## Supplemental Table 1

*Summary of Included Studies (n = 17 studies with 22 articles of these studies)*

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| Fortney et al., 2007 | N = 395; mAge = 59.2; 91.7% male; 74.7% White | RCT | 7 Veterans Affairs community-based outpatient clinics (satellite clinics located a long distance from parent Veterans Affairs Medical Centers) in Veterans Integrated Service Network #16, the largest and most rural of the networks | 6 & 12 months | SCL-20 | *Collaborative care;* stepped care model of depression treatment, increasing intensity of treatment for patients failing to respond; 5 types of providers: 1) PCPs located at clinics; 2) consult tele psychiatrists located at parent VA Medical Centers; 3) off-site depression nurse care manager; 4) off-site clinical pharmacist; 5) off-site supervising psychiatrist | Response (50% improvement in depression severity) at 6 months AOR = 1.94 (95% CI = 1.09 - 3.45, p = 0.02), at 12 months AOR = 1.42 (95% CI = 0.85 - 2.37, p = 0.18); Remission (SCL-20 <0.5) at 6 months AOR = 1.79 (95% CI = 0.82 - 3.88, p = 0.14) at 12 months AOR = 2.39 (95% CI = 1.13 - 5.02, p = 0.02) | VA IIR grant; No COI |
| Fortney et al., 2013; Mittal et al., 2014 | N = 364; mAge = 47.2 71.7% White; 81.6% Female; 64.5% unemployed; 69.7% Household income <$20,000 | RCT | Five FQHCs in medically underserved populations in Arkansas' Mississippi delta and Ozark highlands | 18 months | SCL-20 | *Collaborative care*; comparing stepped care telemedicine-based collaborative care (on-site PCP and off-site RN, pharmacist, psychologist, and psychiatrist) to practice-based collaborative care (on-site PCP and RN) | Significant group main effect for both response (OR = 7.74; 95% CI = [3.94 – 15.20]) and remission (OR = 12.69, 95% CI = [4.81 – 33.46]) with patients randomized to telemedicine based collaborative care having better outcomes; Males (AOR = 0.08, 95% | NIH; No COI |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | CI = 0.02-0.44) and those on public insurance (AOR = 0.37, 95% CI = [0.17 – 0.82]) less likely to have full response compared to females and those without insurance | |
| Grubbs et al., 2018 | N = 759; community based VA clinics: mAge = 59.2, 92% Male, 75% Caucasian; FQHC: mAge = 47.2, 18% Male, 72% Caucasian | RCT | Comparing tele-collaborative care model in FQHC vs. VA community clinics (Fortney 2007 vs. 2013 trials) | 6 months | SCL-20 | *Collaborative care;* Comparing findings of outcomes of Fortney 2007 (VA) and Fortney 2013 (FQHC) trials which evaluated the same model of telemedicine based, stepped-care collaborative care | Significant main effect for intervention response (OR = 5.40, 95% CI = 5.32 - 5.51, $p < 0.001$) and moderating effect for veteran status, with lower response rates among veterans compared with civilians (OR = 0.22, 95% CI = 0.22 - 0.23, p = .01) | NIH & VA; No COI |
| Dwight-Johnson et al., 2011 | N = 101; mAge = 39.81; 84% primarily Spanis speaking; 78% Femal 50% employed full o part-time; 40% had average income between $5,001-$15,000 | RCT | Family medical rural health center in the state of Washington – part of Yakima Valley Farm Workers Clinic (nonprofit network of 17 rural health centers); of the population that the center serves, 53% Latino, 44% Spanish speaking, 21% seasonal farm | 6 weeks, 3 & 6 months | PHQ-9 and "depression items from the SCL" but never reported which items in the SCL they were referring to so only reporting | *Tele-psychotherapy*; CBT delivered by telephone in eight sessions by part-time therapists with masters in social work; referred by PCP providers or local residents who approached patients in waiting room; therapists could refer patient for case | Significant decrease in PHQ-9 score ($\beta$= -3.51; t = -2.49; p = .013) and insignificant trend toward response ($\chi^2$ = 3.06; p = 0.8) | NIH; No COI |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| | | | workers; 7% migrant farm workers; 31% uninsured | | PHQ-9 results | management services or back to PCP for medication management; group supervision of therapists by an interdisciplinary group of supervisors | | |
| Moreno et al., 2012 | N = 87, mAge = 43.2, 86% women; all Hispanic | RCT | Community health center in Tucson, Arizona (Saint Elizabeth Health Center) along the US-Mexico border, serving low-income uninsured and underinsured patients | 6 months | PHQ-9 | *Tele-psychotherapy;* Patients who screened positive at CHC given appointment with bilingual psychiatrists who met with them six times monthly via a Webcam in the community health center to deliver eclectic, supportive therapy and medication management; at the end, patients were transitioned back to PCP for appropriate management (sharing study records, written psych assessment, follow-up progress notes, medication log); study psychiatrists available to case discussions; all patients continued to received general care from PCP | Significant main effect of time ($f = 212.14$, $df = 2$ and $130$, $p < 0.001$) and a significant interaction of time by intervention ($f = 3.6$, $df = 2$ and $260$, $p < .05$) | RWJF; No COI |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| Cummings et al., 2019 | N = 139; mAge = 52.6; 73.7% African American; 77.7% female | RCT | Academic family medicine practice in Southeastern US that provides primary care to a large rural population of people with diabetes and many are African American | 6 & 12 months | PHQ-9 | *Self-management support;* behavioral activation intervention designed to be tailored or severity stratified based on level of baseline distress and depression scores, i.e., small-changes lifestyle coaching (PHQ-9 <10 and/or mean DDS-17<2), CBT (if PHQ-9 >=10 and/or mean DDS-17 >=2), or PST (met CBT criteria but had more immediate concerns). Lifestyle coaching delivered in person by nurse case manager. CBT and PST delivered in person or via telephone by psychologist or psychologist student; also had access to CHW to navigate community resources | Significantly greater improvements in depressive symptoms in intervention group vs. usual care (PHQ-9; -3.39 +- 5.00 vs. -0.90 +- 6.17, p=.01) | Bristol-Myers Squibb Foundation's Together on Diabetes Program and from East Carolina University; DMC is a co-investigator on a study with research funding from Novo Nordisk Pharmaceuticals; LDL received a stipend from Weight Watchers to complete a blinded randomized clinical trial; No other COI |
| Hilty et al., 2007 | N = 94; mAge = 46; 84% Caucasian; 80% Female; 20% unemployed | RCT | 8 rural primary care sites which were on average 140 miles from University of California Davis Medical Center, had 22,264 patient encounters per year, had 9 practitioners, and the town | 12 months | BDI-13 | *Self-management support;* compared usual care (with depression management modules) and intensive depression management modules with monthly psychiatry visits and | Insignificant difference between usual care and intensive care (both reported that 22 subjects (42%) had a 50% reduction in BDI-13 scores at 12 months; Downward trend in BDI-13 | Not reported |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| | | | population was on average 6,550 | | | training of PCP in guidelines of mental health and prescribing of mental health medications | score across groups (scores went from 18.2 at baseline to 11 at 12 months) | |
| Seal et al., 2021 | N = 272; Intervention: mAge = 49.8, 19.7% female, 62.8% White/Caucasian, 19.7% Black or African American; Control: mAge = 51.1, 12.6% female, 54.1% White/Caucasian, 25.2% Black or African American | RCT | VA community-based outpatient clinics; 4 in Northern California (3 of which rural) and 4 in Louisiana (3 of which rural) | 8, 16, and 32 weeks | PHQ-9 | *Self-management support;* 2 veteran peers performed motivational interviewing techniques to encourage MH treatment initiation and retention via phone calls | Control 16 week score = 11.1 (SD = 6.5); Intervention 16 week score = 9.4 (SD = 6.2); p = .01 | VA; No COI |
| Attridge & Dickens, 2021 | N = 120; mAge = 45.9 94% White; 73% Female; 38% employed; $29,145 average income | Pretest-Posttest | FQHC in St. Johnsbury, VT (rural community of about 7,000 people about 50 miles from Canadian border) | 3 & 6 months | PHQ-9 | *Collaborative care;* Two licensed EAP counselors, a licensed mental health counselor, and a social worker who were trained in collaborative care and motivational interviewing provided sessions averaging every 3 weeks to patients who were proactively screened and identified as having behavioral risks | Significant decreases in PHQ-9 scores (from baseline to 6 months post-intervention; T = 9.44; p<.001*) | State of Vermont Health Care Innovation Project under Vermont Innovation Model Grant awarded by CMS Innovation Center; COI: Dr. Attridge hired by Invest EAP Centers for Wellbeing to conduct the project and Steve Dickens is a senior executive at Invest EAP Centers for Wellbeing |
| Bowen et al., 2020; Powers et | N = 5,187; mAge = 39.8; 82% White; | Pretest-Posttest | Eight rural primary care clinics selected through an application | 2 years | PHQ-9 | *Collaborative care;* clinics developed a vision based on their | Powers report: 5 of 8 clinics achieved both response and | John A. Hartford Foundation and the Corporation for |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| al., 2020; Renn et al., 2022 | 55.6% Women; chose only "low income" clinics to include | | process from the Social Innovation Fund which funded clinics through a competitive project that required they match the award 1:1; clinics had to be in a rural/frontier area designated as a health provider shortage or medically underserved by the United States government and predominately serve low-income patients; Bowen et al., 2020 report examined 3 clinics serving AI/AN communities | | | own goals and resources, clinics had a variety of support roles but many used psychiatric NPs in a consultant role; all on-site | remission (range of statistics for clinics that achieved remission: OR 1.47 – 2.35; 95% CI = [1.16 – 3.50]; p ≤ 0.001*). Bowen report: Collaborative care was associated with increased odds of response (OR = 1.4; 95% CI = [1.1 – 1.7]; p = 0.009*) but not remission (OR = 1.2; 95% CI = 0.9 – 1.6; p = 0.124) among AI/AN patients compared to White patients; Renn report: Older adults demonstrated a greater decrease in depression scores of 2.06 points (95% CI = -2.98 to -1.14, p < .001) between the first and last PHQ-9 compared with younger adults. Both older (Cohen's d = 1.2) and younger (Cohen's d = 1.2) adults evidenced large effect sizes for improvement in depression scores. | |
| Flynn et al., 2020; | Wolff report: N =4,226; Intervention: mAge | Pretest-Posttest | Wolff report: 8 Si Texas Organizations (FQHCs, community | 12 months | PHQ-9 | *Collaborative care;* Integrated care in Latino populations; | Wolff overall report: Adjusted mean difference of | Corporation for National and |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| Wolff et al., 2022 | = 48.9, 69.8% female, 92.7% Hispanic; Control: mAge = 49.5, 69.8% female, 90.3% Hispanic; Flynn report: N = 563; mostly female, Hispanic ethnicity, mean age 55.9 in intervention group and 52.7 in comparison; inclusion criteria = new or existing adult patients at 3 clinics with A1C >= 6.5% within 30 days of enrollment | | organizations, university clinics) along 12 county region along US Mexico border; Flynn report: 1 of these 8 sites (an FQHC) | | | general approach of integrated care was slightly customized to each organization's setting and context (primary care behavioral health, collaborative care, reverse colocation, integrated community continuum of care). All shared study sample (low-income, Latino patients with at least 1 chronic condition), core outcome measures, and analytic approach; Flynn report: Assessed for depression in PCP visit, then warm hand-off (provider directly introduces a patient to another provider) to other clinic staff (e.g., health educators, nutritionist) who provided a brief intervention focused on behavioral health care, health education, and/or nutrition. Key difference - presence of promotoras(es) (community health workers with lived experience in border region) to assist with | intervention = -0.39 (SE = 0.18), p = 0.03; Flynn report: Intervention-comparison-adjusted mean difference at 12 months = (-0.16, SD = 0.28, p = 0.56) | Community Service; No COI |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| | | | | | | health and wellness program components, provide peer support, and help participants navigate the clinic to receive various services | | |
| Logan et al., 2019 | N = 101; mAge = 42.5; 52% Caucasian; 55% Male | Pretest-Posttest | West Hawaii Community Health Center (FQHC) serving a geographically isolated rural population on the west side of Hawai'i Island, where a majority of the patient population identifies as Native Hawaiian, Pacific Islander, or more than one race | 3 months | PHQ-9 | *Collaborative care;* Patients with OUD and comorbid depression; All prescribed buprenorphine; Care team included PCPs, psychologist, social worker, behavioral health case manager, and clinical pharmacist | Depression decreased over time (B = -0.04; 95% CI = -0.06 - -0.02; $p < 0.001$*); Time based changes in depression symptoms if patients retained over 3 months (B = -0.03; 95% CI = [-0.05, -0.001]; $p < 0.05$*) but not under 3 months (B = -0.08, 95% CI = [-0.25, 0.08]; $p = 0.322$) | Not reported |
| Gonzalez & Brossart, 2015 | N = 41, 36 analyzed; mAge = 41.02; 85% Caucasian; 94% Women; 56.1% unemployed | Pretest-Posttest | Rural primary care clinic in Brazos Valley of central Texas, most of which is a mental health provider shortage area | 12-13 months | PHQ-9 | *Tele-psychotherapy;* Two masters-level practitioners provided weekly tele-psychotherapy that met patient and therapists goals, concerns, and diagnoses (type of therapy ranged, tailored to patient needs, ranged from cognitive-behavioral, existential-humanistic, | Statistically significant reduction in PHQ-9 (T = 7.75; d = 1.29; $p < 0.001$*); Clinically meaningful change (mean went from moderately severe range at pretreatment to mild range posttreatment) | Not reported |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| | | | | | | biopsychosocial, and psychodynamic-interpersonal). | | |
| McCord et al., 2011 | N = 25 analyzed; mAge = 40.5; 80.9% Caucasian; 70.5% Female | Pretest-Posttest | Leon County Health Resource Center in rural central Texas Brazos Valley, serving mostly Caucasian women | 4 weeks | PHQ-9 | *Tele-psychotherapy;* Counseling psychology doctoral students in an FQHC 70 miles away teleconferenced into Leon County clinic for weekly 50 minute sessions based on client presenting concern and counselor therapeutic orientation | Statistically significant decrease in symptoms (mean decrease = 5.88; SD = 7.16; $p < .05$*) | Office of Rural Health Policy, Health Resources and Services Commission; No COI |
| Mohr et al., 2006 | N = 8; mAge = 56.76; All Caucasian males | Pretest-Posttest | One rural VA community-based outpatient clinic in Northern California, serving mostly Caucasian men | 8 weeks | BDI | *Tele-psychotherapy;* Three PhD level psychologists delivered CBT via telephone in eight weekly 50 minute sessions | Significant reduction in BDI-II ($T = 3.80$; $p = .007$*) | Funded by NIH; No COI |
| Naik et al., 2012 | N = 8; mAge = 62; 57% White; 86% Male | Pretest-Posttest | VA patient registry to identify rural-dwelling individuals with diabetes (no other information provided) | 6 months | PHQ-9 | *Self-management support;* Non-expert mental health coaches delivered ten 30-56 minute sessions to 1) patients to identify depression self-management needs, facilitators, and barriers; and 2) the PCP to establish coordinated goals and address progress or challenges | Significant decrease in symptoms at 6 months (Cohens d = 1.69) | Research, Education, and Clinical Center Behavioral Coaching for Rural Veterans with Diabetes and Depression Pilot Study Program; Additional Support by VA Health Services Research and Development Care of Excellence; No COI |

| Author, Year | Sample size and characteristics | Study Design | Setting | Follow-Up | Outcome | Primary Care Model | Results | Funding/Conflicts of Interest |
|---|---|---|---|---|---|---|---|---|
| Wong et al., 2019 | N = 3,870, 897 rural; mAge = 44.2; 97.8% White; 70.9% Female; | Retrospective Cohort | Large southeast Minnesota primary care practice; urban = >50,000 population, urban cluser = 2500 – 50,000, rural all else, defined by 2010 United States Census Legal/Statistical Area Descriptions | 6 months | PHQ-9 | *Collaborative care;* on-site PCPs, social workers, and psychologists but off-site clinical nurse specialists and consulting psychiatrists | Rural patients had improved odds of remission (AOR = 2.83; 95% CI = [1.37 – 5.93]) | Department of Family Medicine, Mayo Clinic Small Grants program; No COI |
| Barrera et al., 2017 | N = 3; All were in their 60s, Caucasian, and men | Case study | Home-based primary care for homebound veterans living in rural areas through Veterans Health Administration home-based primary care system for older veterans unable to travel to clinics | 3 months | PHQ-8 | *Tele-psychotherapy;* home based primary care providers helped to recruit patients to VA-HELPS, which is a 6 to 12 sessions, manualized CBT intervention that teaches skills to manage depression and anxiety via telephone; can be tailored to patient needs and preferences | Patient 1 - PHQ-8 decreased from 14 to 10; Patient 2 - PHQ-8 decreased from 16 to 14; Patient 3 – PHQ-8 decreased from 13 to 2 | Not reported |

**Supplemental Table 2**

*Search terms*

| Database | Search Terms |
|---|---|
| PubMed | Nonmetropolitan OR rural OR underserved OR “remote areas” OR “remote area” OR “rural health services”[Mesh] OR “rural health”[Mesh] OR “medically underserved area”[Mesh] OR “rural nursing”[Mesh] OR “rural population”[Mesh] **AND** “primary care” OR “federally qualified health center*” OR “community health center*” OR "Primary Health Care"[Mesh] OR "community health centers"[Mesh] OR “Physicians, primary care”[Mesh] OR “Primary care nursing”[Mesh] **AND** Depress* OR "Depressive Disorder"[Mesh] OR "Depression"[Mesh] |
| PsycINFO | rural OR underserved OR “remote areas” OR “remote area” OR nonmetropolitan OR DE “rural health” **AND** “community health center” OR “primary care” OR “federally qualified health center” OR FQHC OR DE “Primary health care” **AND** Depress* OR DE “major depression” OR DE “depression (emotion)” |
| CINAHL | Rural OR underserved OR “remote area” OR “remote areas” OR nonmetropolitan OR MH “Rural health centers” OR MH “Rural health personnel” OR MH “rural areas” OR MH “rural health nursing” OR MH “rural population” OR MH “rural health” **AND** “community health center” OR “primary care” OR “federally qualified health center” OR FQHC OR nonmetropolitan OR MH “Primary health care” OR MH “physicians, family” OR MH “community health centers” **AND** Depress* OR MH “depression+” |

**Supplemental Table 3**

*Quality Appraisal Checklist for Randomized Controlled Trials (n = 7): Revised Cochrane Risk of Bias Tool*

| | Cummings et al., 2019 | Dwight-Johnson et al., 2011 | Fortney et al., 2007; Grubbs et al., 2018 | Fortney et al., 2013; Grubbs et al., 2018; Mittal et al., 2014 | Hilty et al., 2007 | Moreno et al., 2012 | Seal et al., 2021 |
|---|---|---|---|---|---|---|---|
| **Randomization process** | | | | | | | |
| 1.1 Sequence random? | Y | Y | N | Y | Y | NI | Y |
| 1.2 Allocation concealed? | Y | NI | NI | NI | NI | NI | NI |
| 1.3 Imbalance suggest problem? | Y | N | N | N | N | PN | N |
| Risk-of-bias judgment | Low | Some | Some | Some | Some | Some | Some |
| **Deviations from intended interventions (effect of assignment to intervention)** | | | | | | | |
| 2.1 Participants aware? | PY | NI | PY | Y | Y | PY | PY |
| 2.2 Personnel aware? | PY | NI | PY | Y | Y | PY | PY |
| 2.3 Any deviations? | NI | NI | PN | NI | NI | N | PN |
| 2.4 Affecting outcomes? | NA | NA | NA | NA | NA | NA | NA |
| 2.5 Balanced deviations? | NA | NA | NA | NA | NA | NA | NA |
| 2.6 Appropriate analysis? | Y | Y | PY | Y | Y | Y | Y |
| 2.7 Substantial impact? | NA | NA | NA | NA | NA | NA | NA |
| Risk-of-bias judgment | Some | Some | Low | Some | Some | Low | Low |
| **Deviations from intended interventions (effect of adhering to intervention)** | | | | | | | |
| 3.1 Participants aware? | PY | NI | PY | PY | Y | PY | PY |
| 3.2 Personnel aware? | N | NI | PY | PY | Y | PY | PY |
| 3.3 Balanced non-protocol? | PY | NI | PY | PY | PY | PY | PY |
| 3.4 Failures in implementation? | NA | NI | PN | PN | PN | PN | PN |
| 3.5 Non-adherence? | NA | NI | PN | PN | PN | PN | PN |
| 3.6 Appropriate analysis? | NA | NI | NA | NA | NA | NA | NA |
| Risk-of-bias judgment | Low | Some | Low | Low | Low | Low | Low |
| **Missing Outcome Data** | | | | | | | |
| **4**.1 Complete data? | N | N | PY | N | N | Y | Y |
| **4**.2 Evidence of no bias? | N | N | PN | Y | N | NA | NA |
| **4**.3 Could depend on true? | NA | N | Y | NA | N | NA | NA |
| **4**.4 Likely depend on true? | NA | NA | Y | NA | NA | NA | NA |

| | Cummings et al., 2019 | Dwight-Johnson et al., 2011 | Fortney et al., 2007; Grubbs et al., 2018 | Fortney et al., 2013; Grubbs et al., 2018; Mittal et al., 2014 | Hilty et al., 2007 | Moreno et al., 2012 | Seal et al., 2021 |
|---|---|---|---|---|---|---|---|
| Risk-of-bias judgment | Some | Low | Some | Low | Low | Low | Low |
| **Measurement of Outcome** | | | | | | | |
| **5**.1 Inappropriate? | PN | N | N | N | N | N | N |
| **5**.2 Differed between groups? | N | N | N | N | N | N | N |
| **5**.3 Aware? | PY | N | PY | N | Y | N | N |
| **5**.4 Could be influenced? | PY | NA | PY | NA | PY | NA | NA |
| **5**.5 Likely to be influenced? | PN | NA | PN | NA | PN | NA | NA |
| Risk-of-bias judgment | Some | Low | Some | Low | Some | Low | Low |
| **Selection of Reported Result** | | | | | | | |
| **6**.1 In accordance with plan? | Y | PY | Y | Y | Y | Y | Y |
| **6**.2 Selected from multiple outcomes? | N | N | N | N | N | N | N |
| **6**.3 Selected from multiple analyses? | N | N | N | N | N | PN | N |
| Risk-of-bias judgment | Low | Low | Low | Low | Low | Low | Low |
| **Overall risk-of-bias** | Some | Some | Some | Some | Some | Some | Some |

*Note.* Y = yes; PY = probably yes; PN = probably no; N = no; NI = no information; NA = not applicable

**Supplemental Table 4**

*Quality Appraisal Checklist for Quasi-Experimental and Cohort Studies (n = 9): Downs and Black Tool*

| | Attridge & Dickens, 2021 | Bowen et al., 2020, Powers et al., 2020, Renn et al., 2020 | Flynn et al., 2020; Wolff et al., 2021 | Gonzalez & Brossart, 2015 | Logan et al., 2019 | McCord et al., 2011 | Mohr et al., 2006 | Naik et al., 2012 | Wong et al., 2019 |
|---|---|---|---|---|---|---|---|---|---|
| **Reporting** | | | | | | | | | |
| 1. Hypothesis/aims/objective clearly described | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2. Main outcomes in Introduction or Methods | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 3. Patient Characteristics clearly described | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 4. Interventions clearly described | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 5. Principal confounders clearly described | 1 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| 6. Main findings clearly described | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 7. Random Variability estimates provided for outcomes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 8. Adverse events of intervention reported | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 9. Characteristics of patients' loss to follow-up described | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 10. Probability values reported for main outcomes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| **External Validity** | | | | | | | | | |
| 11. Subjects asked to participate were representative of population | 1 | 0 | 0 | 0 | 0 | UTD | 0 | 0 | 1 |
| 12. Subjects were representative of population | 1 | UTD | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 13. Staff, places, and facilities representative of population | 1 | 1 | 1 | 1 | UTD | UTD | 1 | 0 | 1 |
| **Internal Validity – Bias** | | | | | | | | | |
| 14. Participants blinded to treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15. Researchers blinded to outcome assessment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | Attridge & Dickens, 2021 | Bowen et al., 2020, Powers et al., 2020, Renn et al., 2020 | Flynn et al., 2020; Wolff et al., 2021 | Gonzalez & Brossart, 2015 | Logan et al., 2019 | McCord et al., 2011 | Mohr et al., 2006 | Naik et al., 2012 | Wong et al., 2019 |
|---|---|---|---|---|---|---|---|---|---|
| 16. Data dredging clearly described | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 17. Analysis adjusted for length of follow-up | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 18. Appropriate statistical tests performed | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 19. Compliance with interventions was reliable | 1 | UTD | 1 | UTD | 1 | UTD | 1 | 1 | 1 |
| 20. Outcome measures were reliable and valid | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Internal Validity - Confounding** | | | | | | | | | |
| 21. Participants recruited from same source population | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 22. All participants recruited over same time period | 1 | UTD | 1 | 1 | 0 | UTD | UTD | UTD | 0 |
| 23. Participants randomized to treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24. Allocation of treatment concealed from investigators and participants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25. Adequate adjustment for confounding | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 26. Losses to follow up considered | 0 | UTD | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| **Power** | | | | | | | | | |
| 27. Sufficient power to detect effect | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| **Total** /28 | 20 | 15 | 19 | 15 | 18 | 12 | 17 | 15 | 22 |

*Note.* UTD = unable to determine

**Supplemental Table 5**

*Quality Appraisal Checklist for Case Studies (n = 1): Joanna Briggs Institute Quality Appraisal Checklist*

| | **Barrera 2017** |
|---|---|
| 1. Were patient's demographic characteristics clearly described? | Yes |
| 2. Was the patient's history clearly described and presented as a timeline? | Yes |
| 3. Was the current clinical condition of the patient on presentation clearly described? | Yes |
| 4. Were diagnostic tests or assessment methods and results clearly described? | Yes |
| 5. Was the intervention(s) or treatment clearly described? | Yes |
| 6. Was the post-intervention clinical condition clearly described? | Yes |
| 7. Were adverse events (harms) or unanticipated events identified and described? | Yes |
| 8. Does the case report provide takeaway lessons? | Yes |
| Total/8 | 8 |
| Percentage | 1.00 |
| Risk of bias | Low |

**Figure 1**

*PRISMA Flow Diagram Depicting Identification, Screening, and Included Studies (n = 17)*