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Dementia and Falls Management in Underserved Populations: The Cognition and Mobility Care Management Program

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BACKGROUND/OBJECTIVES: Cognitive and mobility impairments are common and underdiagnosed chronic conditions that afflict community-dwelling older adults. This study describes the organization, implementation, and evaluation of an intervention for underserved and ethnically diverse older patients with dementia and/or falls risk.

DESIGN: Observation, baseline and 1 year after intervention.

SETTING: Community-based primary care county clinics in inland southern California.

PARTICIPANTS: A total of 272 persons, aged 70 years and older, who screened positive for falls and/or dementia and enrolled in the Cognition and Mobility Care Management program during the study period.

INTERVENTION: A nurse care manager performed a patient and caregiver evaluation and created and implemented a care plan with medical, behavioral, and psychosocial interventions in partnership with patients and their primary care providers.

MEASUREMENTS: Process outcomes included rates of positive screening for dementia and fall risk, referral, enrollment, and visit completion. Patient outcomes included fall history, mobility and cognitive assessments, and depression scales. Patients and/or caregivers completed questionnaires rating perceived benefits of enrollment after 1 year in the program.

RESULTS: Medical assistants screened 573 patients aged 70 years and older during the study period; 78% screened positive for dementia and/or fall risk. Of the patients who screened positive, 94% were referred; 91% of contacted patients elected to enroll, and 272 patients completed an intake visit ($mean_{age}$ = 77 years; 65% female; 75% Latino; 10% African American). The patients and caregivers who completed satisfaction questionnaires 1 year after enrollment rated the program highly, and 92% would recommend the program to others.

CONCLUSION: A primary care–based screening and comanagement program to identify and manage dementia and falls risk in primarily Latino and African American older adult patients living in an underserved area was well received, with high satisfaction and perceived benefit from patients and caregivers. **J Am Geriatr Soc 69:210-215, 2021.**

Keywords: Alzheimer's disease; dementia; care coordination; Latino; Hispanic; African American

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INTRODUCTION

Falls and dementia are among the most prevalent and debilitating conditions that afflict older adults. According to the U.S. Centers for Disease Control and Prevention, more than one of four adults older than 65 years fall each year,[1] yet less than half inform their healthcare providers.[2] Similarly, 1 in 10 adults 65 years or older has Alzheimer's disease,[3] but many are not diagnosed by their physicians.[4,5] Studies have shown that more than half of people living with dementia in the community are not detected.[6,7] This underdiagnosis or misdiagnosis is even more pronounced in African Americans[8] and Hispanics[9]

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compared with non-Hispanic Whites. Similarly, falls risk assessment and management occur infrequently in primary care settings.[10] There is evidence that comanagement of chronic diseases can improve quality of care and clinical outcomes of chronic conditions.[11,12]

To address the challenges of identifying and managing the care of underserved, ethnically diverse older adults with dementia and falls, we developed, deployed, and evaluated a cognition and mobility screening and care management program in a predominantly Hispanic and African American region of southern California.

METHODS

Demographic Needs Assessment

Inland southern California is a geographically large, ethnically diverse, and rapidly growing region of 4.3 million people. Riverside County is the largest county in inland southern California, with an aging population growth rate that outpaces the average rate for California. The 75 + cohort is growing at the fastest rate and with more than half of the population consisting of people of color.[13]

In June 2014, the University of California, Los Angeles (UCLA), Geriatric Education Center convened key stakeholders in Riverside County to identify needs of the older adult population and to explore potential partnership. The meeting was attended by an interdisciplinary group that included leadership from the Riverside University Health System, Riverside County Department of Public Social Services (RCDPSS), the Riverside County Department of Public Health, and the Inland Empire Health Plan (IEHP) as well as representatives from the senior community of Riverside. During the meeting and monthly telephone conferences that followed, the Riverside County representatives identified geriatric cognition and mobility as among the priority issues in the region.

Program Description

The Cognition and Mobility Care Management (CMCM) program is a comprehensive case identification, diagnosis, and care management program for older adults with dementia and/or falls. The CMCM protocols were based on evidence-based care management programs for dementia and falls—the UCLA Alzheimer's and Dementia Care program[14,15] and the Strategies to Reduce Injuries and Develop Confidence in Elders (STRIDE) study,[16] respectively. The program is implemented by a CMCM Care Manager who is a bilingual (Spanish/English) registered nurse trained to manage the medical and psychosocial needs of older persons with dementia and/or falls. The CMCM works with a geriatrician medical director (W.H.) with expertise in dementia and falls. Partnerships were formed between the Riverside County health system and community-based organizations, including the Riverside County Office on Aging, RCDPSS, and the IEHP.

With funding from the Geriatrics Workforce Enhancement Program, the program was launched in March 2016 at three primary care clinics operated by Riverside County in the cities of Riverside, Perris, and Rubidoux. The CMCM intervention consists of three components: case identification, structured needs assessment, and creation and implementation of individualized care plans based on needs assessment. Medical assistants were trained to use the Mini-Cog[17] and an adapted version of the Fall Risk Questionnaire,[18,19] which were administered to all patients aged 70 years or older who were seen in the three primary care clinics (Figure 1). The CMCM care manager performed a structured needs assessment through a review of the electronic health record, a previsit questionnaire, and a 90-minute in-person visit. All CMCM visits were held at the Riverside clinic, where geriatric medicine clinic is based. The CMCM care manager then developed a personalized care plan that includes medical, behavioral, and psychosocial interventions. For falls, this included discontinuing medications that contribute to falls risk, promoting home safety (e.g., grab bars; shower chairs), and referral to community-based exercise program. For dementia, this included starting on Food and Drug Administration–approved medications (e.g., acetylcholinesterase inhibitors; memantine) when appropriate, pharmacologic and nonpharmacologic management of dementia-related behaviors (e.g., UCLA Alzheimer's and Dementia Care caregiver training videos),[20] and referral to community-based partners (e.g., Riverside Department of Public Social Services; Alzheimer's Association).

The care manager was available for ongoing support, including telephone follow-up to monitor and facilitate implementation of care plans, provision of additional caregiver training (e.g., online videos), scheduling additional caregiver support groups, and coordinating with insurance representatives regarding medical equipment. Patients and caregivers were given refrigerator magnets (in Spanish and English) with the care manager's contact information, encouraging enrolled individuals to contact the care manager with issues or questions related to memory, falls, or caregiver stress or if the patient has a hospitalization, emergency room, or urgent care visit. Patients and/or caregivers were also scheduled for a second in-person visit after 1 year in the program.

To ensure that the nonmedical care needs of patients enrolled in the CMCM were addressed, we formed formal referral lines with community-based organizations, including the Riverside County Department of Public Social Services, Public Authority, Office on Aging, the Inland Empire Health Plan, the Alzheimer's Association, adult day centers, and senior centers. To facilitate ongoing collaboration, communication, and foster interdisciplinary and community connections, monthly interprofessional case conferences were organized during the study period. Health professions represented in these conferences include social work, nursing, medicine (family and internal), pharmacy, in-home supportive services/community health work, and health plan administration.

Process and Outcome Measures

We tracked number of patients screened, identified to have dementia and/or fall risk, referred to and enrolled in the CMCM program. We also report the number of participants who were seen for an intake visit and provided a care plan, and contacted by the CMCM program over time, as of April 1, 2019. At in-person visits, the nurse care manager

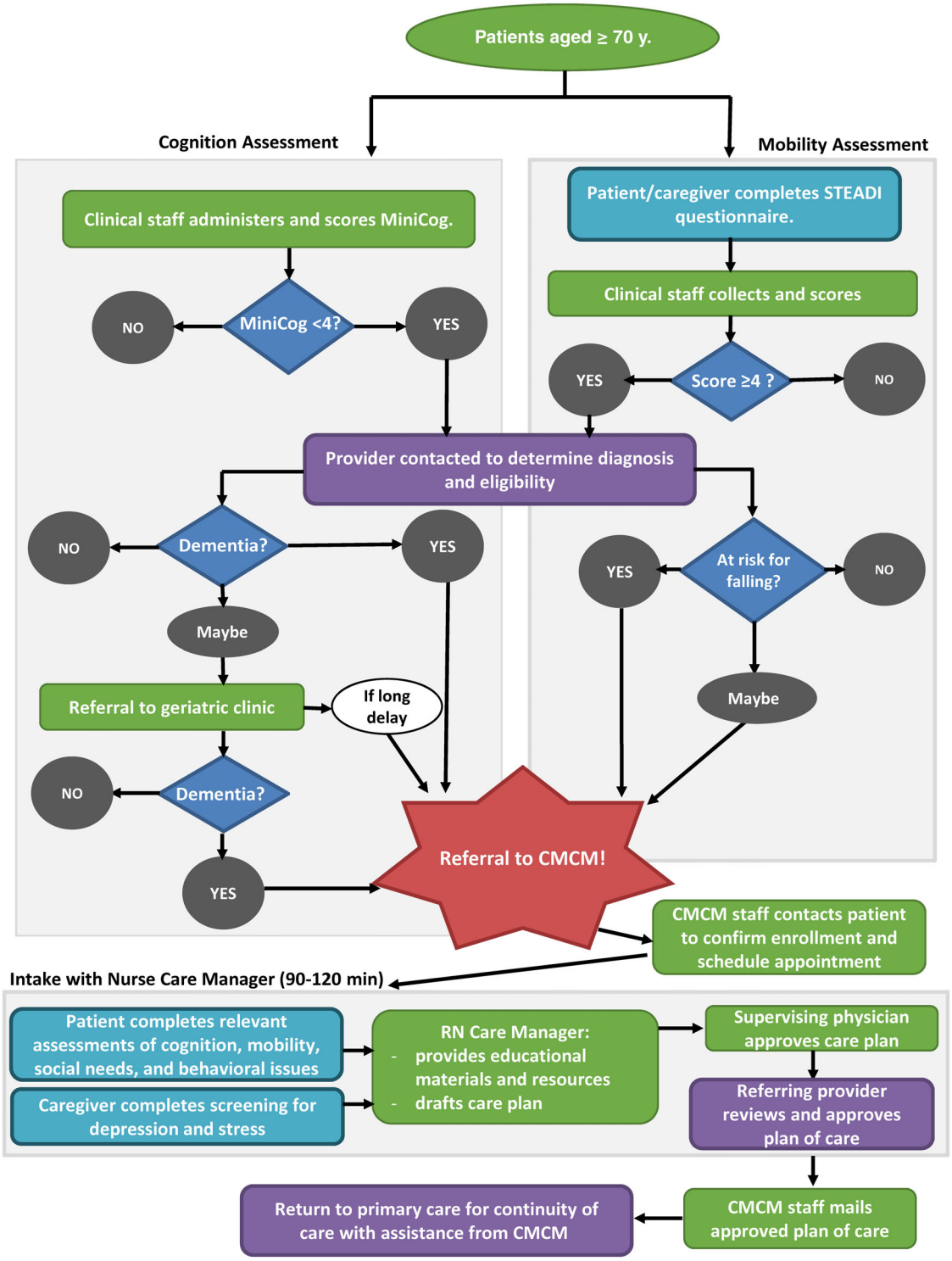

Figure 1. Cognition and Mobility Care Management (CMCM) screening and comanagement workflow. RN, registered nurse; STEADI, Stop Elderly Accidents, Deaths, and Injuries.

elicited demographic and outcome data, including number of falls, caregiver depression Patient Health Questionaire-9 (PHQ-9),[21] and caregiver burden, which was assessed using the 13-item Modified Caregiver Strain Index (scores range from 0 to 26, with higher scores indicating higher strain).[22]

During the annual visit, patients completed a satisfaction survey, assessing agreement with statements of perceived benefits after 1 year in the program; caregivers completed the questionnaire if the patient was unable. Caregivers were asked to complete a self-efficacy survey, rating their agreement with statements describing changes in their caregiving knowledge and confidence.[23] Caregivers also rated their perceptions of their primary care providers' care before enrolling and currently, using a retrospective pre-post design. Ratings with the stems "before we enrolled…" and "as of today..." were compared using Wilcoxon

signed-rank tests. Changes in mobility impairment, depression, caregiver stress, and depression scores from intake to the annual visit were examined with Wilcoxon signed-rank tests. All data were collected from March 3, 2016, to April 1, 2019.

RESULTS

Screening

Trained medical assistants screened 573 patients from across three clinics in Riverside County. Of the screened patients, 447 (78%) screened positive for either cognitive or mobility impairment. Specifically, 214 patients (37%) screened positive for mobility impairment only, 190 (33%) screened positive for both mobility and cognitive impairments, and 43 (8%) screened positive for cognitive impairment only.

Referral and Enrollment

Primary care providers referred 94% of patients who screened positive to the program. Of 361 referred patients who were successfully contacted, 330 (91%) elected to enroll in the CMCM program. Of enrolled patients, 97% had mobility impairment and 49% had suspected dementia.

Intake Visit and Care Plan Generation

Of the 330 patients who agreed to enroll, 273 (83%) attended an intake visit by April 1, 2019. Table 1 describes the characteristics of patients who completed an initial visit. Of these patients, 265 had fall risk (97%) and 69 (25%) had dementia. Most patients were older than 75 years, Latino or non-White, did not speak English as their primary language, and did not complete high school. Of participants, 52% had a documented fall in the past year and 47% had fear of falling without a documented fall.

Characteristics of caregivers who attended the visit are reported in Table 2. Most caregivers were Latino or non-White and did not speak English as their primary language. Almost all were female, family caregivers, and living with the patient; most were the patients' children. Overall reported caregiver strain was relatively low, but caregivers for patients diagnosed with dementia had higher strain (mean = 10.1; standard deviation (SD) = 7.1) than caregivers for patients who only had fall risk (mean = 3.5; SD = 4.0) (Wilcoxon rank-sum test $z = -5.663$; $P < .001$). Of patients, 136 (56%) completed a follow-up call. Of patients, 111 (65%) completed an in-person annual visit.

Interprofessional Case Conferences

During the study period, there were a total of 30 case conferences with an average of 18 attendees at each session. Health professions represented include social work, nursing, medicine (family and internal), pharmacy, in-home supportive services/community health work, and health plan administration. A total of 226 attendees completed evaluation questions about the anticipated effect of the case conference on their work. Most respondents believed that the meeting would have a moderate to major effect on their own behaviors in working as part of an interprofessional team (92%) and in the care of older adults (95%).

Table 1. Characteristics of Patients Who Completed a CMCM Intake Visit (N = 273)

Characteristic	Value
Patient type, No. (%)	
Fall risk only	204 (75)
Dementia and fall risk	62 (23)
Dementia only	7 (3)
Age, mean ± SD, y	77.4 ± 5.9
Female, No. (%)	179 (66)
Race/ethnicity, No. (%)	
White, Hispanic/Latino	204 (75)
Black or African American	26 (10)
Asian	19 (7)
White, Non-Hispanic/Latino	14 (5)
Other (e.g., Pacific Islander, Indian, Middle Eastern)	9 (3)
Not reported	1 (<1)
Primary language, No. (%)	
Spanish	200 (73)
English	47 (17)
Other (e.g., Tagalog, Arabic, Mandarin)	26 (10)
Education, No. (%)	
Did not graduate high school	156 (57)
High school diploma/GED or higher education	31 (11)
Not reported	86 (32)
Marital status, No. (%)	
Married or living with partner	92 (34)
Widowed	100 (37)
Never married	44 (16)
Divorced or separated	36 (13)
Reported at least one fall in the last year (N = 263), No. (%)	136 (52)
Reported falling at least twice, No. (%)	78 (30)
Fell only once but hospitalized, No. (%)	11 (4)
Reported having caretaker, No. (%)	245 (90)

Abbreviations: CMCM, Cognition and Mobility Care Management; GED, general equivalency diploma.

Patient and Caregiver Benefit After 1 Year

Fifty-two percent (23 patients and 35 caregivers) of annual visit attendees completed satisfaction questionnaires. Of these, 97% expressed overall satisfaction with the program and 92% would recommend the program to others. Most respondents said their concerns were listened to and addressed (91%), that the program improved their well-being (88%), and they were satisfied with the care plan recommendations (93%), followed through on recommendations (88%), and found educational information and referral programs helpful (86% and 83%, respectively). Moreover, 84% stated when facing a nonurgent health concern related to memory or falls, they would call the nurse care manager.

Of the caregivers who attended the annual visit with an enrolled patient, 53 (65%) completed a caregiver self-efficacy survey. All caregivers who completed this

Table 2. Characteristics of Caregivers Who Attended CMCM Intake Visit (N = 206)

Characteristic	Value
Live with patient, No. (%)	189 (92)
Female, No. (%)	189 (92)
Race/ethnicity, No. (%)	
White, Hispanic/Latino	155 (75)
Black or African American	18 (9)
Asian	13 (6)
White, Non-Hispanic/Latino	10 (5)
Other (e.g., Pacific Islander)	4 (2)
Not reported	6 (3)
Primary language, No. (%)	
Spanish	140 (68)
English	51 (25)
Other (e.g., Tagalog, Mandarin, Arabic)	14 (7)
Not reported	1 (<1)
Caregiver type, No. (%)	
Unpaid family caregiver	148 (72)
Paid family caregiver	52 (25)
Paid professional	5 (2)
Not reported	1 (<1)
Patient condition(s) caring for, No. (%)	
Fall risk	199 (97)
Diagnosed dementia	69 (33)
Modified Caregiver Strain Index score (range = 0–24; N = 188)	
Mean ± SD	6.5 ± 6.4
No strain, No. (%)	40 (21)
Score >13, No. (%)	27 (14)

Abbreviation: CMCM, Cognition and Mobility Care Management.

evaluation reported increased self-efficacy since enrolling in the program, and all agreed they now know when to ask for help when caring for the patient and who to ask. Most caregivers were more confident at 1 year that they can make necessary decisions when the patient is no longer able to make them (98%), that they can handle an emergency involving the patient (96%), and that someone else would be able to take care of the patient if something happened to the caregiver (94%). Of the 48 caregivers for patients with a regular healthcare provider, the caregivers reported significant improvement in their views of the care provided (Table 3).

Patients who attended both an intake and annual visit for mobility management reported fewer falls during their program enrollment (mean = 0.7) than they had in the year before their intake (mean = 1.0) (Wilcoxon signed-rank z = 2.40; P = .016; n = 107). We did not observe any other differences between patients' or caregivers' outcomes from their intake to annual visit (e.g., patient PHQ-9 z = 0.52; n = 66; caregiver strain z = −0.43; n = 46).

DISCUSSION

Dementia and falls are two of the most common, expensive, and underdiagnosed conditions in older adult patients. Evidence from clinical practice, epidemiological studies, and clinical trials demonstrates that gait and cognition are interrelated conditions in older adults.[24] Management of these conditions requires the collaboration of healthcare systems and community-based organizations and patient/family engagement. Usual falls and dementia care do not typically meet quality of care standards.[25]

The CMCM is a care management program formed by partnership between a county-based health system, primary care clinics, public and social services, and community-based organizations that serve predominantly Latino and African American older adults. We found a high capture rate with primary care–based screening for falls and dementia in this population, with 78% of patients screening positive for fall risk or cognitive impairment. Fall risk was the most prevalent, with 70% of screened patients and 97% of patients who completed an intake visit having elevated risk for falls. The program was well accepted, with primary care providers referring all eligible patients, and 91% of contacted patients electing to enroll. Only 1% of patients who attended an initial visit disenrolled from the program, and patients and caregivers who completed the satisfaction survey after 1 year of enrollment showed high rates of satisfaction and perceived program benefit. The lack of control group limited our ability to assess improvement in patient outcomes, but mobility patients who had follow-up visits reported fewer falls after 1 year in the CMCM program. Further, the relatively low (65%) completion rate of the satisfaction survey limits generalization of our findings.

Latinos and African Americans will experience the largest increases in incidence rates of Alzheimer's disease and related dementias between 2015 and 2060.[26] The CMCM program demonstrates the need for and feasibility of a primary care–based comprehensive case identification and care

Table 3. Caregiver Retrospective Pre-Post Perceived Change in Primary Care Provider Care (N = 48)

Statement[a]	"Before we enrolled…"	"As of today…"	Difference	z
The patient's regular healthcare provider had a good understanding of health issues affecting older adults	2.3 (0.1)	1.4 (0.1)	0.9 (0.2)	4.51
The patient's regular healthcare provider had told me about resources and/or services that might be available for caregivers like me	2.6 (0.1)	1.4 (0.1)	1.2 (0.2)	5.30
The patient's regular healthcare provider had talked to me about advanced directives and a living will (what the patient does and does not want in a life-threatening situation)	2.6 (0.1)	1.5 (0.1)	1.1 (0.2)	5.22

Note: Data are given as mean (standard error). All Wilcoxon signed-rank test P values < .001.
[a]Likert scale from 1 = strongly agree to 5 = strongly disagree.

management of older persons with fall risk and dementia in underserved and ethnically diverse populations. Further studies are needed to determine effects of the program on patient and caregiver outcomes, cost-effectiveness, and long-term acceptability. Given the high needs for dementia and fall risk management and strong acceptance of the CMCM program in this community, the program has been extended at the partner clinics and will provide future opportunities for tracking patient and caregiver outcomes.

In summary, the CMCM program is a primary care and community-based intervention that identified and provided care management for ethnically diverse older patients with falls risk and/or cognitive impairment. Patients enrolled in the program for 1 year expressed high satisfaction, and caregivers reported improved self-efficacy and confidence. The successful implementation of the CMCM program hinged on early identification of the needs of the local older adult population, matching interventions with the needs, training a nurse care manager who is culturally attuned to the needs of patients and caregivers, and establishing and sustaining clinical collaboration between primary care providers and community-based organizations. This model of care should be considered in identifying and intervening for falls and dementia in other underserved, ethnically diverse older adult patient populations.

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