Health Care Team Interventions for Older Adults With Distress Behaviors

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AUTHORS

Author roles, affiliations, and contributions (using the CRediT taxonomy) are listed below.

Author	Role and Affiliation	Report Contribution
Megan Shepherd-Banigan, PhD	Co-Content Lead, Durham Evidence Synthesis Program (ESP) Center, Durham VA Health Care System Health Research Scientist, Durham VA Health Care System Core Faculty, 4 Veterans Affairs Mid-Atlantic Region Mental Illness Research Assistant Professor, Duke University, Department of Population Health Sciences Core Faculty, Duke-Margolis Center for Health Policy Durham, NC	Conceptualization, Methodology, Investigation, Formal analysis, Validation, Visualization, Writing – original draft, Writing – review & editing
Katherine Ramos, PhD	Co-Content Lead, Durham ESP Center, Durham VA Health Care System Duke University School of Medicine Durham, NC	Conceptualization, Methodology, Investigation, Formal analysis, Validation, Visualization, Writing – original draft, Writing – review & editing
Cara McDermott, PharmD, PhD	Research Scholar, Geriatric Research, Education, and Clinical Center (GRECC), Durham VA Health Care System Assistant Professor, Division of Geriatrics, Duke University School of Medicine Durham, NC	Conceptualization, Investigation, Methodology, Formal analysis, Writing – review & editing
Eleanor S. McConnell, PhD, RN	Core Investigator, GRECC, Durham VA Health Care System Co-Director, VA Quality Scholars Program, Durham VA Health Care System Associate Professor, Duke University School of Nursing Senior Fellow, Duke Center for the Study of Aging and Human Development Durham, NC	Conceptualization, Methodology, Investigation, Visualization, Writing – original draft, Writing – review & editing
Sudha R. Raman, PhD	Assistant Professor, Department of Population Health Sciences, Duke University School of Medicine Durham, NC	Investigation, Formal analysis, Writing – original draft, Writing – review & editing
Dazhe Chen, PhD	Epidemiology Postdoctoral Fellow, National Institute of Environmental Health Sciences Durham, NC	Conceptualization, Methodology, Investigation, Validation, Writing – review & editing

Author	Role and Affiliation	Report Contribution
Tatyana Der, MD, MHSc	Assistant Professor, Division General Internal Medicine, Duke University School of Medicine Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Amir Alishahi Tabriz, MD, PhD, MPH	Assistant Member, Department of Health Outcomes and Behavior, Moffitt Cancer Center Tampa, FL	Conceptualization, Investigation, Methodology, Writing – review & editing
Joel C. Boggan, MD	Associate Professor, Division of General Internal Medicine, Duke University School of Medicine, Hospital Medicine, Durham VA Health Care System Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Nathan A Boucher, DrPH, PA, MS, MPA, CPHQ	Research Health Scientist, Durham Center of Innovation to Accelerate Discovery and Practice Transformation, Durham VA Health Care System Associate Research Professor, Sanford School of Public Policy, Duke University Associate Professor, Division of Geriatric Medicine, Duke University School of Medicine Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Scott M. Carlson, MD	Endocrinologist, Duke Health Division of Endocrinology Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Letha Joseph, DNP, APRN, AGPCNP-BC	Geriatric and Extended Care NP Residency Program Director, DVAHCS Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Catherine A. Sims, MD	Health Services Research and Development Fellow, Center of Innovation to Accelerate Discovery and Practice Transformation, Durham Veterans Affairs Health Care System Clinical Instructor of Rheumatology, Duke University Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Jessica E. Ma, MD	Staff Physician, Geriatric Research, Education, and Clinical Center, Durham VA Health System Medical Instructor, Division of General Internal Medicine, Duke University School of Medicine Durham, NC	Conceptualization, Investigation, Methodology, Writing – review & editing
Adelaide M. Gordon, MPH	Program Coordinator, Durham ESP Center, Durham VA Health Care System Durham, NC	Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Project administration

Author	Role and Affiliation	Report Contribution
Paul Dennis, PhD	Research Associate, Durham ESP Center, Durham VA Health Care System Durham, NC	Data curation, Methodology, Formal analysis, Visualization, Writing – review & editing
Julee Snyder, MPH	Research Associate, Durham ESP Center, Durham VA Health Care System Durham, NC	Conceptualization, Methodology, Investigation, Data curation, Visualization, Writing – original draft, Project administration
Morgan Jacobs, MPH	Research Associate, Durham ESP Center, Durham VA Health Care System Durham, NC	Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Visualization, Project administration
Sarah Cantrell, MLIS, AHIP	Associate Director for Research & Education, Duke University Medical Center Library & Archives, Duke University School of Medicine Durham, NC	Conceptualization, Methodology, Writing – review & editing
Jennifer M. Gierisch, PhD, MPH	Co-Director, Durham ESP Center Core Investigator, Durham Center of Innovation to Accelerate Discovery and Practice Transformation, Durham VA Health Care System Associate Professor, Department of Population Health Sciences, Duke University School of Medicine Durham, NC	Conceptualization, Methodology, Investigation, Writing – review & editing
Karen M. Goldstein, MD, MSPH	Co-Director, Durham ESP Center Core Investigator, Durham Center of Innovation to Accelerate Discovery and Practice Transformation, Durham VA Health Care System Staff Physician, Durham VA Medical Center Associate Professor, Department of Medicine, Division of General Internal Medicine, Duke University Durham, NC	Conceptualization, Data curation, Methodology, Supervision, Investigation, Formal analysis, Visualization, Writing – original draft, Writing – review & editing

PREFACE

The VA Evidence Synthesis Program (ESP) was established in 2007 to conduct timely, rigorous, and independent systematic reviews to support VA clinicians, program leadership, and policymakers to improve the health of Veterans. ESP reviews have been used to develop evidence-informed clinical policies, practice guidelines, and performance measures; to guide implementation of programs and services that improve Veterans' health and wellbeing; and to set the direction of research to close important evidence gaps. Four ESP Centers are located across the US. Centers are led by recognized experts in evidence synthesis, often with roles as practicing VA clinicians. The Coordinating Center, located in Portland, Oregon, manages program operations, ensures methodological consistency and quality of products, engages with stakeholders, and addresses urgent evidence synthesis needs.

Nominations of review topics are solicited several times each year and submitted via the ESP website. Topics are selected based on the availability of relevant evidence and the likelihood that a review on the topic would be feasible and have broad utility across the VA system. If selected, topics are refined with input from Operational Partners (below), ESP staff, and additional subject matter experts. Draft ESP reviews undergo external peer review to ensure they are methodologically sound, unbiased, and include all important evidence on the topic. Peer reviewers must disclose any relevant financial or non-financial conflicts of interest. In seeking broad expertise and perspectives during review development, conflicting viewpoints are common and often result in productive scientific discourse that improves the relevance and rigor of the review. The ESP works to balance divergent views and to manage or mitigate potential conflicts of interest.

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Operational Partners

Operational partners are system-level stakeholders who help ensure relevance of the review topic to the VA, contribute to the development of and approve final project scope and timeframe for completion, provide feedback on the draft report, and provide consultation on strategies for dissemination of the report to the field and relevant groups.

Michele Karel, PhD
National Mental Health Director, *Geriatric Mental Health*
Office of Mental Health & Suicide Prevention
Department of Veterans Affairs

Technical Expert Panel

To ensure robust, scientifically relevant work, the technical expert panel (TEP) guides topic refinement; provides input on key questions and eligibility criteria, advising on substantive issues or possibly overlooked areas of research; assures VA relevance; and provides feedback on work in progress. TEP members included:

Maureen Haske-Palomino, DNP, MSN, GNP-BC
Chief, Specialty and Inpatient Advanced Practice Providers
ONS/Madison VAMC

Scott Hutton, PhD, RN, MBA, FAAN
Director of Operations
Workplace Violence Prevention Program, OMHSP

Steve Weintraub, MD, MS
Chief of the Division of Hospital Medicine
St. Louis VAMC

Marianne Shaughnessy, PhD, AGPCNP-BC, GS-C, FAAN
Director
Geriatric Research, Education and Clinical Centers

Disclosures

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The findings and conclusions in this document are those of the author(s) who are responsible for its contents and do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. The final research questions, methodology, and/or conclusions may not necessarily represent the views of contributing operational and content experts. No investigators have affiliations or financial involvement (*eg*, employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

Executive Summary

KEY FINDINGS

- The vast majority of literature (43 studies) examined interventions in the long-term residential care setting (*eg*, nursing homes) among patients with dementia, and the largest number of studies evaluated interventions focused on developing health care worker (HCW) skill sets and knowledge alongside structured patient care activities.
- The 6 studies evaluating interventions focused only on HCW skills, knowledge, or roles suggest distress behaviors may be reduced when measured by the Neuropsychiatric Inventory (NPI) in the short term (*ie*, days to weeks), but there is no evidence of an effect in the longer term (*ie*, 7-8 months) or when measured by the Cohen-Mansfield Agitation Inventory (CMAI). There is no evidence of improvement in quality of life or reduction in antipsychotic use in the few studies reporting these outcomes.
- The 3 interventions focused on HCW activities around structured patient care had mixed results on agitation. Only 1 study measured the impact on quality of life and found no significant effect.
- Seventeen interventions included both HCWs and patient-focused activities. Effects of these interventions were associated with a significant reduction in odds of antipsychotic use (odds ratio [OR] = 0.79, 95% CI [0.69, 0.91]) and improvement in quality of life (standardized mean difference [SMD] = 0.71, 95% CI [0.39, 1.04]), but inconclusive for agitation as measured by CMAI (SMD = -0.31, 95% CI [-0.78, 0.16]) and NPI (SMD = -0.47, 95% CI [-1.18, 0.24]).
- Of the 3 interventions that included health care team-, patient-, and environment-focused activities, only 1 intervention showed an improvement in agitation in the short term (*ie*, 4 months) but not in the long term. Antipsychotic use did not change.
- Six studies across multiple intervention types examined staff-level outcomes and none demonstrated a beneficial effect.
- None of the included studies reported health care utilization outcomes.
- Two studies evaluated patient distress behaviors during or around a transition. Both relevant studies examined changes after a move from 1 long-term residential setting to another. One small, single site before-after study found a reduction in distress behaviors among 14 patients from a special care unit for advanced Alzheimer's disease.
- Two primarily staff-focused interventions were evaluated across 3 articles. A theoretically driven multifaceted intervention with 10 specified activities (*eg*, Safewards) led to significant reductions in conflicts (*eg*, physical or verbal aggression) and containment events (*eg*, forced medication or restraint use).

Older adults with complex medical disorders (dementia, serious mental illness, multiple chronic medical conditions) may have a high prevalence of distress behaviors (*eg*, physical or verbal aggression, repeated vocalizations, disengagement). For example, among patients with dementia, 75% exhibit at least 1 neuropsychiatric symptom. Across health care settings, these symptoms are often manifestations of patient distress and may be uncomfortable for both patients and their paid caregivers. Exacerbation of these symptoms is likely due to vulnerability to environmental factors such as under-or over-stimulation, or unmet medical, physical, emotional, and social needs. Moreover, these symptoms may be unintentionally reinforced by staff or care routines. Patient distress behaviors can impact patient quality of life, care provision, cost of care, or transition to community-based care settings.

Distress behaviors can cause significant challenges to the ability of health care systems generally, and for clinical providers in particular, to deliver care using traditional, clinician-focused strategies, as these strategies tend to prioritize diagnostic procedures, close monitoring, and delivery of treatments. These challenges can lead to staff burnout and provider distress. In order to better address underlying and unmet patient needs and reduce distress behaviors in a productive and safe work environment, it is imperative that health systems develop evidence-based, effective approaches to support and prepare health care teams around this aspect of high-quality patient care.

One promising approach to promoting safe, person-centered, and positive systemic change for patients at increased risk of distress behaviors are interventions that focus on health care worker (HCW) actions through activities such as skill building, knowledge acquisition, and changes in staff roles and workflow patterns. Despite the integration of individual patient-level nonpharmacologic approaches into recent guidelines for the care of older adults with dementia, approaches that are centered on staff characteristics (*eg*, optimal staffing, staffing education/training, staff approaches to improved patient care management) have received limited attention. In addition, while patients with serious mental illness and other psychiatric disorders are overrepresented in residential long-term care settings, little is known about the use of these strategies among this high-risk population. Similarly, how to address distress behaviors during periods of stress due to transitions in residential settings is unknown. The goal of this systematic review is to evaluate the effect of health care team-focused interventions intended to reduce patient distress behaviors across key relevant settings.

The key questions (KQs) for this review are:

KQ1. What is the effect of health care team-focused interventions designed to manage persistent or recurrent distress behaviors among older adults in long-term residential or inpatient health care settings on patient, staff, and utilization outcomes?

KQ2. What is the effect of health care team-focused interventions designed to manage persistent or recurrent distress behaviors among older adults during transitions between health care settings on patient, staff, and utilization outcomes?

KQ3. What is the effect of health care team-focused interventions designed to manage persistent or recurrent distress behaviors among older adults in the context of inpatient mental health settings on patient, staff, and utilization outcomes?

CURRENT REVIEW

This review was nominated by the VA Office of Mental Health and Suicide Prevention to inform work being done by the VHA Interoffice of Care for Patients with Complex Problems Steering Committee around supporting health care delivery for Veterans with distress behaviors. The topic was refined through iterative discussions with the nominating partner to tailor the review focus to the needs of this group and to be most relevant to care provided within or purchased by the VA.

We employed standard systematic review methodology to address the KQs. Key methodologic points include that we searched Ovid MEDLINE, Elsevier Embase, and Ovid PsycInfo from December 2002 through December 2022 for relevant literature. Our eligibility criteria included a population of adults 50 years of age or older in long-term residential or inpatient care settings (KQ1), transitioning between health care settings and home (KQ2), or inpatient mental health settings (KQ3). Interventions had to primarily target HCWs or a health care team as the primary point of deployment of intervention activities with the intent to change the way care is delivered in order to reduce or prevent distress behaviors. Due to the size of the literature, for KQ1 we prioritized randomized trials at low to moderate risk of bias for abstraction and synthesis. We included any VA-focused study regardless of study design given the relevance to the target audience for this review. We completed certainty of evidence assessments for KQ1 studies that evaluated patient-level outcomes of interest using the most commonly used measures of Cohen-Mansfield Agitation Index (CMAI), the Neuropsychiatric Inventory (NPI), and quality of life (measures varied).

We screened 6,582 articles by title and abstract and included 212 for full-text review. Ultimately, 39 randomized trials were prioritized for KQ1 and found to have a low or moderate risk of bias. We identified 2 studies for KQ2 and 3 studies for KQ3. Most studies were conducted in Europe ($N = 18$) or USA ($N = 10$). All trials prioritized for KQ1 were cluster-randomized trials and the majority focused on patients with dementia.

For KQ1, we grouped studies by inclusion of intervention activities meeting 8 of 10 prioritized Alzheimer's Association Dementia Care Practice Recommendations. Activities fell under 1 of 3 categories: (1) patient-focused: activities carried out by the health care staff that were intended to assess and provide ongoing support for individual patient distress behaviors (*eg*, assessment to detect distress behaviors, care planning, medical management); (2) HCW-focused: approaches that were intended to build capacity, knowledge, behaviors, or skills of HCWs individually or at a team level to reduce distress behaviors (*eg*, general education about distress behaviors, building skills to cope with distress behaviors); or (3) environment-focused: activities that altered the lived environment in which an individual with distress behaviors resides with the intent of addressing underlying needs and reducing distress. Any individual study intervention could include activities in any or all of these categories.

We found 3 studies that evaluated interventions designed to change patient-facing HCW interactions (patient-focused-only), 6 included HCW-focused intervention activities only, 17 included both patient- and HCW-focused activities, and 3 included HCW-, patient-, and environment-focused activities. Most interventions were complex with many featuring more than 1 intervention activity, intervention actions directed at changing more than 1 HCW behavior, and many interventions included a high level of interaction between intervention activities. Examples of intervention activities are as follows: patient-focused activities include structured, individualized care planning and establishing a mechanism for the detection of distress behaviors; HCW-focused activities centered on general dementia education and skills building for coping with distress behaviors; environment-focused activities addressed the structural setting within which patient care was delivered, such as lighting and access to outdoor walking spaces.

The 3 interventions were designed to change patient-facing HCW interactions only (*ie*, patient-focused-only) and had mixed results on agitation. Two studies evaluated a decision tree protocol to detect and diagnose distress behaviors and generate individualized treatment plans (Treatment Routes for Exploring Agitation or TREA); both found short-term improvements in agitation as measured by the agitation behavior mapping instrument at 10 and 14 days ($p = 0.002$ and $p < 0.001$, respectively) (longer-term outcomes were not measured). The third study evaluated a low-intensity intervention that provided life histories to nursing home staff and found no agitation effect using the CMAI. Only 1 of the 3 studies measured the impact on quality of life and found no significant effect after adjusting for baseline characteristics.

Four of 6 studies focused on improving HCW skills, knowledge, or team roles (*ie*, HCW-focused-only) and assessed effects on patient distress behaviors using the NPI total score. Two studies with longer-term outcomes (*ie*, 7-8 months) found no intervention effect, while 2 studies with shorter-term outcomes (*ie*, 30 days to 8 weeks) found that the intervention reduced patient distress behaviors (very low certainty of evidence). The Staff Training in Assisted Living Residences (STAR) study found a significant reduction in total NPI at 8 weeks ($p = 0.031$). The longer-term MEDCED study found a non-significant difference from baseline to 7 months between arms (5.7 vs 1.8; $p = 0.207$). The 6-session manual-based intervention MARQUE study reported a non-significant adjusted mean difference (aMD) of -0.84 (95% CI [-5.51, 3.84]) at 8 months. Of the studies that measured quality of life ($N = 2$) and antipsychotic use ($N = 2$), there was no effect on either (low certainty of evidence). Two of the 3 HCW-focused-only interventions measured staff burnout and found no difference. The third measured "sense of competence and satisfaction with patient care" and found no difference at 8 weeks. Among the studies that evaluated HCW-focused-only intervention activities, 3 measured changes in agitation with the CMAI.

Eleven of 17 studies that combined patient-focused and HCW-focused intervention activities measured agitation using the CMAI. Data from 9 interventions across 7 studies were included in a meta-analysis. Follow-up times ranged from 6 to 12 months. In a meta-analysis of 7 studies (including 9 intervention conditions), health care worker- and patient-focused interventions did not lead to a significant reduction in patient agitation (SMD = -0.31, 95% CI [-0.78, 0.16]). This result may be attributable to substantial variation in effects across studies (95% PI [-1.38, 0.76]), including across studies of the same specific intervention. Nine HCW-/patient-focused studies used the NPI to measure distress behaviors. When distress was measured by NPI, similar inconclusive results were found. Eight intervention arms from 5 studies that assessed changes in the NPI between 6 and 11 months were appropriate for inclusion in a meta-analysis and yielded an SMD of -0.47 (95% CI [-1.18, 0.24]) (moderate certainty of evidence).

Nine HCW-/patient-focused studies also evaluated the intervention effect on quality of life. Seven interventions from 5 studies were included in a meta-analysis with follow-up at 7-11 months and showed a moderate- to large-sized improvement on patient quality of life (SMD = 0.71, 95% CI [0.39, 1.04]) (moderate certainty of evidence). The final patient-level outcome for HCW-/patient-focused interventions was the use of antipsychotics as reported by 8 studies. Seven interventions from 6 studies were included in a meta-analysis, which suggested a reduced odds of antipsychotic use at 6 to 12 months with HCW-/patient-focused interventions (OR = 0.79, 95% CI [0.69, 0.91]) (high COE). Two studies also measured a variety of staff-level outcomes (*eg*, perceived self-efficacy in caring for people with dementia, burnout), but neither found any significant intervention benefit. In summary, interventions that incorporated both patient-focused and HCW-focused activities showed a significant improvement in quality of life and reduction in antipsychotic use. However, the benefits of this type of intervention to reduce distress behaviors were not conclusive.

Three studies evaluated HCW-, patient-, and environmental-focused intervention activities; all trained staff to develop tailored care plans using a focus on function. All 3 measured agitation using the CMAI. Two studies did not find any evidence of reduction in agitation at 3 to 12 months of follow-up, and the third found a statistically, though likely not clinically, significant decrease in agitation (treatment group baseline of 14.79 decreased to 14.64 and the control group increased from 14.55 to 14.88, $p = 0.045$). One study measured change in antipsychotic use and found no significant decrease at 12 months (MD = -0.44, 95% CI [-2.27, 0.64]) (moderate certainty of evidence). One study measured staff self-efficacy and job satisfaction and found no benefit.

None of the identified studies reported system-level outcomes such as utilization.

We identified 5 VA-specific studies, all of which were program evaluations of the STAR-VA program, which had been implemented in VA Community Living Centers (CLCs). The included studies reported clinically significant reductions in frequency and severity of distress behaviors and an initial reduction in staff injury in the first year after training due to assault, though injuries rose in the subsequent year. We note a similar intervention complexity with STAR-VA to other identified multilevel interventions (*eg*, those that target both HCW and patient management). Specifically, it features multiple intervention activities requiring multiple actions of the involved health care team with significant tailoring to individual patients. Moreover, the interaction between the described activities is significant (*eg,* using effective communication approaches could contribute to increasing frequency of personally relevant and pleasant events).

Two studies addressed patient distress behaviors during or around a transition from 1 residential setting to another residential setting that was engineered to provide a more supportive environment. Each also required changes to HCW workflow patterns. One study of 116 patients relocated from a 12th-century building with inadequate structural conditions to a newly built facility with improved features (*eg*, improving lighting, access to indoor ambulation) found a significant reduction in distress behaviors as measured by NPI among the 14 residing in special care units for patients with advanced dementia (MD at 12 weeks = -14.08, $p < 0.001$) and no change in the other 112 patients (MD at 12 weeks = -0.8, $p = 0.45$). The second study found no change in "negative affect or inappropriately engaged."

Two primarily HCW-focused interventions were evaluated across 3 papers that took place in inpatient mental health care units. One trial and 1 program evaluation examined a theoretically driven multifaceted model of care with 10 packaged intervention activities (*eg*, Safewards). In the trial at 16 weeks, conflict (*ie*, physical or verbal aggression or absconding) was reduced by 15% in the intervention arm per shift (risk ratio [RR] = 0.85, 95% CI [0.76, 0.94]) and containment events (*ie*, forced medication, seclusion, or restraint use) were reduced by 26.4% (RR = 0.77, 95% CI [0.66, 0.90]). The second intervention was a staff education program with ongoing monitoring evaluated in a single community-based, long-term neurobehavioral rehabilitation setting. At 15 months, the average number of aggressive incidents toward peers or objects had been reduced by 77%, from 6 per month to 2 per month.

Health care systems seeking to better equip health care teams to provide optimal patient-centered management of distress behaviors will need to look beyond interventions that are directed solely at health care team members or those focused only on delivering individual patient care treatments. Rather, the findings from this review point to the likelihood that multilevel interventions with activities that target health care team members, patient evaluation and management, and likely environmental or policy structures are needed to meaningfully improve patient outcomes. Interventions that address both health care team members and patient care patterns improve patient quality of life and reduce antipsychotic use. While the evidence is inconclusive regarding the effect of these interventions on patient distress, the effect estimates were consistently in the direction of favoring the intervention; confidence intervals, while crossing the null, generally included clinically significant improvements.

Thus, the potential for benefit cannot be ruled out. One challenge with this body of literature is the wide array of outcomes and intervention components, which makes it difficult to evaluate the mechanism of action and related effect. Greater specificity and clarification regarding the intended mechanism of action for each outcome would be beneficial for this field moving forward. Future research in this area would benefit from investigating multilevel, theory-based interventions with clearly articulated mechanisms of action and alignment with intended effects measured at appropriate time points. When the goal is improving staff outcomes, higher system-level targets (*eg*, supervisory involvement, facility culture) could be explored. In addition, discipline-specific interventions such as the use of social workers for intervention- and patient-centered care approaches could be explored. After effective interventions are identified, it will be critical to develop robust, evidence-based approaches to implement these complex interventions.

CONCLUSIONS

Novel models of health care to reduce distress behaviors among older adults with behavioral care needs that feature both HCW education and training along with patient management intervention activities have beneficial impacts on patient quality of life, reduction in antipsychotic use, and possibly distress behaviors. Less complex interventions, for example those focusing on HCW-only training, appear less likely to lead to desired effects. However, more effective complex interventions raise questions about the challenges of high-fidelity implementation across varied long-term care settings for patients with distress behaviors. Work remains to be done to determine the impact of these interventions on health care staff outcomes such as burnout and system-level outcomes such as utilization.