

Relationship Between COVID-19 Hesitancy in Alzheimer’s Patients and Their Caregivers and Income

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Introduction

- Coronavirus disease 2019 (COVID 19) has affect various groups, including Alzheimer's patients.
- Vaccines have been developed to reduce the spread, which are crucial for vulnerable populations like Alzheimer's patients with chronic conditions¹.
- Many caregivers are hesitant to vaccinate Alzheimer's patients despite the protective benefits².
- Some factors that influence this level of hesitancy are low income, low education levels, and fear of side effects².
- Limited studies explore the role of income in vaccine hesitancy.
- The purpose of this research is to analyze how income level influences COVID-19 vaccine hesitancy among Alzheimer's patients and their caregivers.

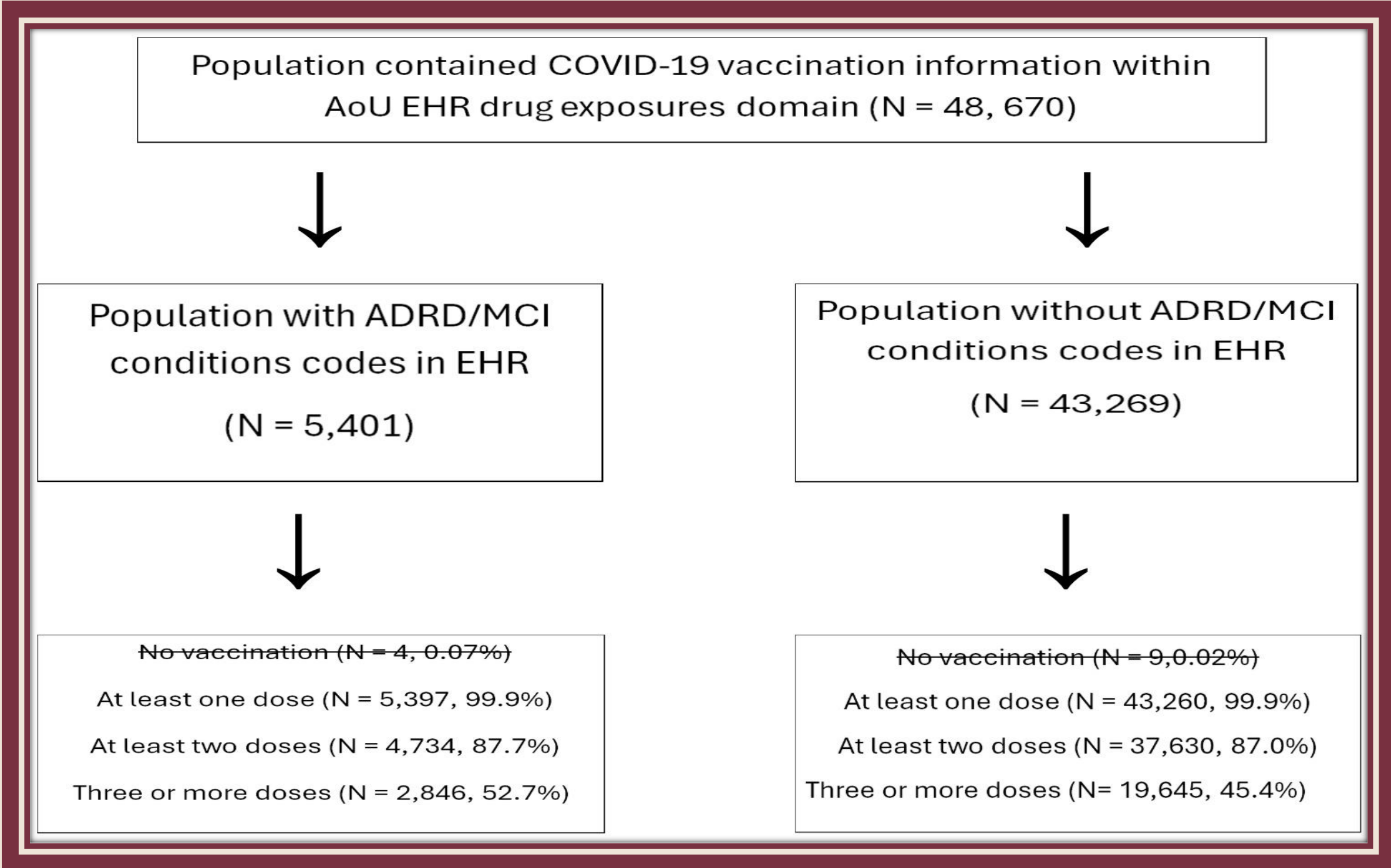


Figure 2: This flow chart shows the distribution of the pool of participants and where the groups fall in the data sets.

Results Continued

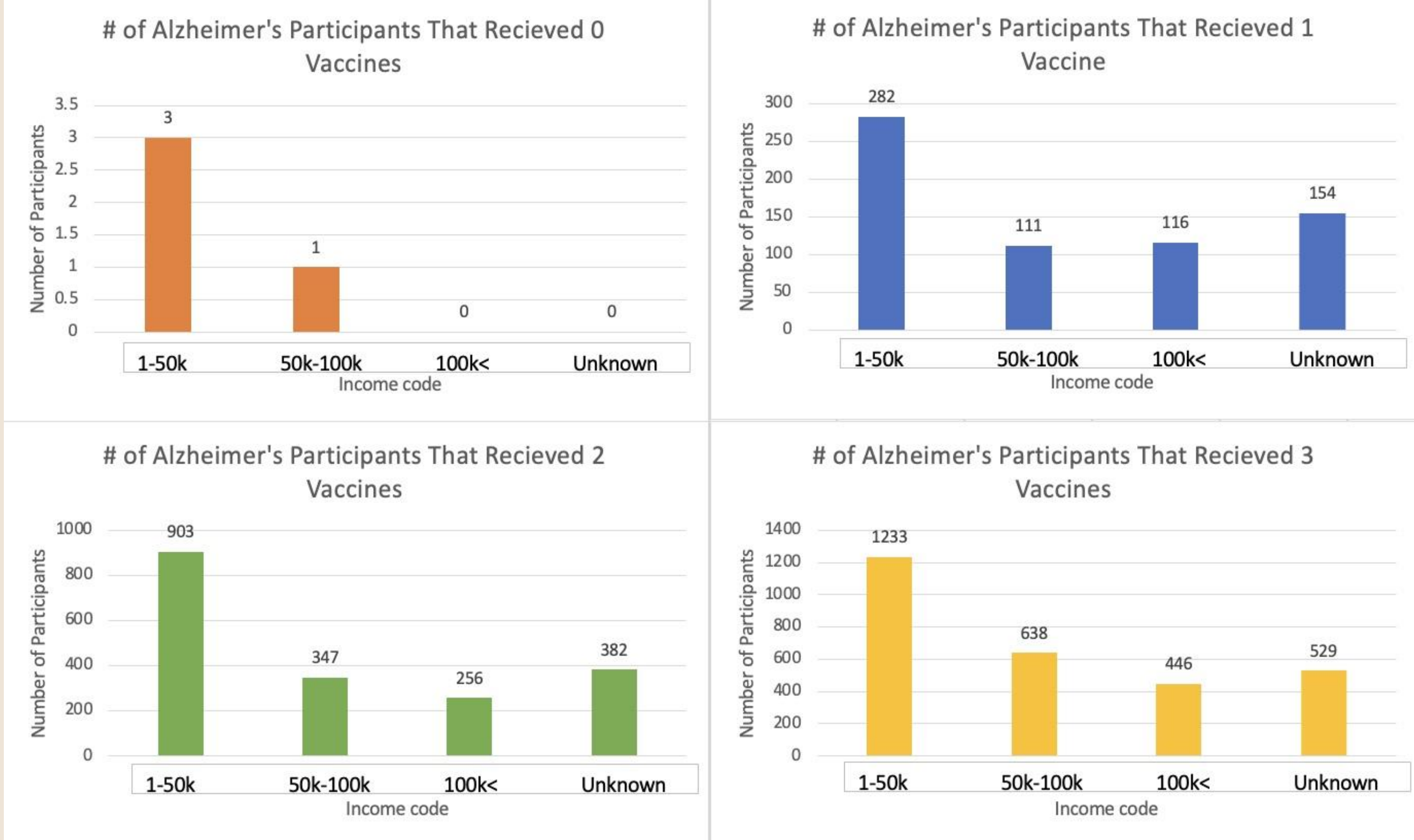


Figure 1: These four charts show the distribution of the data for the number of doses received by Alzheimer's patients within each income code group.

Methods

- All of Us medical health records from 48,670 participants were examined to answer questions such as number of COVID-19 vaccines received, presence of Alzheimer's disease, underlying health conditions, income level, and other relevant factors.
- Data was documented in the All of Us research database.
- Database filtered to focus on the 5,401 patients with Alzheimer's and extract data on vaccine doses received and income levels.
- Category 1 included participants that have an income between 1-50k, category 2 included participants that have an income between 50-100K, category 3 included participants that have an income between 100k or more, and category 4 included participants that decided not to identify their income level.
- All data was placed into a chart based on income code and number of vaccines taken whether it were 1, 2, or 3. This chart was then analyzed to highlight any difference in vaccine acceptance between income groups using a Chi Square test.

Results

The charts in Figure 1 show the relationship between COVID-19 hesitancy in Alzheimer’s patients and their caregivers and income, specifically the number of doses each group received in their perspective income group. Using the information in the charts, a chi square test was done ($x^2=34.42$ and $p=0.0000755$). This p-value that is less than 0.05 indicates that the null hypothesis is rejected.

Income Level Has a Significant Effect on COVID-19 Hesitancy in Alzheimer's Patients and Their Caregivers and Income

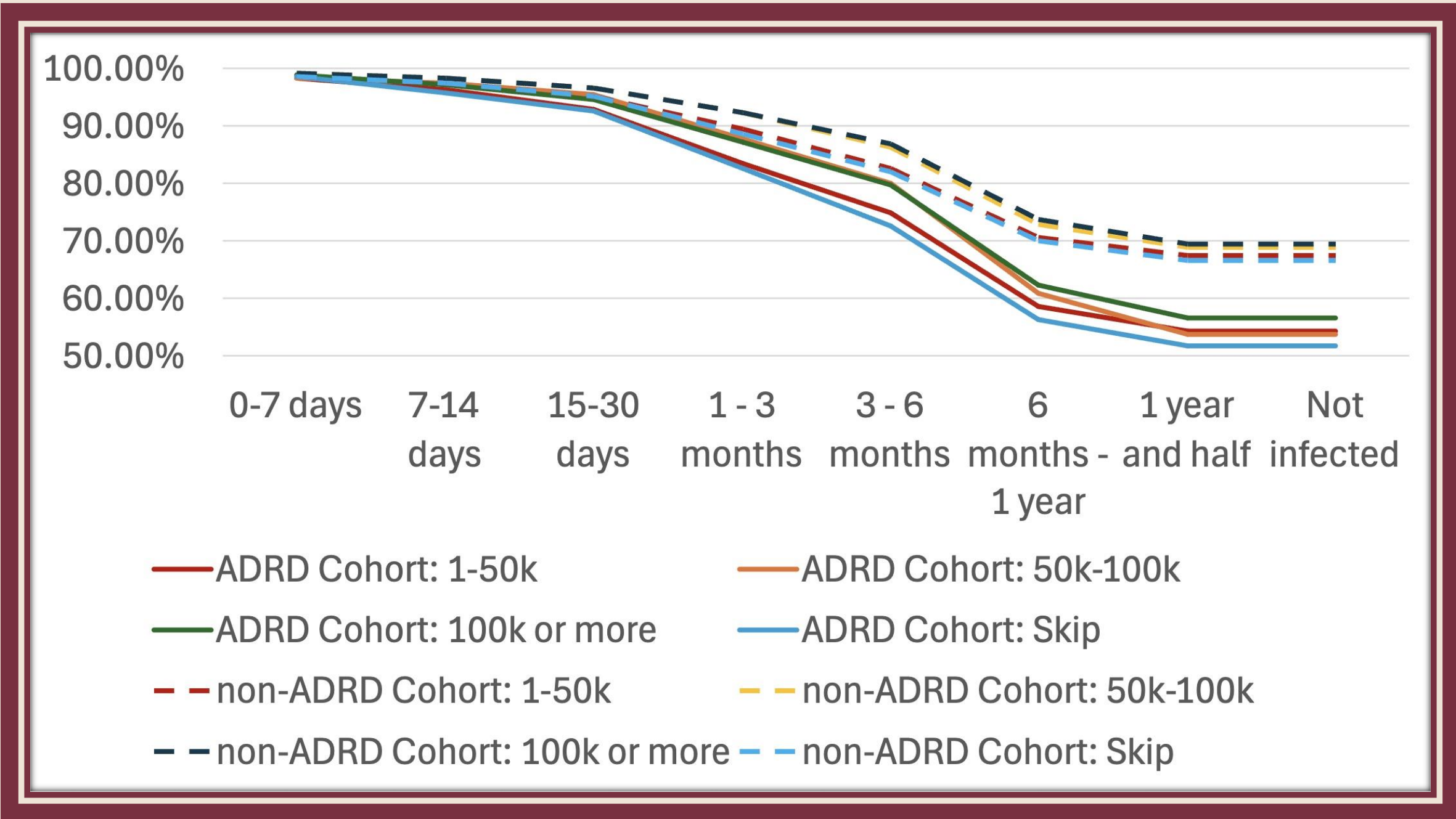


Figure 3: This graph shows the protection duration after patients receive COVID-19 vaccines including factors of income level and having Alzheimer's and how they may affect this.

Discussion

- This research investigated the relationship between COVID-19 hesitancy in Alzheimer's patients and their caregivers and income level.
- Closing this research gap is crucial for ensuring equal access to healthcare.
- From the data analysis ($x^2=34.42$, $p=0.0000755$) it indicates rejection of the null hypothesis.
- There is a significance associated between income level and the number of COVID-19 vaccine doses received by Alzheimer's patients.
- Alzheimer's patients and caregivers with higher income have higher vaccination rates compared to Alzheimer's patients and caregivers with lower income.
- This highlights the need for programs that ensure healthcare access regardless of financial status.
- A limitation of this study is that it uses a sample size of 5,401 Alzheimer's patients, which may not be large enough to generalize findings to the entire population.
- A strength of this study is that The All of US dataset provides additional variables influencing vaccine hesitancy, offering opportunities for further research.
- For future research it may be beneficial to explore other factors that may affect hesitancy such as gender or race.

Resources

1. Yang , Y., Park, hyejin, Li, C., Song, D., & Wang, J. (2024, July 16). Comparing covid-19 vaccination coverage, adverse reactions and impact of social determinants of health on vaccine hesitancy in ADRD/MCI and non-ADRD/MCI population: Protocol for a retrospective cross-sectional study. PubMed. <https://pubmed.ncbi.nlm.nih.gov/39013636/>
2. Thanapluetiwong, S., Chansirikarnjana, S., Charernwat, P., Saranburut, K., & Ittasakul, P. (2022, October 19). Prevalence and factors associated with caregivers' hesitancy in immunizing dependent older adults with covid-19 vaccines: A cross-sectional survey. PubMed Central. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9612071/#:~:text=Factors%20associated%20with%20caregiver%20vaccine.and%20concern%20about%20vaccine%20manufacturers>