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Evidence-based practices in geriatric mental health care: an overview of systematic reviews and meta-analyses

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At least one in five people over the age of 65 suffer from mental disorders [1]. It is anticipated that the number of older Americans with psychiatric disorders will double to equal the number of younger (ages 30 to 44) Americans with psychiatric disorders over the next 30 years [1]. Despite the growing requirement for mental health services for older persons, there is substantial unmet need. The recent Surgeon General's Report on Mental Health [2], a Report on Mental Health from the Administration on Aging [3], and an expert consensus statement [4] underscore the need to plan for the challenge of providing services for the growing number of elderly with major mental disorders. Among the greatest challenges is the expertise gap that affects clinicians practicing in routine clinical settings. This gap reflects inadequate training in geriatrics and a failure to incorporate contemporary clinical

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research findings and known evidence-based practices (EBPs) into usual care. This article provides an overview of the emerging evidence-base supporting the efficacy of empirically-validated geriatric mental health interventions for major geriatric mental health disorders, including systematic EBP reviews, meta-analytic studies, and expert consensus statements. Cautions and limitations regarding the reliance on randomized, controlled trials (RCTs), meta-analyses, and systematic reviews also are presented.

The need for a geriatric evidence base in psychiatry

The need to develop clinical interventions and EBPs specifically for older adult populations is based on age-associated changes in physiology, cognition, and social functioning that have the potential to modify the effectiveness of a variety of interventions. Although older and younger adults often have similar treatment outcomes, several clinical factors suggest that the efficacy of psychosocial and pharmacological interventions and the tolerability for medication adverse effects are likely to differ between these populations. Psychotherapeutic interventions are likely to be less effective for individuals with moderate-to-severe cognitive impairment, and physiological changes can alter pharmacological responses and increase sensitivity and likelihood of medication adverse effects [4]. Moreover, among adults with mental illness, older adults are more likely to have multiple medical comorbidities and thus have increased risk for drug-drug interactions [5]. Finally, the need for EBPs specific to older adults with mental illness is underscored by an increased risk for poorer quality care [6], as compared with younger adults with mental illness and older adults without mental illness.

Physiological changes associated with aging provide an imperative for guidelines that are specific to older adults. For example, the decline in cholinergic nervous system activity in older adults suggests that highly anticholinergic tricyclic antidepressants, such as amitriptyline, are contraindicated in older adults [7]. There are also indications that long-acting benzodiazepines should be used with caution in older people because of adverse outcomes such as an increased risk for falls, hip fractures, and cognitive impairment [8]. Until recently, there was little information available to guide clinicians in choosing appropriate clinical interventions for older adults. Typical pharmaceutical trials have excluded older adults, especially those with medical comorbidity and physical disability [4]. As such, the appropriateness of many interventions has been extrapolated from data collected on younger adults. Recent advances in mental health treatment, however, have led to the development of an evidence base specific to older adults.

The identification of EBPs rests on a foundation of principles that apply to all medical populations. Many of these principles reflect Cochrane's assertion 30 years ago that limited health care resources should be applied to providing interventions that have proven effectiveness based on well-

draws heavily on the use of external evidence to support clinical judgment [10]. Criteria for EBPs define different levels of empirical support based on the quality of research data [10,11]. The specific criteria vary, but the underlying principles for identifying effective treatments are the same. Empirical support must be derived from well-designed, controlled trials, and findings must be replicated by different investigators with sufficiently large and generalizable study samples [10,11]. In the hierarchy of evidence-based reviews, the highest level is held by systematic reviews evaluating the level of evidence using strict criteria or by aggregate meta-analyses of all relevant randomized controlled trials [10].

The following section provides an overview of the evidence base for geriatric mental health interventions based on this standard of empirical evidence. This overview of published evidence-based reviews and meta-analyses is not intended to be an exhaustive summary of the treatment research literature, but rather, a starting point defining geriatric mental health treatments with proven effectiveness. English language review articles examining the effectiveness of geriatric mental health services were identified for the most common psychiatric problems in older adults, including depression, behavioral symptoms of dementia, alcohol abuse, schizophrenia, and anxiety disorders [12] through searches in *Medline*, *PsychInfo*, and the *Cochrane Library* databases. Disorders for which the authors were unable to identify evidence-based reviews, meta-analyses, or consensus statements specifically targeting older adults (eg, bipolar disorder, post-traumatic stress disorder) were not considered. Searches were conducted of published articles through the first quarter of 2003 including, but not limited to the search terms: evidence-based review, meta-analysis, consensus statement, consensus review, and review article. To be included in this overview, evidence-based reviews were required to systematically categorize reviewed studies and to apply strict criteria for rating the level of evidence. Meta-analyses were required to describe and apply standardized meta-analytic statistical procedures. Expert consensus statements were included that described a systematic method of obtaining, evaluating, and summarizing expert consensus opinion on effective treatments. Based on this approach, eligible articles included: 10 evidence-based reviews, 23 meta-analytic studies, and 12 expert consensus statements. The first two categories were used to determine the evidence base defining effective treatments and services, whereas the third category (expert consensus) was included to provide the reader with a synopsis of effective treatments and best practices from the perspective of researchers and clinicians.

Depression of late life

As shown in Table 1, there is general agreement on the effectiveness of antidepressants for geriatric depression. The comparative efficacy and

Table 1
Pharmacological treatments for geriatric depression

	Evidence-based reviews
Thorpe, 2001 [19]	Eighteen studies rated using standard guideline development criteria to determine preferred treatments. First-line treatments include bupropion, citalopram, fluvoxamine, mirtazapine, moclobemide, nefazodone, paroxetine, sertraline, and venlafaxine. ECT is effective.
Wilson, 2002 [20]	Meta-analyses Seventeen RCTs reviewed of community patients and inpatients \geq age 55. TCAs are effective. SSRIs and MAOIs are likely to be effective. Discontinuation rates are similar across agents and placebo.
Anderson, 2000 [21]	Eleven RCTs support efficacy and tolerability for SSRIs and TCAs in depressed adults age \geq 65. No significant difference in efficacy or tolerability between SSRIs and TCAs.
Gerson, 1999 [18]	Forty-one RCTs reviewed for major or unipolar depression for patients over age 55. TCAs, SSRIs, and other antidepressants are superior to placebo. Comparable efficacy and tolerability between TCAs and SSRIs, but other antidepressants had lower dropout rates because of adverse effects.
Muhlow, 1999 [22]	Twenty-seven RCTs reviewed for major depression in outpatients over age 60. SSRI, NSSRI, and TCAs superior to placebo. Efficacy and discontinuation rates do not differ between classes.
McCusker, 1998 [23]	Twenty-six controlled studies reviewed for treatment of depression for adults age \geq 55 in community, outpatient, or nursing home settings. Heterocyclics and SSRIs are equally effective.
Mittmann, 1997 [24]	Forty-nine RCTs evaluated through 1996 for moderate/severe major or unipolar depression in patients \geq age 60. SSRIs, NSSRIs, TCAs and MAOIs have similar efficacy, safety, and tolerability.
Menting, 1996 [25]	Six RCTs of SSRIs. SSRIs and TCAs had similar efficacy, but different side effect profiles. Patients treated with SSRIs had fewer adverse effects and were less likely to drop out of treatment.
Dunbar, 1995 [26]	Ten studies of paroxetine relative to TCAs. Paroxetine is more effective than placebo or active control agents, including amitriptyline, clomipramine, doxepin, mianserin.
Alexopoulos, 2001 [13]	Expert consensus statements SSRIs preferred for all depression types (especially, citalopram, sertraline, and paroxetine). SSRIs or venlafaxine plus psychotherapy preferred for major depression; SSRI plus psychotherapy preferred for mild depression or dysthymia; SSRI or venlafaxine plus an atypical antipsychotic preferred for psychotic major depression. ECT is effective as a first-line treatment.
Mulsant, 2001 [14]	SSRIs recommended as first-line antidepressants. Patients unable to tolerate or unresponsive to antidepressants can be switched to another agent or be treated with interpersonal psychotherapy. Similar efficacy for different classes of antidepressants. Selection based on adverse effect profile, prior treatment response, type of depression, severity of symptoms, and concurrent drug therapy.
ASHP, 1998 [15]	SSRIs and TCAs have comparable efficacy. SSRIs may be preferred, however because they are easier to use, require less dosage adjustment, and have more favorable side-effect profiles.
Lebowitz, 1997 [16]	

Table 1 (continued)

NIH, 1992 [17] Most antidepressants are equally effective. Amitriptyline and imipramine should be avoided. Newer antidepressants favored because of decreased anticholinergic and cardiovascular adverse effects. Treatment should be continued at a sufficient dose for 6-12 weeks.

Abbreviations: ECT, electroconvulsive therapy; MAOI, monoamine oxidase inhibitor; NSSRI, novel non-selective serotonin reuptake inhibitors; RCT, randomized, controlled trial; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant.

however. Most meta-analyses do not find differences among the newer selective serotonin reuptake inhibitors (SSRIs) or novel non-selective serotonin reuptake inhibitors (NSSRIs) and older tricyclic antidepressants (TCAs) with respect to efficacy or treatment dropout from adverse effects. By comparison, expert consensus statements recommend SSRIs and NSSRIs as first-line agents for geriatric depression and suggest avoiding the use of tertiary amine antidepressants such as amitriptyline, imipramine, or doxepin because of serious (eg, cardiovascular) adverse effects associated with these agents [13-17]. Although meta-analyses generally fail to find statistically significant differences in tolerability among SSRIs and TCAs (based on rates of discontinuation because of adverse effects), clinically significant differences may be present with respect to the type of adverse events experienced. For example, whereas common reasons for discontinuing SSRIs include sleep disturbance, gastrointestinal (GI) distress, anxiety, headaches, and weight loss, common complications of TCAs include more worrisome adverse effects such as postural hypotension, arrhythmia, and anticholinergic effects [18].

Table 2 summarizes the efficacy of psychosocial treatments for geriatric depression. In general, cognitive therapy, behavioral therapy, and cognitive-behavioral therapy (CBI) have the greatest empirical support for effectiveness in the treatment of geriatric depression. Several other psychosocial interventions are likely to be efficacious in older adults, including problem-solving therapy, interpersonal therapy, brief psychodynamic therapy, and reminiscence therapy. Moreover, findings from several RCTs suggest that the combination of pharmacological and psychosocial interventions is more effective than either intervention alone in preventing major depression from recurring [27,28]. Expert consensus findings recommend the combined use of antidepressant treatment and psychotherapy for treating late life depression, especially for episodes in which there is a clearly identified psychosocial stressor [13]. Finally, a meta-analysis comparing response rates for pharmacological and psychological treatments of depression in patients over age 55 found similar effectiveness of antidepressants (TCAs and SSRIs) and psychosocial interventions (cognitive-behavioral, behavioral, and psychodynamic), although firm conclusions are not possible given the small number of studies

Table 2
Psychosocial treatments for geriatric depression

	Evidence-based reviews
Laidlaw, 2001 [29]	Six meta-analyses and 10 outcome studies evaluated CT for older adults with depression. CT is effective for geriatric depression.
Thorpe, 2001 [19]	Four studies evaluated using standardized procedures to determine efficacy. CBT and IPT for mild-to-moderate depression have the most support among psychotherapies.
Gair, 1998 [30]	Twenty-one studies evaluated using APA criteria to determine efficacy. CT, BT, CBT, BPT, LR, RT are likely to be effective.
Pinquart, 2001 [31]	Meta-analyses One hundred-twenty-two psychotherapeutic studies compared with untreated control group with depression (mean age > 59). CBT, BPT, and ST are effective.
Garson, 1999 [18]	Four RCTs evaluated, comparing treatment response and tolerability for people over age 55. CBT, BT, BPT, and drug treatment have similar efficacy and tolerability.
Culpeper, 1998 [32]	Fourteen studies evaluated of the effectiveness for outpatient psychotherapy for adults over age 55 (including 12 RCTs). Comparable efficacy found for CBT, PST, BT, ST, RT, and BPT.
McCusker, 1998 [23]	Fourteen controlled studies evaluated for depression in adults age ≥ 55 in community, outpatient, or nursing home settings. CT and BT better than no treatment but not better than attention controls.
Engels, 1997 [33]	Seventeen studies assessed for depression (age range 52-81 years; mean = 69 years). Treatment is more effective than placebo or no treatment. BT and CT are equally effective, and more effective than CBT and BPT. Individual therapy is more effective than group therapy.
Koder, 1996 [34]	Seven studies evaluated of CT in older people (age range 65-70 years). CT is more effective than wait-list control group and may be more effective than BT or BPT used alone.
Soegin, 1994 [35]	Seventeen studies of the efficacy of psychosocial treatments assessed for depressed patients (mean age 62 to 83 years). Comparable efficacy of CT, BT, IPT and ST.
Alexopoulos, 2001 [13]	Expert consensus statements Preferred psychotherapies include CBT, ST, PST, and IPT. Psychoeducation and family counseling also are supported.
ASHP, 1998 [15]	CT, BT, and IPT are effective as primary interventions for older adults with mild-to-moderate depression, or they can be used in combination with pharmacotherapy.
Lebowitz, 1997 [16]	CBT, BT, PST, and IPT are effective alone and in combination with drug treatments.
NIH, 1992 [17]	Psychosocial treatments are indicated in patients who do not tolerate or accept biological treatments. CBT, BT, IPT, and BPT are moderately effective.

Abbreviations: BPT, brief psychodynamic therapy; BT, behavior therapy; CBT, cognitive-behavioral therapy; CT, cognitive therapy; IPT, interpersonal psychotherapy; LR, life review; PST, problem solving therapy; RCT, randomized, controlled trial; RT, reminiscence therapy.

Evidence-based reviews of interventions for geriatric depression primarily address major depression, with little attention to treatment of related conditions such as dysthymia, minor depression, or suicidal behaviors. A recent meta-analysis among individuals with dysthymia (three of 15 RCTs included older adults) found that pharmacotherapy was more effective than placebo, and meta-analysis failed to find significant differences for TCAs, SSRIs, MAOIs, and other drugs [36]. Little literature exists for treatment of minor depression in older persons. For example, the results of randomized, placebo-controlled studies of SSRIs in older adults with minor depression suggest only modest benefits of pharmacological treatment [37]. In addition, little is known about the efficacy of interventions in preventing suicidal behaviors in older adults, despite a rate of suicide that is greater than any other age group [38]. An evidence-based review of the prevention literature suggests that identification and effective treatment of depression are the only supported preventive intervention for late-life suicide [38].

Conclusions

There is a well-substantiated evidence-base supporting efficacy of antidepressants and cognitive, behavioral, and CBT in the acute and short-term treatment of geriatric major depression. Caution, however, is indicated in interpreting individual studies reporting the superiority of one treatment over another (eg, SSRIs versus TCAs or antidepressants versus psychotherapy) because of potential sources of bias (such as industry sponsorship of clinical trials, sample selection, and study design).

Behavioral symptoms of dementia

Evidence of treatment effectiveness for dementia can be separated into studies that address cognitive symptoms (eg, memory, language, and abstraction) and behavioral symptoms (eg, agitation, psychosis, and depression). Because of the nonpsychiatric nature of cognitive impairment, these symptoms are reviewed elsewhere [39]. Furthermore, for a comprehensive review of the evidence base on the effectiveness of interventions for cognitive and behavioral symptoms of dementia, the reader is referred to a collection of meta-analyses and systematic reviews complemented by a Web site providing updates [40].

Behavioral symptoms of dementia, including agitation, psychosis, and depression, occur in at least 30% to 40% of individuals with Alzheimer's dementia at some point in the course of the disease [41]. A limited research literature supports the modest effectiveness of conventional and novel antipsychotics for treating agitation and dementia compared with placebo [39]. Aggregate analyses of multiple antipsychotic trials, however, are less conclusive. As shown in Table 3, evidence-based reviews of pharmacological treatments generally find that antipsychotic agents are effective in the

Table 3
Pharmacological and psychosocial treatment for behavioral symptoms of dementia

Kündermann, 2002 [44]	Evidence-based reviews Forty-eight studies evaluating pharmacological treatment of agitation and psychosis in dementia (20-haloperidol; 23-other typical antipsychotics; 10-atypical antipsychotics; seven-non-antipsychotics, 18-placebo). Antipsychotics are the treatment of choice, with atypical agents preferred. Non antipsychotic agents are reserved as a second-line treatment. Ninety-four studies of pharmacological and psychosocial treatment evaluated. Antipsychotics are effective for agitation or psychosis when environmental approaches fail; antidepressants are effective in depression with dementia. Behavior modification and skills training also can be effective.
Doody, 2001 [43]	Twenty-two studies of psychosocial/behavioral interventions evaluated. Reminiscence and life review result in small improvements in interpersonal behavior. Support groups and CT or BT help build coping skills and reduce distress. Behavioral approaches are helpful with early-stage dementia.
Kasi-Godley, 2000 [46]	Seventy-seven studies of the efficacy of pharmacological interventions evaluated using North of England evidence-based guidelines. Antipsychotics, antidepressants, and anticonvulsants may be effective in treating noncognitive symptoms of dementia.
Emre, 2000 [47]	Twelve studies of psychosocial/behavioral interventions evaluated using APA criteria. Reinforcement, extinction, and stimulus control are effective, although they have a limited scope. Environmental approaches (ie, milieu therapy, token economy, and environmental modifications) are effective.
American Psychiatric Association, 1997 [48]	Reviews seven RCTs of pharmacological interventions. Modest improvement of agitation/psychosis in dementia with conventional antipsychotics. Seven RCTs of benzodiazepines show improvement of agitation over placebo, but not better than antipsychotics. Insufficient data to assess atypical antipsychotics or anticonvulsants. Five RCTs of antidepressant treatment of depression in dementia suggest benefit, although limited by small samples and selection criteria.
Kirchner, 2002 [49]	Meta-analyses Twelve RCTs evaluated for thioridazine (a conventional neuroleptic). No evidence to support the use of thioridazine in the treatment of dementia. Only positive effect was reduction in anxiety.
Lonergan, 2002 [50]	Five RCTs of haloperidol (a conventional neuroleptic) assessed for agitation in dementia. Evidence supports the use of haloperidol in the control of aggression. There is no evidence for improvement in other forms of agitation, and there are frequent adverse effects.
Lancot, 1998 [51]	Sixteen RCTs (1966-1997) of conventional neuroleptics. No difference in efficacy between different agents. Conventional neuroleptics have modest efficacy compared with placebo.

Table 3 (continued)

Schneider, 1990 [52]	Seven RCTs of conventional neuroleptics (1960-1982). Conventional neuroleptics modestly more effective than placebo, but have a small effect size ($r = 0.18$). No single agent is better than another.
Bains, 2002 [53]	Three RCTs of antidepressant agents for the treatment of depression in dementia (two used TCAs, one used SSRIs). Evidence shows weak support. More investigation with newer antidepressants is needed.
Herrmann, 2001 [43]	Expert consensus statements Nonpharmacological approaches favored as first-line treatment for behavioral symptoms of dementia, although high quality research is limited. Atypical antipsychotics, antidepressants, and anticonvulsants are modestly effective in reducing behavioral symptoms. Benzodiazepines may be used if necessary. Pharmacotherapy should be monitored for effectiveness and adverse effects.
Patterson, 1999 [42]	Twenty-four studies reviewed supporting an evidence-based consensus statement. Environmental and behavioral modifications should be first-line treatments for behavioral problems. If medications are required, consider low doses of antipsychotics, an SSRI, or trazodone.
Alexopoulos, 1998 [54]	Combined medication and environmental interventions favored as first-line treatment for agitation in dementia. Mild agitation treatment: structured routines, reassurance, and socialization; Severe agitation treatment: supervision and environmental safety. Both should include education and support for family and caregivers. Preferred medication varies with presenting conditions: Psychosis, risperidone or CHAP; Depression and antidepressant alone (sertraline or paroxetine); Aggression and anger divalproex, risperidone, CHAP, SSRI, trazodone, or Buspirone.
Small, 1997 [41]	SSRIs favored as first-line treatments for depression in dementia. TCAs are effective but have greater adverse-effects. Antipsychotics are modestly effective for behavioral problems and psychotic symptoms. More studies needed to establish efficacy of other agents. Psychotherapy may decrease behavioral problems and improve mood.

Abbreviations: BT, behavior therapy; CHAP, conventional, high potency antipsychotics; CT, cognitive therapy; RCT, randomized, controlled trial; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant.

or classes of antipsychotics report no effect or only modest improvement. In contrast, consensus statements widely support the use of antipsychotics, favoring the use of novel antipsychotics over conventional agents [41,42]. In addition, there is accumulating evidence that antidepressants and anticonvulsants are effective in reducing agitation and other behavioral symptoms associated with dementia [43].

There is also a limited literature suggesting that cholinesterase inhibitors can result in changes in behavior and functioning that are detected by

subanalyses of trials that did not enroll dementia patients specifically for behavioral problems [45]. A more recent meta-analysis concluded that cholinesterase inhibitors have a modest role in treating neuropsychiatric symptoms and reducing functional impairment in individuals with mild to moderate dementia [55]. The effect sizes were very small, however, and the drugs largely included medications that were not marketed. Additionally, the trials selected were those that used different outcome scales. Furthermore, many of the clinical trials cited by these meta-analyses, reviews, and consensus statements do not characterize the behaviors being treated adequately, often not distinguishing agitation from aggression, psychosis, or other symptoms.

In addition, a considerably smaller literature examines treatments for depression in dementia. Weak support exists for treating depression in dementia with antidepressants, and more research is needed that examines the newer antidepressant agents [53]. General reviews have suggested that tricyclic antidepressants are not a supported treatment for depression in dementia [56], while SSRIs may have some benefit in reducing depressive symptoms [45,57].

Behavioral and environmental modifications are also effective in enhancing functioning and reducing problem behaviors associated with dementia. Interventions include light exercise or music [45,46,58], behavioral or social reinforcement, and environmental modifications, such as providing access to an outdoor area, designing simulated home environments, and creating reduced stimulation units for agitated residents [30,58]. Treatment effects are difficult to maintain without continuous teaching and consistent reinforcement of target behaviors, however [59]. Psychoeducational training and support groups for caregivers have been shown to delay placement into nursing homes and decrease caregiver stress [45,60].

Conclusions

Empirical evidence supports the value of psychosocial interventions in addressing behavioral symptoms of dementia, yet there is less agreement on the effectiveness of antipsychotic, anticonvulsant, and antidepressant agents. Aggregate analyses of the research literature, however, should be interpreted with caution because of substantial heterogeneity in diagnostic criteria and population characteristics, inclusion of different types of dementia, variability in specification of the interventions and study design parameters, and the difficulty of rigorously assessing outcomes in this population [61]. Finally, it is imperative that clinical assessment of behavioral and cognitive symptoms includes careful differential diagnosis considering the many potential causes, including delirium. The increased risk of delirium in older persons [62] and poor prognosis [63] warrants a careful and systematic

Geriatric alcohol abuse

Consensus statements [65,66] and general reviews [67,68] provide little endorsement for the effectiveness of pharmacological interventions for geriatric alcohol abuse. In contrast, psychosocial interventions are likely to be effective for older persons with alcohol use disorders (Table 4). Promising treatment components include age segregation (treatment groups specifically addressing the older person), supportive and nonconfrontational treatment approaches, and group or individual CBT [30]. In particular, there is compelling evidence that brief, cognitive-behavioral interventions are effective in treating late life alcohol abuse [69].

Conclusions

Age-specific, nonconfrontational, brief motivational therapy and CBT have particular promise as effective interventions for geriatric alcohol abuse.

Schizophrenia in older persons

There are no available evidence-based reviews or meta-analyses of treatment for schizophrenia in older persons. Nonetheless, a consensus statement [70] and recent general reviews on treatment of psychosis in the elderly [71,72] and late-life schizophrenia [70,73] endorse the view that antipsychotic medications are effective. For example, recent review articles compare the relative merits and potential complications of conventional

Table 4
Pharmacological and psychosocial treatment for geriatric alcohol abuse

<p>Gatz, 1998 [30]</p> <p>CSAT, 1998 [66]</p> <p>Council on Scientific Affairs, 1996 [65]</p>	<p>Evidence-based reviews</p> <p>Three studies evaluated using APA criteria to determine treatment efficacy. Remission, age segregation, and a supportive climate are promising but require further study.</p> <p>Expert consensus statements</p> <p>Brief interventions, motivational counseling, and family interventions recommended. Treatment principles include: (1) age specific, supportive group treatment, (2) focus on coping with depression, loneliness, and loss, (3) rebuilding social support network, (4) pace and content appropriate for older persons, (5) clinicians interested and experienced in older adult populations, (6) linkage with medical and aging services, case management, and referral sources.</p> <p>Detoxification should occur in a hospital setting, and medications should be monitored carefully. Age-specific groups and programs that emphasize social relationships and positive aspects of a patient's life have better outcomes for older adults.</p>
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Despite preliminary results suggesting possible benefits of CBT for treating geriatric anxiety disorders, conclusive findings are not available [30,86,88]. Other promising, but inadequately researched psychotherapy treatments include cognitive-behavioral group therapy, cognitive restructuring, individual behavioral therapy, supportive group psychotherapy, and relaxation therapy [2].

Conclusions

The limited empirical evidence suggests efficacy of treatment with conventional anti-anxiety agents, while acknowledging the potential problems associated with benzodiazepines. CBT has the greatest support among psychosocial interventions.

Models of geriatric mental health service delivery

In addition to research on treatments for specific disorders, a limited literature examines the effectiveness of different models of service delivery. A review of the evidence base found the greatest support for community-based, multi-disciplinary, geriatric mental health treatment teams [89]. Inconclusive data were found with respect to the effectiveness of hospital-based geriatric psychiatric consultation-liaison services. In contrast, there were no randomized, controlled studies examining the effectiveness of geriatric inpatient units or day hospital programs. Finally, the effectiveness of geriatric consultation services to nursing homes is inconclusive. A recent review that included 20 descriptions of models and 15 studies that included measures of outcomes [90] identified only one randomized, controlled trial showing no significant differences in clinical outcomes between geriatric psychiatric consultation services and usual care.

Conclusions

Empirical evidence supports the effectiveness of community-based, multi-disciplinary geriatric mental health treatment teams.

Cautions and limitations

This overview describes developments in the literature defining EBP's in geriatric mental health. Several caveats are indicated in considering such an effort, however. First, identification of EBP's should be considered as a starting point for improving the quality of care. In essence, EBP's define the floor in quality of care, and should not be confused with best, optimal, or promising practices. Second, there is a misperception that only RCT's,

antipsychotic agents [74,75] and novel antipsychotics [74-79] for treating psychosis in older patients. Clinical reviews report that older people have greater susceptibility to adverse effects of conventional antipsychotics, including Parkinsonian adverse effects and tardive dyskinesia [74-76]. The literature on novel antipsychotics in older adults largely is limited to open-label, uncontrolled studies and a small number of controlled-trials [39]. Overall, available reports and reviews suggest that novel antipsychotics should be considered as first-line agents for treating schizophrenia in older patients. Several recent systematic reviews comparing the effectiveness and cost-effectiveness of atypical agents (other than clozapine) with conventional agents in younger patients did not find significant differences in efficacy [80,81]. Atypical agents, however, have been shown to have fewer motor adverse effects, especially tardive dyskinesia, for older patients [82].

Data on psychosocial interventions for older adults with schizophrenia are limited. A single RCT of skills training for middle and older age patients with chronic psychotic disorders found positive outcomes on assessments of performance-based living skills [83]. In addition, two controlled pilot studies suggest potential benefits from combining skills training with CBT [84] and with health management [85]. A consensus statement supports providing residential alternatives to long-term hospitalization and providing social and vocational skills training, community support programs, and psychoeducational programs for family members [70]. The lack of data supporting these recommendations is noted, however, underscoring recommendations for research addressing this gap in the literature [1].

Conclusions

The efficacy of antipsychotic treatment of schizophrenia in older patients is supported by individual studies and general reviews of the treatment literature, yet to date there are no evidence-based reviews or meta-analyses.

Anxiety disorders

Although anxiety is one of the most common mental health problems affecting older adults [2], there is a paucity of research on the effectiveness of available treatments. General reviews of the literature provide a limited perspective on the effectiveness of treatments for geriatric anxiety disorders [2,39]. These reviews report that benzodiazepines are the most frequently prescribed anti-anxiety medication in older patients, and the reviews recommend considering pharmacological alternatives. Few double-blind, placebo-controlled trials have been conducted with this population, however [86]. In addition, a recent pooled analysis of five controlled clinical trials of extended-release venlafaxine indicates that the agent has similar efficacy, safety, and tolerability in younger and older adults with generalized anxiety

is based on careful and appropriate use of the best available studies related to the clinical decision, accompanied by an appreciation of the limits of the existing data. In some instances, these include RCTs, whereas in other situations, nonrandomized outcome studies or case reports may provide a more qualified evidence base.

An additional and important consideration relates to inherent limitations in the methodology used to determine EBPs that may result in overly conservative exclusion of informative studies, or alternatively, may cluster studies with inadequate attention to important differences. For example, common problems affecting meta-analyses and evidence-based reviews include small sample sizes and lack of power, study heterogeneity, lack of interchangeable instruments, lack of extractable data, definitions of outcomes, quality and duration of studies, and reliance on statistical (as opposed to clinical) significance [52,91]. Furthermore, evidence-based reviews and meta-analyses are largely dependant on data from RCTs that compare a single, well-defined intervention to a placebo or other control condition. In this respect, they are less suited to inform more complex decisions such as the next step following a series of failed interventions for a treatment refractory condition, or the most effective use of the many different possible combinations of pharmacological agents. The large number of potential combinations and sequences of treatments, combined with the large number of different clinical conditions and comorbidities, make it virtually impossible that all clinical decisions be supported by data derived from RCTs [10].

One approach to address gaps left by standardized evidence-based reviews and meta-analyses consists of expert consensus guidelines. Recently published guidelines on the pharmacotherapy of depression in older patients provide an example of treatment recommendations based on an aggregate analysis of independent ratings by experts on the appropriateness of different treatment options [13]. In addition, the American Psychiatric Association (APA) guidelines for major psychiatric disorders provide treatment recommendations that are assigned one of three levels of confidence based on clinical consensus [92]. With the exception of dementia [48], the APA guidelines are not age-specific, suggesting that future initiatives should consider extending the process of guideline development to clinical guidelines that are specific to older adults. In general, guidelines and treatment algorithms can provide the clinician with a practical and comprehensive summary of recommendations for treatment. Guidelines should be evaluated relative to the level of support from systematic reviews of the evidence, however, as the consensus of experts may incorporate the bias of specialties and disciplines inadvertently, and under- or overestimate treatment effectiveness or adverse effects [93,94].

Clinicians also should be aware that conflicts of interest have the potential to bias reports of treatment effectiveness. Furthermore, policies regarding the

Seventy percent of the funding for clinical drug trials conducted in the United States is procured from industry [96], presenting the possibility of bias in study design and in reporting of findings. Promotional efforts by industry that can bias presentation of results by academic investigators include contractual agreements controlling publication of findings (sometimes suppressing negative findings) and scientific reports in publications assembled by industry with minimal input by the listed academic investigator [96]. These and other practices, including lucrative honoraria and gifts from industry, have been effective in influencing attitudes and behaviors of investigators [97,98]. Finally, caution is warranted in evaluating the objectivity of reviews of the literature summarized under the category of expert consensus guidelines. These guidelines often are assembled under the sponsorship of professional organizations that may be invested in promoting payment for specific treatment modalities by third party payers. Furthermore, expert panels on treatment guidelines are comprised almost entirely of researchers and clinical providers who have a relationship with industry. For example, an examination of 44 clinical guidelines for common medical disorders published between 1991 and 1999 found that almost all authors (87 of 100) had ties to at least one pharmaceutical company, and 42 of the 44 guidelines did not specify the existence of potential conflicts of interest with the pharmaceutical industry [98].

Conclusions

This article documents the emerging developments in the geriatric treatment literature defining evidence-based mental health practices. Identifying these practices is only a first step in improving care quality, however. A substantial literature chronicles the failure of approaches that rely only on journal publications, distribution of treatment guidelines, or conventional educational conferences. Meaningful changes in quality of care include approaches that implement organizational and provider change, and technologies that provide automated decision support and real-time access to relevant summaries of the evidence base [39]. Despite these challenges, there is a clear and urgent demographic imperative to address the emerging public health problem of mental disorders of aging. It is time for geriatric psychiatry to take up the mantle of EBPs and translate research findings into the mainstream of clinical treatment for older Americans.

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