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Ahmed, Tahera; Kumar, Kuldeep; Zhang, Ping

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Alzheimer's Disease: Identifying High Impact Variables Using Statistical Techniques

Presenter: Tahera Ahmed, Higher Degree Research Student, Bond Business School, Bond University

1st Co-Author : Professor Kuldeep Kumar, Bond University

2nd Co-Author: Dr. Ping Zhang, Griffith University

BACKGROUND

Alzheimer's Disease (AD) is considered as the most common neurodegenerative disorder of the brain and is a major cause of disabilities in the later stages of life. It is also responsible for huge global costs. (1) Alzheimer's is usually diagnosed late and this makes the elderly population most vulnerable to it. Usually, the disease's deterioration process had already started by the time a positive detection of AD is made and substantial brain tissue damage had resulted in noticeable cognitive deficit and appearance of other symptoms. (2)

RESEARCH AIM

- Identifying risk factors that could make a positive diagnosis of the causes for contracting Alzheimer's in later life.
- Determining which variables have a larger effect on the elderly population and make them more likely to suffer from Alzheimer's.

METHOD:

For this research data was collected from the 2ADNI (Alzheimer's Disease Neuroimaging Initiative) Database with a 292 sample size aged between 55 to 91 years.

For understanding the impact of variables on Alzheimer's disease, Chi-square test, T-test, Logistic Regression, Neural Network, Decision Tree and Random Forest Model were used.

RESEARCH OUTPUT:

The study discovered some important common factors. It showed that LDELTOTAL score, MMSE score, CDR score, RAVLT tests, ADAS score, Presence of APOE4 Gene, Age and Weight on predictors were significant or found to be important variables from different statistical analysis.

KEYWORDS: Alzheimer's Disease, Elderly Population, Risk Factors, Statistical Techniques

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