Community-Based Treatment of Late Life Depression

An Expert Panel–Informed Literature Review

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Objectives: To present findings from an expert panel–informed literature review on community-based treatment of late-life depression.

Methods: A systematic literature review was conducted to appraise publications on community-based interventions for depression in older adults. The search was conducted between March and October 2005. An expert panel of mental health, aging, health services, and epidemiology researchers guided the review and voted on quality and effectiveness of these interventions.

Results: A total of 3543 articles were found with publication dates from 1967 to October 2005; of these, 116 were eligible for inclusion. Adequate data existed to determine effectiveness for the following interventions: depression care management, group and individual psychotherapy for depression, psychotherapy targeting mental health, psychotherapy for caregivers, education and skills training (to manage health problems besides depression; and for caregivers), geriatric health evaluation and management, exercise, and physical rehabilitation and occupational therapy. After reviewing the data, panelists rated the depression care management interventions as effective. Education and skills training, geriatric health evaluation and management, and physical rehabilitation and occupational therapy received ineffective ratings. Other interventions received mixed effectiveness ratings. Insufficient data availability and poor study quality prevented the panelists from rating several reviewed interventions.

Conclusions: While several well-described interventions were found to treat depression effectively in community-dwelling older adults, significant gaps still exist. Interventions that did not target depression specifically may be of benefit to older adults, but they should not be presumed to treat depression by themselves. Treating depressed elders may require a multifaceted approach to ensure effectiveness. More research in this area is needed.
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Introduction

Research has characterized the prevalence rates, associated comorbidities, and adverse health effects of depression in older adults. Estimates of the prevalence of major depression range from 1% to 4%, and the estimated prevalence of subsyndromal depression among older adults is 8% to 16%.[1] Depression frequently accompanies and complicates chronic medical conditions such as ischemic heart disease, diabetes, and stroke, and it is associated with functional impairment and disability.[2–6] Depression in older adults has also been linked to increased healthcare costs.[7,8] Finally, depression may increase mortality

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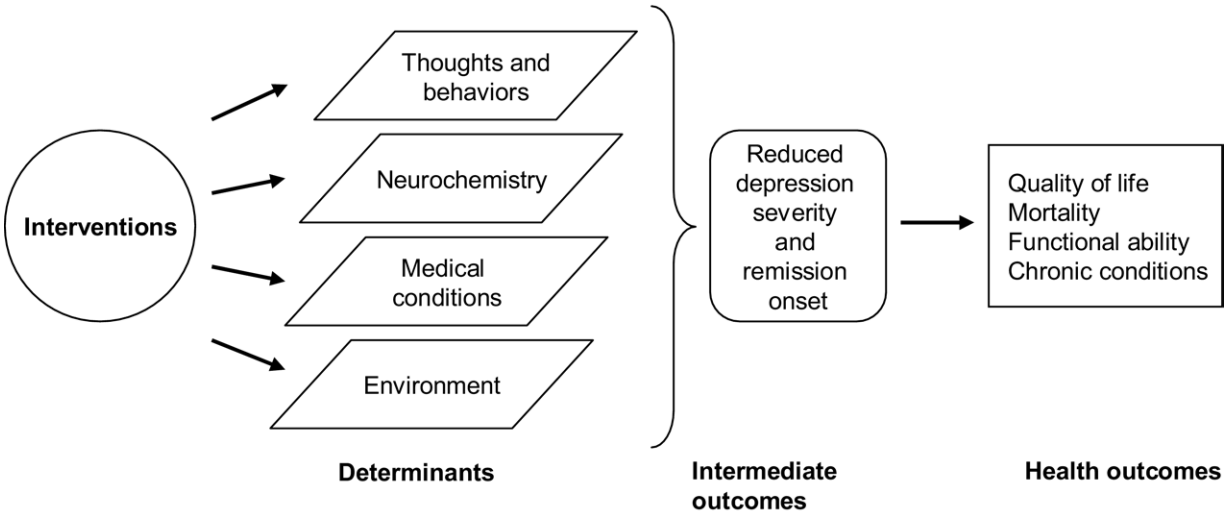


Figure 1. Logic model illustrating the conceptual approach used in the Depression in Community-based Older Adult evidence review.

rates through suicide and complications of cardiac disease.[2–4,6,9,10]

Effective treatment of depression not only lowers depressive symptoms, it also reduces suicidal thoughts and improves functioning, quality of life, and physical symptoms (e.g., pain associated with chronic conditions).[11–14] Although studies suggest that effective treatments exist for late-life depression, older adults often receive suboptimal treatment.[11–14] Dissemination of evidence-based research findings to clinical and community practice and to the broader public health audiences has been difficult. Furthermore, changing behaviors of healthcare providers is a complex task. The increasing pace of research, coupled with rising healthcare costs, has led to the use of systematic literature reviews and evidence-based recommendations to promote improved healthcare practices. The mental health literature has no shortage of reviews and consensus statements for depression in older adults,[15] yet their focus is mainly on treatment efficacy as opposed to applicability and feasibility in community settings.[16–18] Applying systematic reviews plus evidence-based expert consensus recommendations to public health has been a recent phenomenon.[19]

This paper results from a systematic literature review, conducted with oversight and participation of a multidisciplinary expert panel, focused on identifying interventions applicable to and feasible in community-based settings. The purpose was to identify effective interventions for addressing depression in community-based older adults, particularly those strategies that could be delivered through public health and social service agencies. The results of our review process are intended to be of interest to individual clinicians and decision makers involved in the delivery of population-based mental health services in diverse community settings.[20]

Methods

Methods for this systematic literature review were based on those developed for the *Guide to Community Preventive Services* (*Guide*).[21,22] The *Guide* uses systematic reviews of the scientific literature to create evidence-based recommendations on population-based and public health interventions. The first step in this project involved assembling a multidisciplinary review panel of 14 experts in public health services and geriatric depression.

Logic Framework

The conceptual approach guiding this review considered the determinants of late life depression, the viability of community interventions and the related outcomes of these interventions (Figure 1). The socio-ecologic model of healthy aging suggests that community-based interventions operating at individual, interpersonal, institutional, and policy levels may affect public health outcomes.[23,24] Based on this model, we considered depression outcomes as the relevant public health outcome. This review included interventions operating at both single and multiple levels, targeting determinants of late life depression such as thoughts and behaviors (e.g., cognitive behavioral therapy); medical conditions (e.g., management of chronic conditions such as diabetes); or the environment (e.g., improved health insurance coverage for mental health services).

Literature Search Strategy

A search of the published scientific literature was conducted through August 2005 using the MEDLINE database of the National Library of Medicine (from 1966), the Cumulative Index to Nursing and Allied Health database (CINAHL, from 1982) and the PsycINFO database of the American Psychological Association (from 1967). The search for articles began in March 2005 and ended in October 2005. Relevant concepts for this review included "old age," "depression," "community based," "prevention," and "treatment." The term "community based" was intended to encompass treatments that took place

Table 1. Literature search terms

Medical subject headings		Text words	
Aged	Health services for the aged	Adult	Support group
Middle aged	Mental health services	Elderly	Media
Depressive disorder	Preventive health services	Geriatric	Skills training
Bereavement	Self-help groups	Dysthymia	Health education
Residence characteristics	Public policy	Depression	Health promotion
Primary health care	Education	Bereavement	Prevention
Community health center	Psychotherapy	Grief	Community
Community health services		Community health services	Home
		Intervention	Neighborhood
		Screening	Primary care
		Collaborative care	

in non-institutional settings such as senior centers, adult day health facilities that provide structured activities as well as health monitoring and interventions, individuals' homes, or primary care clinics, but **not** academic research centers. The search for articles used both medical subject headings (MeSH) and text words (Table 1). Finally, the references of relevant meta-analyses and review papers were examined to confirm the completeness of our electronic database search.[16–18]

Study Selection

To be included in the systematic literature review, studies had to meet the following criteria: (1) mean age ≥60 years, (2) total sample size ≥25, (3) community-based setting, (4) "depression" operationalized either as the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV) depression diagnosis or an assessment instrument score, and (5) clearly described and replicable interventions, including multifaceted as well as "single-level" interventions. Studies with a mean sample age of <60 years were included if they reported data for ≥25 older adults. A two-step screening process was conducted to assess whether articles met our inclusion criteria. The first step of the screening process involved an examination of titles and abstracts. If inclusion criteria could not be determined in the first step, a second level of screening with examination of the full text of the papers was conducted.

All types of study designs were included, considering both interventions that targeted depression as a main outcome and those that targeted depression as a secondary outcome (e.g., a falls prevention program that also measured changes in depression). Articles that were non-English language, duplicates, reviews, meta-analyses, with inpatient or institutionalized subjects, or conducted in a university-based research center (given the focus on community-based treatments) were excluded. Clinical studies of antidepressant medications were also excluded because of difficulty in determining whether they were community based; most often, they occurred in academic medical or drug trial centers.

Rating the Evidence

An advisory subgroup selected by the primary investigator (MS) and approved by the full panel determined whether the literature provided adequate data for determining the effectiveness of each intervention using an 80% majority process (four of five members or all of them). This subgroup made determinations based on the number of studies, study design, and sample size, while de-emphasizing study quality and strength of response.

Interventions with adequate data for determining effectiveness were rated by the full 14-member panel. The panel rated the evidence in terms of both the quality of the studies and the magnitude of response or "robustness" of the interventions, using a set of indicators (Table 2). Panelists were given written instructions to consider these indicators of quality while deciding how to rate the interventions. The panelists also discussed other issues of quality and robustness such as length of study, length of follow-up periods, dropout rates, consistency of data across studies, effectiveness (in terms of clinical remission and response rates), and representativeness of target group. This process for evidence rating was modeled on the process used by the Centers for Disease Control and Prevention (CDC) *Guide to Community Preventive Services*.[21] (The CDC's *Community Guide* summarizes for the public at large what is known about the effectiveness, economic efficiency, and feasibility of interventions to promote community health and prevent disease.[19])

Using these indicators, panel members voted on study quality and then rated the overall effectiveness (effective, ineffective, or mixed effectiveness), taking into account both quality and magnitude of response from the intervention. The final rating of effective or ineffective for each intervention was based on majority consensus of ≥12 votes. A final rating of mixed effectiveness was given when an intervention received <12 votes for either effective or ineffective or if consensus vote was achieved for the mixed effectiveness rating itself.

Table 2. Intervention quality and robustness indicators for rating evidence

Quality	Robustness
Type of study design	Clinical response/remission rates
Explicitly stated inclusion/ exclusion criteria	Statistical significance
Dropout rate ≤20%	Standardized effect sizes
Validated outcome measures	Odds ratios
Covariate analysis to check for confounding factors	Number needed to treat (NNT) Consistency across studies

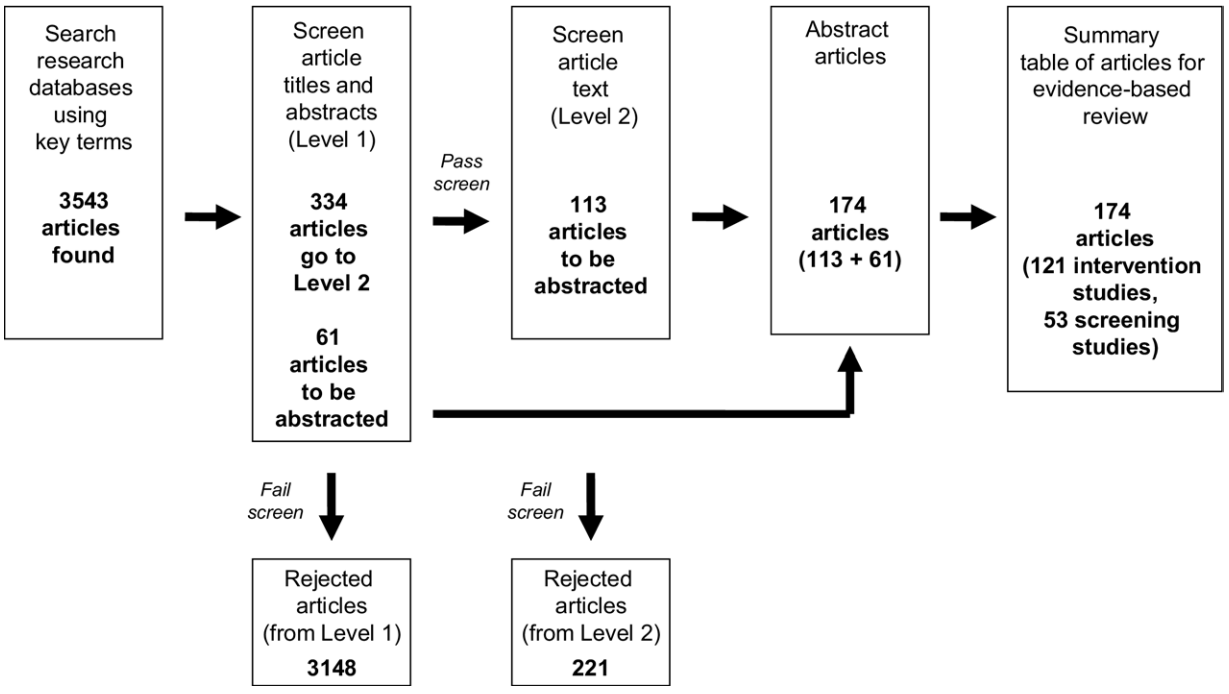


Figure 2. Literature search results.

Results

The initial literature search produced 3543 articles with publication dates from 1967 to October 2005. Articles with insufficient information in the abstract to exclude or include them were read in their entirety (Level 2 screening) to determine if inclusion criteria were met (Figure 2). A total of 174 articles met the selection criteria, 121 of which investigated interventions (the remaining studies examined screening instruments). Given the small number of studies for each specific type of intervention, the expert panel grouped interventions into 24 categories to facilitate the effectiveness rating process. For example, group cognitive therapies as well as integrative and instrumental reminiscence therapies were categorized together as "group psychotherapy" to provide enough data for making a statement about the evidence.

Twelve intervention categories had adequate data for making a determination of effectiveness (Table 3). The reviewed studies were published from 1987 to 2005 and the average sample size was 230. Data on results, study design, and sample characteristics are provided in Appendix 1. The panel advisory subgroup found that the following interventions lacked sufficient data for rating their effectiveness: group therapy, hospice care, individual psychotherapy for bereavement, suicide prevention, adult day health programs, peer support, and respite for caregivers.[11,25–36]

Rating of Effective

Depression care management: home. The term "depression care management" (DCM) describes collaborative care models for treatment of depression. DCM generally involves teams of primary care physicians, psychiatrists, therapists, psychologists, nurses, and social workers, of which one of the latter two personnel functions as a depression care manager for the client. Our search identified eight DCM studies (six randomized controlled trials [RCTs]) examining this treatment at home[12,37–43]; two of these are described below. As was the case with many reviewed interventions, participants in these studies often had some depressive symptoms but lacked a diagnosis of clinical depression.

Only one study, the "Program to Encourage Active, Rewarding Lives for Seniors" (PEARLS) reported cost data ($630 total mean cost per patient).[12] Participants included senior public housing residents and senior service agency clients who met DSM-IV criteria for either minor depression or dysthymia. Usual care participants received no specific intervention, but physicians were informed of their patients' depression diagnosis. Intervention participants received modified problem-solving therapy (PST) with an emphasis on behavioral activation, consisting of eight 50-minute in-home sessions over 19 weeks. The authors reported significant differences between treatment and control groups with response (defined as ≥50% reduction in depression measure scores) rates of 43% for the intervention group versus 15% for controls (odds ratio [OR]=5.21, confidence interval [CI]=2.01–13.49, $p<0.001$). They also reported 12-month remission rates of 36% for intervention recipients vs. 12% for controls (OR=4.96, CI=1.79–13.72, $p=0.002$).

Table 3. Intervention categories, data adequacy, and effectiveness ratings

Intervention category	# of studies (*n*)	Adequate data?	Effectiveness rating
Depression care management (home)	8 (1119)	Yes	Effective
Depression care management (clinic)	2 (2399)	Yes	Effective
Group psychotherapy targeting depression	6 (292)	Yes	Ineffective
Individual psychotherapy targeting depression	11 (833)	Yes	Mixed effectiveness
Psychotherapy targeting mental health	5 (574)	Yes	Mixed effectiveness
Psychotherapy for caregivers	2 (394)	Yes	Mixed effectiveness
Education and skills training: targeting older adults	10 (2803)	Yes	Ineffective
Education and skills training: targeting caregivers	11 (2026)	Yes	Mixed effectiveness
Geriatric health evaluation and management (home)	7 (708)	Yes	Mixed effectiveness
Geriatric health evaluation and management (clinic)	4 (2157)	Yes	Ineffective
Exercise: primary target depression	1 (1828)	No	NA
Exercise: other primary targets	9 (1796)	Yes	Mixed effectiveness
Bereavement: group therapy	2 (367)	No	NA
Bereavement: hospice	1 (96)	No	NA
Bereavement: individual treatment	1 (33)	No	NA
Community-based suicide prevention	3 (18,641)	No	NA
Suicide prevention: depression care management	1 (598)	No	NA
Nutrition	1 (81)	No	NA
Peer support	1 (291)	No	NA
Adult day health	1 (44)	No	NA
Incontinence	1 (30)	No	NA
In-home respite for caregivers	1 (55)	No	NA
Physical rehabilitation and occupational therapy	7 (822)	Yes	Ineffective

NA, not applicable.

Arthur et al.[37] described a nurse-led, in-home, collaborative care intervention that did not demonstrate an impact on depression. Participants were recruited during general practitioner (GP) visits and were eligible if they had a 15-item Geriatric Depression Scale (GDS-15) score of ≥5. The intervention consisted of mental health assessment by a community mental health team (CMHT), which later provided treatment recommendations to the subjects' GP. The study compared GDS-15 follow-up scores for the intervention group with a control condition of treatment as usual by a GP. Possible reasons for lack of demonstrable effect included failure of subjects randomized to active treatment to receive the CMHT assessment and lack of GP approval for ongoing CMHT involvement.

Depression care management: clinic. The search yielded two large RCT studies that evaluated the effectiveness of DCM delivered in a clinic.[11,14] Both studies used a depression care manager who collaborated with the primary care physician to treat depressed older adults with antidepressant medication and psychotherapy.

Unützer et al.[14] described the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) program, which targeted older adults using a collaborative care approach. They recruited subjects (n=1801) from 18 primary care clinics across five states. Intervention patients received depression care manager services for ≤12 months. Under the supervision of a psychiatrist, care managers provided education and support of antidepressant medication management to the primary care physician. They also offered problem solving therapy in primary care (PST-PC) if appropriate. Formal psychiatric diagnoses were made, and patients with major depression or dysthymia were included in this study. Data were collected at baseline and 3-, 6-, and 12-month follow-up. This study demonstrated significant differences at all time points after baseline for response and remission. At 12 months, nearly half of the intervention patients had a 50% reduction in depressive symptoms compared to 19% of controls (OR=3.45, CI=2.71–4.38, $p<0.001$).[14] The estimated mean cost of providing IMPACT was $553 per patient over 12 months.[14]

Bruce et al.[11] conducted an RCT (Prevention of Suicide in Primary Care Elderly: Collaborative Trial [PROSPECT]) that targeted older adults diagnosed with major or minor depression. They recruited subjects (n=598) from 20 Northeast-area primary care practices.[11] The intervention included a clinical algorithm for antidepressant treatment as overseen by depression care managers. The algorithm included interpersonal psychotherapy provided by the care manager if deemed appropriate. Usual care served as the control condition, but was "enhanced" as physicians were educated about antidepressant treatment guidelines and were notified if their patients met criteria for a depression diagnosis. The authors reported statistically significant differences in depression severity and rates of suicidal ideation at each follow-up period (4, 8, and 12 months) for all patients with major depression. Changes in depression severity and suicidal ideation were not significantly different for patients with minor depression.

Rating of Mixed Effectiveness

Group psychotherapy targeting depression. The literature search yielded five studies (three RCTs) of group psychotherapy (e.g., group interpersonal counseling, cognitive, and integrative and instrumental reminiscence therapies) as a treatment for late life depression.[44–48] Results from these studies were mixed; for instance, several group therapies showed significant improvement between intervention and control conditions at some, but not all, measured time points. Other interventions showed significant reductions in depression scores within groups, but no significant differences between treatment and control group scores. The three RCTs are described below.

Beutler et al.[44] conducted a study of 56 subjects diagnosed with major depression. Participants were assigned to one of four groups: alprazolam drug treatment, placebo drug treatment, cognitive group therapy plus placebo (n=16), and cognitive group therapy plus alprazolam treatment. No significant differences in follow-up depression scores between treatment and control groups were observed.[44]

Dai et al.[48] completed a study involving 30 Mandarin-speaking Chinese Americans. Respondents to a flyer advertising the group intervention were screened for presence of depressive symptoms or depressive disorders; specific diagnoses were not named in the paper. The intervention consisted of eight weekly 1-hour classes during which older adults watched a Mandarin-language, cognitive behaviorally oriented videotape that was followed by group discussion. While the authors did not provide the depression rating scores, they reported significant improvement in depression severity for those in the treatment group ($p<0.01$) compared to wait-listed controls.

Watt and Cappeliez[47] conducted a study in which 40 older adults with depression (defined by a GDS score $\geq$14) were assigned to an integrative reminiscence therapy group, an instrumental reminiscence therapy group or an active socialization control group. Twenty-six subjects completed the study. The authors described "clinically significant" improvement in depression scores (GDS and HRSD) over time for both intervention and control groups at 3-month follow-up.[47]

Individual psychotherapy targeting depression. The search yielded 12 RCTs on the effectiveness of individual psychotherapy for older, depressed adults.[49–63] These studies, which included participants ranging from those with depressive symptoms to those with diagnoses of major depression, looked at a number of therapies, including cognitive therapy, cognitive behavioral therapy, bibliotherapy, cognitive "training," brief relational/insight therapy, brief psychodynamic therapy, self-management, problem-solving therapy for primary care (PST-PC), reminiscence therapy, and interpersonal counseling.

Six studies involved cognitive behavioral therapy (CBT), all of which demonstrated a statistically significant effect on depression rating scores compared to control conditions, leading some panelists to rate this category as effective.[49–51,53–56,58] Several studies compared CBT to other types of psychotherapy, but generally did not show significant differences between the two treatments.[50,53–56,58]

Psychotherapy targeting mental health. The literature search yielded six studies (four RCTs) of several psychotherapies for improving overall mental health for community-dwelling older adults.[64–69] Examples of the interventions include, but are not limited to, group therapy with cognitive, supportive, and educational components delivered to older adults in subsidized high-rise apartments,[64] structured life interviews provided to homebound recipients of the meals-on-wheels program,[65,66] and a mind–body wellness program involving relaxation training, meditation, and nutrition education.[67] The presence of a depressive disorder or significant depressive symptoms was not required for recruitment into these studies. Recipients of these interventions showed various degrees of improvement on measures of mental health and mixed findings for improvement on depression scores when compared to control conditions or over time. For example, while the mind–body wellness intervention led to significant improvements for depression,[67] the two life-review interventions did not.[65,66]

Psychotherapy for dementia caregivers. Two studies described interventions in this category, neither of which actively recruited depressed caregivers. Eisdorfer et al.[70] conducted an RCT evaluating structural ecosystems therapy (SET) and a computer-telephone integrated system (CTIS). SET alone was not effective in reducing depression scores for Alzheimer's caregivers compared to the phone-administered control condition. The SET + CTIS condition had a positive effect on caregivers' depression scores. Coon et al.[71] reported findings from an RCT using two treatment interventions (anger management, depression management) for women caregivers of relatives with dementia. The two intervention groups demonstrated significant changes in depression subscale scores from the Multiple Affect Adjective Checklist (MAACL) compared to wait-list controls, but only when analyzed together. Neither intervention was superior for the treatment of depression.

Education and skills training for dementia caregivers. Eleven studies (10 RCTs) evaluated dementia education and/or caregiver training interventions for elderly caregivers of demented individuals.[72–82] Caregiver depression was not a requirement for recruitment

into these studies, and the studies yielded mixed results. Significant improvement in depression scores for intervention recipients versus controls were described in several of the RCTs.[73,76,79] Four of the RCTs[72,77,78,80] failed to demonstrate a significant effect on depression scores for intervention recipients versus controls. One RCT[82] yielded results suggesting an improvement in depression for those participants who were more depressed at baseline.

Geriatric health evaluation and management: in home. The panel considered seven studies (four RCTs) exploring the effect of home-based geriatric health evaluation and management interventions offered to older adults who were not required to be clinically depressed to participate.[83–89] Only one study[83] found a statistically significant change in depression scores among those receiving preventive in-home health assessments versus usual care clients (although the change was of questionable clinical significance).

Exercise. The search yielded nine RCTs that evaluated the effect of exercise on mood in community-dwelling elders who were not necessarily clinically depressed.[90–97] Four studies reported significant improvement in depression scores for intervention group participants compared to participants in control conditions.[91,95–97] These interventions included a 12-week home-based exercise program for women with diastolic heart failure and an Arthritis Foundation aquatic program for largely non-depressed elders with osteoarthritis.[95,97] All but one of the studies occurred outside of the home. The majority of these studies involved structured, group exercise with a focus on strength training, balance, aerobics, and resistance exercise or combinations thereof.

Rating of Ineffective

Three intervention categories received a consensus rating of ineffective by the expert panel: education and skills training for various medical conditions (not for depression or Alzheimer's caregiving), geriatric health evaluation and management in clinic settings, and physical rehabilitation and occupational therapy. These interventions were reviewed in 20 studies (eight RCTs), most of which did not require participants to be clinically depressed.[98–119] A majority of these studies found no significant changes in depression scores compared to control conditions.

Discussion

Interventions Rated as Effective

Depression care management was the only intervention rated as effective by the expert panel. DCM produced statistically significant results across both home- and clinic-based models in eight different RCTs with the largest number of participants among reviewed interventions. Of note, the intervention is multifaceted in nature, suggesting that treatment of depression in community-based older adults requires more resources, effort, and coordination among treatment providers than might otherwise be expected for moderate depression-severity scores. These interventions all involved identification of depressed individuals through a standardized screening, referral for active treatment, and close follow-up of participants.

Interventions Rated as Having Mixed Effectiveness

Several factors potentially unrelated to the underlying quality of the interventions themselves contributed to a rating of mixed effectiveness. Studies for these interventions tended to have small sample sizes or weak study designs. In some cases, the impact of the intervention appeared to be of questionable clinical significance. In addition, the interventions outlined in this review might have received different ratings with different categorization. For example, the panel decided to categorize different types of psychotherapy (e.g., CBT, reminiscence therapy) as a single class of intervention in an attempt to have adequate numbers of psychotherapy studies for review. Thus, effectiveness of one particular type of psychotherapy might have been obscured by ineffectiveness of other modalities when the panel gave a single rating for the overall category. In addition, many of the effective therapies were delivered by master's-level, manual-trained practitioners. The robustness of response to such treatments may be diminished in community-based settings, where interventions may be delivered by personnel with less training or supervision. Finally, the exclusion of university-based studies in this review process almost certainly influenced the rating of the individual psychotherapy category. For example, the RCT by Reynolds et al.[120] suggested that interpersonal psychotherapy was superior to placebo in preventing or delaying recurrence of major depression in the elderly, but this study did not meet inclusion criteria for this review because interpersonal psychotherapy was clearly delivered in an academic medical center.

Interventions Rated as Ineffective

While it might make intuitive sense that the interventions that received this rating would not have an impact on depression, that impact may be "hidden" because the studies evaluating these programs did not target depression as a primary outcome measure and/or did not recruit clinically depressed subjects. As stand-alone treatments, these interventions may simply lack the potency required to treat depressed older adults with

complicated life and medical problems. Although these interventions do not seem to be effective treatments for late life depression on their own, they may have merit for the treatment of other conditions, and they might also represent useful components of a multifaceted approach to late life depression. These interventions might have some value in preventing depression, and the studies designed to evaluate them did recruit subjects (older adults with chronic medical conditions) who might be at risk of developing depression. Despite having recruited these at risk individuals, these studies did not include subjects in adequate numbers or follow such subjects over sufficient time periods to demonstrate effectiveness as preventive interventions for depression.

"Missing" Interventions

There were several intervention categories for which the review produced far fewer studies than anticipated, such as grief and bereavement, suicide prevention, and adult day health centers. The members of the panel were very interested in reviewing interventions for bereavement and suicide because these areas expand the scope of depression diagnosis to some of the most significant public health concerns for older adults. With only one or two publications assessing these interventions, the panel determined that inadequate data existed to make a statement about treatment effectiveness. A similar situation occurred for adult day health programs.[34] Of note, the decision not to give a rating on these interventions should not be interpreted as an indication of ineffectiveness, but rather as an indicator that more published research is needed in these under-studied areas. Research is also urgently needed in more "upstream" interventions, such as those that might more clearly prevent depressive disorders from developing in high-risk individuals.

Strengths and Limitations

This review differed from many in that it used a broad definition of "depression" and tried to operationalize "community based" in such a way as to make the results more applicable to providers in non-academic community-based settings. While this may have limited the scope of articles included, we feel it makes the interventions included more amenable to community-based dissemination. The intervention categories chosen by the panel may have grouped together interventions that are quite different in method and outcome. The results of this project might have been quite different if categorization had occurred using different methods. However, this type of limitation may be unavoidable if attempts are made to avoid an a priori methodology based on the evaluation of an outcome. Strengths include the use of an expert panel that was large enough to include a diverse group of individuals and a structured, systematic review of the literature that considered both the quality of the studies and their effectiveness.

Compared to other reviews[15,17] addressing depression in older adults, our findings are mixed. A recent review[17] of the literature and programs currently under evaluation found that PST and exercise were effective in preventing the onset or aggravation of depression. A survey[15] of 50 experts on psychotherapy for depressive disorders in older adults recommended CBT, supportive psychotherapy, PST, interpersonal psychotherapy, and psychosocial interventions as preferred treatments. These variations are to be expected given methodologic differences in other reviews, such as the inclusion of non–peer-reviewed papers and lack of focus on community-based programs. One similarity between our paper and other reviews is the identification of the need to research potentially successful programs for effectively preventing depression.

Conclusion

This review identified DCM as an effective community-based treatment for late life depression based on sufficient strength of the evidence and quality of the data. None of the other intervention categories had adequate data or evidence to warrant this rating. Ratings were not given to interventions for which insufficient data existed, and the lack of a rating should not be interpreted to mean that such interventions are ineffective. In general, studies that did not actively recruit depressed participants did not demonstrate an impact on depression severity. The results of this review suggest that interventions targeting depressed elders may require a multifaceted approach to ensure effectiveness and that more research is needed.

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Appendix 1. Summary table of depression interventions

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
8 studies	**Depression care management: home**	***n*=1119**			**27%–43% improvement, 36% remission**
Ciechanowkski (2004)[12] I. RCT	T: PEARLS—home-based PST and Tx management (depression care manager) C: Usual care + notified physicians and social workers of depression diagnosis	n=138, 5% dropout Seattle seniors (mean age 73) in public housing and/or using community-based senior services MINOR, DYS	Master's-level social workers (employed by community partners); psychiatrist (supervision) Home, phone	HSCL-20 12 months 8 50-minute sessions over 19 weeks (average 6.6 sessions) + brief monthly f/u phone calls (average 3.5 calls)	Statistically significant ($p<0.001$) 43% improvement vs 15% controls (OR=5.21). Statistically significant ($p=0.002$) 36% complete remission vs 12% controls (OR=4.96).
Rabins (2000)[42] I. RCT group	T: Nurse-based mobile outreach (Psychogeriatric Assessment and Treatment in City Housing [PATCH]): patient education, building staff (e.g., social worker) education, Tx management C: Usual care	*n*=298, 20% dropout Six public housing developments for seriously mentally ill elderly (mean age about 72.5), Baltimore. "Depression" not specified or required for inclusion	PATCH-trained nurse + trained housing staff Public housing	MADRS 26 months Patients were seen average 5 times	Statistically significant decrease in MADRS scores for psychiatric cases and those needing mental health care ($p<0.001$) vs controls. T group also had statistically significant reduction in psychiatric symptoms and behavioral disorder, compared to C group.
Arthur (2002)[37] I. RCT	T: Case finding-MH assessments during routine health check; Tx management by community MH team; GP feedback, if needed C: Routine GP care	*n*=93, 20% dropout Patients (median age 79–82) from large general practice in Leicestershire, UK MINOR=GDS score ≥5	Nurse from GP practice; member of community mental health team (CMHT); GP support Home	GDS-15 12–18 months 1 nurse assessment, 1 CMHT visit, rest of care varied by subject; actual frequency not reported	No statistically significant ($p=0.18$) difference between 27% *improvement* for T group and 39% for C group (OR=0.46)

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Llewellyn-Jones (1999)[41] I. RCT	T: Integrated depression care (health education, physical exercise, provider education/training) C: Routine care	*n*=220, 13% dropout Older residents (mean age about 84.3) in large Sydney residential facility "Moderate–severe" (GDS ≥14) and "mild" depression (GDS=10–13)	General practitioner and residential staff + help from specialist geropsychiatric nurse, if needed Residential facility	GDS 9.5 months Unknown frequency of intervention	Average *improvement* of 1.87 GDS points on T compared to C group (p=0.001, using multiple linear regression adjusting for covariates) There was significantly more movement to the mild depression GDS category in the T group vs C group (p=0.012).
Banerjee (1996)[38] I. RCT	T: Individualized psychogeriatric team care C: Routine GP care	*n*=69, 12% dropout London elderly (50% aged 75–84) receiving home care for disability AGECAT depression (greater prevalence than major depression as defined by standard Major Depression criteria)	Multidisciplinary team, including community psychiatric nurses, occupational therapists, senior and junior medical staff, a social worker, and psychologist Home	MADRS, AGECAT 6 months A range of services were delivered (e.g., Rx management, counseling) and varied by subject; actual frequency not reported	At the end of the study, 58% of T group are no longer an AGECAT case, vs 25% of C group (p value not reported).
Wattereus (1994)[43] I. RCT	T: Tailored community nurse management, may include: weekly visits, counseling, antidepressant trial/management, social network activation, involving family in management C: Routine GP care	*n*=96 Community-based elderly (mean age 76) in North London "Probable pervasive depression" (short-CARE diagnostic ≥6)	Community psychiatric nurse; GP support; multidisciplinary hospital-based psychogeriatric team (assessment, care plan) Home	GMS-AGECAT, Short-CARE 3 months Case management including weekly home visits and phone calls (average 10 visits and 7 hours face–face time)	Statistically significant difference between Short-CARE scores for T and C groups for all subjects (p=0.05) and those identified as depressed by GMS-AGECAT (p=0.008). Response/remission data not reported.
Flaherty (1998)[40] II. Case control	T: Total quality management (TQM): provider feedback, provider education, case management C: Historical control group of older home-care patients with depression symptoms	*n*=150 Medically ill older (mean age about 81) home care patients GDS 10–14="mild" depression symptoms; GDS ≥15="advanced" depression symptoms	Nurses (education and case management); Primary care physician (support and Tx); Social service or mental health practitioner, or gerontologic nurse (as recommended by plan) Home	GDS 1 year GDS screen + recommended services: If GDS=10–14—social services; 64% of eligible subjects received this. If GDS >15—social services, mental health or gerontologic nurse visit, appropriate antidepressant meds; 52%, 89%, and 57% of eligible subjects received services, respectively	Within group, there was nonsignificant (p=0.063) decrease in average pre- and post-GDS. (Note: Only half, 28/56, of T subjects completed post-GDS.)
Brymer (2000)[39] III. Single group	T: The Side Effects Program, community-based substance dependence program, includes home visits, medical assessment, client-centered Tx plan C: None	*n*=55, 40% dropout Patients (mean age 74.2) referred for possible substance dependence (by multiple sources) "Depression" not specified or required for inclusion	Trained nurse and social worker; geriatrician; communication with primary care physician or other healthcare provider Home	EBAS DEP (Even-Briefer Assessment Tool) 6 months Subjects were seen average 7.1x: 1.8 by social worker, 4.2 by nurse, 1.1 by geriatrician	Statistically significant reduction in EBAS-DEP depression (p<0.02), substance use and acute hospitalizations.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
2 studies	**Depression care management: clinic**	***n*=2399**			**27%–52% improvement, 25%–49% remission**
Bruce (2004)[11] I. RCT	T: PROSPECT-Physician knowledge (clinical algorithm) and treatment management (depression care manager) C: Usual care enhanced by physician education about Tx guidelines and notification when patient met depression criteria	*n*=598, 17.5% dropout Older primary care patients (about one third ≥75 years) in New York City, Pittsburgh, Philadelphia area MDD, clinically significant MINOR depression	Primary care physicians; practice-based depression care managers (including trained social workers, nurses, and psychologists); psychiatrists (supervision) Primary care practices; phone	HAM-D 12 months In-person and phone contact by depression care managers at 4, 8, 12 months and when clinically necessary; 88% of subjects received Rx and/or therapy	For *MDD:* 45% and 55% improvement vs 29% and 45% controls at 8 and 12 months, respectively (p=0.006, 0.12, OR=3.0, 1.9). 36% and 36% *remission* (HAM-D <7) vs 23% and 32% controls at 8 and 12 months, respectively (p=0.01, 0.42, OR=3.2, 1.4). For *MINOR:* 46% *improvement* vs 36% controls (p=0.12, OR=2.2). 49% *remission* (HAM-D <7, p=0.08) vs 35% controls (OR=2.6).
Unutzer (2002)[14] I. RCT Sub-analyses *Arthritis*: Lin (2003)[13] *Chronic Medical Cond.*: Harpole (2005)	T: IMPACT-Treatment management (depression care manager): education, Rx management, brief PST C: Usual care	*n*=1801, 10% dropout Older (mean age 71.2) primary care patients (5 states) MDD, DYS, or both	Clinic-based nurses or psychologists trained as depression care specialists (DCS); supervision by primary care physician and psychiatrist Primary care clinics; phone	SCL 12 months DCS in-person or phone contacts every other week during acute Tx (average 9.15 in-person visits and 6.10 phone contacts), then monthly f/u. One third of subjects got PST for an average 6.34 sessions 11% seen by psychiatrist	Statistically significant (p<0.001) 45% *improvement* vs 19% C group (OR=3.45). Statistically significant (p<0.001) 25% complete *remission* vs 8% C group (OR=3.72). Subanalysis of comorbid arthritis (56% of total sample), showed significant reductions in depression, pain intensity, and interference with daily activities due to arthritis or pain. Subanalysis of cormorbid medical illnesses showed significantly improved depression, mental health, and quality of life. Patients had average 3.8 chronic conditions and number of chronic illnesses did not affect likelihood of Tx response.
5 studies	**Group psychotherapy: primary target=depression**	***n*=203**			**30%–100% improvement, 9%–40% remission**
Watt and Cappeliez (2000)[47] I. RCT	T1: Group integrative reminiscence therapy T2: Group instrumental reminiscence therapy C: Active socialization group	*n*=40, 35% dropout Community-based depressed older adults (mean age 67) "Moderate–severe depression"=GDS ≥14	Master's-level therapist, supervised by registered clinical psychologist Community setting	GDS, HAM-D 6 weeks Weekly 90-minute sessions; actual frequency not reported	Statistically significant GDS and HAM-D differences for both therapies, vs controls. 58% and 56% improvement for integrative and instrumental, respectively.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Dai (1999)[48] I. RCT	T: Culturally sensitive, CBT-informed, psycho-educational classes via videotapes C: Wait-list condition	*n*=40 Community-based, Chinese elderly (mean age about 73) "Minor depressive symptoms"	Two psychiatrists created the tapes; not reported who delivered the classes Chinese-speaking church, senior housing site	HAM-D 8 weeks 8 25-minute videotape sessions + group discussion + homework; actual frequency not reported	Within group: Statistically significant ($p<0.01$) *improvement* over time within T group pre- and post-HAM-D scores.
Beutler (1987)[44] I. RCT	T: Group cognitive therapy + placebo C: Placebo	*n*=64, 12% dropout Community-based depressed older adults (mean age about 71) MDD and HAM-D >18	Master's-level, cognitive therapists with specific training on depressed older adults; senior-level psychologists (supervision) Community setting	HAM-D, BDI 20 weeks (90-minute sessions); actual frequency not reported	Mixed findings for different depression measures: statistically significant HAM-D and BDI reduction within groups but not between T and C groups. 9% remission with HAM-D; 29% remission with BDI, vs 12% controls.
Steuer (1984)[45] II. Nonrandomized control trial	T1: Group cognitive behavioral therapy T2: Group psychodynamic therapy	*n*=33, 41% dropout Community-based older adults (median age 66) MDD (DMS-III) and HAM-D ≥16	Co-led by 1 expert (1 year supervised experience + 1 year training) and trainee in the Tx, team included 1 PhD, 2 MSWs, 5 clinical psychology graduate students Community setting	HAM-D, SDS, BDI 9 months 2 90-minute sessions per week for 10 weeks and 1 90-minute session per week for next 26 weeks (46 sessions total); average 37.5 sessions by subjects who completed 9 months	For completers: 40%, 15%, 20% remission for HAM-D, BDI, SDS, respectively, and 80% showed improvement in HAM-D. For all subjects: 27%, 15%, 20% remission for HAM-D, BDI, SDS, respectively.
Jarvik (1982)[46] II. Nonrandomized control trial.	T1: Group cognitive behavioral therapy T2: Group psychodynamic therapy C: Placebo	*n*=26 Depressed outpatients (mean age 67) MDD (DMS-III) and HAM-D ≥15	Therapists and expert supervisors (experience/training not specified) Community setting	HAM-D 6.5 months Two thirds of subjects completed 20 weeks of sessions	30% average improvement and 12% remission for both therapies. Statistically significant differences between therapy vs controls but not between two therapies
12 studies	**Individual psychotherapy primary target=depression**	***n*=922**			**35%–84% improvement, 49%–71% remission**
Floyd (2004)[50] I. RCT	T1: Cognitive bibliotherapy (*Feeling Good*) T2: Cognitive therapy C: Delayed-treatment control (outcome data shows control group before receiving any intervention)	*n*=46, 30% dropout Tuscaloosa and Birmingham AL area seniors (mean age 68) MDD, MINOR, or DYS + HAM-D ≥10	T1: Self-administered Home T2: Clinical psychology graduate students trained in cognitive therapy; clinical psychologist (supervision) Community setting	HAM-D, GDS T1: 4 weeks Self-paced + weekly phone call; average 254 pages read (>half of book) T2: 12 weeks 12–20 sessions; 80% of homework completed	35% of T1 and 57% of T2 recipients showed clinically significant *improvement* in HAM-D (=11-point reduction and score <10). However, there were no significant differences between the two therapies in terms of effect.
Williams (2000)[60] I. RCT	T: Problem-solving therapy—primary care (PST-PC) (individual) C: Placebo	*n*=415, 19% dropout Older patients (mean age 71) from community, VA, and academic primary care practices MINOR, DYS	Trained therapists (PhD psychologists, master's-level social workers and counselors) Primary care settings	HSCL-20 11 weeks 6 sessions (first 1 hour, rest 30 minutes); 83% completed all sessions	DYS: 51% *remission* (HSCL <7) for PST-PC vs 40% placebo. MINOR: 49% *remission* (HSCL <7) for PST-PC vs 44% placebo.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Rokke (1999)[57] I. RCT	T: Self-management therapy (individual) T subgroups: choice or no-choice of target of therapy; target of Therapy=behavior change or cognitive change C: Wait list	*n*=64, 37% dropout Community-based depressed, white, older adults (mean age 66) in Fargo ND and Minneapolis MN "Clinically significant depressive symptoms"=HAM-D ≥10 and BDI ≥10 and GDS ≥11 26 met criteria for MDD	Treatment manual–trained and supervised therapists (including clinical psychologists, and graduate students in clinical psychology and counseling) Community setting	HAM-D, BDI, GDS 10 weeks Weekly 60-minute sessions; actual frequency not reported	T group BDI, GDS, and HAM-D scores were significantly reduced compared to C group (p<0.01–0.05). 63% of T group, vs 18% of C group, had *complete remission* (scores below inclusion cut-off). 84% of T group, vs 48% of C group, had *improvement* in depression scores. No significant differences between subjects with choice of therapy target vs without choice, and between focus on behavior vs cognitive change.
Mossey (1996)[61] I. RCT	T: Interpersonal counseling (IPC) C: Usual care	*n*=89, 15% dropout Medically ill elderly (mean age 71) discharged from Pennsylvania hospitals GDS >10 and no MDD or DYS diagnosis	Trained master's-level, psychiatric clinical nurse specialists Community setting	GDS 3–6 months 6–8 sessions offered, 71% completed at least 4 sessions	Statistically significant GDS differences, vs controls. 61% complete remission vs 35% controls.
Gallagher-Thompson (1994)[58] I. RCT	T1: Individual cognitive-behavioral therapy (CBT) T2: Individual brief psychodynamic therapy (PSYC)	*n*=66, 21% dropout Clinically depressed family caregivers (mean age 62) of frail, elderly relatives MDD (45%) MINOR (30%) Intermittent depressive disorder (1.5%) (according to RDC) BDI ≥10	Therapists with MSWs or PhDs in psychology, experienced with depressed elderly and treatment modality Community setting	BDI, HAM-D, GDS 12 weeks 16–20 sessions (2x per week for first 4 weeks, 1x per week for next 8 weeks); actual frequency not reported	71% of caregivers had *complete remission* at 12 weeks; an additional 8% moved from MDD to MINOR depression diagnosis. No differences were found between T1 and T2 therapies. Caregivers >3.5 years had greater reduction in depression scores in T1 group, while newer caregivers improved more with T2.
Campbell (1992)[49] I. RCT	T: individual cognitive behavioral therapy C1: No intervention C2: Craft classes	*n*=103 Community-based, low-income, elderly (aged 64–82) "Depressed" using DSM-III-R criteria	Trained nursing staff of housing units Housing units for low-income, well elderly	SDS 8 weeks 2 1-hour sessions for 8 weeks; actual frequency not reported	At 8 weeks, 100% of T group reduced SDS score to <60 (mild or no depression); all of C1 group had SDS >69. Significant difference between T and C2 medians (p>0.05). Within group: statistically significant (p>0.01) change in pre- and post-T SDS.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Gallagher-Thompson (1990)[56] and Thompson (1987)[55] I. RCT	T1: Individual cognitive therapy T2: Individual behavioral therapy T3: Individual brief psychodynamic therapy C: Delayed treatment	*n*=115, 12% dropout Community-based depressed elders (mean age about 68) MDD + HAM-D >14 + BDI >17	Doctoral level psychologists with at least 1+ year of specialized training in treatment modality; weekly supervision by trained therapists Community setting	BDI, HAM-D, BSI 3 months (2-year f/u) 16–20 sessions (2x per week for first 4 weeks, 1× per week for next 8 weeks); actual frequency not reported	52% of combined T group had *complete remission*; another 18% had significant clinical *improvement*. All 3 T groups showed statistically significant differences in post-depression sores, compared to C group. No significant differences in depression scores were found between the 3 T groups. At 2-year f/u, 52%, 58%, 70% of the T1, T2, and T3 were in remission (no RDC diagnosis for MDD or MINOR).
Scogin (1990)[62] and (1989)[63] I. RCT	T1: Cognitive bibliotherapy (*Feeling Good*) T2: Behavioral bibliotherapy (*Control Your Depression*) C: Delayed treatment	*n*=67, 15% dropout Community-based older adults (mean age 68.3) "Mild–moderate depression"=HDRS ≥10	Self-administered; weekly supportive phone call from a researcher (psychologist) Home	HAM-D, GDS 1 month (f/u 2 years) Self-paced + weekly 5-minute phone call; 85% of both T1 and T2 were read	66% of the T1 + T2, compared to 19% of C group, had clinically significant *improvement* in HAM-D (=scores >1 standard deviation below mean HAM-D for mildly depressed). However, there were no significant differences between T1 and T2 in terms of effect. Treatment effects were maintained after 2 years.
Scogin (1987)[52] I. RCT	T: Cognitive bibliotherapy (*Feeling Good*) C1: Control bibliotherapy (*Man's Search for Meaning*) C2: Wait-list condition	*n*=29, 31% dropout Community-based older adults (mean age about 70) "Mild–moderate depression"=HDRS ≥10	Self-administered + weekly supportive phone call from a researcher (psychologists) Home	HAM-D, BDI, GDS 1 month Self-paced + weekly 10-minute phone call; actual frequency not reported	Response/remission data not provided. HAM-D and GDS scores improved significantly for the T group compared to C1 and C2 groups, while BDI scores were near significant improvement. At 1 month f/u, no significant differences were found.
Fry (1984)[51] I. RCT	T: Individual cognitive behavioral therapy + "reinforcing agents" (paired subjects for monitoring and support between sessions) C: Delayed treatment	*n*=35, 20% dropout Caucasian residents (mean age 65.1) of supervised apartments for the retired elderly "Moderately to severely depressed"=MMPI >80	Trained master's-level graduate students in counseling or clinical psychology + 2–3 years clinical work in mental health settings Community setting	MMPI 1 month 3 60-minute sessions per week; actual frequency not reported	Response/remission data not provided. 2 × 3 ANOVA showed a statistically significant main effect for T condition ($p<0.01$).
Fry (1983)[59] I. RCT	T1: Structured reminiscence therapy (individual) T2: Unstructured reminiscence therapy (individual) C: No treatment	*n*=162 Community-based elderly (mean age 68.5) from major Canadian and U.S. cities "High depression"=median split on BDI from 400 screened subjects (mean BDI high depression=19)	Trained master's-level providers in counseling and/or clinical psychology with training in human relations and communications Community setting	BDI 5 weeks T1 and T2: 90-minute weekly sessions for 5 weeks; actual frequency not reported	Response/remission data not provided. Statistically significant ($p<0.05$) differences were found between the T1, T2, and C groups; the T1 group had lower post-test BDI scores. Women had less change in depression ($p<0.05$) in all 3 groups.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Gallagher and Thompson (1983)[54] and (1982)[53] I. RCT	T1 Individual cognitive therapy T2: Individual behavioral therapy T3: Brief individual relational-insight psychotherapy (REL)	*n*=38, 21% dropout Community-based depressed elders (mean age about 68) MDD + HAM-D >14 + BDI >17	Advanced PhD candidates in clinical psychology or postdoctoral clinical fellows, experienced with elderly and treatment modality Community setting	HAM-D, BDI, SDS, SADS-C 3 months 16 90-minute sessions (2x per week for first 4 weeks, 1x per week for next 8 weeks); actual frequency not reported	Within groups: HAM-D, BDI, SDS declined significantly in all 3 T groups ($p<001$). Comparison of the 3 T groups over time was not significant ($p<0.09$; no group × time interaction). At 1-year f/u, HAM-D, BDI, SDS were significantly less than pre-test; however, T3 group had less improvement over time. At 1-year f/u, 11% of T1 and T2 subjects and 40% of T3 subjects had MDD, according to SADS-C. All of these subjects had endogenous symptoms at start of study.
5 studies	**Psychotherapy: primary target=mental health**	***n*=574**			**% improvement/ remission not reported; mixed significance for depression scores**
Kunik (2001)[68] I. RCT	T: Group cognitive behavior therapy (CBT) for chronic obstructive pulmonary disease (COPD) patients C: Educational program	*n*=53, 9.4% dropout Community-based COPD patients (mean age 71.3) "Depression" not specified or required for inclusion	Board-certified geropsychiatrist Community setting, home, and phone	GDS 7 weeks 1 2-hour session + 6-week phone f/u + daily homework; actual frequency not reported	T group had statistically significant reduction in depression ($p<0.001$) and anxiety compared to C group. No significant changes in physical functioning were found.
Rybarczyk (1999)[67] I. RCT	T: Mind–body wellness program: relaxation training, sleep, hygiene, nutrition, wellness, meditation T1: Classroom version T2: Home version C: Wait list	*n*=178, 15% dropout Physician-referred HMO patients (mean age 64.5) with at least 1 chronic illness, ≥6 primary care visits in last year, and psychosocial factor to illness, in Chicago Clinically Significant Depressive Symptoms: Modified CES-D cut-off ≥9 (~original CES-D ≥16)	T1: Co-led by clinical psychologist and primary care physician Community setting T2: Self-administered Home	Modified CES-D (Y/N, not 4-point format) 6 weeks T1: 8 2-hour sessions + readings and audiotapes T2: Video of class sessions + same readings and audiotapes Actual frequency not reported	Statistically significant group × time effect for CES-D ($p<0.01$). 5.6% of T classroom group had clinically significant depressive symptoms at the end of the study, compared with 11.1% of C group (and 11.5% home group), showing a trend toward significant difference ($p<0.06$).
Haight (1992)[66] and (1988)[65] I. RCT	T: Structured life review C1: Friendly visit C2: No treatment	*n*=60, 13% dropout Homebound elderly (mean age 76) from Meals-on-Wheels and home health service recipients "Depression" not specified or required for inclusion	Research assistant (no other detail reported) Home	SDS 6 weeks 6 1-hour sessions; actual frequency not reported	No significant improvement in SDS scores, although clinical depression was not present in the sample (highest test scores averaged 39%, compared to 50% cut-off for depression). SDS scores in the C groups did not increase as well, and 1-year f/u showed reduced scores for both T and C groups.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Husaini (1991)[64] II. Nonrandomized control trial	T: therapeutic health program: group psychotherapy, using supportive, cognitive, and education styles C: No intervention	*n*=177 African-American elderly (mean age about 72) in subsidized high-rise apartments, Nashville TN "Depression" not specified or required for inclusion T more depressed than C at baseline (2.78 vs 1.70)	Personnel not reported Subsidized high-rise apartments	National Institute of Mental Health measure of depression (6 CES-D items) 6 weeks 2 3-hour sessions per week; actual frequency not reported	Statistically significant ($p<0.05$) differences between T and C group for depression scores. Significant decline in depression levels in T group is related to lowering of feelings of failure, fearfulness, sadness, and perception that people dislike the elderly.
Viney (1989)[69] II. Cohort	T: Personal construct therapy C1: Criterion group (well-functioning elderly) C2: Control group (matched group on age, gender, chronic illness)	*n*=106 Community-based elderly (mean age about 75): T and C groups had "psychological problems"; criterion group comprised "well elderly" "Depression" not specified or required for inclusion	Senior clinical psychologist and inexperienced psychologist; supervision by experienced psychologist Community setting	Gottschalk-Gleser content analysis–depression scale 10 sessions 10 therapy sessions; median of 10 sessions (range 5–13) based on opportunity and need	Statistically significant ($p<0.01$) improvement in depression scores for T group compared to C1 and C2 groups. When compared to C1 group, the T group had fewer depressive feelings ($p<0.01$).
2 studies	**Psychotherapy: for caregivers**	***n*=394**			**% improvement/ remission not reported; mixed significance for depression scores**
Coon (2003)[71] I. RCT	Psychoeducation and skill training T1: Anger management class (AMC) T2 Depression management class (DMC) C: Wait-list control	*n*=169, 23% dropout Female caregivers (mean age 63.7) of relatives with dementia "Depressive symptoms": using BDI, *low-level* and *high-level* groups created based on median split (BDI=13)	Trained facilitators (clinical psychologists and interns, advanced-level graduate students, master's-level community-based clinicians) Community setting	MAACL 4 months 8 2-hour weekly sessions + 2 booster sessions at 1-month intervals; actual frequency not reported	Change in depression was greater for subjects with *high-level depression*, approaching statistical significance ($p=0.06$) only if T1 and T2 analyzed together. T1 mean change: *high*=–0.79 (6.35) vs *low*=–1.50 (3.97). T2 mean change: *high*=–5.1 (8.58) vs *low*=–1.94 (6.21).
Eisdorfer (2003)[70] I. RCT	T1: Structured family therapy (SET) T2: SET + computer telephone integrated system (CTIS) C: Phone-administered minimal support condition (brief, biweekly phone calls)	*n*=225, 34% dropout Caucasian and Cuban family caregivers (mean age 68.48) of AD patients, Miami area "Depression" not specified or required for inclusion	T1 and T2: bilingual trained therapists (experience or education not specified) Caregiver's home and other settings	CES-D 12 months T1: 60- to 90-minute weekly sessions for first 4 months, biweekly for 2 months, monthly for last 6 months, 13 average contacts for total of 14 hours average contact time T2: T1 + CTIS used in last 6 months; 56 average CTIS contacts for average 19 hours	SET + CTIS was effective in lowering caregiver depression scores, while SET alone was not effective for most caregivers (p=NR). Depression scores: Time × group interaction: $p=0.036$. The SET + CTIS was particularly beneficial for Cuban-American husband and daughter caregivers.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
11 studies	**Education and/or skills training: targeting caregivers**	***n*=2026**			**Varied**
Burgio (2003)[78] I. RCT	Culturally relevant psychosocial interventions: T: Skills training C: Minimum telephone support condition	*n*=140, 16% dropout Community-based white and African-American caregivers (mean age about 63) of individuals with dementia, in Birmingham AL "Depression" not specified or required for inclusion	Treatment manual–trained interventionists Community setting, home, phone	CES-D 12 months (article only reports 6 months of data) 1 3-hour group session, 8 1-hour in-home sessions, 2 phone calls; actual frequency not reported	No significant changes in depression or anxiety scores were found between and within T and C groups; racial subgroup analysis also showed no significant changes.
Burns (2003)[80] I. RCT	T: Targeted educational materials and sessions T1: Behavior care: patient behavior management T2: Enhanced care: patient behavior management + caregiver stress-behavior management	*n*=167, 28% dropout Caregivers (mean age about 65) of AD care recipient recruited from their physician's offices in Memphis "Depression" not specified or required for inclusion	Master's-level health educator specialist Primary care, phone	CES-D 24 months T1: 30-minute sessions (3 hours total) + monthly phone calls T2: 60-minute sessions (4 hours total) + monthly phone calls Actual frequency not reported	There were no significant differences between T1 and T2 on depression scores, nor was a significant group by time interaction found (p=0.31). Caregivers in T1 group also showed a trend toward increased risk of depression (proportion with CES-D ≥16), compared to T2 group (p=0.096).
Gallagher-Thompson (2003)[79] I. RCT	T: Psychoeducation (*Coping with Caregiving-CWC)* C: Enhanced support group (Note: Latina caregivers included in the study but not in this summary table because mean age <60.)	*n*=122 Anglo female family caregivers (mean age 62) of older adults with significant memory problems, in California "Depression" not specified or required for inclusion	Trained interventionists (including psychologists, social workers, doctoral psychology and other graduate students, other helping professions), 50% were bilingual or bicultural Latinos Well-known and accessible community locations	CES-D 3 months "Intensive" phase met 1x/week for 2 hours for first 10 weeks; booster sessions 1 2-hour session per month for next 9 months	T group reported significant reductions in CES-D scores compared to C group. Increased use of adaptive coping and trend toward decreased use of negative coping strategies were also reported.
Mahoney (2003)[81] I. RCT	T: Computer-mediated automated interactive voice response (IVR): weekly caregiver conversations, personal mailbox, bulletin board, activity respite conversation for patients C: Usual care	*n*=100, 32% dropout Caregivers (mean age about 62) of AD patient with AD-related disruptive behaviors, from New England community settings "Depression" not specified or required for inclusion	Self-administered by caregiver (initial training of IVR system done by trained research assistant) Home	CES-D 1 year Caregiver could use the IVR as often as desired; IVR was used for average 55 minutes and 11 calls lasting about 4 minutes	Remission and response data not reported. T group subjects with self-reported low caregiver mastery had significant changes in depression, anxiety, and bother; no significant intervention effect found between T and C groups overall or for high-mastery subjects.
Teri (2003)[82] I. RCT	T: Patient behavioral management for caregivers and exercise training for AD patients; both home-based C: Routine medical care	*n*=153, 8% dropout Community-dwelling AD patients (mean age 78) and caregivers "Depression" not specified or required for inclusion	Trained home health professionals with experience with dementia; physical therapist and clinical geropsychologist (supervision) Home	HAM-D, Cornell (outcomes for patients only 3 months 12 1-hour sessions: 2 per week for first 3 weeks, weekly for 4 weeks, biweekly for 4 weeks + 3 f/u sessions; actual frequency not reported	Cornell depression scores were significantly lower in T group and higher in C group (p<0.02) at 3 months; no statistically significant differences in longitudinal analysis (up to 24 months f/u) (p=0.10). For patients with higher scores at baseline, HAM-D were significantly lower at 3 months and 24 month f/u (p=0.04).

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Hepburn (2001)[73] I. RCT	T: Role-training intervention for family caregivers (*Minnesota Family Workshop*): community-based, classroom and home exercises C: Wait list	*n*=117, 20% dropout Primary caregiver (mean age 65) of relative with dementia (living in community or with caregiver) and 1 other family member (not care receiver) "Depression" not specified or required for inclusion	Workshop faculty including nurse, educator, family therapist, occupational therapist Community setting	CES-D 7 weeks 7 2-hour weekly sessions for caregivers + simultaneous daycare-like group for care receivers; most completed all 7 sessions	In T group, the post-intervention CES-D scores were significantly improved (p=0.04) compared to C group. Statistically significant difference (in expected direction) in measures of the stress mediator, beliefs, response to behavior, and burden.
Toseland (2001)[76] I. RCT group	T: Health education group (HEP) intervention at HMOs: emotion-focused and problem-focused coping strategies, education, support C: Usual care	*n*=210 (105 pairs) Spousal caregivers (mean age about 69.3) of elderly patients (mean age about 72.6), from Kaiser Permanente NE Regional HMO "Depression" not specified or required for inclusion	Trained group leaders had MSWs + clinical experience in group work and caregivers of frail elderly HMO	GHQ-Severe Depression scale 2 months 8 2-hour weekly sessions + 10 monthly 2-hour f/u sessions; actual frequency not reported	For caregivers, there was a statistically significant (p<0.05) difference between T and C group GHQ scores.
Buckwalter (1999)[74] I. RCT	T: Community-based psychoeducational nursing intervention, with individualized care plan to help caregivers manage behavioral problems of patients C: Received routine information, comm-based services, case management/ support group referral	*n*=317, 28% dropout Rural Iowa and Minnesota; Arizona, and Indiana family caregivers (mean age 64.6) of relatives with AD and related dementias "Depression" not specified or required for inclusion	Nurses (experience/ education not specified) Home	POMS Depression-Dejection subscale, GDS Evaluated at 6 and 12 months 3–4 hours in-home intervention and biweekly f/u calls for first 6 months; actual frequency not reported	Caregivers in T group were significantly less depressed than C group at 6 months for POMS and GDS (p=0.0007, p=0.003). By 12 months, differences were no longer significant for POMS only (p=0.15). Subjective burden and spousal relationship were the best predictors of caregiver depression (27% of variance).
Toseland (1992)[77] I. RCT	T: Multicomponent support group: problem solving, education and discussion, stress reduction, support C: No intervention	*n*=108, 18% dropout Female spouses (mean age about 65) of frail elderly veterans who provided care for their husbands and within VA hospital "Depression" not specified or required for inclusion	MSW, 8 years experience with chronically ill and elderly Community setting	GDS, BDI 2 months Weekly 2-hour sessions; actual frequency not reported	There was no significant difference in depression (BDI and GDS) over time for the T group, nor was there any significant differences between T and C groups at either pre-test or post-test.
Mohide (1990)[72] I. RCT	T: Caregiver support program (CSP) for home management of dementia: caregiver-focused health care, education, problem-solving, in-home respite, self-help support group C: Conventional community nursing care	*n*=60, 30% dropout Family caregivers (mean age about 67.8) of patients with dementia, Toronto, Ontario "Depression" not specified or required for inclusion	Intensively trained nurses from community visiting nursing program; nursing supervisor and community psychogeriatric nurse (supervision); trained respite workers; family physician support Home	CES-D 6 months Weekly home nurse visits initially, adjusted up or down depending on caregiver needs + weekly 4 hour in-home respite + monthly 2-hour self-help support group; 23 mean home visits of average 62 minutes each	Caregivers in T and C groups began with above average levels of depression and anxiety, and showed no significant improvement. T group reported clinically important improvement in quality of life, satisfaction, finding role less problematic, and time to long-term institutionalization.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Leutz (2002)[75] III. Pre-post evaluation	T: Family caregiver workshops: education and support; didactic, small and large group interaction, role playing C: None	*n*=532 Caregivers (mean age about 60) who signed up for training workshops at HMOs in 4 geographical areas "Depression" not specified or required for inclusion	HMO staff or community partners HMOs	Single question: Do you often feel sad or depressed? Y/N Duration NR 3 2-hour workshops at 3 sites, 5 sessions at 1 site; actual frequency not reported	Statistically significant ($p<0.01$) improvement in depression from pre- to post-test. Statistically significant predictors of depression/sadness in caregivers included living with care receiver, married, working, good–excellent health, or ≥college education.
7 studies	**Geriatric health evaluation and management: home**	***n*=708**			**% improvement/ remission not reported; mixed significance for depression scores**
Kono (2004)[84] I. RCT	T: Preventive home visits by public health nurses: In-home assessment of physical and mental health and home environment, specific care recommendations, + home care services if necessary C: Usual primary and community care	*n*=119, 27% dropout Ambulatory homebound elders (mean age about 82) in rural Japanese farming community "Depression" not specified or required for inclusion	Public health nurses, employed by the city or by the research study Home	GDS-15 18 months Home visits made every 3 months + any specific care recommendations; actual frequency not reported	No statistically significant improvement in depression, social support, functional capacity, or self-efficacy scores for T group; ADL scores were the only outcome measure that showed trend toward significant improvement.
LaFramboise (2003)[89] I. RCT	T: Heart failure disease management program in 4 modes T1: Phone T2: Home visit T3: Health Buddy (in-home tele-health communication) T4: Home visit + Health Buddy C: None	*n*=103, 13% dropout Newly dismissed (mean age 70.3) from hospital with heart failure diagnosis "Depression" not specified or required for inclusion No treatment as usual control group 20/66 of those assigned to Health Buddy could not use it	T1: Nurse Phone T2: Nurse Home T3: Self Home (tele-health) T4: Self; nurse Home (home visit and tele-health)	GDS-15, SF-36 MH 2 months T1: 5 weekly phone calls T2: 5 home visits T3: 6 months of access to tele-health T4: 5 home visits + 6 months of access to tele-health Actual frequency not reported	ANOVA analyses indicated improvement over time with no T group differences for functional status, depression (GDS-15), or health-related quality of life (SF 36-MH). ANOVA analysis showed that all intervention groups except phone (T1) only had increased confidence in managing heart failure.
Shapiro (2002)[88] I. RCT	T: Case management social services, earlier than normally would have been received C: No services	*n*=105, 50% dropout Low-income, "moderately at risk" (chronic conditions, disability, etc.) elderly in public housing (mean age 77.7), Florida "Depression" not specified or required for inclusion	Psychiatric nurse delivered intervention; psychiatrist supervised and met with subjects; building staff trained as case finders Public housing sites	CES-D 18 months 1-hour home visit + 30-minute f/u contacts (varied based on Tx plan); also 7 1-hour education for building staff, if requested Subjects seen average 5 times; patient education and counseling most frequent interventions	Trend difference ($p<0.10$) in depression score for T compared to C. However, T group had statistically significant improvement in well-being and were less likely to be institutionalized or die, than C group.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Newbury (2001)[83] I. RCT	T: Nurse-led home health assessment, including SF-36 C: Usual care + SF-36 administration	*n*=100, 11% dropout Patients (aged ≥75, median age 80) from GPs in Adelaide, Australia "Little depressive symptomology"	Trained research nurses; GP support Home	GDS-15 1-time evaluation (12-month f/u) 1 90-minute assessment + recommendations to GP	No significant improvement in health status or depression between T and C groups. Within group: T group GDS-15 scores decreased significantly ($p<0.05$) between pre- and post-test.
Horton-Deutsch (2002)[87] II. Quasi-experimental	T: Caregiver PLUS intervention: home-based; to address personal resources, learning/skill development, unanticipated needs, and illness/stress management C: Standard home care	*n*=29, 14% dropout Caregivers (mean age about 67.5) of elderly persons (mean age 78.9) with depression, referred to large urban home healthcare agency for psychiatric nursing Patient had ICD-9 primary/secondary depression diagnosis	Psychiatric nurses; supervision by research investigators (RN + PhD) Home	CES-D 2 months 1 home assessment and weekly visits during weeks 3–6; average of 9 home visits averaging 75 minutes	No significant differences in CES-D between T and C groups. Within groups, only T group had significantly less depression ($p=0.05$). There were no other significant outcome differences between T and C groups; however, T group caregivers had significantly more improvements over C group when patients made functional improvements.
Schwarz (1999)[85] II. Case- Control	T: Home healthcare team included nurses, aides, therapists, social workers C: No intervention	*n*=148, 32% dropout Family caregivers (mean age 64.7) of functionally impaired persons in Ohio; cases received home health care, and controls did not "Depression" not specified or required for inclusion	Care team included RNs, aides, therapists, social workers Home	CES-D 3 months Home health care over 3-month period; average of 55.3 visits by the care team (avgerage 27 by home health aides and 14 by RNs); 13% of subjects got additional services, such as respite, physical therapy	Depression scores were not significantly lower for those receiving home health care. Home health care also did not have significant effect on caregiver appraisal of role and strain.
Mignor (2000)[86] III. Cross-sectional	T: Help from home healthcare agency nurses C: Caregivers with no help from home health nurses	*n*=104 Cases: caregivers, aged ≥65 (relative, living with patient) who use home healthcare help; controls: caregivers, aged ≥65, from local churches; Mississippi "Depression" not specified or required for inclusion	RN Home	CES-D Compared cases and controls at 1 point in time	Caregivers who used home health care help were significantly less burdened and less depressed than controls ($p<0.001$).
9 studies	**Exercise: other primary targets**	***n*=1796**			**% improvement/remission not reported; mixed significance for depression scores**
Chin A Paw (2004)[92] I. RCT	T: Moderate-intensity exercise groups: T1: Strength training T2: All-around functional training T3: Combo of T1 and T2 C: Education	*n*=251, 22% dropout Older adults (mean age 81) from 6 residential facilities (primary independent living) in northwestern Netherlands "Depressive symptoms"=GDS >10 (Note: Baseline GDS was low—5.8.)	Trained physical therapists + assistant Independent-living facilities	GDS 6 months 2 45- to 60-minute sessions per week; actual frequency not reported	No significant differences were found on depression scores, quality of life, or vitality measures both between and within T1, T2, T3, and C groups.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Gary (2004)[97] I. RCT	T: Home-based exercise (walking, self-monitoring) and education (diastolic heart failure [DHF] management, women's health) C: Education only	*n*=32, 13% dropout Elderly women (mean age 68) with DHF from cardiology clinics, North Carolina 69% with GDS-15 suggesting depression (cut-off NR); 47% on antidepressant at enrollment	Researcher Home (or local mall or gym if climate is prohibitive)	GDS-15 3 months 3 days per week walking at 40% intensity, goal to increase to 3 days per week for 30 minutes at 60% by end of 12 weeks + 12 weekly education program; 15 completed program	Decrease in depression symptoms significantly greater in T than C, but only when time2 (p=0.12) and time3 (p=0.009) scores were compared to time1 scores. T group also had statically significant improvement in quality of life and 6-minute walk test.
Sohng (2003)[91] I. RCT	T: Fall prevention program, including strengthening and endurance exercises C: No intervention	*n*=52, 13% dropout Elderly (mean age about 75.7) from 3 senior centers, Seoul, Korea Clinically significant depressive symptoms: GDS-15 >5=suggestive of depression, GDS-15 >10=depressed	Program instructors include the research investigators and a nurse (1 per class) Senior centers	GDS-15 (Korean) 2 months 4x per week—2x direct instruction, 2x instructor used a video; actual frequency not reported	GDS-15 scores improved significantly in T group, compared to C group (p=0.016). Intervention was also effective at increasing muscle strength, ankle flexibility, and balance, but not in IADLs.
Belza (2002)[95] I. RCT	T: Local Arthritis Foundation (AF)–sponsored aquatics class C: Usual pattern of activities + no new exercise programs *Adherers*=minimum 2x per week for at least 16 weeks; 29% adherers, 71% non-adherers	*n*=249, 9% dropout Community-based elderly (mean age 66.01) with osteoarthritis, from Washington State CES-D ≥9 suggests clinical depression	AF-trained and -certified instructors Community-based facilities offering AF aquatics classes	CES-D 5 months At least 2 1-hour classes per week for 20 weeks; 29% of subjects adhered in 16 of 20 weeks	Depression improved for adherers, but not non-adherers. Mean scores at t2: T (adherers)=6.68 (4.84), C=8.09 (6.0). Statistically significant improvements between adherers and controls in well-being, physical function, arthritic quality of life.
Castro (2002)[94] I. RCT	T: "Teaching Healthy Lifestyles for Caregivers," home-based exercise C: Attention-control condition (phone-based nutrition education)	*n*=100, 15% dropout Older female caregivers (mean age 62.7) in San Francisco Bay Area "Depression" not specified or required for inclusion	Health educator (support and monitoring); self-administered exercise Home; phone	BDI 12 months 4 sessions per week for 30 minutes + phone contact (weekly to monthly as study progressed); subjects did average 3 sessions per week (typically walking) for average 35 minutes	No significant differences between T and C groups. Total sample (T + C) had statistically significant improvements (p<0.007) in depression.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Thomas (2002)[98] I. RCT	T: Home-based exercise program, with and without phone contact C: No intervention	*n*=786, 6% dropout Patients (mean age 61.5) with knee pain, from GPs, Nottingham, UK "Depression" not specified or required for inclusion	Trained researcher; self-administered Home; phone	HADS 2 years Training about home 4x for 30 minutes for 2 months + f/u visits every 6 months; subjects asked to exercise 20–30 minutes per day; some subjects received 2-minute monthly phone monitoring; actual frequency not reported (although 48% completed 2 years)	No significant difference between T and C groups HADS scores. Statistically significant reduction in knee pain, stiffness, and physical function for exercise T groups vs C groups.
Timonen (2002)[96] I. RCT	T: Group-based exercise program C: Home-based exercise program	*n*=68, 12% dropout Frail older women (mean age about 83) after hospital discharge, Finland "Depression" not specified or required for inclusion	Instructor experience/education not specified Community setting	Zung SDS 2.5 months 20 sessions: 90 minutes 2x per week + transportation + lunch; average 18 session (11–20 range)	Statistically significant improvement in depression for T group compared to C group both immediately (p=0.048) and 3 months f/u (p=0.015). No significant differences at 9-month f/u.
Damush and Damush (1999)[93] I. RCT	T: Strength training C: Social waiting-list group	*n*=71, 13% dropout Older female adults (mean age 68) from two South Carolina single-home retirement communities "Depression" not specified or required for inclusion	American College of Sports Medicine and American Senior Fitness Association–certified and degreed instructor Community setting	Depression construct in the Health-Related Quality of Life measure 2 months 2 45-minute sessions per week; actual frequency not reported	No significant differences were found on depression scores and other health-related quality of life measures between T and C groups.
Williams (1997)[90] I. RCT	T: Group exercise (in existing community program) C: No intervention	*n*=187, 20% dropout Community-based women (mean age 71.7) in Randwick Falls and Fractures study, Australia "Depression" not specified or required for inclusion	Trained instructors Existing, accessible community-based exercise program	DASS (Depression Anxiety Stress Scale) 7 months 1-hour classes 2x per week for 4 10- to 12-week periods (42 weeks exercise total); average 59 classes attended (range 26–82)	No significant improvement in depression for T vs C groups However, statistically significant improvement in physiological/cognitive functioning, and well-being.
10 studies	**Education and/or skills training: targeting older adults**	***n*=2803**			**% improvement/ remission not reported; mixed significance for depression scores**
Boter (2004)[106] I. RCT	T: Outreach nursing support program (3 phone calls and 1 home visit) for recently discharged stroke patients C: Usual care	*n*=536, 9% dropout Recently discharged stroke patients (mean age about 65) in Amsterdam and Utrecht Type of depression not specified or required for inclusion	Experienced and trained stroke nurses Phone; home	HAM-D Within 5 months post-discharge 4 contacts during 6-month period; actual frequency not reported	No statistically significant differences were found between T and C group on depression scores. T group had less anxiety, role limitations to emotional health, and rehabilitation services than C group.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Cuijpers (2001)[102] I. RCT-Group	T: Secondary depression prevention: multifaceted training of staff, residents, family in detection of depression C: No intervention in matched residential homes	*n*=424, 41% dropout Elderly (over 50% aged 80–90) adults in residential homes in Netherlands 26.7% of sample "depressed" (GDS-15 ≥11) Dropouts more depressed than others	Personnel not specified Residential homes	GDS-15, Dutch version 1 year 3 training sessions for caregivers; 1 depression information session (each) for residents, relatives, and home personnel; depression interventions during last 6 months	T group subjects scoring high on the GDS-15 also had statistically significant improvement in role functioning, social functioning, mental health, and pain.
McHugh (2001)[108] I. RCT	T: Nurse-led shared care intervention: health education and motivational interviewing C: Usual care	*n*=98, 8% dropout Wait-list patients (median age 62) for coronary artery bypass, Glasgow "Depressed case": HADS ≥11	Community-based cardiac liaison nurse (home) and GP team nurse (clinic); GP support Home; GP clinics	HADS 8.5 months Monthly health education, alternating home and clinic; actual frequency not reported	Statistically significant improvement in depression scores and other health status measures for T group.
Lorig (1999)[101] I. RCT	T: Community-based Spanish Arthritis Self-Management Program (SASMP) C: Wait-list control	*n*=331, 14% dropout Spanish speaking adults (mean age 62.5) with arthritis "Depression" not specified or required for inclusion	Trained lay leaders (many with arthritis) Community settings, e.g., neighborhood centers, churches	CES-D 6 weeks (1-year f/u) 6 2-hour weekly sessions; actual frequency not reported	No significant differences (p=0.067) between T and C CES-D scores. Statistically significant improvement at 1 year in T self-efficacy, general health, exercise, pain, disability, compared with baseline T.
Leveille (1998)[103] I. RCT	T: Senior center–based chronic illness self-management and disability prevention program on health, functioning and heath care utilization C: Group given a tour of senior center and schedule of activities	*n*=201, 6% dropout Chronically ill seniors (mean age about 77) from primary care practices, Seattle WA "Depression" not specified or required for inclusion	Intervention nurses and social workers Senior centers	CES-D 1 year Individualized plan including exercise classes, self-management course, peer support; actual frequency not reported	Nonsignficant change (p=0.526) in depression score between T and C groups. Statistically significant T group improvements in functional decline (disability days and lower scores on HAQ), compared to C group.
Davison (1997)[105] I. RCT	T: Informed decision-making tool: "self-efficacy information program" included written information package with discussion, list of questions for doctor, audiotape of medical consultation C: Received information package and informed it would be helpful to read before/after consultation	*n*=60, 0% dropout Men (mean age about 68) newly diagnosed with prostate cancer from urology community clinic, Winnipeg, Canada Type of depression not specified or required for inclusion	Research investigator (an RN with PhD) Urology community-based clinic	CES-D 1.5 months 1 in-person session at start of study; 1 phone assessment at end of study	While no significant change in depression, T group had lower state anxiety and more active role in Tx decision making than C group.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Goeppinger (1989)[99] I. RCT	T: Self-care education: "Bone Up on Arthritis"; active practice of self-care behaviors; problem solving and identification In 2 formats: T1, home (audio tape); T2, small group (community site) C: No intervention	*n*=459, 19% dropout People (mean age 62.44) with arthritis from 9 rural communities, Virginia "Depression" not specified or required for inclusion	T1: Self-administered + coordinated by lay leaders (recognized community leaders) Home T2: Trained lay leaders Accessible and acceptable community sites, e.g., churches, libraries, rescue squad halls	CES-D 4 months T1: 6 lessons-booklet with audiotape of instruction T2: 6 2-hour lessons Actual frequency not reported	No significant differences in CES-D between T and C group; data not reported for T1 and T2 group compared to C. T2 group had statistically significant ($p<0.05$) decrease in CES-D from pre- to post-test. Statistically significant improvements in T group pain, knowledge, self-care behavior, perceived helplessness.
Deberry (1982)[104] I. RCT	T: Meditation-relaxation: T1: With f/u practice T2: Without f/u practice C: Pseudo-relaxation control group	*n*=36 Elderly female (63–79 years) from local senior center (83% lost spouse in last 4 years) "Depression" not specified or required for inclusion	Details on personnel not reported Local senior center, home	SDS 5 months 30-minute weekly sessions for 10 weeks + 10 weeks f/u + 10 weeks relaxation tape for daily about home; actual frequency not reported	Remission and response data not reported. No significant changes in depression between T1, T2, and C groups, although significant decreases in anxiety.
Phelan (2002)[107] III. Single group	T: Senior center–based chronic illness self-management and disability prevention program on health, functioning and heath care utilization C: None	*n*=555, 45% dropout Chronically ill seniors (mean age 76) from 14 senior centers, western Washington State "Depression" not specified or required for inclusion	Intervention nurses and social workers Senior centers	GDS-15 1 year Individualized plan with exercise classes, self-management course, peer support; actual frequency not reported	Statistically significant decrease in percent of participants found to be depressed (28% baseline vs 17% at 1-year f/u). Statistically significant improvements between baseline and 1-year f/u for physical activity level, exercise readiness, and percent of physically inactive.
Gattuso (2001)[100] III. Single Group	T: *Healthy and Wise* program (a mental health and well-being education program, developed with community senior group consultation) C: None	*n*=103, dropout rate unclear Older adults (50+) living in rural and remote parts of Australia Mean GDS-15 at baseline=3.5	Experience and education or group leader not specified Community setting	GDS-15 6 weeks Number of sessions not reported	Significant change pre- and post-test in mean GDS-15 scores.
4 studies	**Geriatric health evaluation and management: clinic**	***n*=2157**			**% improvement/ remission not reported; mixed significance for depression scores**
Glasgow (2004)[111] I. RCT	T: Computer-assisted diabetes care management C: General health risk computer assessment	*n*=886, 5% dropout Type II diabetes patients (mean age 63) from Colorado primary care practices "Major depression"=PHQ-9 ≥10	Self-administered (via computer); care manager (to support patient); and primary care physician Primary care practice	PHQ-9 6 months 1 30-minute computer session before PCP visit + 8- to 10-minute care manager visit + at least 1 f/u call from care manager; actual frequency not reported	Both T and C groups improved on PHQ-9 scores within groups, although no significant differences were found between the two groups ($p=0.717$). T group had significant improvements in number of recommended lab assays and patient-centered aspects of care, compared to C group.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Boult (2001)[109] I. RCT	T: Outpatient geriatric evaluation and management (GEM), including, 1 home visit and monthly clinic visits C: Usual care from PCP, who was notified of risk for repeated hospital admission	*n*=568, 8% dropout Residents (mean age 78.8) of metro area (Ramsey County MN) with probability (>40) of repeated hospital admission GDS-15 ≥11="suggestive of depression"	GEM team: social worker, gerontologic nurse practitioner, geriatrician, nurse); support of primary care physician Ambulatory clinic in community hospital	GDS-15 18 months 1 home visit by social worker + 2 GEM clinic visits + regular phone calls + tailored care plan; GEM lasted 6 months for most subjects with monthly team clinic visits	Proportion of subjects with GDS-15 ≥11 was significantly less in T vs C group ($p<0.01$). T group was significantly less likely than C group to lose functional ability, have health-related restrictions on daily activities, or use home healthcare services.
Moore,1997[112] I. RCT-Group	T: 8-item screening instrument (covered 8 common problems in older adults, including depression) and clinical summaries/provider feedback: 1- to 3-page synopses of epidemiology, evaluation, and Tx of common problems C: Usual practice	*n*=261, 12% dropout Convenience sample (mean age 76.5) from 26 community-based practices of internists and family physicians in Los Angeles CA "Depression" not specified or required for inclusion	Clinic office staff (administer screen + provide clinical summaries to physician); physicians (administer care) Community-based office practices	MOS SF-36 emotion/ depression subscale (single question: Do you often feel sad or depressed? Y/N) 6 months 1 clinic visit: 10-minute screen to guide clinical summaries for physician use; 1- and 6-month f/u outcome assessment	No significant differences between T and C at baseline or at 6 months. Only hearing loss was significantly associated with more frequent detection and f/u assessment, after administration of the 8 condition screen and clinical summaries.
Silverman (1995)[110] I. RCT	T: Outpatient consultative geriatric assessment: core assessment team, comprehensive outcome evaluation and Tx plan C: Usual care	*n*=442,11% dropout Non-institutionalized elderly (mean age 74.6), southwestern Pennsylvania, Medicare/Medicaid recipients had "a change in health status" or "instability" "Depression" not specified or required for inclusion	Core assessment team including internist with geriatric medicine specialty, geriatric nurse, geriatric social worker Ambulatory geriatric assessment clinics and community physician offices	DIS Measured baseline and after 12 months Team provided comprehensive evaluation and Tx plan + family conference; actual frequency not reported	6.1% of T group *improved* DIS scores, vs 6.7% controls (p=NS). 0.7% of T group had worse DIS scores, compared to 0.6% controls (p=NS).
7 studies	**Rehabilitation and occupational therapy**	***n*=822**			**% improvement/ remission not reported; mixed significance for depression scores**
Horowitz (2004)[119] I. RCT	T: Lifestyle redesign occupational therapy C: Usual adult day programs	*n*=28, 14% dropout Participants (mean age about 73) in New York State medical adult day program "Depression" not required for inclusion. CES-D ≥17: depressive symptoms; ≥27: greater likelihood of depression	Experienced licensed occupational therapists Medical model adult day centers; Home	CES-D 4 months Weekly 1.5-hour group sessions + option for individual monthly sessions at home; actual frequency not reported	No statistically significant differences between T and C groups.
Hauer (2003)[115] I. RCT	T: Ambulatory training of strength, functional performance, and balance C: Motor placebo activities, e.g., stretching or ball games while sitting	*n*=57 Patients (mean age 82.2) after inpatient rehabilitation in geriatric hospital, Germany "Depression" not specified or required for inclusion	Personnel not specified Community setting	GDS-15 3 months 3x per week for 3 months; typically 8–9 hours per week	No significant differences in GDS-15 scores (p=0.443). Statistically significant differences in strength and functional performance between T and C groups.

Reference Study design	Intervention	n, Dropout About the sample Type of depression	Personnel Setting	Outcome Duration Frequency	Results[a]
Green (2002)[116] I. RCT	T: Community physiotherapy C: No therapy	*n*=170,14% dropout Patients (mean age 72.5) in hospital and community therapy stroke registers, UK "Depression": HADS ≥11 (20% of subjects)	Community physiotherapy service (13 staff) as part of usual work Home or outpatient rehabilitation centers	HADS Maximum 13 weeks (Tx duration varied but minimum 3 contacts); median 3 contacts for average 44 minutes	Nonsignificant findings (p=0.354) for HADS scores. Significant, but clinically small, improvements in mobility and gait speed.
Wolfe (2000)[114] I. RCT	T: Community-based (home) rehabilitation: physiotherapist, occupational therapist, speech and language therapist, and therapy aide C: Usual care	*n*=43, 26% dropout Stroke patients (mean age 74) living in South London, not admitted to hospital after stroke "Depression" not specified or required for inclusion	Team including occupational therapist, therapy aide, physiotherapist, half-time speech and language therapist; one researcher coordinated the team Home	HADS 3 months Tailored plan including maximum 1 daily visit from each therapist; average 3 physiotherapy sessions (range 1–14)	Nonsignficant differences between T and C group HADS scores (p=0.18). Need groups of 150 in each arm for adequate power .
Clark (1997)[118] I. RCT	T: *Well Elderly Study*, Preventive OT (occupational therapy) services, including group and individual OT sessions C: No intervention or generalized social activity group	*n*=361, 21% dropout Culturally diverse, independent-living older adults (50% aged 70–79) in Los Angeles area "Depression" not specified or required for inclusion	Registered occupational therapists Community setting	CES-D 9 months Weekly group sessions; actual frequency not reported	Significant benefits for the T group were found across 10 of 15 outcome measures (not including depression) in various health, function, and quality-of-life domains, compared to C group.
Corr (1995)[113] I. RCT	T: Home-based rehabilitation with occupational therapist C: No intervention	*n*=110,18% dropout Patients (mean age 75.4) discharged from two stroke units, over 9-month period, in Wales GDS-15 used to define no (0–4), mild (5–9), and severe (10–15) depression	Occupational therapist Home	GDS-15 12 months Appropriate therapeutic interventions carried out as needed; twice as many T subjects using health services and aids as C subjects	No significant difference in GDS-15 median between T and C group. Statistically significant T group improvements in hospital readmissions (p=0.03) and number of aids received (p=0.05), compared to C group.
Hirakawa (2005)[117] II. Nonrandomized control trial	T: Home-based massage rehabilitation therapy C: Usual care	*n*=53, 25% dropout Community-based "bed-ridden" (home and chairbound) elderly (mean age 80), Japan "Depression" not specified or required for inclusion	Local licensed massage practitioner Home	SDS 3 months 2–3 30-minute sessions per week; actual frequency not reported	No significant differences were found between T and C groups for depression (p=0.55) and other physical and mental health measures.

[a]Unless otherwise noted, the p value refers to statistical analysis comparing T group with C group data.

Statistics—ANOVA, analysis of variance; d*, standardized effect sizes, calculated in MetaWin for this systematic review; OR, odds ratio (adjusted odds ratio, AOR); OR*, standardized ORs, calculated in MetaWin for this systematic review.

Types of depression—ADJ, adjustment disorder with depressed mood; CRD, clinically relevant depression (SD + MDD + DYS); DYS, dysthymia; MDD, major depressive disorder (DSM-IV category); MINOR, minor depression; NOS, depression not otherwise specified (DSM-IV category); ODD, other DSM-III-R depressive disorders; SD, subthreshold depression.

Outcome measures—AGECAT, automatic geriatric examination for computer-assisted taxonomy (+GMS, Geriatric Mental State); BDI, Beck Depression Inventory; BSI, Brief Symptom Inventory; CES-D, Center for Epidemiological Studies-Depression Scale; DIS, Diagnostic Interview Schedule; GDS, Geriatric Depression Scale (GDS-LF: 30 items, GDS-15: 15 items, GDS-5: 5 items, GDS-S: Spanish); GHQ, General Health Questionnaire; GMS, Geriatric Mental State Examination; GMS-A, Shorter version of GMS; HADS, Hospital Anxiety and Depression Scale; HAM-D, Hamilton Depression Rating Scale (or HDRS); HSCL-20, Hopkins Symptoms Checklist; MAACL, Multiple Affect Adjective Checklist; MADRS, Montgomery Asberg Depression Rating Scale; MMPI, Depression Scale of the Minnesota Multiphasic Personality Inventory; MMSE, Mini Mental State Examination (assesses cognitive impairment); RDC, Research Diagnostic Criteria; SADS-L, Schedule for Affective Disorders and Schizophrenia-Lifetime version; SDS, Zung Self-Rating Depression Scale (also ZSDS); Short Zung IDS, 10-item Zung Interviewer-Assisted Depression Rating Scale.