af.

24. predictive value\*.af.

25. detect\*.ti.

26. sensitiv\*.ti.

27. valid\*.ti.

28. revalid\*.ti.

29. predict\*.ti.

30. accura\*.ti.

31. psychometric\*.ti.

32. identif\*.ti.

33. specificit\*.ab.

34. cut?off\*.ab.

35. cut\* score\*.ab.

36. cut?point\*.ab.

37. threshold score\*.ab.

38. reference standard\*.ab.

39. reference test\*.ab.

40. index test\*.ab.

41. gold standard.ab.

42. or/4-41

43. 3 and 42

44. limit 43 to yr=”2000-Current”

**PsycINFO (OvidSP)**

1. PHQ\*.af.

2. patient health questionnaire\*.af.

3. 1 or 2

4. Diagnosis/

5. Medical Diagnosis/

6. Psychodiagnosis/

7. Misdiagnosis/

8. Screening/

9. Health Screening/

10. Screening Tests/

11. Prediction/

12. Cutting Scores/

13. Psychometrics/

14. Test Validity/

15. screen\*.af.

16. predictive value\*.af.

17. detect\*.ti.

18. sensitiv\*.ti.

19. valid\*.ti.

20. revalid\*.ti.

21. accura\*.ti.

22. psychometric\*.ti.

23. specificit\*.ab.

24. cut?off\*.ab.

25. cut\* score\*.ab.

26. cut?point\*.ab.

27. threshold score\*.ab.

28. reference standard\*.ab.

29. reference test\*.ab.

30. index test\*.ab.

31. gold standard.ab.

32. or/4-31

33. 3 and 32

34. Limit 33 to “2000 to current”

**Web of Science (Web of Knowledge)**

#1:TS= (PHQ\* OR “Patient Health Questionnaire\*”)

#2: TS= (screen\* OR prevalence OR “predictive value\*” OR detect\* OR sensitiv\* OR valid\* OR revalid\* OR predict\* OR accura\* OR psychometric\* OR identif\* OR specificit\* OR cutoff\* OR “cut off\*” OR “cut\* score\*” OR cutpoint\* OR “cut point\*” OR “threshold score\*” OR “reference standard\*” OR “reference test\*” OR “index test\*” OR “gold standard”)

#1 AND #2

Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=2000-2018

**eTable1. Characteristics of included primary studies (N = 100)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **First Author, Year** | **Country** | **Recruited Population** | **Diagnostic Interview** | **Classification System** | **Total N** | **Major Depression** |
| **N (%)** |
| **Semi-structured Interviews** |
| Alamri, 2017A6 | Saudi Arabia | Hospitalized elderly in medical and surgical wards | SCID | DSM-IV | 199 | 24 (12) |
| Amoozegar, 2017A7 | Canada | Migraine patients  | SCID | DSM-IV | 203 | 49 (24) |
| Amtmann, 2015A8 | USA | Multiple sclerosis patients | SCID | DSM-IV | 164 | 48 (29) |
| Ayalon, 2010A9 | Israel | Elderly primary care patients | SCID | DSM-IV | 151 | 6 (4) |
| Beraldi, 2014A10 | Germany | Cancer inpatients | SCID | DSM-IV | 116 | 7 (6) |
| Bernstein, 2018A11 | Canada | IBD patients | SCID | DSM-IV | 240 | 21 (9) |
| Bhana, 2015A12 | South Africa | Chronic care patients | SCID | DSM-IV | 679 | 78 (11) |
| Bombardier, 2012A13 | USA | Inpatients with spinal cord injuries | SCID | DSM-IV | 160 | 14 (9) |
| Chagas, 2013A14 | Brazil | Outpatients with Parkinson's Disease | SCID | DSM-IV | 84 | 19 (23) |
| Chibanda, 2016A15 | Zimbabwe | A primary care population with high HIV prevalence | SCID | DSM-IV | 264 | 149 (56) |
| Eack, 2006A16 | USA | Women seeking psychiatric services for their children at two mental health centers | SCID | DSM-IV | 48 | 12 (25) |
| Fann, 2005A17 | USA | Inpatients with traumatic brain injury | SCID | DSM-IV | 135 | 45 (33) |
| Fiest, 2014A18 | Canada | Epilepsy outpatients | SCID | DSM-IV | 169 | 23 (14) |
| Fischer, 2014A19 | Germany | Heart failure patients | SCID | DSM-IV | 194 | 11 (6) |
| Gjerdingen, 2009A20 | USA | Mothers registering their newborns for well-child visits at medical or pediatric clinics | SCID | DSM-IV | 419 | 19 (5) |
| Gräfe, 2004A21 | Germany | Medical and psychosomatic outpatients  | SCID | DSM-IV | 494 | 67 (14) |
| Green, 2017A22 | USA  | Returning veterans  | SCID | DSM-V | 176 | 22 (13) |
| Green, 2018A23 | Kenya | Pregnant women and new mothers | SCID | DSM-V | 192 | 10 (5) |
| Haroz, 2017A24 | Myanmar | Primary care patients  | SCID | DSM-IV | 132 | 29 (22) |
| Hitchon, 2019A25a | Canada | Rheumatoid arthritis patients | SCID | DSM-IV | 148 | 16 (11) |
| Khamseh, 2011A26 | Iran | Type 2 diabetes patients | SCID | DSM-IV | 184 | 79 (43) |
| Kwan, 2012A27 | Singapore | Post-stroke inpatients undergoing rehabilitation | SCID | DSM-IV-TR | 113 | 3 (3) |
| Lambert, 2015A28 | Australia | Cancer patients | SCID | DSM-IV | 147 | 21 (14) |
| Lara, 2015A29 | Mexico | Pregnant women during the third trimester of pregnancy | SCID | DSM-IV | 280 | 29 (10) |
| Liu, 2011A30 | Taiwan | Primary care patients  | SCAN | DSM-IV | 1532 | 50 (3) |
| Marrie, 2018A31 | Canada | Multiple sclerosis patients | SCID | DSM-IV | 244 | 25 (10) |
| Martin-Subero, 2017A32 | Spain | Medical inpatients | SCID | DSM-III | 1003 | 83 (8) |
| McGuire, 2013A33 | USA | Acute coronary syndrome inpatients | DISH | DSM-IV | 100 | 9 (9) |
| Osório, 2009A34 | Brazil | Women in primary care | SCID | DSM-IV | 177 | 60 (34) |
| Osório, 2012A35 | Brazil | Inpatients from various clinical wards | SCID | DSM-IV | 86 | 28 (33) |
| Patten, 2015A36 | Canada | Multiple sclerosis patients | SCID | DSM-IV | 143 | 20 (14) |
| Picardi, 2005A37 | Italy | Inpatients with skin diseases | SCID | DSM-IV | 138 | 12 (9) |
| Prisnie, 2016A38 | Canada | Stroke and transient ischemic attack patients | SCID | DSM-IV | 114 | 11 (10) |
| Quinn, UnpublishedA39a | UK | Stroke patients | SCID | DSM-V | 146 | 17 (12) |
| Richardson, 2010A40 | USA | Older adults undergoing in-home aging services care management assessment  | SCID | DSM-IV | 377 | 95 (25) |
| Rooney, 2013A41 | UK | Patients with cerebral glioma | SCID | DSM-IV | 126 | 14 (11) |
| Shinn, 2017A42 | USA | Cancer patients | SCID | DSM-IV | 139 | 12 (9) |
| Sidebottom, 2012A43 | USA | Pregnant women | SCID | DSM-IV | 246 | 12 (5) |
| Simning, 2012A44 | USA | Older adults living in public housing | SCID | DSM-IV | 190 | 10 (5) |
| Spangenberg, 2015A45 | Germany | Primary care patients | SCID | DSM-IV | 160 | 1 (1) |
| Turner, 2012A46 | Australia | Stroke patients  | SCID | DSM-IV | 72 | 13 (18) |
| Turner, UnpublishedA47a | Australia | Cardiac rehabilitation patients | SCID | DSM-IV | 51 | 4 (8) |
| Twist, 2013A48 | UK | Type 2 diabetes outpatients | SCAN | DSM-IV | 360 | 80 (22) |
| Vöhringer, 2013A49 | Chile | Primary care patients | SCID | DSM-IV | 190 | 59 (31) |
| Wagner, 2017A50 | USA | Patients starting radiotherapy for the first diagnosis of any tumor | SCID | DSM-IV | 54 | 6 (11) |
| Williams, 2012A51 | USA | Parkinson’s Disease patients  | SCID | DSM-IV | 235 | 61 (26) |
| Wittkampf, 2009A52 | The Netherlands | Primary care patients at risk for depression | SCID  | DSM-IV | 260 | 45 (17) |
| **Fully structured Interviews** |
| Arroll, 2010A53 | New Zealand | Primary care patients | CIDI | DSM-IV | 2528 | 156 (6) |
| Azah, 2005A54 | Malaysia | Adults attending family medicine clinics | CIDI | ICD-10 | 180 | 30 (17) |
| de Man-van Ginkel, 2012A55 | The Netherlands | Stroke patients | CIDI | DSM-IV | 382 | 54 (14) |
| Delgadillo, 2011A56 | UK | Injecting drug users | CIS-R | ICD-10 | 103 | 51 (50) |
| Fisher, 2016A57 | Australia | Primiparous women less than 6 weeks postpartum | CIDI | DSM-IV | 357 | 4 (1) |
| Gelaye, 2014A58 | Ethiopia | Outpatients at a general hospital | CIDI  | DSM-IV | 923 | 162 (18) |
| Grool, 2011A59 | The Netherlands | Non-demented patients with symptomatic atherosclerotic disease | CIDI | DSM-IV | 477 | 22 (5) |
| Hahn, 2006A60 | Germany | Patients with chronic illnesses from rehabilitation centers | CIDI | DSM-IV | 211 | 18 (9) |
| Henkel, 2004A61 | Germany | Primary care patients  | CIDI | ICD-10 | 430 | 43 (10) |
| Hobfoll, 2011A62 | Israel | Jewish and Palestinian residents of Jerusalem exposed to war | CIDI | DSM-IV | 144 | 42 (29) |
| Kiely, 2014A63 | Australia | Community sample of adults | CIDI | ICD-10 | 822 | 33 (4) |
| Kim, 2017A64 | South Korea | Randomly selected adults | CIDI | DSM-IV | 3071 | 205 (7) |
| Kohrt, 2016A65 | Nepal | Primary care patients  | CIDI | DSM-IV | 125 | 17 (14) |
| Liu, 2015A66 | Canada | Working population | CIDI | DSM-IV | 4182 | 91 (2) |
| Mohd Sidik, 2012A67 | Malaysia | Primary care patients | CIDI | DSM-IV | 146 | 31 (21) |
| Patel, 2008A68 | India | Primary care patients | CIS-R | ICD-10 | 299 | 13 (4) |
| Pence, 2012A69 | Cameroon | HIV-infected patients | CIDI | DSM-IV | 398 | 11 (3) |
| Razykov, 2013A70 | Canada | Patients with systemic sclerosis | CIDI | DSM-IV | 345 | 13 (4) |
| Thombs, 2008A71 | USA | Outpatients with coronary artery disease | C-DIS | DSM-IV | 1006 | 221 (22) |
| Zuithoff, 2009A72 | The Netherlands | General practice patients | CIDI | DSM-IV | 1038 | 135 (13) |
| **Mini International Neuropsychiatric Interviews (MINI)** |
| Akena, 2013A73 | Uganda | HIV/AIDS patients | MINI | DSM-IV | 91 | 11 (12) |
| Baron, 2017A74 | South Africa | Xhosa, Afrikaans and Zulu-speaking general population | MINI | DSM-IV | 851 | 93 (11) |
| Buji, 2018A75 | Malaysia | Patients with systemic lupus erythematosus | MINI | DSM-IV | 130 | 5 (4) |
| Cholera, 2014A76 | South Africa | Patients undergoing routine HIV counseling and testing at a primary health care clinic | MINI | DSM-IV | 397 | 47 (12) |
| Conway, 2016A77 | Australia | Heart transplant recipients | MINI | DSM-IV | 26 | 2 (8) |
| de la Torre, 2016A78 | Argentina | Hospitalized general medical patients | MINI | DSM-IV | 257 | 69 (27) |
| Garabiles, 2020A79a | China | Female Filipino domestic workers in Macao | MINI | DSM-IV | 99 | 39 (39) |
| Gholizadeh, 2019A80a | Iran | Coronary artery disease patients | MINI | DSM-IV | 79 | 12 (15) |
| Hantsoo, 2017A81 | USA | General population | MINI | DSM-IV | 321 | 19 (6) |
| Hides, 2007A82 | Australia | Injection drug users accessing a needle and syringe program | MINI | DSM-IV | 103 | 47 (46) |
| Hyphantis, 2011A83 | Greece | Patients with various rheumatologic disorders | MINI | DSM-IV | 213 | 69 (32) |
| Hyphantis, 2014A84 | Greece | Patients with chronic illnesses presenting at the emergency department | MINI | DSM-IV | 349 | 95 (27) |
| Inagaki, 2013A85 | Japan | Internal medicine outpatients | MINI | DSM-III-R | 104 | 21 (20) |
| Janssen, 2016A86 | The Netherlands | General population and Type 2 diabetes patients | MINI | DSM-IV | 4695 | 156 (3) |
| Lamers, 2008A87 | The Netherlands | Elderly primary care patients with diabetes mellitus or chronic obstructive pulmonary disease | MINI | DSM-IV | 104 | 59 (57) |
| Levin-Aspenson, 2017A88 | USA | General population | MINI | DSM-V | 408 | 66 (16) |
| Liu, 2016A89 | China | General hospital outpatients | MINI | DSM-IV | 1997 | 97 (5) |
| Lotrakul, 2008A90 | Thailand | Outpatients | MINI | DSM-IV | 278 | 19 (7) |
| Muramatsu, 2007A91 | Japan | Primary care patients | MINI | DSM-IV | 116 | 32 (28) |
| Muramatsu, 2018A92 | Japan | Primary care patients | MINI | DSM-IV | 152 | 46 (30) |
| Nakku, 2016A93 | Uganda | Primary patients and hospital outpatients | MINI | DSM-IV | 153 | 84 (55) |
| Paika, 2017A94 | Greece | Patients with long term medical conditions | MINI | DSM-IV | 474 | 98 (21) |
| Persoons, 2001A95 | Belgium | Inpatients and patients at gastroenterological and hepatology wards  | MINI | DSM-IV | 173 | 28 (16) |
| Rancans, 2018A96 | Latvia | Primary care patients  | MINI | DSM-IV | 1467 | 147 (10) |
| Santos, 2013A97 | Brazil | General population | MINI | DSM-IV | 196 | 25 (13) |
| Stafford, 2007A98 | Australia | Inpatients with coronary artery disease who had undergone surgery | MINI | DSM-IV | 193 | 35 (18) |
| Sung, 2013A99 | Singapore | Primary care patients | MINI | DSM-IV | 399 | 12 (3) |
| Suzuki, 2015A100 | Japan | Outpatients in general medicine department | MINI | DSM-IV | 511 | 42 (8) |
| van Heyningen, 2018A101 | South Africa | Pregnant women | MINI | DSM-IV | 373 | 81 (22) |
| van Steenbergen-Weijenburg, 2010A102 | The Netherlands | Diabetes patients | MINI | DSM-IV | 196 | 37 (19) |
| Volker, 2016A103 | The Netherlands | Employees on sickness leave | MINI | DSM-IV | 93 | 23 (25) |
| Wang, 2014A104 | China | General population | MINI | DSM-IV | 1036 | 28 (3) |
| Zhang, 2013A105 | Hong Kong, China | Type 2 diabetes patients | MINI | DSM-IV | 68 | 17 (25) |

**Abbreviations**: C-DIS: Computerized Diagnostic Interview Schedule; CIDI: Composite International Diagnostic Interview; CIS-R: Clinical Interview Schedule Revised; DISH: Depression Interview and Structured Hamilton; DSM: Diagnostic and Statistical Manual of Mental Disorders; ICD: International Classification of Diseases; MINI: Mini Neuropsychiatric Diagnostic Interview; SCAN: Schedules for Clinical Assessment in Neuropsychiatry; SCID: Structured Clinical Interview for DSM Disorders; UK: United Kingdom; USA: United States of America.

aWas unpublished at the time of electronic database search

**eTable2. Frequencies of PHQ-9 scores among participants with and without** **major depression**

|  |  |  |  |
| --- | --- | --- | --- |
| **PHQ-9 score** | **N participants with PHQ-9 score** | **N (%) with major depression among those with PHQ-9 score** | **N (%) without major depression among those with PHQ-9 score** |
| **0**  | 8,811 | 89 (1%) | 8722 (99%) |
| **1** | 5,109 | 51 (1%) | 5058 (99%) |
| **2** | 4,795 | 63 (1%) | 4732 (99%) |
| **3** | 4,195 | 81 (2%) | 4114 (98%) |
| **4** | 3,463 | 103 (3%) | 3360 (97%) |
| **5** | 2,880 | 141 (5%) | 2739 (95%) |
| **6** | 2,379 | 182 (8%) | 2197 (92%) |
| **7** | 2,012 | 181 (9%) | 1831 (91%) |
| **8** | 1,744 | 213 (12%) | 1531 (88%) |
| **9** | 1,501 | 221 (15%) | 1280 (85%) |
| **10** | 1,136 | 235 (21%) | 901 (79%) |
| **11** | 951 | 239 (25%) | 712 (75%) |
| **12** | 921 | 286 (31%) | 635 (69%) |
| **13** | 740 | 259 (35%) | 481 (65%) |
| **14** | 698 | 275 (39%) | 423 (61%) |
| **15** | 573 | 266 (46%) | 307 (54%) |
| **16** | 508 | 277 (55%) | 231 (45%) |
| **17** | 398 | 216 (54%) | 182 (46%) |
| **18** | 367 | 198 (54%) | 169 (46%) |
| **19** | 265 | 166 (63%) | 99 (37%) |
| **20** | 231 | 161 (70%) | 70 (30%) |
| **21** | 217 | 156 (72%) | 61 (28%) |
| **22** | 149 | 112 (75%) | 37 (25%) |
| **23** | 131 | 96 (73%) | 35 (27%) |
| **24** | 120 | 95 (79%) | 25 (21%) |
| **25** | 93 | 76 (82%) | 17 (18%) |
| **26** | 34 | 31 (91%) | 3 (9%) |
| **27** | 82 | 72 (88%) | 10 (12%) |
| **Total** | 44,503 | 4,541 (10%) | 39,962 (90%) |

**eTable3. Biasa in accuracy estimates of the sample optimal cutoffs clustered into categories based on distance from a cutoff of ≥ 8 compared to accuracy estimates from a cutoff of ≥ 8 in the population**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Optimal cutoff | Sample size = 100 | Sample size = 200 | Sample size = 500 | Sample size = 1,000 |
| **N** | **Sensitivity** | **Specificity** | **N** | **Sensitivity** | **Specificity** | **N** | **Sensitivity** | **Specificity** | **N** | **Sensitivity** | **Specificity** |
| ≤ 5 | 93 | 15.2 (13.8, 16.5) | -17.2 (-18.5, -15.8) | 69 | 14 (12.8, 15.3) | -16.3 (-17.5, -15.2) | 30 | 11.8 (10.2, 13.4) | -15.9 (-16.8, -15) | 6 | 12.3 (10.8, 13.8) | -15.8 (-17.2, -14.4) |
| 6 – 7 | 279 | 10 (8.9, 11.0) | -6 (-6.6, -5.4) | 319 | 9.7 (9, 10.4) | -6.1 (-6.6, -5.7) | 319 | 6.8 (6.2, 7.3) | -5.9 (-6.3, -5.6) | 353 | 6.2 (5.8, 6.6) | -5.9 (-6.2, -5.6) |
| 8 | 165 | 7.4 (5.9, 8.9) | 0.5 (-0.1, 1.0) | 215 | 5.6 (4.7, 6.6) | 0.1 (-0.3, 0.4) | 264 | 2.5 (1.9, 3.1) | 0.2 (0.0, 0.5) | 333 | 1.4 (1.0, 1.8) | 0.1 (0.0, 0.3) |
| 9 – 10 | 250 | 4.4 (3.2, 5.7) | 5.5 (5.0, 6.0) | 276 | 0.7 (-0.3, 1.7) | 5.5 (5.1, 5.8) | 333 | -1.5 (-2.1, -1.0) | 5.2 (4.9, 5.4) | 295 | -2.9 (-3.3, -2.4) | 4.7 (4.5, 4.9) |
| ≥ 11 | 213 | -0.5 (-2.2, 1.2) | 11.3 (10.9, 11.7) | 121 | -4.6 (-6.3, -2.9) | 10.5 (10.1, 11) | 54 | -8.2 (-9.5, -6.9) | 10 (9.6, 10.4) | 13 | -7.3 (-9.0, -5.5) | 9.4 (8.7, 10.0) |

N = Number of samples, NA = Not applicable

Differences are presented as mean difference (95% confidence interval)

a Calculated as sample-specific optimal cutoff – population optimal cutoff of ≥ 8, where sample-specific optimal cutoff refers to the cutoff maximizing Youden’s J in each simulated sample, and the optimal cutoff in the full PHQ-9 IPDMA dataset is ≥ 8 (sensitivity = 80.4%, specificity = 82.0%)

**eTable4.** Variability of data-driven optimal cutoffs in 1,000 samples of size 100, 200, 500, and 1,000, among studies that used the SCID as the reference standarda

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample-specificoptimal cutoff** | **Sample size = 100****N samples** | **Sample size = 200****N samples** | **Sample size = 500****N samples** | **Sample size = 1,000****N samples** |
| **≥ 5** | 7 |  |  |  |
| **≥ 6** | 17 | 5 |  |  |
| **≥ 7** | 47 | 35 | 11 | 1 |
| **≥ 8** | 79 | 67 | 32 | 8 |
| **≥ 9** | 135 | 145 | 134 | 94 |
| **≥ 10** | 150 | 193 | 230 | 252 |
| **≥ 11** | 210 | 294 | 425 | 546 |
| **≥ 12** | 192 | 176 | 150 | 95 |
| **≥ 13** | 70 | 44 | 16 | 4 |
| **≥ 14** | 63 | 32 | 2 |  |
| **≥ 15** | 20 | 9 |  |  |
| **≥ 16** | 5 |  |  |  |
| **≥ 17** | 3 |  |  |  |
| **≥ 18** | 2 |  |  |  |

SCID, Structured Clinical Interview for DSM

a N studies = 44, N participants = 9242, N major depression = 1389

**eTable5.** Mean bias of accuracy estimates (with 95% confidence intervals) for 1,000 samples of size 100, 200, 500, and 1,000, among studies that used the SCID as the reference standarda

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Sample size = 100 | Sample size = 200 | Sample size = 500 | Sample size = 1,000 |
| **Sensitivity** | **Specificity** | **Sensitivity** | **Specificity** | **Sensitivity** | **Specificity** | **Sensitivity** | **Specificity** |
| Sample-specific optimal cutoffb – Population optimal cutoff of ≥ 11c | 6.8 (6.2, 7.4) | -1.9 (-2.4, -1.4) | 4.4 (3.9, 4.9) | -1.7 (-2.1, -1.3) | 2.6 (2.3, 2.9) | -1.7 (-1.4, 2.0) | 2.0 (1.8, 2.2) | -1.5 (-1.7, -1.3) |

Differences are presented as mean difference (95% confidence interval)

SCID, Structured Clinical Interview for DSM

a N studies = 44, N participants = 9242, N major depression = 1389

b Sample-specific optimal cutoff refers to the cutoff maximizing Youden’s J in each simulated sample

c the optimal cutoff in the subset of the PHQ-9 IPDMA dataset that used the SCID as the reference standard is ≥ 11 (sensitivity = 78.1%, specificity = 85.3%)

**eFigure 1.** Distribution of PHQ-9 scores among individuals with and without major depression

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