



## KEY POINT SUMMARY

### OBJECTIVES

The objective of the study was to assess the long-term impact of the wander garden on resident-inappropriate behaviors, incidents, and as-needed medications in the effort to ultimately improve their quality of life.

## Does a Wander Garden Influence Inappropriate Behaviors in Dementia Residents?

Detweiler, M. B., Murphy, P. F., Myers, L. C., Kim, K. Y.  
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### Key Concepts/Context

Most cognitively impaired dementia unit residents are dependent and confined to a safe custodial environment with limited exposure to natural settings. However, the mandatory indoor confinement of dementia residents has been known to increase verbal and physical agitation and use of psychotropic medications. Several studies have reported that having access to unlocked doors leading to a garden or outdoor area may reduce the level of inappropriate behaviors in both residential and long-term dementia care facilities. This study explores the effect of adding a wander garden to an existing dementia unit on inappropriate behaviors of residents.

The design intent of the wander garden is to increase sensory stimulation by providing access to nature as often as possible for high elopement-risk residents. The ideal goal of the wander garden is to provide dementia patients a safe environment where they can wander freely without the risk of elopement.

### Methods

This 2-year before-and-after study observed 34 male residents who had access to the wander garden by ambulation, merry walker, wheelchair, or gerichair with assistance. During 12 months before and after opening the garden, residents' behaviors were assessed using the Cohen-Mansfield Agitation Inventory (CMAI) incident reports, as-needed medications (pro re nata [PRN]), and surveys of staff and residents' family members.

The CMAI includes 14 aggressive behaviors graded on a 5-point scale. The maximum score is 70. The same team member, who saw all patients every day for multiple hours of activity, performed all the scale evaluations.



### DESIGN IMPLICATIONS

The study suggests that adding a wander garden to an existing dementia unit can result in decreased verbal and physical agitation and decreased use of psychotropic medications. Therefore, designers may consider adding the wander garden to the existing dementia unit.

Incident reports of inappropriate behaviors were also filled out for each resident. Incidents had four severity levels. Level 1: sexually inappropriate language, verbal aggression, or vulgar language; Level 2: inappropriate touching or grabbing, pushing, resisting, or chasing; Level 3: physically striking out with no injury to the target; and Level 4: the most serious incidents, involving the resident striking out and causing physical harm to self or others.

The third measure of inappropriate behaviors was the use of medications. The number of administrations of each PRN medication was recorded for each patient for each baseline and observational month.

The fourth evaluation of inappropriate behaviors was obtained from surveys of the dementia residents' family members and the dementia unit staff. Included were three questions about the effect of the garden on the quality of life of the resident, two questions on the effect on the resident's mood, and two questions about the garden's effect on resident inappropriate behaviors, rated with a 4-point Likert-type scale (*strongly agree, agree, disagree, strongly disagree*).

Descriptive statistics, Pearson's correlations, and regression analyses were used to examine the relationship of wander garden usage and other factors to the final CMAI scores. The number of PRNs administered was compared for the baseline year and the observation year. Total incident scores were computed by multiplying the number of incidents in each category by the severity level (1, 2, 3, or 4) and summing the products. A composite score for each year was calculated by summing the annual individual scores. Then, a nonparametric method was used for incident analysis. Wilcoxon signed-rank tests examined the difference between the total scores for the 2 years, as well as between the numbers of incidents of each severity level for the 2 years.

### Findings

Final CMAI scores and total PRNs administered were lower than baseline values. Also, residents who used the garden more often had less agitated behavior. The effect of the wander garden on resident incidents is not clear. While verbal inappropriate behaviors did not differ significantly, physical incidents, in fact, increased after adding the wander garden. The result of the statistical analysis, in part, indicated that some individuals who experience Level 4 incidents tend to have them whether or not a garden is available. Staff and family members felt that the wander garden decreased inappropriate behaviors and improved mood and quality of life of the dementia residents. In conclusion, the wander garden affected behaviors both positively and negatively. Further studies are needed to explore the benefits of wander gardens for dementia residents.



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## Limitations

The authors identified some limitations to the study. The study did not employ additional quantitative measures to verify the impact of the improved CMAI final scores and the reduced need for PRNs due to the wander garden on mood and quality of life. The method for recording time spent in the garden was either yes or no for each day. The authors found that it was quite difficult to accurately record how much time the residents spent in the garden (e.g., visits per day, length of stays, time of visits, or which part of the garden they visited). Due to some issues, including having extremely cold or hot weather or administrative difficulties, the doors to the garden had to be closed. This may have affected the use of the wander garden before or after adding the garden. It is also possible that the level of inappropriate behaviors may vary with changes in environment. Leaving the garden lights on with the doors closed may have increased sun downing in selected residents and worsened the outcome.