
OBJECTIVE: The primary aim of this study is to examine the prevalence of and antecedents to missing incidents among community-dwelling persons with dementia. METHODS: This prospective study used mailed surveys and telephone interviews. RESULTS: The prevalence of having any incident was 0.46/year; the overall prevalence for missing incidents in this study was 0.65/year. Missing incidents had few antecedents and occurred largely when persons with dementia were performing everyday activities that they normally completed without incident. CONCLUSION: Given that a missing incident is relatively common among persons with dementia, health care professionals should assist caregivers with a missing incident plan early in the disease process. Also, as missing persons are found by persons other than the caregiver and caregivers underutilize identification devices, health care professionals may recommend the use of identification devices to facilitate a safe return.


This study used multilevel modeling to evaluate a newly revised model in which dementia caregivers' stress process variables—perceived stress and emotional-behavioral responses—were posited as predictors of behavioral symptoms of dementia (BSD) within community-based dyads. Secondary analyses were conducted on data from a primary two-group (experimental and control) trial, in which experimental participants received a home monitoring system for managing nighttime activity in individuals with dementia. Models indicated that caregivers' trajectories did not differ significantly between groups over time; however, the time-by-group interaction of BSD approached significance. Because BSD were not targeted, this indicated that the system may have indirectly lowered BSD. In addition, caregivers' perceived stress and emotional-behavioral responses predicted BSD, on average (across all occasions) and from occasion to occasion, with higher levels associated with worse BSD. These limited results provide support for further research to investigate the nature of these relationships.


OBJECTIVE: Wandering in persons with dementia is perceived as significant due to its prevalence and negative outcomes. However, lack of a validated wandering measure in Taiwan has limited scientific investigation and clinical practice. Therefore, the purpose of this study was to validate the Chinese Revised Algase Wandering Scale-Community Version (CRAWS-CV) in northern Taiwan. METHOD: For this cross-sectional study, the sample comprised 180 elders with dementia and their family caregivers (FCs). FCs responded to the CRAWS-CV in
interviews with trained research assistants. RESULTS: The structure of CRAWS-CV was examined by exploratory principal component analysis with varimax rotation. This analysis derived nine factors, explaining 71.48% of variance: eloping behavior (EB), mealttime impulsivity/temporal aspects, getting lost inside the house (GLI), pacing, impulsivity, negative outcomes, random pattern (RANDOM), and getting lost outside. The total scale and subscales showed excellent internal consistency. Good construct validity was shown by significant inter-scale correlation coefficients, and significant correlations between scores on the total CRAWS-CV and its subscales with scores on the Mini-Mental State Examination and Chinese Neuropsychiatric Inventory. The receiver operating characteristic curve showed a cutoff score of 67, with sensitivity and specificity of 83.6% and 76.9%, respectively. CRAWS-CV scores were significantly different for wanderers and non-wanderers. The one-week test-retest reliability using intra-class correlation coefficients (ICCs) showed significant correlations except for the EB and RANDOM subscales. Inter-rater reliability using an ICC was significant and acceptable except for GLI. CONCLUSION: This study supports the CRAWS-CV as a valid measure of wandering in community-dwelling elders with dementia in northern Taiwan.


Although the term wandering is routinely used by clinicians, researchers, and informal caregivers (ICs), the meaning of this term varies depending on the source of the definition and the context in which it is used. The purpose of this study was to examine the terms ICs used to describe different scenarios that have been identified in literature as "wandering," determine their perception of risk, and compare their definitions of wandering with the perspectives of researchers. Structured interviews were conducted with 128 ICs of older adults with dementia. Informal Caregivers rarely used the term wandering to label different scenarios that had been previously identified in the literature as wandering. Responses to a survey of 17 wandering experts did not reflect agreement on a definition for wandering. These findings suggest that a broad set of terms should be used to describe this potentially dangerous behavior when health care providers communicate with ICs.


BACKGROUND: At some point in the disease process many persons with dementia (PWD) will have a missing incident and be unable to safely return to their care setting. In previous research studies, researchers have begun to question whether this phenomenon should continue to be called wandering since the antecedents and characteristics of a missing incident are dissimilar to accepted definitions of wandering in dementia. The purpose of this study was to confirm previous findings regarding the antecedents and characteristics of
missing incidents, understand the differences between those found dead and alive, and compare the characteristics of a missing incident to that of wandering. METHODS: A retrospective design was used to analyse 325 newspaper reports of PWD missing in the community. RESULTS: The primary antecedent to a missing incident, particularly in community-dwelling PWD, was becoming lost while conducting a normal and permitted activity alone in the community. The other common antecedent was a lapse in supervision with the expectation that the PWD would remain in a safe location but did not. Deaths most commonly occurred in unpopulated areas due to exposure and drowning. Those who died were found closer to the place last seen and took longer to find, but there were no significant differences in gender or age. The key characteristics of a missing incident were: unpredictable, non-repetitive, temporally appropriate but spatially-disordered, and while using multiple means of movement (walking, car, public transportation). Missing incidents occurred without the discernible pattern present in wandering such as lapping or pacing, repetitive and temporally-disordered. CONCLUSIONS: This research supports the mounting evidence that the concept of wandering, in its formal sense, and missing incidents are two distinct concepts. It will be important to further develop the concept of missing incidents by identifying the differences and similarities from wandering. This will allow a more targeted assessment and intervention strategy for each problem.


BACKGROUND/RATIONALE: Guided by the need-driven dementia-compromised behavior (NDB) model, this study examined influences of the physical environment on wandering behavior. METHODS: Using a descriptive, cross-sectional design, 122 wanderers from 28 long-term care (LTC) facilities were videotaped 10 to 12 times; data on wandering, light, sound, temperature and humidity levels, location, ambiance, and crowding were obtained. Associations between environmental variables and wandering were evaluated with chi-square and t tests; the model was evaluated using logistic regression. RESULTS: In all, 80% of wandering occurred in the resident's own room, dayrooms, hallways, or dining rooms. When observed in other residents' rooms, hallways, shower/baths, or off-unit locations, wanderers were likely (60%-92% of observations) to wander. The data were a good fit to the model overall (LR [logistic regression] chi(2) (5) = 50.38, P < .0001) and by wandering type. CONCLUSIONS: Location, light, sound, proximity of others, and ambiance are associated with wandering and may serve to inform environmental designs and care practices.


BACKGROUND: Using traditional assessment procedures, prior research demonstrated that deficiencies in gait and balance occur in the later stages of
dementia. OBJECTIVE: We tested the hypothesis that an automated system capable of detecting path tortuosity (irregular movement) in elders would show that greater tortuosity was associated with greater cognitive impairment, potentially allowing early detection of dementia over time as tortuosity levels slowly increased. METHODS: An ultra-wideband sensor network using wireless transponders measured daytime locomotion to an accuracy of 20 cm in 14 elderly residents in an assisted living facility (ALF) as they traversed a shared living area while performing daily activities such as going to a dining area, conversing and watching television. Transponder location was updated at 0.4 sec intervals while in motion and revealed large individual differences in activity patterns. RESULTS: Fractal dimension (Fractal D), a measure of movement path tortuosity (directed vs. irregular or apparently aimless locomotion) was significantly and negatively correlated with cognitive status as measured by the Mini Mental State Examination administered to each participant at the study's end. CONCLUSIONS: Previous studies of locomotion in laboratory settings that have demonstrated gait variability increases with poor cognitive status have necessarily controlled various components of gait. The present results demonstrate that directional changes and other locomotion components can be studied by monitoring free movements in normal living settings over time. Implications for assessment and management of dementia-related wandering are discussed.


OBJECTIVES: To explore the extent of and factors associated with male residents who change wandering status post nursing home admission. DESIGN: Longitudinal design with secondary data analyses. Admissions over a 4-year period were examined using repeat assessments with the Minimum Data Set (MDS) to formulate a model understanding the development of wandering behavior. SETTING: One hundred thirty-four Veterans Administration (VA) nursing homes throughout the United States. PARTICIPANTS: Included 6673 residents admitted to VA nursing homes between October 2000 and October 2004. MEASUREMENTS: MDS variables (cognitive impairment, mood, behavior problems, activities of daily living and wandering) included ratings recorded at residents' admission to the nursing home and a minimum of two other time points at quarterly intervals. RESULTS: The majority (86%) of the sample were classified as non-wanderers at admission and most of these (94%) remained non-wanderers until discharge or the end of the study. Fifty-one per cent of the wanderers changed status to non-wanderers with 6% of these residents fluctuating in status more than two times. Admission variables associated with an increased risk of changing status from non-wandering to wandering included older age, greater cognitive impairment, more socially inappropriate behavior, resisting care, easier distractibility, and needing less help with personal hygiene. Requiring assistance with locomotion and having three or more medical
comorbidities were associated with a decreased chance of changing from non-wandering to wandering status. CONCLUSION: A resident's change from non-wandering to wandering status may reflect an undetected medical event that affects cognition, but spares mobility.


Persons with dementia are at particular risk for injuries and unattended home exits. The purposes of this study were to prospectively describe the characteristics and determine the hazard rates of unattended home exits and injuries. A total of 9 times over 12 months, data were collected from 53 caregivers of persons with dementia about persons with dementia unattended home exits or injuries. A total of 24% of persons with dementia had at least 1 unattended exit; 4 participants exited multiple times. Men and younger persons with dementia were significantly more likely to exit than women or older individuals. A total of 30% of persons with dementia sustained injuries in 29 separate incidents; all but 3 injuries were caused by falls, and 38% of injuries resulted in nursing home placement. The hazard rate of untoward events was high, at approximately 1 unattended exit and 1 fall per person-year. For all persons with dementia living in the community, health care plans should include specific interventions to prevent these untoward events.


PURPOSE: The purpose of this study was to determine if a nighttime home monitoring system, designed to track the movements of a care recipient with dementia, would relieve worry and improve sleep in caregivers of persons with dementia. DESIGN AND METHODS: In this controlled clinical trial, 49 dementia caregivers were followed for up to 1 year. Sleep was measured for 7-day intervals at nine points in time using actigraphy and a sleep diary. FINDINGS: Although the experimental caregivers generally reported that the system was "of great help" in relieving worry about nighttime activity, no significant group differences were found using multilevel modeling analyses. With regard to total sleep time, time awake after sleep onset, and sleep quality, multilevel models did not demonstrate any changes in sleep between groups, either averaged over time or for the interaction of group and time. CONCLUSIONS: Since previous analysis of our qualitative data suggested improvements in caregiver worry and sleep, problems other than night awakenings may be perpetuating the sleep problem. Future studies should include testing of multimodal sleep interventions. CLINICAL RELEVANCE: Caregivers have high amounts of unwanted wake time during the night and additional research is needed to identify effective interventions to improve their sleep.

OBJECTIVES: To develop and validate a wandering typology. DESIGN: Cross-sectional, correlational descriptive design. SETTING: Twenty-two nursing homes and six assisted living facilities. PARTICIPANTS: One hundred forty-two residents with dementia who spoke English, met Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition, criteria for dementia, scored less than 24 on the Mini-Mental State Examination (MMSE), were ambulatory (with or without assistive device), and maintained a stable regime of psychotropic medications were studied. MEASUREMENTS: Data on wandering were collected using direct observations, plotted serially according to rate and duration to yield 21 parameters, and reduced through factor analysis to four components: high rate, high duration, low to moderate rate and duration, and time of day. Other measures included the MMSE, Minimum Data Set 2.0 mobility items, Cumulative Illness Rating Scale-Geriatric, and tympanic body temperature readings. RESULTS: Three groups of wanderers were identified through cluster analysis: classic, moderate, and subclinical. MMSE, mobility, and cardiac and upper and lower gastrointestinal problems differed between groups of wanderers and in comparison with nonwanderers. CONCLUSION: Results have implications for improving identification of wanderers and treatment of possible contributing factors.


This study aimed to describe wandering using new parameters and to evaluate parameters as a function of cognitive impairment and mobility. Forty-four wanderers in long-term care settings were videotaped 12 times. Rate and duration of wandering episodes were plotted and used to derive parameters from values above and below case medians, proportion of hours wandering, and time of day. Participants wandered during 47% of observations; on average, the hourly rate was 4.3 episodes, the peak hourly rate was 18 episodes, and the peak hourly duration was 19.9 minutes. Mini-Mental State Examination (MMSE) scores was negatively correlated with overall duration and number of observations during which duration exceeded 15 minutes per hour, was positively correlated with number of observations without wandering, and was not significantly correlated with rate-related parameters. Mobility correlated positively with rate and duration parameters. Interaction of MMSE score and mobility was the strongest predictor of wandering duration. Parameters derived from repeated measures provide a new view of daytime wandering and insight into relationships between MMSE score and mobility status with specific parameters of wandering.

PURPOSE OF THE STUDY: A framework aids choice of interventions to manage wandering and prevent elopement in consideration of associated risks and mobility needs of wanderers. DESIGN AND METHODS: A literature review, together with research results, published wandering tools, clinical reports, author clinical experience, and consensus-based judgments was used to build a decision-making framework. RESULTS: Referencing a published definition of wandering and originating a clinical description of problematic wandering, authors introduce a framework comprising (1) wandering and related behaviors; (2) goals of wandering-specific care, (3) interpersonally, technologically, and policy-mediated wandering interventions, and (4) estimates of relative frequencies of wandering behaviors, magnitudes of elopement risk, and restrictiveness of strategies. IMPLICATIONS: Safeguarding wanderers from elopement risk is rendered person-centered and humane when goals of care guide intervention choice. Despite limitations, a reasoned, systematized approach to wandering management provides a basis for tailoring a specialized program of care. The need for framework refinement and related research is emphasized.


BACKGROUND: Nighttime activity, a common occurrence in persons with dementia, increases the risk for injury and unattended home exits and impairs the sleep patterns of caregivers. Technology is needed that will alert caregivers of nighttime activity in persons with dementia to help prevent injuries and unattended exits. METHODS: As part of a product development grant, a controlled pilot study was conducted to test the effectiveness of a new night monitoring system designed for informal caregivers to use in the home. Data from 53 subjects were collected at nine points in time during a 12-month period regarding injuries and unattended home exits that occurred while the caregiver slept. Nighttime activity frequently resulted in nursing home placement. RESULTS: The night monitoring system proved a reliable adjunct to assist caregivers in managing nighttime activity. A total of nine events (injuries or unattended home exits) occurred during the study, with 6 events occurring in the control group. With intent-to-treat analysis, there was no difference between the groups. However, in a secondary analysis that was based on use of the intervention, experimental subjects were 85% less likely to sustain an event than control subjects. CONCLUSIONS: When nighttime activity occurred, it resulted in severe injuries sometimes associated with subsequent nursing home placement. The night monitoring system represents a new technology that caregivers can use to assist them in preventing nighttime injuries and unattended home exits in care recipients with dementia.

This article reports the qualitative arm of a mixed-methods study designed to test an in-home nighttime monitoring system (NMS) that tracks the nighttime activity of persons with dementia. Fourteen caregiver interviews were analyzed using grounded theory/full conceptual description methods to determine the issues associated with providing care at night and to explore the benefits of using the NMS. Caregivers not using the NMS experienced sleep disruption, overwhelming worry, and loss of personal space, leading to decreased energy and changes in mood. When the NMS was used, caregivers reported improved "peace of mind." The fear and uncertainty associated with worry was alleviated by reliable alerts regarding the whereabouts of the person with dementia. Some caregivers were able to better balance needs for personal space with needs to remain in contact with the person with dementia. Generally, caregivers reported improved quality of sleep, although some caregivers reported more awakenings due to the system alerts.


OBJECTIVE: The authors examined equivalence of wandering and physically nonaggressive agitation (PNA) as concepts. DESIGN: A cross-sectional correlational design was used. SETTING: Participants were recruited from 22 nursing homes and 6 assisted living facilities in two states. PARTICIPANTS: Ambulatory residents meeting DSM-IV criteria for dementia (N = 181) were studied. MEASUREMENTS: Video-tapes for up to twelve 20-minute observations per participant were coded for wandering using an empirically derived taxonomy of ambulation patterns. Separate raters coded the same tapes for six PNA behaviors on the agitation behavior mapping instrument. RESULTS: Most participants (73.5%) wandered; all showed PNA behaviors. Factor analyses yielded an one-factor solution for wandering (explained variance = 43.66%) and a two-factor solution for PNA (explained variance = 53.45%). Overall wandering correlated significantly with PNA Factor 1 (df =179, r = 0.68, p <0.001) and Factor 2, but at a lower value (df = 179, r = 0.26, p <0.01). CONCLUSION: Findings depict wandering and PNA as overlapping, but nonequivalent phenomena. Evidence supporting construct validity of wandering was more robust than that for PNA. Results have implications for accuracy in scientific and clinical detection and labeling of wandering and agitation.


Every adult with a diagnosis of progressive dementia is at risk for wandering away or becoming lost. Those with dementia may not have the capacity to remember crucial contact information or recognize an unsafe situation, so enrollment in a program like Alzheimer's Association Safe Return is crucial. One facility-level enrollment plan at the James A. Haley Veterans Hospital in Florida has had a relatively high participation rate. A mailed survey was used to help
evaluate that enrollment process and the results are described here. Of 262 respondents to the survey, 193 (74%) indicated the person with dementia enrolled in Safe Return. Potential enrollees need the following facilitators: perception of an unsafe situation, financial support and easy processing. Safe Return is not just focused on those who wander but is essential for all persons with dementia as these individuals can become lost in the course of normal daily activities.


OBJECTIVE: To examine the prevalence and correlates of wandering in persons with traumatic brain injury (TBI) in nursing homes (NHs). DESIGN: Using a cross-sectional design, logistic regression modeling was used to analyze a national database. SETTING: One hundred thirty-four NH facilities operated by the Veterans Health Administration. PARTICIPANTS: NH residents (N=625) with TBI as well as a sample (n=164) drawn from a larger dataset of NH residents without TBI using 1:K matching on age. INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURE: Wandering. RESULTS: Wanderers with and without TBI did not differ significantly overall. The prevalence of wandering among patients with TBI was 14%, compared with 6.5% of the general nursing home population. The results of the multivariate logistic regression suggested that wandering was associated with poor memory, poor decision making, behavior problems, independence in locomotion and ambulation, and dependence in activities of daily living related to basic hygiene. CONCLUSIONS: Wandering is relatively common in NH residents with TBI. As expected, it is associated with cognitive, social, and physical impairments. Further research with a larger sample should examine those with comorbid dementia and/or psychiatric diagnoses.


Wandering by persons with dementia is a complex syndrome of locomotive behaviors shaped by environmental, wanderer-specific and caregiver characteristics that vary the risk level for exiting, elopement, getting lost and accidental death. While valid and reliable methods to measure wandering exist, few have been evaluated for measurement of specific geographical patterns of wandering behavior as they occur in space and over time. In this paper we demonstrate how UWB-RFID can be used to nonintrusively and continuously measure two particularly high-risk wandering behaviors over intervals from weeks to months that occur in proximity to care setting exit points: lingering near exit doorways and shadowing (closely trailing behind) others who may exit.
The purpose of the study was to test a staged causal model as a theoretical base to explain the burden of family caregivers of community-dwelling self-ambulatory persons with dementia (PWDs) in Korea. The model contained three stages including antecedents (Stage 1), behavior (Stage 2), and outcome (Stage 3). The antecedents were variables of the PWDs (e.g., cognitive impairment and activities of daily living [ADL] dependency of the PWDs) and caregiver variables (e.g., age, gender of caregiver, and the relationship of caregiver to PWD). Stage 2 focused on wandering behavior. In Stage 3, the outcome variable was caregiver burden. A total of 83 noninstitutionalized, community-dwelling elders with dementia and their family caregivers participated. The instruments used in this study were the Korean version of Mini Mental State Examination, K-PADL (Korean-Physical Activities of Daily Living), Korean-Revised Algase Wandering Scale-Community Version, and K-CWOB (Caregiver Worry, Overload, and Role Captivity Scale-Korean) Korean versions of standardized Western instruments. Results indicate that cognitive impairment and ADL dependency had an indirect influence on caregiver burden through wandering behavior. In addition, caregiver age had a direct impact on caregiver burden. The findings of this study suggest that further refinement of the underlying model is warranted.


OBJECTIVE: To investigate nursing home residents with psychiatric diagnoses who wander and who are not diagnosed with dementia. METHOD: A national cross-sectional study was conducted in a male Veterans Administration Nursing Home Care Unit population using a retrospective review of the MDS. RESULTS: Eleven thousand six hundred and nineteen residents were identified as having a psychiatric diagnosis without significant cognitive impairment; just under 1% (n = 113) wandered. Using rare events logit regression, we determined that a diagnosis of schizophrenia/bipolar disorder or comorbid psychiatric conditions were associated with increased risk of wandering compared to residents diagnosed with anxiety/depression. Psychiatric wanderers were also more likely to, have symptoms of delirium, exhibit socially inappropriate behavior, manifest problems in decision-making, take anti-psychotic medications, and to be more independent in locomotion. CONCLUSIONS: Psychiatric wanderers may be conceptualized better as exhibiting ambulatory concomitants of unremitted neurological/psychiatric symptoms or medication side effects of their treatment. Findings have implications for addressing treatable causes of wandering.

People who have dementia are at risk for wandering away from the safety of the care setting and becoming lost in the community. Reported cases of people with dementia wandering off, even from locations such as hospitals, have become increasingly common. Preventing incidents in which the patient wanders away is critical because once a person with dementia becomes lost, she or he may die before being found. Three critical elements of prevention and action are accurate assessment of at-risk individuals, provision of intensive supervision, and implementation of a standardized search plan if a person with dementia is missing. Watch a free video demonstrating the best practices for preventing hospitalized patients with dementia from wandering away at http://links.lww.com/A306.


STUDY OBJECTIVES: Informal caregivers of persons with dementia often complain about poor quality sleep; however, studies on caregivers have mixed results when examining sleep values. The purpose of this study was to describe the sleep patterns in a subset of dementia caregivers who provide care during the night, and compare those patterns to noncaring adults. METHODS: Data from a study on dementia caregivers and from a study of sleep in older adults were used. Both studies used objective and subjective methods to measure sleep in the home setting over a 7-day period. Participants were over 60 years old and relatively healthy. RESULTS: Older dementia caregivers had worse objectively measured sleep than noncaregiving older adults, characterized by fewer minutes asleep and longer time to fall asleep. For subjectively measured sleep, depressive symptoms were the only predictive factor, with depressed participants reporting longer total sleep time, greater sleep onset latency, and wake after sleep onset. Caregivers' sleep had greater night-to-night variability. CONCLUSIONS: Caregivers consistently report poorer quality sleep and greater fatigue than noncaregivers. However, when sleep is measured objectively and subjectively, a mixed picture emerges regarding sleep deficits. Thus sleep changes are caused by a multitude of factors affecting sleep in a variety of ways. It is important for health care providers to assess sleep adequacy and depression in caregivers.


This study aimed to explore relationships of premorbid personality and behavioral responses to stress with wandering behavior of persons with dementia in long-term care facilities. Ambulatory residents (N = 108) with dementia were selected from 21 long-term care facilities. The Mini-Mental State Examination, the NEO Five-Factor Personality Inventory, the Behavioral Responses to Stress Scale, and the Revised Algase Wandering Scale-Nursing Home Version (RAWS-NH) were used as data collection tools. When the MMSE and age were controlled,
regression analyses revealed that premorbid extroversion and premorbid negative verbalization stress response were significant negative predictors for the overall RAWS-NH and some subscales.


Behavioral disturbances of elders with dementia are prevalent. Yet the science guiding development and testing of effective intervention strategies is limited by rudimentary and often-conflicting theories. Using a theory-synthesis approach conducted within the perspective of the need-driven dementia-compromised behavior model, this article presents the locomoting responses to environment in elders with dementia (LRE-EWD) model. This new model, based on empirical and theoretical evidence, integrates the role of emotion with that of cognition in explicating a person-environment dynamic supporting wandering and other dementia-related disturbances. Included is evidence of the theory's testability and elaboration of its implications. The LRE-EWD model resolves conflicting views and evidence from current research on environmental interventions for behavior disturbances and opens new avenues to advance this field of study and practice.


This study evaluates three versions of the Wayfinding Effectiveness Scale (WES), developed to differentiate problems of wayfinding and wandering behavior of community-residing elders with dementia (EWD), in 266 dyads (EWD and caregiver) recruited from Alzheimer's Association chapters. Factor analyses yield a five-factor solution (explained variance = 62.6%): complex wayfinding goals, analytic strategies, global strategies, simple wayfinding goals, and being stimulus bound. Overall, internal consistencies are high: WES (.94-.95), and subscales are stable across all versions. Test-retest reliability is acceptable for the overall WES and two subscales (complex and simple wayfinding goals) for the care recipient current behavior version. Construct validity is supported by the pattern of correlations among subscales and analyses of variance (ANOVAs) showing significant differences among the care recipient (current vs. prior behavior) and caregiver versions overall and for all subscales. Results support the WES as a valid and reliable measure of wayfinding effectiveness in persons with dementia.


PURPOSE: An operational definition of dementia-related wandering is proposed to aid in clinical recognition, to promote research precision and validity, and to provide a pathway toward standardization of language in wandering science.

DESIGN AND METHODS: (1) One-hundred-and-eighty-three journal articles from multiple databases (Medline, OVID, CSA Journals, OCLC First Search, Google Scholar, PubMed, EBSCO) were reviewed to extract alternative terms and definitions for wandering or wandering-related behaviours; (2) terms and definitions were ordered alphabetically into a glossary; (3) a consensus approach was used to group glossary terms with related meanings into possible domains of wandering; (4) four domains (locomotion, drive, space and time) were found sufficient to encompass all wandering definitions; (5) wandering terms were placed into a conceptual map bounded by the four domain concepts and (6) a new provisional definition of wandering was formulated. RESULTS: An empirically-based, operational definition improves clinical and research approaches to wandering and explicates historical inattention to certain beneficial aspects of the behaviour. IMPLICATIONS: Adoption of the proposed operational definition of wandering behaviour provides a platform upon which dementia care may be improved and standardized language may evolve in wandering science.


OBJECTIVES: The purpose of this study was to develop a multivariate fall risk assessment model beyond the current fall Resident Assessment Protocol (RAP) triggers for nursing home residents using the Minimum Data Set (MDS).

DESIGN: Retrospective, clustered secondary data analysis. Setting: National Veterans Health Administration (VHA) long-term care nursing homes (N = 136).

PARTICIPANTS: The study population consisted of 6577 national VHA nursing home residents who had an annual assessment during FY 2005, identified from the MDS, as well as an earlier annual or admission assessment within a 1-year look-back period. MEASUREMENT: A dichotomous multivariate model of nursing home residents coded with a fall on selected fall risk characteristics from the MDS, estimated with general estimation equations (GEE). RESULTS: There were 17,170 assessments corresponding to 6577 long-term care nursing home residents. The increased odds ratio (OR) of being classified as a faller relative to the omitted "dependent" category of activities of daily living (ADL) ranged from OR = 1.35 for "limited" ADL category up to OR = 1.57 for "extensive-2" ADL (P < .0001). Unsteady gait more than doubles the odds of being a faller (OR = 2.63, P < .0001). The use of assistive devices such as canes, walkers, or crutches, or the use of wheelchairs increases the odds of being a faller (OR = 1.17, P < .0005) or (OR = 1.19, P < .0002), respectively. Foot problems may also increase the odds of being a faller (OR = 1.26, P < .0016). Alzheimer's or other dementias also increase the odds of being classified as a faller (OR = 1.18, P < .0219) or (OR=1.22, P < .0001), respectively. In addition, anger (OR = 1.19, P < .0065); wandering (OR = 1.53, P < .0001); or use of antipsychotic medications (OR =
1.15, $P < .0039$), antianxiety medications (OR = 1.13, $P < .0323$), or antidepressant medications (OR = 1.39, $P < .0001$) was also associated with the odds of being a faller. CONCLUSIONS: This national study in one of the largest managed healthcare systems in the United States has empirically confirmed the relative importance of certain risk factors for falls in long-term care settings. The model incorporated an ADL index and adjusted for case mix by including only long-term care nursing home residents. The study offers clinicians practical estimates by combining multiple univariate MDS elements in an empirically based, multivariate fall risk assessment model.


Purpose Wandering is aimless or repetitive locomotion that may expose persons with dementia to falls, injuries, elopement, and untimely death. Using data from focus groups, this study obtained opinions on the potential effectiveness of existing technologies for managing wandering in persons with dementia living in the community, and on the elements that such technologies should possess from the user’s perspective. Design & Methods Cross-disciplinary, consensus-based analysis was applied to data from 6 focus groups consisting of 7 elderly nursing home residents, 7 caregivers of persons with dementia, 9 home healthcare staff, 7 long term care staff, 7 medical surgical staff caring for dementia patients, and 6 engineers working in rehabilitation settings. Each group received a briefing on available technology for wanderer monitoring systems and elopement management systems. Results Participants in all groups wanted flexible systems that would allow for a normal daily life, accommodate to changes over time, and be inexpensive. Inside the home, motion detectors and weight-sensitive mats by doors were preferred over camouflage and other visual deterrents; outside, Global Positioning System based elopement management was preferred. For both technologies, ranges and sensitivities must be programmable and changeable as environmental and human conditions warrant. Policy Implications 60% or more of the 4.5 million Americans with Alzheimer’s disease will wander and wandering predicts nursing home entry. The need for effective technologies to manage wandering in home and formal care settings is underscored by the high cost of nursing home care on the caregiver, his or her family, and government healthcare organizations. These technologies promise to delay nursing home entry and improve care but they must perform reliably, simply, effectively and inexpensively.


OBJECTIVES: To explore the extent of and factors associated with male nursing home residents who wander. DESIGN: Cross-sectional design with secondary data analyses. SETTING: One hundred thirty-four nursing home facilities operated by the Department of Veterans Affairs. PARTICIPANTS: Fifteen thousand ninety-two nursing home residents with moderate or severe cognitive impairment admitted over a 4-year period. MEASUREMENTS: Selected variables from the Minimum Data Set included ratings recorded at residents' admission to the nursing home (cognitive impairment, mood, behavior problems, activities of daily living, and wandering). RESULTS: In this sample of residents with moderate or severe cognitive impairment, the proportion of wanderers was found to be 21%. Wanderers were more likely to exhibit severe (vs moderate) cognitive impairment, socially inappropriate behavior, resistance to care, use of antipsychotic medication, independence in locomotion or ambulation, and dependence in activities of daily living related to basic hygiene. A sizable proportion of wanderers were found to be wheelchair users (25%) or were wanderers with dual dementia and psychiatric diagnoses (23%), characteristics that are not well documented in the literature. CONCLUSION: These results support previous clinical understanding of wanderers to be those who are more likely to exhibit more-severe cognitive impairment. Based on a statistical model with variables generated from prior research findings, classification as a wanderer was found to be associated with other disruptive activity such as socially inappropriate behavior and resisting care. Two understudied populations of wanderers were documented: wheelchair wanderers and those with comorbid dementia and psychiatric diagnoses. Future longitudinal studies should examine predictors of wandering behavior, and further research should explore the understudied subpopulations of wheelchair and dual-diagnosis wanderers who emerged in this study.


Problem. The number and quality of studies on wandering and other behaviours has lagged that of biological sciences in the field of dementia research. Recent studies of wandering are examined for quantity, rigour, and findings. Approach. Medline, CINAHL and PsychInfo were searched systematically for studies of wandering. Research reports were reviewed and data was abstracted to characterise quantity and rigour. Study findings were organised by topic and summarised. Results. Between 2003 and 2005 inclusive, 47 studies met inclusion criteria. The largest proportion of studies was quantitative and descriptive; an explicit theory or framework guided about half of the studies. Major findings encompassed quantification and description, epidemiology, associated factors, and intervention and management of wandering. Conclusions. The growing body of research on wandering in becoming more
rigorous. Newer measures of wandering have strong psychometric properties. Wandering occurs in multiple dementias and affects patients in larger numbers as dementia worsens. Wandering manifests similarly across cultural/ethnic groups and care settings and is associated with falls and increased mortality. A variety of interventions have been evaluated, but studies lack rigour.

This cross-sectional study explored relations between environmental ambiance and locomotion behaviors of elders with dementia (EWD), addressing the larger goal of developing theory explaining how environment affects wandering and other behaviors, thereby illuminating a pathway to intervention. A sample of 47 EWD (older than age 65, Mini-Mental State Examination [MMSE] < or =23) from nursing homes and assisted-living facilities were studied through a random, cluster, sampling strategy. Participants were measured once for stable characteristics and videotaped for 12, randomly chosen, 20-minute periods over 2 separate days at least 48 hours apart. Hierarchical liner modeling was used to analyze data that focused on the observation as the unit of analysis, with repeated observations nested within participants. Results validated an influence of ambiance on locomoting behaviors, highlighting the importance of addressing the emotional valence of social and physical environments in care of EWD.

Wandering, a challenging behavior associated with dementia, affects many residents of long-term care facilities and can result in elopement, injury, and death. Most studies of wandering have taken place in nursing homes (NH). Expansion of the long-term care sector over the last 2 decades has resulted in a surge in options such as assisted living facilities (ALF). This study compared wandering behavior of residents (N = 108) in 21 long-term care facilities (15 NH, 6 ALF). Staff used the Revised Algase Wandering Scale-Nursing Home Version (RAWS-NH) to quantify wandering. While there were some differences in demographic variables (i.e., race, motor ability) between NH and ALF participants, no significant differences were found in either RAWS-NH overall or any of the 6 subscale scores. This suggests that the expression of wandering is similar in long-term care residents across all dimensions of the RAWS-NH regardless of facility type. Findings are of concern for those involved in the safe management and protection of residents at risk for wandering, particularly in long-term care facilities with underregulated staffing and training requirements.

BACKGROUND: The primary purpose of this preliminary research was to describe the psychometric properties of a newly-developed Everyday Spatial Questionnaire for Dementia-patient version (ESQD-P) in a Chinese population. A
secondary goal was to assess the relationship between executive functions and wayfinding strategy application. The ESQD-P is a measure for the phenomenon of 'getting lost behavior' (GLB) reported by early Alzheimer's disease sufferers, based on the concept of spatial problem-solving. METHODS: With a cross-sectional descriptive design, the ESQD-P was validated by examining for internal consistency, construct validity, concurrent validity, and exploratory factor analyses among 116 outpatients in the memory disorder clinic of a veterans' general hospital in Taiwan. Other variables included were: global cognition, measured by the Cognitive Abilities Screening Instrument; stages of dementia, measured by the Clinical Dementia Rating Scale; and depressive symptoms, measured by the Geriatric Depression Scale-Short Form. RESULTS: Findings indicated that the Chinese ESQD-P is a reliable instrument for measuring GLB (internal consistency alpha = 0.73). A five-factor solution explained 55.45% of the score variance, while the correlations between the patient and proxy versions of this instrument yielded an acceptable concurrent validity. Executive functions can predict both global and analytic wayfinding strategies. CONCLUSIONS: GLB may be explained in part by declining executive functions. Deleting the coping strategies subscale may improve psychometric properties of the ESQD-P.


This study examined the psychometric properties of an expanded version of the Algase Wandering Scale (Version 2) (AWS-V2) in a cross-cultural sample. A cross-sectional survey design was used. Study subjects were 172 English-speaking persons with dementia (PWD) from long-term care facilities in the USA, Canada, and Australia. Two or more facility staff rated each subject on the AWS-V2. Demographic and cognitive data (MMSE) were also obtained. Staff provided information on their own knowledge of the subject and of dementia. Separate factor analyses on data from two samples of raters each explained greater than 66% of the variance in AWS-V2 scores and validated four (persistent walking, navigational deficit, eloping behavior, and shadowing) of five factors in the original scale. Items added to create the AWS-V2 strengthened the shadowing subscale, failed to improve the routinized walking subscale, and added a factor, attention shifting as compared to the original AWS. Evidence for validity was found in significant correlations and ANOVAs between the AWS-V2 and most subscales with a single item indicator of wandering and with the MMSE. Evidence of reliability was shown by internal consistency of the AWS-V2 (0.87, 0.88) and its subscales (range 0.88 to 0.66), with Kappa for individual items (17 of 27 greater than 0.4), and ANOVAs comparing ratings across rater groups (nurses, nurse aids, and other staff). Analyses support validity and reliability of the AWS-V2 overall and for persistent walking, spatial disorientation, and eloping behavior subscales. The AWS-V2 and its subscales are an appropriate way to measure wandering as conceptualized within the Need-driven Dementia-compromised Behavior Model in studies of English-speaking subjects.
Suggestions for further strengthening the scale and for extending its use to clinical applications are described.


The aim of this study was to evaluate the relationship of wandering and wayfinding and validate the Revised Algase Wandering Scale - Community Version (RAWS-CV) using a community sample of persons with dementia. Adult caregivers (n = 266) completed the RAWS-CV and the Wayfinding Effectiveness Scale (WES). Four aspects of wandering were confirmed (persistent walking, repetitive walking, spatial disorientation, eloping behavior), and two new aspects were also validated (negative outcomes, mealtime impulsivity). The spatial disorientation subscale of the RAWS-CV had significant (p < 0.01) negative correlations with all WES subscales. The global strategies and simple wayfinding goals subscales of the WES correlated significantly with all RAWS-CV subscales except repetitive walking and mealtime impulsivity. ANOVAs comparing wayfinding at 4 levels of wandering revealed differences only for the simple wayfinding goals subscale. Studies examining the relationship of wandering and wayfinding at various levels of cognitive impairment are suggested to further understand these phenomena.


This study explores the link between directed attention (DA) and getting lost behavior (GLB) in early Alzheimer's disease (AD) using a cross-sectional design with 3 groups. Based on their dementia levels, 116 community-dwelling participants were recruited from a teaching hospital in Taiwan and classified as the non-demented control, questionably demented, and mild AD groups. Statistical analyses include Pearson correlations, one-way ANOVA, and multiple regressions. Attentional impairments, consisting of distractibility, impulsivity, and executive function problems, significantly predict GLB in familiar and unfamiliar environments. Irritability and executive function problems are associated with mental difficulties in choosing a turn, whereas the use of way-finding strategies reduces GLB. Future interventions may include: (a) mental hygiene of aging; (b) programs targeted at improving attentional function and effective way-finding, and (c) inclusion of DA tests in a routine clinical neuropsychological examination for early detection and accurate diagnosis of dementia.


As the percentage of individuals with dementia continues to increase in the American population, it is particularly important to understand and prevent
conditions that may have an impact on the course of the disease. In this study, injuries that occurred in the home with a subsequent in-patient admission were studied using a medical record review. Ninety-six percent of individuals were injured as a result of a fall. The falls resulted in fractures in 61% of the subjects. Interestingly, 35% were admitted after only sustaining soft tissue injuries. Most subjects (65%) were discharged to an institutional setting instead of returning home. Clearly, fall prevention should be addressed in-depth when caring for individuals with dementia in the home to prevent early institutionalization.


Providing care for persons with dementia presents several serious challenges. Among these is the possibility that a person with dementia will become lost in the community and face the risk of injury or death. Caregivers often cite anxiety about this possibility as a reason for placing their loved ones in a professional-care setting. Our case study and review of research show that all persons with dementia are at risk, regardless of age, past behavior, and sex. Thus, health care providers have an important role to play in educating caregivers about this risk and assisting them in preventing or responding to such situations. In addition, health care providers should ensure that their respective professional-care facilities have appropriate measures in place to prevent and respond to these eventualities. Finally, health care providers can educate local law enforcement personnel about dementia in general and more specifically about research-based strategies for searching for persons with dementia who have become lost in the community.


Wandering is among the most frequent, problematic, and dangerous comorbid behaviors in dementia or head injury. To summarize the emerging literature on nonpharmacological interventions used to control negative consequences of wandering, a systematic review of the literature was performed. The review included searching multiple electronic databases and hand searches of individual articles. The search yielded 31 articles that met established criteria. These articles then were classified into six categories: Subjective barriers, walking/exercise and other activities, specialized environments, behavioral techniques, music, and alarms. The literature varied widely in terms of theoretical soundness, methodological rigor, and clarity. The level of evidence supporting these interventions and implications for future study are discussed.

Valid and reliable measures of wandering are needed to study this troubling behavior. Although researchers have used various perspectives, definitions, and approaches to study wandering, spontaneous ambulation is a key characteristic across all views. Biomechanical activity devices for capturing movement provide one way to index wandering. This study examined four devices with ambulatory nursing home residents with dementia (N = 178) who wore devices simultaneously during four observations. Among the Actillume, StepWatch, Step Sensor, and TriTrac-R3D, the StepWatch yielded data from the highest proportion of observations, explained the most variance (63.9 percent) among all instruments, and was acceptable to nursing staff. Although the Step Sensor was the staff’s preferred device, its performance was least acceptable for research purposes. Results support use of the StepWatch in future studies of wandering.


Rowe, M.A. and Bennett, V. (2003). "A look at deaths occurring in persons with dementia lost in the community." Am J Alzheimers Dis Other Demen 18(6): 343-348. The purpose of this study was to examine cause of death in persons with dementia (PWDs) who have become lost in the community. The study was a retrospective review of 93 US newspaper articles describing PWDs being found dead in the community after leaving their caregiving situations unattended. Of these PWDs, 87 percent were found dead in natural, secluded, unpopulated areas, such as woods, fields, ditches, and bodies of water. They were generally found less than a mile from where they left, but often were not found for extended periods. Males and persons from community-based residential facilities appear to be at higher risk of dying after leaving unattended than females and those living at home.

Song, J.A., Algase, D.L., Beattie, E.R., Milke, D.L., Duffield, C. and Cowan, B. (2003). "Comparison of U.S., Canadian, and Australian participants' performance on the Algase Wandering Scale-Version 2 (AWS-V2)." Res Theory Nurs Pract 17(3): 241-256. Although wandering in dementia is seen in various cultures, cross-cultural comparisons have not been reported. We examined wandering in residents of long-term care settings (LTCs) in three English-speaking countries (n = 96, America; n = 42, Canada; n = 13, Australia) using the Algase Wandering Scale-Version 2 (AWS-V2). Participants differed by country on age and medical diagnosis. The Americans were significantly older; the Canadians had a greater rate of Alzheimer’s disease (AD). In one-way ANOVAs, AWS-V2 ratings from nurse aides revealed significant differences in the AWS-V2 and three subscales (spatial disorientation, attention shifting, eloping behavior), but not for two others (persistent walking, shadowing). Where significant, Canadians had consistently lower ratings than others. Post-hoc analyses by age of participants failed to reveal significant differences. However, participants with AD had significantly lower AWS-V2 scores than those with mixed-type dementia. Lower MMSE score predicted higher AWS-V2, spatial disorientation, and eloping behavior. Post-hoc
analyses of respondent characteristics revealed no significant differences on AWS-V2 or subscales by frequency of attending dementia classes and level of experience with dementia. Thus the nature of wandering in these three countries is not substantially different. However, variations in care environments may contribute to differences in attention shifting. Further, limited sample size, particularly among Australians and Canadians, make findings tentative.


This paper reports on the Algase wandering scale (AWS), a 28-item questionnaire, based on five dimensions of wandering. With factor analysis, an eight-factor solution explained nearly 70 percent of the variance in ratings for 151 long-term care subjects and confirmed three of the structuring dimensions. Reliability of the AWS was examined for internal consistency and for inter-rater reliability. The AWS had an alpha of .86; subscale alphas ranged between .88 (persistent walking) and .57 (routinized walking). Inter-rater reliabilities, estimated through cross-rater comparisons of the AWS and subscales with a four-point judgement of wandering status, were moderately strong and no significant differences existed between two sets of raters. Validity of the AWS and its subscales was supported by examining their ability to differentiate wanderers and nonwanderers, by positive correlation with measures of cognitive impairment and with multiple parameters of observed wandering, and by negative or no correlations with nonwandering locomotion. Although the AWS may be a useful measure of wandering in long-term care settings, validation of its factor structure and evaluation in cross-cultural samples is needed.


The purpose of this study was to explore cognitive impairment as a predictor of wandering rhythm and pattern in a sample of 25 demented residents from two long-term care settings. Parameters of rhythm indicating cycle frequency and structure were examined for wandering patterns (random, lapping, and pacing) and for nonwandering (direct) ambulation. All measures of cognitive impairment (Mini-Mental State Exam, Mattis Dementia Rating Scale, and a neuropsychologist's clinical rating) were significant predictors of parameters signifying frequency of wandering for random and lapping patterns but not for the pacing pattern. In addition, for nonwandering ambulation, cognitive impairment predicted some parameters of cycle structure (mean locomoting and
nonlocomoting phase durations) but not those denoting frequency of ambulation. Results indicate that cognitive impairment plays an important role in determining the frequency of wandering cycles, but other factors may better explain parameters that characterize its cycle structure.


Unattended wandering is a major problem in cognitively impaired (CI) individuals and can result in those individuals becoming lost in the community. The purpose of this study was to identify important characteristics of unattended wandering and important prevention strategies. Data were compiled from registration files and missing and discovery reports collected through the Safe Return (SR) program. These data were analyzed to determine where individuals were found, who found them, from what setting they left, what mode of transportation they used, and what circumstances surrounded the unattended wandering. The study highlights the unpredictable and varied nature of unattended wandering. Recommendations are provided for communities to develop strategies to minimize unattended wandering and to determine effective methods of locating CI individuals when they become lost.


OBJECTIVES: This retrospective cohort study examined the association between resident characteristics and the development of wandering behavior. METHODS: Subjects included a total of 8982 residents from the states of Mississippi, Texas, and Vermont who had baseline and 3-month follow-up Minimum Data Set assessments between 1 January 1996 and 31 December 1997. RESULTS: Residents who had a short-term memory problem (Odds Ratio (OR) = 3.05), had pneumonia (OR = 3.15), asked repetitive questions (OR = 2.19), had a long-term memory problem (OR = 2.06), exhibited dementia (OR = 19.4), constipation (OR = 1.82), expressed sadness or pain (OR = 1.65), and used antipsychotic medication (OR = 1.70), were at an increased risk for developing wandering behavior compared to residents without these characteristics. Residents with functional impairment (OR = 0.28) and women (OR = 0.61) were less likely to develop wandering behavior. CONCLUSIONS: Results of this study may be useful in constructing causal theories for the development of wandering behavior.


In this paper, published research studies addressing the phenomenon of wandering in dementia are reviewed. Empirical findings of 108 studies are
categorized and summarized to reveal dimensions of wandering behavior, significance of wandering as a clinical phenomenon, correlates of wandering, and tested intervention strategies. Implications for improving methodological rigor of future studies are offered and gaps in the current knowledge base are identified.

The wandering behavior of individuals with dementia is a puzzling behavior, and strategies for responding to it often are poorly grounded. However, advances in the understanding of neuro-cognitive factors contributing to wandering now may provide important clues for designing nursing approaches. In this article, such advances are summarized, and implications and strategies for practice are delineated.

Direct observation and time-study techniques were used with a sample of 25 ambulatory, cognitively impaired subjects drawn from two long-term care settings to evaluate wandering behavior. The purposes of this study were (a) to describe the 24-hour distribution of wandering and direct ambulating cycles, (b) to examine the stability of wandering behavior over a 3-day interval, (c) to evaluate whether wandering during a 2-hour epoch is representative of that of a 24-hour day, and (d) to evaluate whether large-scale integrated (LSI) activity meters can substitute as an index or proxy for direct observation in the study of wandering behavior. Subjects displayed a daily average of 20.1 cycles encompassing 43.9 minutes of wandering ambulation and 28.8 cycles encompassing 40.4 minutes of direct ambulation. Wandering behavior was present in all subjects. However, wandering was highly variable from subject to subject. For a given subject, wandering was only moderately stable over a 3-day interval, but more so than direct ambulation. Similarly, a standard 2-hour epoch was moderately representative of daily wandering ambulation, but more so than for direct ambulation. Finally, LSI meters, when applied at the ankle and worn over longer (24-hr) rather than shorter (2-hr) intervals, are a promising means to index wandering behavior.