

DEPRESSION IN COMMUNITY RESIDING ELDERERS (DIRE)

A Rapid Review of Telemedicine Interventions for Reducing Depressive Symptoms in Community-Dwelling Older Adults



Investigators:

Dr. Zahra Goodarzi, MD, MSc, University of Calgary
Dr. Jennifer Watt, MD, PhD, University of Toronto
Dr. Julia Kirkham, MD, MSc, Queens University
Dr. Dallas Seitz, MD, PhD, University of Calgary
Dr. Zahinoor Ismail, MD, University of Calgary
Dr. Areti Angeliki Veroniki, PhD, University of Ioannina
Dr. Andrea Tricco, PhD, University of Toronto
Dr. Sharon Straus, MD, MSc, University of Calgary

Knowledge Users:

Dr. Jayna Holroyd-Leduc, MD, University of Calgary
Dr. Vivian Ewa, MBBS MMedEd, University of Calgary
Dr. Barbara Liu, MD, University of Toronto
Ms. Lorelee Fox, RN MN, University of Calgary
Mr. Wayne Hykaway
Mrs. Linda Grossman
Ms. Charlene Retzlaff, BSW RSW, Alberta Health Services

Funding:

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TABLE OF CONTENTS

Abstract..... 2

Background and Rationale..... 2

 Background 2

 Knowledge Gap 3

 Objective 3

Methods 3

 Search Strategy 3

 Study Selection..... 3

 Data Extraction and Risk of Bias Assessment 4

Results..... 4

 Search Results and Inclusion..... 4

 Risk of Bias Assessment 5

 Synthesis 6

Discussion..... 8

 Implications..... 8

 Gaps in Findings 9

 Recommendations for Policy 9

 Next Steps 9

Appendices 23

 Appendix 1: MEDLINE Search..... 23

References..... 24

ABSTRACT

Background. Depression is common in older adults and leads to significant morbidity and mortality. There are many available treatments for depression, but in the setting of a pandemic, physical distancing can lead to challenges with accessing these treatments.

Objective. To describe the efficacy of telemedicine interventions for reducing depressive symptoms in community-dwelling older adults.

Methods. We registered our rapid review with PROSPERO (CRD42020188465) and published our protocol on Open Science Framework (<https://osf.io/6tjcy/>). We performed a rapid review to identify relevant randomized controlled trials (RCTs). We searched MEDLINE, EMBASE, Cochrane Database of Systematic Reviews, CENTRAL, and PsycINFO for RCTs published in English from inception until May 25, 2020. We included RCTs that compared the efficacy of a telemedicine intervention to usual care or any other telemedicine intervention in community-dwelling older adults ≥ 60 years old with depressive disorders or depressive symptoms. All study screening, data abstraction, and risk of bias assessment was completed by a single reviewer, after an initial calibration with a second author. All data was abstracted by one author.

Results. We screened 1966 titles and abstracts and 486 full text articles, which resulted in 14 included RCTs in our rapid review (n=1910 participants). Many studies were at unclear or high risk of bias due to inadequate allocation concealment (n=8) and blinding of participants and personnel (n=13). Eight studies looked at older adults with depression at baseline, and six looked at depression as an outcome. Studies included predominantly telephone or internet-delivered cognitive behavioural therapy with or without clinician support. Nine studies reported a significant decrease in depression scores during the study for telemedicine interventions compared to controls. Meta-analyses have not been completed yet

Conclusions. This rapid review identified 14 RCTs that examined telemedicine interventions in community-dwelling older adults for treatment of depression or depressive symptoms. The most common intervention was internet or telemedicine cognitive behavioural therapy.

BACKGROUND AND RATIONALE

BACKGROUND

Depression is the most common mental illness in older adults¹. Fifteen percent¹ of older adults experience clinically significant depressive symptoms, which can have devastating consequences. Older adults have the highest suicide rate in Canada¹, and depressed older adults have greater physical disability² and lower quality of life³ than younger Canadians. There are effective treatments for depression in older adults⁴, such as psychotherapy⁵. However, older adults are frequently under-treated¹ and experience additional barriers to accessing mental health resources⁶.

Older adults are at higher risk of depression than younger adults because of social isolation and infection prevention measures enacted to contain the COVID-19 pandemic, which have disproportionately impacted older adults^{7, 8}. Telemedicine can potentially increase access to care in the setting of a pandemic and improve clinical outcomes for older adults. In a pandemic with associated physical distancing, older adults with depression lack access to or hesitate seeking out (1) non-pharmacologic therapies and (2) health care providers⁹. This has

resulted in an *urgent* need to understand the efficacy of telemedicine-based interventions for treating depression in older adults.

KNOWLEDGE GAP

There is emerging evidence to support the use¹⁰⁻¹², acceptability¹³ and cost¹⁴ of telemedicine-based psychotherapy in older adults. However, it is unclear which telemedicine interventions are effective, and what adaptations are needed for older adults with depression to access telemedicine-based interventions.

OBJECTIVE

Our objective was to understand efficacy of telemedicine-based interventions for community-residing older adults experiencing depressive symptoms or depressive disorders. This report is a rapid review of all telemedicine or remote treatment options for depressive symptoms and disorders¹⁵.

METHODS

We adhered to methods of the World Health Organization practical guide to rapid reviews.¹⁵ We registered our rapid review with PROSPERO (CRD42020188465) and published our protocol on Open Science Framework (<https://osf.io/6tjcy/>).

SEARCH STRATEGY

We developed our search strategy with an experienced librarian at the University of Calgary. A second librarian completed a Peer Review of Electronic Search Strategies¹⁶ review and all edits were included in the final search. We searched MEDLINE, EMBASE, Cochrane Database of Systematic Reviews (CDSR), Cochrane Central Register of Controlled Trials (CENTRAL), and PsycINFO for studies published in English from inception until May 25th, 2020 (see MEDLINE search strategy in Appendix 1). We searched terms in clusters using key words and controlled vocabulary for older adults, depression, telemedicine and randomized controlled trials. We used validated Cochrane search filters for randomized controlled trials (RCTs)¹⁷.

STUDY SELECTION

We included RCTs comparing the efficacy of any non-pharmacologic telemedicine intervention to usual care or any other non-pharmacologic telemedicine intervention for reducing depressive symptoms in community-dwelling older adults (with or without depression at baseline). Telemedicine includes any remote intervention such as telephone, videoconferencing, or internet intervention. Depressive disorders represent a criterion-based diagnosis by a trained health care provider using a known reference standard (e.g. Diagnostic and Statistical Manual or DSM); whereas, persons with depressive symptoms may have clinically significant or relevant symptoms of depression according to a depression rating tool or clinical assessment. Depressive symptoms were captured from relevant scales (e.g. Beck Depression Inventory).¹⁸ Included RCTs reported a (1) mean study participant age of ≥ 65 years old and all participants were ≥ 60 years old or (2) subgroup of study participants ≥ 65 years old from which data could be extracted.¹⁹ Multicomponent interventions, which incorporated both remote and

in-person components, were excluded. We also excluded RCTs where the entire study population had a specific medical comorbidity (e.g. heart failure, chronic obstructive pulmonary disease). After reviewers reached at least 80% agreement in a pilot screening exercise, a single reviewer (ZG or JW) completed two screening levels ([1] title and abstract and [2] full-text).

DATA EXTRACTION AND RISK OF BIAS ASSESSMENT

A single reviewer (ZG) completed all data abstraction from included full text articles and risk of bias (RoB) appraisal. RoB was assessed with the Cochrane tool for RCTs.²⁰ 'Other sources of bias' in this RoB tool, included whether it was the same clinician was performing interventions and controls, given this could introduce treatment cross-contamination. The following data were abstracted: participant characteristics (e.g. age of study population, proportion of female study participants, proportion of participants with depression at RCT baseline, presence of psychiatric comorbidities), study characteristics (e.g. year of publication, authorship, study setting [i.e. urban vs. rural], sample size, study duration, number of RCT treatment arms, inclusion criteria, exclusion criteria), details of intervention implementation, and outcome data from each intervention group. Outcomes from all follow-up intervals were abstracted. Where RCTs reported ≥ 2 scales for the same outcome, data from the all reported scales were abstracted. We summarized all abstracted data from included RCTs in tables that incorporated study and participant characteristics, depression outcomes, and risk of bias appraisal. No meta-analyses were done at this time, but are part of future work.

RESULTS

SEARCH RESULTS AND INCLUSION

Our search included 1966 citations after duplicate citations were removed: 898 citations in MEDLINE, 766 in EMBASE, 171 PsycINFO, and 798 in CENTRAL and CDSR (Figure 1). We reviewed 486 full text articles and included 14 articles in our synthesis. Studies were excluded because they were not RCTs, the study population did not meet our age criteria, or interventions were not telemedicine-based. We excluded 26 RCTs focused on specific comorbidities such as Parkinson disease, cardiac conditions, lung conditions or cancer.

DEPRESSION IN COMMUNITY RESIDING ELDERERS

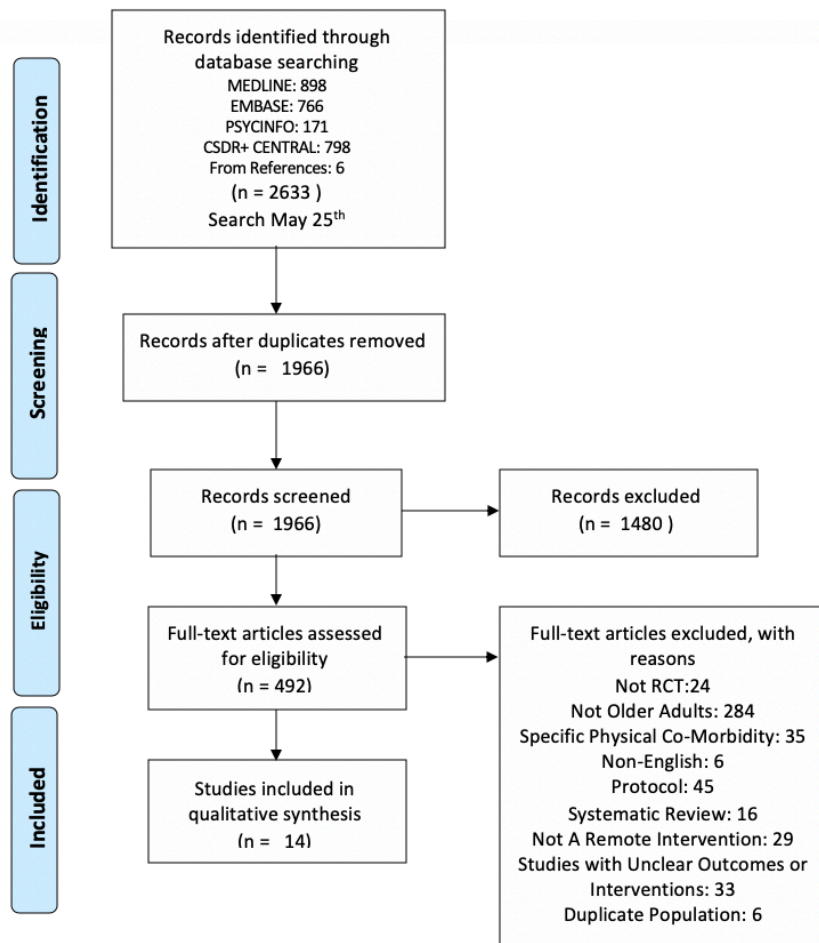


Figure 1: PRISMA Flow Diagram

RISK OF BIAS ASSESSMENT

The greatest threat to the validity of the included studies was the high frequency of studies with high or unclear allocation concealment (n=7), and poorly described blinding procedures. Thirteen RCTs were at low risk of bias and one study was at unclear risk of bias from random sequence generation (Table 1). Allocation concealment was unclear due to lack of description in 7 studies, and low risk of bias in 6 studies. Blinding was poorly described. Blinding of participants and personnel was high risk of bias in four studies, and unclear in nine. Outcome assessment was blinded in 5 studies, not blinded in 3, and unclear in 6. Incomplete outcome data was low risk in half of studies (n= 7) and unclear in the remaining. All RCTs were at low risk of bias from selective reporting.

Table 1: Risk of Bias Assessment

First Author, Year	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other sources of bias
Aburizik, 2013 ²¹	Low risk	High risk	High risk	High risk	Unclear risk	Low risk	Unclear risk
Titov, 2016 ²²	Low risk	Low risk	High risk	Unclear risk	Unclear risk	Low risk	Low risk
Brenes, 2017 ²³	Low risk	Low risk	Unclear risk	Low risk	Unclear risk	Low risk	Low risk
Brenes, 2012 ²⁴	Unclear risk	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk	Low risk
Dear, 2015 ²⁵	Low risk	Low risk	High risk	High risk	Unclear risk	Low risk	Low risk
Egede, 2015 ¹⁰	Low risk	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk	Low risk
Gellis, 2014 ²⁶	Low risk	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk	Low risk
Gould, 2018 ²⁷	Low risk	Unclear risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk
Jones, 2016 ²⁸	Low risk	Low risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk
Nouchi, 2016 ²⁹	Low risk	Unclear risk	Low risk	Unclear risk	Low risk	Low risk	Low risk
Silfvernagel, 2017 ³⁰	Low risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Low risk
Titov, 2015 ³¹	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Tomasino, 2017 ³²	Low risk	Unclear risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk
Read, 2017 ³³	Low risk	Low risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk

SYNTHESIS

Study and Participant Characteristics

Included studies were published from 2012 to 2020 (Table 2). Studies were conducted in Australia (n=4), United States (n= 7), Canada (n=1), Japan (n=1) and Sweden (n=1). All study participants (n=1910) were at their home or in a community setting. Study duration varied from 8 weeks to 48 weeks. Studies occurred across urban (n= 7) and rural settings (n= 3). The mean age of study populations ranged from 64.4 to 79.2 years old. Females represented 60 to 87% of study participants; however, two studies focused on Veterans where females represented only 2 to 6% of study participants. Many studies included a population with primary or co-morbid anxiety symptoms or disorders (n=9). All studies excluded persons with severe depression or suicidality. Ten studies excluded persons with cognitive impairment or substance use disorders.

Study Interventions and Comparators

Included studies focused on two main populations of older adults:

- a. Those with depressive symptoms or disorders at baseline or as inclusion criteria in the RCT (n=6)
- b. Those where depressive symptoms are measured as an outcome (n=8)

Most studies compared a telemedicine-based intervention to usual care (n=2) or a waitlist control group (n=5). Other RCTs compared telemedicine-based interventions to interventions such as illness management, nondirective therapy, information, brief emails, and knowledge games. Two RCTs compared telemedicine-based interventions to in-person interventions. Studies had varied exclusion criteria.

Interventions for Persons with Depressive Symptoms or Disorders at Baseline

There were several interventions examined for treating depressive symptoms or disorders (Table 3):

- a. telephone psychotherapy with illness management²¹
- b. telephone illness management²¹
- c. telephone behavioural activation therapy¹⁰
- d. telehealth (videoconference) nursing for general chronic illness management and problem-solving therapy for depression²⁶
- e. internet cognitive behavioural therapy with orientation session and clinician guidance throughout²²
- f. internet cognitive behavioural therapy with orientation session²²
- g. internet cognitive behavioural therapy alone²²
- h. internet cognitive behavioural therapy (tailored to individual) with clinician guidance³⁰
- i. internet cognitive behavioural therapy with clinician guidance³¹

In brief, interventions were conducted over the telephone or internet. Telephone-based interventions were typically administered by counsellors, social workers, nurses or psychologists. Internet-based interventions were a combination of self-guided cognitive behavioural therapy (CBT) through structured modules with or without clinician guidance. Some internet-based interventions included an initial orientation session for participants. Clinician guidance throughout internet-based interventions was typically a weekly check-in via telephone or email to answer participant questions, review their work on weekly modules, and encourage them to adhere to sessions and to use their new skills.

Both telephone- or internet-based interventions that used CBT typically included aspects of problem-solving therapy, behavioural activation, interpersonal therapy, mindfulness, and psychoeducation. The internet-based interventions included a significant component that was self-administered through an online course or modules.

RCTs reported outcomes using the Patient Health Questionnaire (PHQ-9) (n=4), Montgomery Åsberg Depression Rating Scale (n=1), or Geriatric Depression Scale (GDS) (n=1). Five RCTs reported a post-intervention outcome immediately after intervention (8-12 weeks)^{21, 22, 26, 30, 31} and one reported longer term outcomes (48 weeks) (Table 4)¹⁰. Four studies reported a statistically significant decline in depression scores^{22, 26, 30, 31} for telemedicine intervention compared to controls, and one study reported the intervention was non-inferior to in-person assessment¹⁰.

Interventions for Persons without Diagnosed Depressive Disorders at Baseline

Eight RCTs looked at older adults without diagnosed depression at baseline who received a telemedicine intervention for which depressive symptoms were measured as an outcome. There were several interventions examined for treating these participants (Table 3):

- a. telephone cognitive behavioural therapy^{12, 23, 24}
- b. telephone non-directive supportive therapy²³
- c. telephone psychologist with DVD Breathing Exercises²⁷
- d. internet cognitive behavioural therapy with clinician guidance^{28, 33, 34}
- e. internet cognitive behavioural therapy with orientation, clinician guidance and peer support³²
- f. internet cognitive behavioural therapy with orientation, clinician guidance³²
- g. processing speed training game²⁹

h. knowledge quiz training game²⁹

Interventions were delivered over the phone (n=4), internet (n=5), computer game (n=1) or DVD (n=1). Internet-based interventions often incorporated use of clinician guidance throughout or an initial orientation session. Interestingly, one study examined a peer support intervention along with the aspects of internet cognitive behavioural therapy. CBT included exposure therapy, cognitive restructuring, relapse prevention, relaxation, coping statements, cases or vignettes. Five RCTs focused on anxiety and measured depression as a secondary outcome^{12, 23, 24, 27, 28, 34}.

RCTs reported outcomes using the Beck Depression Inventory BDI-I (n=2), PHQ-9 (n=5), and the Profile of Mood State – depression (POMS-D) (n=1) (Table 4). Study follow-up intervals varied from 4 to 24 weeks. Two RCTs looked at outcomes at 24 months^{23, 33}. Five studies reported a statistically significant reduction in depressive symptoms associated with telehealth interventions compared to control interventions^{25, 28, 29, 32, 33}, however, three studies did not demonstrate a significant benefit associated with telehealth interventions^{23, 24, 27}.

DISCUSSION

IMPLICATIONS

In the setting of physical distancing required during a pandemic, being able to aid older adults with depression or depressive symptoms remotely is key. This rapid review focused on interventions for the general older adult population over the age of 60 years old. We identified 14 RCTs that examined the role of telemedicine interventions in reducing depressive symptoms in community-dwelling older adults. The included implemented by telephone or internet using variations of CBT.

CBT is an effective form of psychotherapy in adults³⁵⁻⁴⁰ for treating depression and anxiety. CBT adapts well to a remote intervention setting as it is meant to be a structured and collaborative activity. This format works well for the telephone or internet CBT, as the participants are given access to a structured course where they work through chapters or modules weekly. The addition of clinician guidance, as was done in several studies, allows for ongoing feedback and reinforcement with the patient mirroring in-person CBT. None of the RCTs included a specific pharmacologic component, although several RCTs mentioned patients could seek pharmacologic therapy with their doctors.

In some RCTs, a change in mean depression score from baseline to follow-up suggested that these interventions may be efficacious in older adults. However, further analysis is required to estimate comparative efficacy, and treatment features associated with efficacy.

The included RCTs reported few barriers to the uptake of remote interventions, and satisfaction with the intervention was high in RCTs that examined this. CBT is available in most urban centres; however, there is rarely access to specific CBT for older adults. Remote options for community-dwelling older adults who live in rural areas or who have poor mobility is lacking. Despite the known efficacy of CBT in adults and older adults, this service may not be covered in existing health plans.

The COVID-19 pandemic has forced us to consider implementing remote CBT. Impacts and efficacy of this care delivery shift remain to be seen. *Given the wide availability of providers*

who are trained to conduct CBT, remote therapy tailored to the needs of older adults could be offered. Further analysis is required before findings of these RCTs can be implemented successfully in local health authorities.

GAPS IN FINDINGS

The included RCTs have several limitations. First, most RCTs did not blind participants and personnel, and allocation was frequently not concealed. It is certainly difficult to blind non-pharmacological interventions from the personnel or participants, however allocation and outcome assessment could be blinded. Lack of allocation concealment and measurement of outcomes could impact our understanding of intervention effects. Both of these features confer a risk of increased bias. Given the nature of each intervention, participant and personnel blinding was not always feasible. Risk of bias due to allocation concealment, however, is addressable in future RCTs.

Persons with severe depression or suicidal ideations were frequently excluded from RCTs. In the setting of an RCT, persons with severe depression or suicidality are often excluded for safety (Table 3). Studies often excluded persons with cognitive impairment or substance use disorders. In the setting of a pandemic, however, these patients continue to require care. Most studies were conducted in the United States or Australia. This lack of diversity in race, ethnicity and culture in the included studies makes it difficult to make inferences concerning a broader context. None of the included RCTs explicitly reported participant sex.

Although this rapid review included 14 RCTs, we identified 26 more RCTs that examined remote interventions in older adults with specific co-morbidities. Although these additional RCTs did not meet our inclusion criteria for this rapid review, these RCTs may influence remote care delivery for sub-populations of older adults. To identify all of these RCTs, we will conduct a broader search of all depression interventions to ensure no remote interventions were missed. Our current search identified that some articles were poorly indexed in databases. Therefore, a broader search strategy is necessary. A deeper understanding of patient perceptions of telephone and internet CBT is required to ensure that these interventions meet the needs of community-dwelling older adults. One commonly identified barrier to remote assessment is access to technology, which was not well described in the included studies.

RECOMMENDATIONS FOR POLICY

- Our final knowledge synthesis (i.e. systematic review and network meta-analysis) will provide a clearer understanding of the comparative efficacy and ranking of interventions.
- Several telephone and internet CBT interventions have been tested in older adults which could potentially be implemented for reducing depressive symptoms in community-dwelling older adults.
- Given that care providers are less able to provide in-person care during the COVID-19 pandemic, remote telemedicine interventions may represent a feasible alternate mode of care delivery.

NEXT STEPS

In order to make more firm recommendations as to the comparative efficacy of telemedicine interventions for reducing depressive symptoms in community-dwelling older adults, we will complete a more comprehensive search to identify any further literature. This search will look at all interventions for reducing depressive symptoms in older adults because our initial search revealed that some telemedicine interventions are poorly indexed. We will also review studies interventions where there are telemedicine is part of a multicomponent intervention, or a single arm of the trial is remote. This expanded search will be completed using systematic review and meta-analysis methods. We will explore in future work any studies that examine cost or economic analyses of these treatments, as some of the non-pharmacologic therapies are not always covered or available.

Our final results will enable dissemination of high-quality evidence to stakeholders who can develop or adapt identified telemedicine interventions for reducing depressive symptoms in community-dwelling older adults. We will present a national webinar through the brainXchange in September 2020. Our collaborators and knowledge users will inform knowledge products and dissemination plans. We will publish our results in an open access journal, and present our findings to local (e.g. Kerby Centre), provincial (e.g. Alberta Addictions and Mental Health Strategic Clinical Network (AMHSCN), Regional Geriatric Program of Toronto), and national organizations (e.g. brainXchange, Evidence Alliance).^{41, 42}

Table 2: Study and Patient Characteristics

Author	Year	Country	Study Duration (weeks)	Setting	Urban vs. Rural	Overall Sample Size	No. of Groups	Mean Age (years)	SD	Overall % of Female Study Participants	Depressive Symptoms or Disorder At Baseline	Depressive Symptoms Measured As Outcome Only	Depression Tool at Baseline	Co-Morbid Psychiatric Conditions
Aburizik²¹	2013	USA	10	Home/Community	Rural	133	3	64.38	NR	6.0%	Yes	No	PHQ-9	Not Reported (NR)
Titov²²	2016	Australia	12	Home/Community	Urban	459	2	66.00	4.7	64.0%	Yes	No	PHQ-9	Anxiety as per Self Report
Brenes^{12, 23}	2017	USA	16	Home/Community	Rural	141	2	66.80	6.2	82.0%	No	Yes	BDI-I	Generalized Anxiety Disorder (GAD) as per DSM
Brenes²⁴	2012	USA	24	Home/Community	Rural	60	2	69.15		83%	No	Yes	BDI-I	GAD, Panic or Anxiety Disorder Not Otherwise Specified as per DSM
Dear²⁵	2015	Australia	12	Home/Community	Urban	72	2	65.45	NR	60%	No	Yes	PHQ-9	Anxiety as per Self Report
Egede¹⁰	2015	USA	48	Home/Community	Urban	241	2	63.90	5.1	2.0%	Yes	No	BDI-I	GAD, Panic disorder Post-Traumatic Stress Disorder (PTSD)
Gellis²⁶	2014	USA	12	Home/Community	Both	102	2	79.19	NR	66.0%	Yes	No	PHQ-9	NR
Gould²⁷	2018	USA	8	Home/Community	Urban	40	2	68.93	7.13	60.0%	No	Yes	PHQ-9	Anxiety as per Self Report
Jones²⁸	2016	Canada	10	Home/Community	Urban	41	2	65.13	NR	87.0%	No	Yes	GDS-30 or PHQ-9	Meeting an criteria for anxiety disorder or subclinical disorder
Nouchi²⁹	2016	Japan	4	Home/Community	Urban	82	2	68.92	3.7	61.0%	No	Yes	POMS2 Depression Subscale	NR
Silfvernagel³⁰	2017	Sweden	8	Home/Community	Not Stated	79	2	66.10	4.15	75.8%	Yes	No	MADRS-S	GAD, Social anxiety Agoraphobia, Panic disorder, Anxiety unspecified, Specific phobia
Titov³¹	2015	Australia	8	Home/Community	Not Stated	111	2	65.31	NR	73.0%	Yes	No	PHQ-9	GAD, Panic, PTSD, Specific Phobia, Obsessive Compulsive Disorder
Tomasino³²	2017	USA	8	Home/Community	Not Stated	47	3	69.60	4.1	68.1%	No	Yes	GDS-15	NR
Read³³	2020	Australia	24	Home/Community	Urban	302	2	70.30	5.9	70.0%	No	Yes	GDS, PHQ-9	NR

Patient Health Questionnaire (PHQ-9), Montgomery Åsberg Depression Rating Scale (MADRS), or Geriatric Depression Scale (GDS), Profile of Mood State – depression (POMS-D), Beck Depression Inventory (BDI-I)

DEPRESSION IN COMMUNITY RESIDING ELDERERS

Table 3: Inclusion + Exclusion Criteria

Author	Year	Inclusion Criteria	Exclusion Criteria
Aburizik	2013	<ol style="list-style-type: none"> 1. Veterans from 2 Sites 2. Diagnosis of uncontrolled hypertension, diabetes, non-cancerous chronic pain 3. Score ≥ 5 on PHQ-9 	<ol style="list-style-type: none"> 1. Not those living in LTC 2. Life expectancy <3 Months 3. Active Malignancy 4. Marked Visual or Hearing Impairment 5. Major Psychiatric Illness (e.g. Schizophrenia, bipolar disorder, substance abuse, cognitive impairment) 6. Those with suicidal ideation 7. Those currently using psychotherapy
Titov	2016	<ol style="list-style-type: none"> 1. Resident of Australia 2. At least 60 years of age 3. Principal complaint of symptoms of anxiety or depression 	<ol style="list-style-type: none"> 1. Current participation in CBT 2. Very severe symptoms of depression (defined as a total score ≥ 24 or responding >2 to Question 9 on the 9-item Patient Health Questionnaire (PHQ-9))
Brenes	2017	<ol style="list-style-type: none"> 1. Adults aged 60 years or older 2. Principal or co-principal diagnosis of GAD based on the DSM-IV6 3. Living in one of 41 rural North Carolina counties 	<ol style="list-style-type: none"> 1. Current psychotherapy 2. Active alcohol/substance abuse 3. Dementia 4. Global cognitive impairment based on the Telephone Interview for Cognitive Status-modified 5. Psychotic symptoms 6. Active suicidal ideation with plan and intent 7. Change in psychotropic medications within 30 days prior to screening 8. Bipolar disorder 9. Hearing loss that would prevent an individual from participating in the telephone sessions
Brenes	2012	<ol style="list-style-type: none"> 1. Adults aged 60 years and older 2. Principal or co-principal diagnosis of Generalized Anxiety Disorder (GAD; n = 30), Panic Disorder (PD; n = 3), GAD and PD (n = 25), or Anxiety Disorder Not Otherwise Specified (ADNOS; n = 2) according to the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID; 9) 	<ol style="list-style-type: none"> 1. Current psychotherapy 2. Current alcohol or substance abuse 3. Dementia or global cognitive impairment (Mini-Mental Status Examination score < 24; 10) 4. Psychotic symptoms 5. Active suicidal ideation 6. Any change in psychotropic medications within the previous 3 months
Dear	2015	<ol style="list-style-type: none"> 1. Resident of Australia 2. At least 60 years of age 3. Self-report of a recent assessment by a General Practitioner or specialist to rule out any manageable physical cause for their anxiety (i.e., participants were asked if they had had 	<ol style="list-style-type: none"> 1. Currently participating in CBT 2. Using illicit drugs or consuming more than three standard drinks/day 3. Currently diagnosed with schizophrenia or bipolar disorder

DEPRESSION IN COMMUNITY RESIDING ELDERERS

		a recent physical assessment or any physical health complaints that had not been examined or were not currently being managed by their general practitioner)	<ol style="list-style-type: none"> 4. Experiencing severe symptoms of depression (defined as a total score N19 or responding N2 to Question 9 [suicidal ideation] on the Patient Health Questionnaire-9 Item (PHQ-9; Kroenke, Spitzer, & Williams, 2001) 5. If taking medication for anxiety or depression, not having been on a stable dose for at least 1 month
Egede	2015	<ol style="list-style-type: none"> 1. Veterans ages 58 years and older 2. Meeting diagnostic criteria for major depressive disorder as determined by a clinical assessment using the Structured Clinical Interview for <i>DSM-IV</i> (SCID) were eligible for participation 	<ol style="list-style-type: none"> 1. Individuals who met criteria for substance dependence 2. Both suicidal ideation and clear intent 3. Active psychosis 4. Dementia
Gellis	2014	<ol style="list-style-type: none"> 1. Aged 65 and older 2. Above-average users (≥ 10 days in the hospital in the past 12 months, seen in the emergency department (ED) in the last 2 months, or required ≥ 3 home care visits per week) 3. Primary diagnosis of heart failure or COPD 4. Screened positive for depression as indicated by a Patient Health Questionnaire-2 (PHQ)16 score of 3 or greater 	<ol style="list-style-type: none"> 1. Cognitive impairment (Mini-Mental State Examination (MMSE) score < 24) or a diagnosis of dementia based on chart review 2. Inability to use a telemonitoring device because of physical disability, and behavioral problems (e.g., agitation, delirium, paranoia) that would interfere with use of the device
Gould	2018	<ol style="list-style-type: none"> 1. Aged 60 years or older 2. Proficient in English 3. Diagnosed with an anxiety disorder (generalized anxiety disorder [GAD], social anxiety disorder, panic disorder, agoraphobia, anxiety disorder unspecified) via a structured interview 	<ol style="list-style-type: none"> 1. Psychotic symptoms 2. Diagnosis of dementia or probable cognitive impairment based on a Short Blessed Test error score of six or more 3. Self-reported diagnosis of bipolar disorder or psychotic disorder 4. Daily use of benzodiazepines other than for sleep exclusively 5. Receiving regular (i.e., weekly) psychotherapy 6. Individuals meeting criteria for specific phobia alone with no other anxiety diagnosis would not have been eligible for this study
Jones	2016	<ol style="list-style-type: none"> 1. Residents of Saskatchewan, Canada 2. Aged 60 years or older 3. Access to a computer and Internet 4. Reported no change in psychotropic medication for at least one month prior to enrollment 5. Met Diagnostic and Statistical Manual of Mental Disorder fourth edition text revision (DSM-IV-TR; APA, 2000) criteria for clinical or subclinical GAD 6. Endorse at least moderate symptoms on the GAD-7 (i.e., a score of ≥ 10) at pre-screening to participate 	<ol style="list-style-type: none"> 1. Met DSM-IV-TR criteria for current substance abuse, a psychotic disorder or bipolar disorder 2. Endorsed severe symptoms of depression, including suicidal ideation 3. Reported having a serious medical condition that may account for anxiety symptoms or interfere with treatment (e.g., untreated thyroid disorder) 4. Were cognitively impaired (as assessed by the Six-Item Screener)

DEPRESSION IN COMMUNITY RESIDING ELDERERS

Nouchi	2016	<ol style="list-style-type: none"> 1. Right-handed 2. Native Japanese speakers 3. Unconcerned about their own memory functions 4. Not using medications known to interfere with cognitive functions (including benzodiazepines, antidepressants or other central nervous agents) 5. Having no disease known to affect the central nervous system, including thyroid disease, multiple sclerosis, Parkinson disease, stroke, severe hypertension (systolic blood pressure is over 180, diastolic blood pressure is over 110), and diabetes 6. Age over 60 years old 	<ol style="list-style-type: none"> 1. MMSE score of less than 26 2. Participation in another cognition-related intervention study
Silvernagel	2017	<ol style="list-style-type: none"> 1. Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (American Psychiatric Association, 2000) criteria for any specific anxiety disorder, or an anxiety disorder not otherwise specified 2. Could also meet the criteria for comorbid major depression, but not as the primary disorder. 3. Age 60 years or older 4. Not currently in psychotherapy 5. If on medication, be on a stable dosage 6. Not be at risk of alcohol abuse or meeting the description for current alcohol addiction 	NR
Titov	2015	<ol style="list-style-type: none"> 1. Resident of Australia 2. 60 years of age and over 3. Reported that they have been assessed by a general practitioner or medical specialist to rule out a reversible physical cause for their depression 4. Verbal confirmation during the telephone interview that they were experiencing difficulties with depression and that they wanted treatment for these symptoms 	<ol style="list-style-type: none"> 1. Current participation in CBT 2. Use of illicit drugs or consumption of more than three standard drinks/day 3. Current diagnosis of schizophrenia or bipolar disorder 4. Severe symptoms of depression (defined as a total score ≥ 19 or responding ≥ 2 to Question 9 (suicidal ideation) on the PHQ-9 5. If taking medication for anxiety or depression, not having been on a stable dose for at least a month
Tomasino	2017	<ol style="list-style-type: none"> 1. Read and speak English 2. Be at least 65-years old 3. Have elevated depressive symptoms at screening (score of ≥ 8 on the Patient Health Questionnaire-8 or score of >7 on the Geriatric Depression Scale-15) 4. Have a telephone, email address, basic internet skills and internet access 	<ol style="list-style-type: none"> 1. Receiving or planning to receive psychotherapy during the trial 2. Met criteria for a diagnosis for which participation could be inappropriate (e.g., psychotic disorder, cognitive impairment)
Read	2020	<ol style="list-style-type: none"> 1. Aged 65 years and over 2. Two or more chronic physical conditions 3. Use of a computer or tablet with internet access 4. Sufficient English to take part in the iCBT program 	<ol style="list-style-type: none"> 1. Met criteria for minor/major depression or dysthymia (assessed via structured interview at baseline) 2. Consumed illicit drugs or more than five alcoholic drinks per day 3. History of bipolar disorder or schizophrenia 4. Had undergone psychological therapy in the 12-month period prior to recruitment

Table 4: Intervention Descriptions

Author	Intervention 1 Name	Intervention 1 Description	Intervention 2 Name	Intervention 2 Description	Intervention 3 Name	Intervention 3 Description
Aburizik ²¹	Telephone Depression Psychotherapy + Illness Management	<ol style="list-style-type: none"> 1. Telephone Illness Management Program: coaches discuss with persons about medications, diet, wellness, and symptoms. 2. Telephone Psychotherapy for Depression: Interpersonal Psychotherapy + Behavioural Activation. 3. Daily Monitoring of Symptoms <p><u>Providers:</u> Psychologists <u>Duration:</u> 10 Weeks <u>Time:</u> 1 hour for first and last call, 30 minutes for all others</p>	Illness Management	<ol style="list-style-type: none"> 1. Illness Management Program –coaches discuss with persons about medications, diet, wellness, and symptoms. 2. Interactive voice-response home monitoring program for specific symptoms. <p><u>Providers:</u> Psychologists <u>Duration:</u> 10 Weeks <u>Time:</u> 1 hour for first and last call, 30 minutes for all others</p>	Usual Care	<ol style="list-style-type: none"> 1. Usual medical care and services
Titov ²²	Orientation + Clinician Guided Internet Cognitive Behavioural Therapy (CBT)	<ol style="list-style-type: none"> 1. Orientation: telephone call by clinician to discuss goals for treatment, describe potential benefit, discuss importance of adherence and practice, and answer questions 2. Internet CBT: Completed weekly modules with symptom questionnaires. Questionnaires monitored by clinicians but no contact made unless symptoms were severe. 3. Clinician Guidance Weekly: via telephone or email clinicians answered questions, reviewed weekly work, helped with any challenges in application of new skills, discuss importance of practice and need for progress <p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 10 Weeks of weekly calls</p>	Orientation + Self Guided internet CBT	<ol style="list-style-type: none"> 1. Orientation: telephone call by clinician to discuss goals for treatment, describe potential benefit, discuss importance of adherence and practice, and answer questions 2. Internet CBT: Completed weekly modules with symptom questionnaires. Questionnaires monitored by clinicians but no contact made unless symptoms were severe. <p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 10 Weeks, <u>Time:</u> Orientation : 10-20 Minutes once; Weekly online Lessons no time defined.</p>	Self Guided internet CBT	<ol style="list-style-type: none"> 1. Internet CBT: Completed weekly modules with symptom questionnaires. Questionnaires monitored by clinicians but no contact made unless symptoms were severe. <p><u>Providers:</u> Self-Administered <u>Duration:</u> 10 Weeks <u>Time:</u> Weekly online Lessons no time defined.</p>

DEPRESSION IN COMMUNITY RESIDING ELDERERS

		<p><u>Time:</u> Orientation: 10-20 Minutes once; Weekly Guidance 10-15 Minutes; Weekly online Lessons no time defined.</p>			
Brenes^{12, 23}	Telephone CBT	<p>1. Telephone CBT + CBT Workbook: aimed to focus on anxiety, relaxation, ‘cognitive restructuring’, ‘use of coping statements’, problem solving therapy, behavioural activation therapy, exposure therapy, relapse prevention. <u>Providers:</u> Social Workers & Psychologists <u>Duration:</u> 11 Weeks of weekly calls, with follow-up at 2, 4, 8, and 12 weeks. <u>Time:</u> 50 Minutes</p>	Telephone Nondirective Supportive Therapy	<p>1. Telephone Non-directive Support: Phone calls focused on creating a therapeutic relationship of support and acceptance. Focused on “reflective listening” and supportive statements. <u>Providers:</u> Social Workers & Psychologists <u>Duration:</u> 11 Weeks of weekly calls, with follow-up at 2, 4, 8, and 12 weeks <u>Time:</u> 50 Minutes</p>	Not applicable (NA)
Brenes²⁴	Telephone CBT	<p>1. Telephone CBT + CBT Workbook: focused on relaxation, cognitive therapy, problem solving therapy, behavioural activation therapy, relapse prevention, exposure therapy and “thought stopping”. During calls they reviewed the workbook work, and discussed its application. <u>Providers:</u> Social Workers & Psychologists <u>Duration:</u> 11 Weeks of weekly calls, with follow-up at 2, 4, 8, and 12 weeks. Calls were every 1-2 weeks. <u>Time:</u> 50 Minutes</p>	Information	<p>1. Information: Received written information about anxiety disorders and a list of potential referral options. <u>Providers:</u> Clinician <u>Duration:</u> NA <u>Time:</u> NA</p>	NA
Dear²⁵	Internet CBT + Clinician Guided	<p>1. Internet CBT: focused on the “Managing Stress and Anxiety Course” a structured online course. Course focuses on ‘case-enhanced learning examples’, problem solving, psychological skills building. 2. Clinician Guidance: contact with participants weekly to follow progress.</p>	Waitlist	<p>1. Waitlist: usual care while on waitlist for intervention. <u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>	NA

DEPRESSION IN COMMUNITY RESIDING ELDERERS

		<p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 8 weeks, weekly online; brief weekly calls <u>Time:</u> Weekly calls 5-10 minutes.</p>			
Egede¹⁰	Telehealth Behavioural Activation Therapy	<p>1. Telehealth Behavioural Activation Therapy: Via videoconferencing individualized therapy focused on behavioural activation for depression based on existing manuals. <u>Providers:</u> Counsellors + Psychologists <u>Duration:</u> 8 Weeks <u>Time:</u> 60 minutes weekly</p>	In Person Behavioural Activation Therapy	<p>1. In Person Behavioural Activation Therapy: Individualized therapy focused on behavioural activation for depression based on existing manuals. <u>Providers:</u> Counsellors + Psychologists <u>Duration:</u> 8 Weeks <u>Time:</u> 60 minutes weekly</p>	NA
Gellis²⁶	Telehealth for Chronic Illness and Depression	<p>1. Telehealth Care for Chronic Illness: Nurse calling daily to review telemonitoring of symptoms, weight, medications, and communication with family doctor. 2. Depression Care: Problem Solving Therapy Weekly <u>Providers:</u> Nurses <u>Duration:</u> Daily Call for Monitoring, Weekly Call for Problem Solving Therapy for 12 weeks <u>Time:</u> Weekly Calls 35 Minutes</p>	In Home Nursing + Psychoeducation	<p>1. In-home Nursing: home care provided by nurses under direction of family physicians. Care coordination with allied health. 2. Psychoeducation: education on diseases processes, reinforcement of importance of daily monitoring, smoking cessation, diet, weight, and medication adherence. <u>Providers:</u> Nurses <u>Duration:</u> Weekly Visits for 12 weeks <u>Time:</u> 60 Minutes</p>	NA
Gould²⁷	DVD Breathing Exercise + Telephone Psychologist	<p>1. DVD outlining the “BREATH Intervention”: focuses on diaphragmatic breathing, relaxation, clinical vignettes to develop skills for managing anxiety, 2. Telephone Psychologist Check Ins: focused on technical assistance, issues surrounding treatment, discussion of adherence, <u>Providers:</u> Self-Administered + Psychologists</p>	Wait	<p>1. Waitlist: usual care while on waitlist for intervention. Offered BREATH at 8 weeks. <u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>	NA

DEPRESSION IN COMMUNITY RESIDING ELDERERS

		<p><u>Duration:</u> Weekly Phone Calls for 4 Weeks, DVD for 8 weeks. <u>Time:</u> NA</p>			
Jones²⁸	Internet CBT + Guided Online	<p>1. Internet CBT: focused on the “Anxiety Online” a structured online course. Course focuses on psychoeducational material, case examples, coping skills, CBT therapies, skills application.</p> <p>2. Clinician Guidance: psychologist received weekly homework, provide support, advice and promote adherence, answered questions, and encouraged progress.</p> <p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> Weekly Emails for 10 Weeks. <u>Time:</u> 15-30 minutes</p>	Waitlist	<p>2. Waitlist: usual care while on waitlist for intervention. <u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>	NA
Nouchi²⁹	Processing Speed Training Game Group	<p>1. Processing Speed Training Game: game focused on developing processing speed with games for localization, detection, with shapes, letters and numbers.</p> <p><u>Providers:</u> Self-Administered <u>Duration:</u> At least 5 days per week during 4 weeks <u>Time:</u> 15 minutes</p>	Knowledge Quiz Training Game	<p>1. Knowledge Quiz: game focused on meanings of words, idioms, and literature <u>Providers:</u> Self-Administered <u>Duration:</u> At least 5 days per week during 4 weeks <u>Time:</u> 15 minutes</p>	NA
Silfvernagel³⁰	Internet CBT + Guided Online	<p>1. Internet CBT: tailored CBT to individual needs, focused on psychoeducation around anxiety disorders, cognitive restructuring, behavioural activation, relaxation, stress, mindfulness, problem solving, and sleep.</p> <p>2. Clinician Guidance: contact with therapist as needed by participant or therapist initiated. Feedback given on online modules.</p>	Weekly Brief Email Support From Clinician	<p>1. Email Support: Provision of general support weekly. <u>Providers:</u> Clinicians <u>Duration:</u> 8 Weeks. <u>Time:</u> NA</p>	NA

DEPRESSION IN COMMUNITY RESIDING ELDERLY

		<p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 8 Weeks. <u>Time:</u> NA</p>				
Titov³¹	Internet CBT + Guided Online	<ol style="list-style-type: none"> 1. Internet CBT: “Managing your Mood” Course with online lessons, assignments, reminders and notifications, case vignettes, psychoeducational material, communication skills, problem solving therapy, managing worry, sleep and managing beliefs. 2. Clinician Guidance: contact with therapist as needed by participant or therapist initiated. Feedback given on online modules. <p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 8 Weeks, . <u>Time:</u> NA</p>	Waitlist	<ol style="list-style-type: none"> 1. Waitlist: usual care while on waitlist for intervention. <p><u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>	NA	
Tomasino³²	Internet CBT + Online Peer Support + Orientation + Guided Online	<ol style="list-style-type: none"> 1. Internet CBT: Called “MoodTech” this online course is focused on CBT for depression in older adults. There are 2 weekly lessons focused on skills around cognitive restructuring, mood monitoring, behavioural activation therapy, relaxation and mindfulness, 2. Online Peer Support: Aimed at promoting social engagement and accountability 3. Orientation: Single call <45 minutes to establish goals and review contact expectations. 4. Guided Online: Daily engagement through online moderation of online platform, answering questions, using templated group discussion questions, encourage adherence, <p><u>Providers:</u> Self Administered + Psychologist</p>	Internet CBT + Orientation + Guided Online	<ol style="list-style-type: none"> 1. Internet CBT: Called “MoodTech” this online course is focused on CBT for depression in older adults. There are 2 weekly lessons focused on skills around cognitive restructuring, mood monitoring, behavioural activation therapy, relaxation and mindfulness, 2. Orientation: Single call <45 minutes to establish goals and review contact expectations. 3. Guided Online: Weekly brief calls to encourage progress, answer questions, support use of skills, and address technical issues. <p><u>Providers:</u> Self Administered + Psychologist <u>Duration:</u> 8 Weeks <u>Time:</u> Orientation <45 minutes; Weekly Guidance 10-15 minutes</p>	Waitlist	<ol style="list-style-type: none"> 1. Waitlist: usual care while on waitlist for intervention. <p><u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>

DEPRESSION IN COMMUNITY RESIDING ELDERERS

		<p><u>Duration:</u> 8 Weeks <u>Time:</u> Orientation <45 minutes; Weekly Guidance 10-15 minutes; Online guidance 2 minutes per weekday.</p>			
Read³³	Internet CBT + Guided Online	<p>1. Internet CBT: Online course focused on preventing depression. Including psychoeducation, cognitive therapy, coping strategies, behavioural activation, exposure therapy, and additional resources.</p> <p>2. Clinician Guidance: Brief calls or emails weekly to encourage adherence, providing guidance, answering questions and encourage use of new skills.</p> <p><u>Providers:</u> Self-Administered + Psychologists <u>Duration:</u> 8 Weeks. <u>Time:</u> ~30 Min weekly by psychologist;</p>	Usual Care	<p>1. Usual Care: usual care with existing physicians, specialists for their chronic conditions.</p> <p><u>Providers:</u> NA <u>Duration:</u> NA <u>Time:</u> NA</p>	NA

DEPRESSION IN COMMUNITY RESIDING ELDERERS

Table 5: Depression Outcomes

Article	Depression Outcome Measure	Intervention 1	Timing of Outcome Measure	Sample Size	Mean Depressive Symptom Score	Intervention 2	Sample Size	Mean Depressive Symptom Score	Intervention 3	Sample Size	Mean Depressive Score
Aburizik 2013	PHQ-9	Telephone Depression Psychotherapy + Illness Management	Baseline	29	12.5 (1.0 SE)	Illness Management	31	13.2 (1.0 SE)	Usual Care	23	11.2 (1.1 SE)
			10 Weeks	29	8.2 (1.0 SE)		31	10.4 (1.0 SE)		23	10.4 (1.1 SE)
Titov 2016	PHQ-9	Orientation + Clinician Guided Internet Cognitive Behavioural Therapy (CBT)	Baseline	153	10.7 (4.88 SD)	Orientation + Self-Guided Internet CBT	140	10.43 (4.61 SD)	Self-Guided Internet CBT	140	10.43 (4.73 SD)
			8 Weeks	150	4.39 (3.81 SD)**		133	4.44 (3.67 SD)**		133	4.78 (3.90 SD)
			12 Weeks	147	4.30 (3.37 SD)**		126	4.71 (3.79 SD)**		131	4.75 (3.79 SD)
Brenes 2017 [^]	BDI-I	Telephone CBT	Baseline	70	21.6 (8.84 SD)	Telephone Nondirective Supportive Therapy	71	24.4 (9.18 SD)			
			16 Weeks	58	-10.77 (95% CI -12.73,-8.81)*		63	-7.54 (95% CI -9.44 to -5.64)			
			60 Weeks	50	-11.3 (95% CI -13.3 to -9.19)		62	-8.37 (95% CI -10.3 to -6.46)			
Brenes 2012	BDI-I	Telephone CBT	Baseline	30	16.90 (8.2 SD)	Information	30	17.9 (7.7 SD)			
			8 Weeks	28	11.4 (1.1 SE)		26	14.1 (1.1 SE)			
			24 Weeks	24	10.7 (1.6 SE)		24	13.3 (1.6 SE)			
Dear 2015	PHQ-9	Internet CBT + Clinician Guided	Baseline	33	10.76 (4.79 SD)	Waitlist	37	10.78 (4.37 SD)			
			8 Weeks	33	3.63 (3.68 SD)**		37	10.47 (4.62 SD)			
			12 Weeks	33	3.93 (3.81 SD)			NR			
Egede 2015	GDS-30	Telehealth Behavioural Activation Therapy	Baseline	120	20.9 (4.8 SD)	In Person Behavioural Activation Therapy	121	20.6 (4.8 SD)			
			48 Weeks	120	22.0 (95% CI 15.2, 28.8) ‡		121	20.2 (95% CI 13.7, 26.7)			
Gellis 2014	PHQ-9	Telehealth for Chronic Illness and Depression	Baseline	57	14.9 (6.4 SD)	In Home Nursing + Psychoeducation	58	15.2 (5.8 SD)			
			12 Weeks	46	7.4 (5.7 SD)**		48	13.6 (5.6 SD)			
			24 Weeks	46	7.9 (5.3 SD)*		48	14.1 (5.9 SD)			
Gould 2018	PHQ-9	DVD Breathing Exercise + Telephone Psychologist	Baseline	20	8.4 (5.55 SD)	Waitlist	20	6.8 (5.48 SD)			
			8 Weeks	20	5.71 (1.58 SE)		20	8.6 (1.19 SE)			
Jones 2016	PHQ-9	Internet CBT + Guided Online	Baseline	24	11.0 (6.25 SD)	Waitlist	22	12.18 (5.24 SD)			
			10 Weeks	22	5.59 (5.10 SD)		19	12.08 (6.19 SD)			
			14 Weeks	18	5.37 (5.25 SD)			NR			
Nouchi	POMS-D		Baseline	36	6.69 (2.41 SD)		36	6.08 (2.35 SD)			

DEPRESSION IN COMMUNITY RESIDING ELDERLS

2016		Processing Speed Training Game Group	4 Weeks	36	96.95 (Standardized change score) (11.85)*	Knowledge Quiz Training Game	36	103.05 (Standardized change score) (6.57)			
Silfvernagel 2017	MADRS-S	Internet CBT + Guided Online	Baseline	33	20.27 (6.75 SD)	Weekly Brief Email Support by Clinician	33	20.03 (7.73 SD)			
			8 Weeks	33	11.75 (8.36 SD)**		33	16.99 (8.84 SD)			
Titov 2015	PHQ-9	Internet CBT + Guided Online	Baseline	27	11.0 (5.62 SD)	Waitlist	25	12.0 (5.42 SD)			
			8 Weeks	27	3.96 (2.48 SD)**		25	12.68 (5.48 SD)			
			12 Weeks	27	4.90 (4.05 SD)			NR			
			52 Weeks	27	4.68 (4.47 SD)			NR			
Tomasino 2017	PHQ-9	Internet CBT + Online Peer Support + Orientation + Guided Online	Baseline	23	11.2 (5.4 SD)	Internet CBT + Orientation + Guided Online	12	10.6 (3.2 SD)	Waitlist	12	9.3 (3.7 SD)
			8 Weeks	19	6.4 (4.2 SD)**		9	5.1 (2.8 SD)**		12	8.2 (5.7 SD)
Read 2020	PHQ-9	Internet CBT + Guided Online	Baseline	150	3.55 (3.63 SD)	Usual Care	152	3.32 (3.01)			
			8 Weeks	150	2.34 (2.95 SD)*		152	3.61 (3.65 SD)			
			24 Weeks	150	3.43 (3.81 SD)*		152	3.70 (3.49 SD)			

Abbreviations: Patient Health Questionnaire (PHQ-9), Montgomery Åsberg Depression Rating Scale (MADRS), or Geriatric Depression Scale (GDS), Profile of Mood State – depression (POMS-D), Beck Depression Inventory (BDI-I), Cognitive Behavioural therapy (CBT)

^ Results of RCT reported across two papers^{12, 23}

*p-value <0.05, compared to control

**p-value <0.01, compared to control

‡Non-inferior to comparator

APPENDICES

APPENDIX 1: MEDLINE SEARCH

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to May 22, 2020> Search Strategy:

- 1 exp Depressive Disorder/ (108252)
- 2 exp Depression/ (117414)
- 3 exp Depressive Disorder, Major/ (29714)
- 4 "depress*".kf,tw. (458925)
- 5 1 or 2 or 3 or 4 (499804)
- 6 exp "Aged, 80 and over"/ or exp Aged/ or exp Health Services for the Aged/ (3094645)
- 7 (geriatric* or senior* or elder* or (older adj1 (adult* or women or men or patient*))).kf,tw. (455009)
- 8 6 or 7 (3260643)
- 9 exp Telecommunications/ (90802)
- 10 exp Telemedicine/ (27950)
- 11 exp Telephone/ (22220)
- 12 telephone.kf,tw. (57087)
- 13 "video*".kf,tw. (124652)
- 14 "virtual*".kf,tw. (127465)
- 15 mobile health.kf,tw. (4315)
- 16 exp Remote Consultation/ (4762)
- 17 (e-therap* or e-counsel* or e-psychotherap* or e-appointment* or e-consult*).kf,tw. (916)
- 18 ((virtual or video or online or internet or electronic or mobile) adj2 (appointment* or consult* or therap* or counsel?ing or psychotherap*)).kf,tw. (3233)
- 19 (telehealth or telemedicine or telepsychiatry or teleconsult* or teletherap*).kf,tw. (18581)
- 20 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 (386334)
- 21 randomized controlled trial.pt. (506126)
- 22 controlled clinical trial.pt. (93684)
- 23 randomized.ab. (480049)
- 24 placebo.ab. (207871)
- 25 Randomly.ab. (333535)
- 26 trials.ti. (74094)
- 27 Clinical Trials as Topic.sh. (191286)
- 28 21 or 22 or 23 or 24 or 25 or 26 or 27 (1261557)
- 29 exp animals/ not humans.sh. (4700877)
- 30 28 not 29 (1159192)
- 31 5 and 8 and 20 and 30 (898)

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