

INTRODUCTION

Our study explores whether adult day service (ADS) use is associated with the reduction of Geriatric Depression Scale (GDS) scores of older adults who participated in ADS for at least six months.

- Depression in late life often co-occurs with other physical and psychiatric conditions. About 20% of Alzheimer's patients have Major Depressive Disorder (Blazer, 2003). These rates are higher among residents in nursing homes.
- ADS provides structured activities to community dwelling older adults who require some level of supervision or care during the day. Programs provide a range of services, including meals, health monitoring, and medication administration. Activity professionals provide social interaction opportunities for participants that encourage participants to use their abilities.
- Participation in leisure programs has been associated with improved mood, reduced inactivity and decreased need-driven behaviors among persons with dementia (Gigliotti & Jarrott, 2005; Teri et al., 1997; Zank & Schacke 2002). Most ADS participants have some form of dementia, such as Alzheimer's disease.

Attendance at ADS may help participants with dementia experience a decline in depression.

RESEARCH QUESTION

Is ADS attendance associated with changes in GDS scores of older adults with dementia?

SAMPLE

- Subjects are participants enrolled at an ADS program at a large university in the southwestern Virginia between 2007 and 2012. They completed the GDS exam at the time of enrollment and every six months thereafter, until discharge from the program.
- Only participants who have at least two GDS scores were used in our analysis (N=32).
- The majority of participants were white (91%) and male (56%).
- Ages ranged from 47 to 93 years with a mean age of 79.

METHODS

The following table provides information on the measures used in this study.

	Citation	Purpose	Administration	Reliability	Validity	Interpretation of Scores
GDS-15 (Geriatric Depression Scale)	(Shiekh & Yesavage, 1986)	Depression screening tool for older adults	Admission and every 6 months thereafter (or as needed for change in status/condition)	Cronbach's alpha = 0.749	Spearman correlations between GDS-15 and measure of depression=0.417, $P<0.007$	Range of Scores: 0-15 0-4: suggests no depression 5-8: suggests mild depression 9-11: suggests moderate depression 12-15 suggests severe depression
MMSE (Mini Mental Status Exam)	(Folstein, Folstein, & McHugh, 1975)	Tool to assess global cognitive functioning	Admission and every 6 months thereafter (or as needed for change in status/condition)	Pearson $r=0.887$	Validated against the Wechsler Memory Scale, with a Pearson r of 0.776, $p<0.001$	Range of Scores: 0-30 27-30: normal 20-26: mild cognitive impairment 11-19: moderate cognitive impairment 0-10: severe cognitive impairment

- Variables in the dataset included: participant ID number, date of test administration, MMSE score, GDS score, participant admission date, and number of months participant had attended ADS at the time of the test administration (this variable was calculated by subtracting the participant admission date from the date of test administration variable)
 - MMSE & GDS instruments are administered at the same time, so both scores would be present for a single date
- Missing data were handled via pairwise deletion
- Regression analyses conducted in SPSS 21 were used to determine if attending ADS significantly predicted changes in participants' GDS scores
- Participants' MMSE scores were added to the regression equation as a covariate, as cognitive health is correlated with mental health (Blazer, 2003).

RESULTS

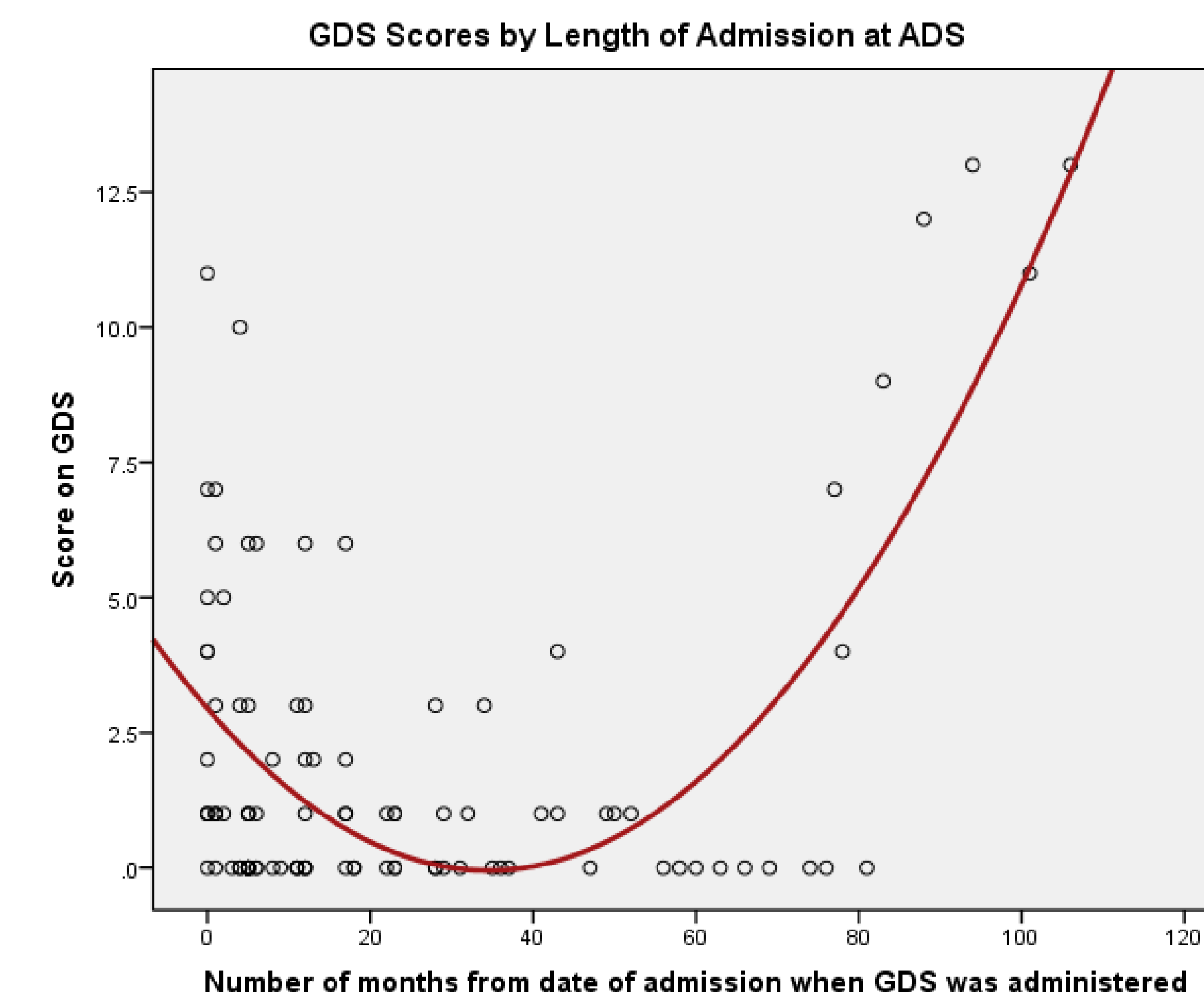
	Overall Mean	Overall Standard Deviation	Time 1 Mean	Time 1 Standard Deviation	Last Administration Mean	Last Administration Standard Deviation
GDS	2.03	3.168	2.34	2.766	1.59	2.564
MMSE	18.98	7.530	19.36	6.940	16.48	8.387

The above table shows the positive correlation ($r=0.371$, $p=0.000$) between participants' MMSE and GDS scores longitudinally.

Model	R Square	F	Sig.	Equation
Linear	0.153	7.591	0.001	$Y=-0.83 + 0.130X_1 + 0.016X_2$
Quadratic	0.487	26.214	0.000	$Y=1.232 + 0.108X_1 - 0.187X_2 + 0.003X_2^2$

The above table exhibits the differences between the linear & quadratic models used in the analyses. The quadratic model is able to better portray the relationship between ADS attendance and GDS scores due to the initial improvement in depressive symptoms, which increases over an extended period of enrollment at ADS.

RESULTS Continued...



83.5% of all GDS scores were below the cutoff score of 4, with only 17 of the 103 scores suggestive of depression. At baseline, 21.9% of scores were indicative of depression, while 14.1% of scores at later measures were indicative of depression; a 7.8% improvement.

DISCUSSION

- The nature of the relationship between ADS attendance and participants' GDS scores is curvilinear, with depressive symptomology improving in the first 3 years, then increasing until discharge. This finding is not surprising as participants age and cope with co-morbid illness.
- Practically, GDS scores can be used by ADS staff to implement a person-centered care approach. For example, if an established participant scores high on her/his GDS assessment, which represents a change in her/his emotional climate, the Activity Director would initiate a plan of care (POC) revision which would ensure there are activities provided at the center to encourage emotional well-being for that person. This change would also be discussed in staff meetings and with the participant's caregiver so that reasons for the change can be explored and both staff and caregiver can engage and encourage the participant appropriately.
- Limitations of our study include the variability in GDS administration – although the GDS was administered approximately every 6 months, some participants were assessed at shorter or greater intervals, which could affect the predictive power of attendance. Subsequent analyses using these data will incorporate a larger sample as data for the study continue to be gathered; further, indicators of participant physical function will be incorporated into the analyses.