

The Association between developing ADRD and having a history of depression - A Retrospective cohort study.

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Background

- Alzheimer's disease and related dementias (ADRD) are debilitating conditions that impair memory, thought processes, and functioning, primarily among older adults¹.
- Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called major depressive disorder or clinical depression².
- Depression and cognitive disorders, including dementia and mild cognitive impairment, are common disorders in old age³.

Objective

- Our aim in this study was to determine if there is an association between developing ADRD in people with a history of depression.

Methods

- We conducted a national cohort study of 1,033 unique patients whom their data were collected by Alzheimer's Disease Neuroimaging Initiative database (ADNI).
- Univariate analyses included examination of an association between ADRD and independent/predictor variables using chi-square tests for categorical variables and two sample t-tests for quantitative continuous variables.
- A multiple variable logistic regression will be used to assess the association between dependent and multiple independent variables.
- Five models were fit to evaluate both confounding with the primary independent variable as well as evaluate model goodness-of-fit for prediction of ADRD.
- We used the Akaike Information Criterion (AIC) as the model goodness-of-fit, a log likelihood-based metric that penalizes for the number of parameters in the model (**Table 1**)⁴.

Table 1. Association of ADRD in patients with a history of depression by multiple logistic regression analysis.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	OR (95% CL)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Depression	0.56 (0.39,0.82)	0.56 (0.38,0.82)	0.56 (0.38,0.82)	0.55 (0.37,0.81)	0.54 (0.36,0.79)
Gender		1.17 (0.90,1.50)	1.16 (0.90,1.51)	1.15 (0.89,1.50)	1.31 (0.99,1.73)
Age			1.00 (0.98,1.02)	1.00 (0.98,1.02)	1.00 (0.98,1.02)
Race				1.05 (0.51,2.20)	1.06 (0.51,2.23)
Marital status					0.78 (0.66,0.94)
-2Log Likelihood	1338.00	1336.68	1336.62	1326.50	1318.84
AIC	1342.00	1342.68	1344.62	1336.50	1330.84

Results

- The multiple logistic regression analysis showed that there is an association between developing ADRD and having a history depression as odds ratio is below (**Table1**).
- Participants without ADRD were less likely to have a history of depression comparing to participants with ADRD.
- Adjusted covariates had nearly no effect on the association between ADRD and depression.

Conclusion

- In summary, our analysis showed that participants with a history of depression are more likely to develop ADRD comparing to participants with a healthy mental status.

References

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