Table 5. Study Characteristics and Outcomes for Mild Cognitive Impairment Screening (MCI vs. Normal, Dementia Not Included), Brief Instruments

| **Study,**  **Quality** | **Instrument (non-English Language)** | **Est. Time (Min)** | **N Screened,**  **N Analyzed** | **Selection Criteria** | **Age (y),**  **% Female,**  **Education (y)** | **% MCI** | **Diagnostic Criteria / Verification** | **Cut Point** | **Sens**  **(95% CI or SE)** | **Spec (95% CI**  **or SE)** | **PPV (95% CI)** | **NPV (95% CI)** | **AUC (95% CI or SE)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cook, 200998  Fair | Telephone interview for Cognitive Impairment Modified (TICS-M) | 7-9 | 71  71 | ≥65 y  Community | 74.9  56.3  16.1 | 23.9 | “spirit” of Mayo criteria and CDR=0.5  All | 26  31  34 | 17.6 (3.8, 43.4\*\*)  47.1 (23.0, 72.2\*\*)  82.4 (56.6, 96.2\*\*) | 100 (93.4, 100\*\*)  100 (93.4, 100\*\*)  87.0 (75.1, 94.6\*\*) | 100.0 (29.2, 100\*\*)  100.0 (63.1, 100\*\*)  66.7 (43, 85.4\*\*) | 79.4 (67.9, 88.3\*\*)  85.7 (74.6, 93.3\*\*)  94.0 (83.5, 98.8\*\*) | 93.3 (3.2) |
| Donnelly, 200892  Fair | Mini-Mental State Examination (MMSE) | 7-10 | 100  100 | ≥65 y  PC | 77.9  1  12.9 | 20 | >1.0 SD below norm  All | 1 SD | 20 (6, 44) | 93 (84, 97) | 40 (12.74) | 82 (73, 89) | 72 (NR) |
| Kaufer, 200859  Fair | MMSE | 7-10 | 146  91 | ≥65 y  Residential care/  assisted living facilities | 83.4  79  Majority >HS | 83.5 | Mayo criteria  All | <28 | 47 (36, 59) | 73 (45, 92) | 90 (76.3, 97.2\*\*) | 22 (11.3, 35.3\*\*) | 0.666 (NR) |
| Li, 200697  Fair | MMSE (Chinese or English) | 7-10 | 144  125 | 65-90 y  Community; neuro-science clinic | 72.7  50.7  4.7 | 29.6 | Mayo criteria and CDR=0.5  All | NR | NR | NR | NR | NR | 0.676 (0.051) |
| McDowell, 199784  Fair | MMSE (English or French) | 7-10 | 1600  1232 | ≥65 y | 80.0  59  8.6 | 39.0 | CIND criteria NR  Subset | NR | NR | NR | NR | NR | 0.77 (0.012) |
| Rideaux, 201299  Fair | MMSE (English or Spanish) | 7-10 | 701  522 | ≥70 y  Community | 80.5  55.2  10.3 | 42.5 | ≥1.5 SD below norm  All | <26 (White)  <23 (Black)  <25 (Latino) | 58 (50, 66\*\*) [White]  67 (53, 80\*\*) [Black]  93 (86, 100) [Latino] | 86 (81, 90\*\*) [White]  71 (54, 85\*\*) [Black]  71 (60, 83) [Latino] | 72.0\*\* (63.0, 79.9\*\*) [White]  75.0\*\* (59.7, 86.8\*\*) [Black]  93 (64, 87) [Latino] | 76.7\*\* (71.1, 81.7\*\*) [White]  62.8\*\* (46.7, 77.0\*\*) [Black]  71 (83, 99) [Latino) | NR |
| Saxton, 2009100  Good | MMSE | 7-10 | 524  524 | ≥60 y  PC; Senior community centers | 73.3  65.1  13.46 | 43.5 | At least 2 test scores  1-2 SD below norm  All | 28 | 45 (39, 52\*\*) | 80 (75, 84\*\*) | 63.6\*\* (55.7, 71\*\*) | 65.5\*\* (60.3, 70.4\*\*) | NR |
| Scharre, 201087  Fair | MMSE | 10-15 | 254  42 | >59 y  Geriatric outpatient; community; independent and assisted living facilities; senior centers; memory clinic | 78  66.7  93.7% >HS | 50 | ≥1.5 SD below norm  Subset | NR | 71 (55, 84\*\*) | 90 (70, 99\*\*) | 93.8\*\* (79.2, 99.2\*\*) | 61.3\*\* (42.2, 78.2\*\*) | 0.628 |
| Tariq, 2006101  Fair | MMSE | 7-10 | 702  620 | ≥60 y  VA | 75.3  NR  69.4% ≥HS | 29.0 | MNCD criteria NR  All | 28.5 [<HS edu]  29.5 [HS edu+] | 60 (45, 74\*\*) [<HS edu]  75 (66, 82\*\*) [HS edu+] | 65 (56, 73\*\*) [<HS edu]  48 (42, 54\*\*) [HS edu+] | 38 (27.7, 50.2\*\*) [<HS edu]  38 (32.3, 44.5\*\*) [HS edu+] | 82 (73.1, 88.4\*\*)  [<HS edu]  82 (75.0, 86.9\*\*) [HS edu+] | 67.1 (NR) [<HS edu]  64.3 (NR) [HS edu+] |
| Lee, 2008102  Fair | Montreal Cognitive Assessment (MoCA) (Korean) | 10 | 196  152 | ≥60 y  Hospital outpatients; community | 69.8  64.8  53.1% <primary school | 24.3 | Mayo criteria  All | 25/26 | 100 (91, 100\*\*) | 50 (41, 59\*\*) | 39.0\*\* (29.1, 49.5\*\*) | 100.0\*\* (93.8, 100.0\*\*) | 0.94 (0.90-0.98) |
| Markwick, 201289  Good | MoCA | 10 | 107  99 | MMSE ≥24  NR | 76  54  76.6% >12 y | 20.2 | Petersen criteria  All | <26 | 80.0\* (56.3, 94.3\*) | 76.0\* (65.0, 84.9\*) | 45.7\* (28.8, 63.4\*) | 93.8\* (84.8, 98.3\*) | NR |
| Li, 200697  Fair | Immediate Recall (Logical Memory I) (Chinese or English) | <7‡ | 144  125 | 65-90 y  Community; neuro-science clinic | 72.7  50.7  4.7 | 29.6 | Mayo criteria and CDR=0.5  All | NR | NR | NR | NR | NR | 0.812 (0.044) |
| Rideaux, 201299  Fair | Fuld Object Memory Evaluation (FOME), abbreviated (English or Spanish) | 9 | 701  522 | ≥70 y  Community | 81  55  10.3 | 42.5 | ≥1.5 SD below norm  All | <21 (White)  <22 (Black)  <25 (Latino) | 55 (50, 60) [White]  65 (55, 75) [Black)  93 (76, 99\*\*) [Latino] | 93 (91, 96) [White]  74 (64, 83) [Black]  57 (37, 76\*\*) [Latino] | 83 (80, 87) [White]  76 (67, 85) [Black]  67.6\*\* (50.2, 82.0\*\*) [Latino] | 80 (75, 84) [White]  62 (52, 72) [Black]  88.9\*\* (65.3, 98.6\*\*) [Latino] | NR |
| Tariq, 2006101  Fair | St. Louis University Mental Status Examination (SLUMS) | 7 | 702  620 | ≥60 y  VA | 75.3  NR  69.4% > HS | 29.0 | MNCD criteria NR  All | 23.5 [<HS edu]  25.5 [HS edu+] | 92 (81, 98\*\*) [<HS edu]  95 (89, 98\*\*) [HS edu+] | 81 (73, 87\*\*) [<HS edu]  76 (71, 81\*\*) [HS edu+] | 64 (51.7, 74.9\*\*) [<HS edu]  62.9\*\*£ (55.8, 69.7\*\*£) [HS edu+] | 97 (91.3, 99.0\*\*) [<HS edu]  97.1\*\*£ (94, 98.8\*\*£) [HS edu+] | 92.7 (NR) [<HS edu]  94.1 (NR) [HS edu+] |

\* Calculated from 2x2 table.

‡ Assumed.

║ Reported administration times varied, but the IQCODE can be self-administered in less than 20 minutes, so was included.

†† Confidence intervals could not be calculated.

\*\* Calculated using the sensitivity, specificity, and prevalence of MCI.

£ PPV and NPV reported in the text do not match what was calculated using the sensitivity, specificity, and prevalence of MCI. The numbers presented have been calculated.

**Abbreviations:** AUC = area under the curve; CDR = clinical dementia rating; CI = confidence interval; CIND = cognitive impairment, no dementia; edu = education; FOME = Fuld Object Memory Evaluation; HS = high school; MCI = mild cognitive impairment; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; MNCD = mild neurocognitive disorder; N = number; NPV = negative predictive value; NR = not reported; PC = primary care; PPV = positive predictive value; SD = standard deviation; SE = standard error; SLUMS = St. Louis University Mental Status Examination; TICS-M = Telephone interview for Cognitive Impairment Modified; VA = Veterans Affairs; y = year.