COVID-19 Vaccine Hesitancy and The Influence of ADRD Stage on Acceptance Among Patients and Caregivers

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Introduction

- Individuals with ADRD face a higher risk of severe COVID-19 outcomes, yet vaccine hesitancy is common.[1]
- Cognitive decline, caregiver dependency, and social determinants of health (e.g., healthcare access, misinformation) contribute to low vaccination rates.[2] Existing studies indicate that caregiver trust and medical literacy significantly impact vaccine decisions, but limited research explores how ADRD severity affects hesitancy trends.[3]
- This retrospective cross-sectional study used mixed-methods and data from the All of Us (AoU) Researcher Workbench to examine COVID-19 vaccination patterns across ADRD stages, identifying key demographic and caregiver-related factors influencing hesitancy.[4]
- Findings aim to inform targeted healthcare interventions, ensuring informed caregiver decision-making and vaccine accessibility for ADRD patients.[5]

Methods

- Of the total participant sample of 48, 670 participants, 5,401 of which belonged to the ADRD and Mild Cognitive Impartment (MCI) group while 43,269 participants belonged to the Non-ADRD/MCI group.[1]
- The demographics variables included age, race, income, education, insurance coverage and employment status as well as COVID-19 vaccination status (unvaccinated, 1+ doses, fully vaccinated, boosted) and chronic & mental health conditions.[1]
- Literature review conducted based on other research findings included caregiver involvement & health literacy as additional variables.[2]
- Chi-square tests were used for group comparisons for predictors of vaccine hesitancy.[3]

Figure 1. Study Flowchart of ADRD/MCI and non-ADRD/MCI Cohorts (Dec 14th, 2020 - July 1st, 2022)
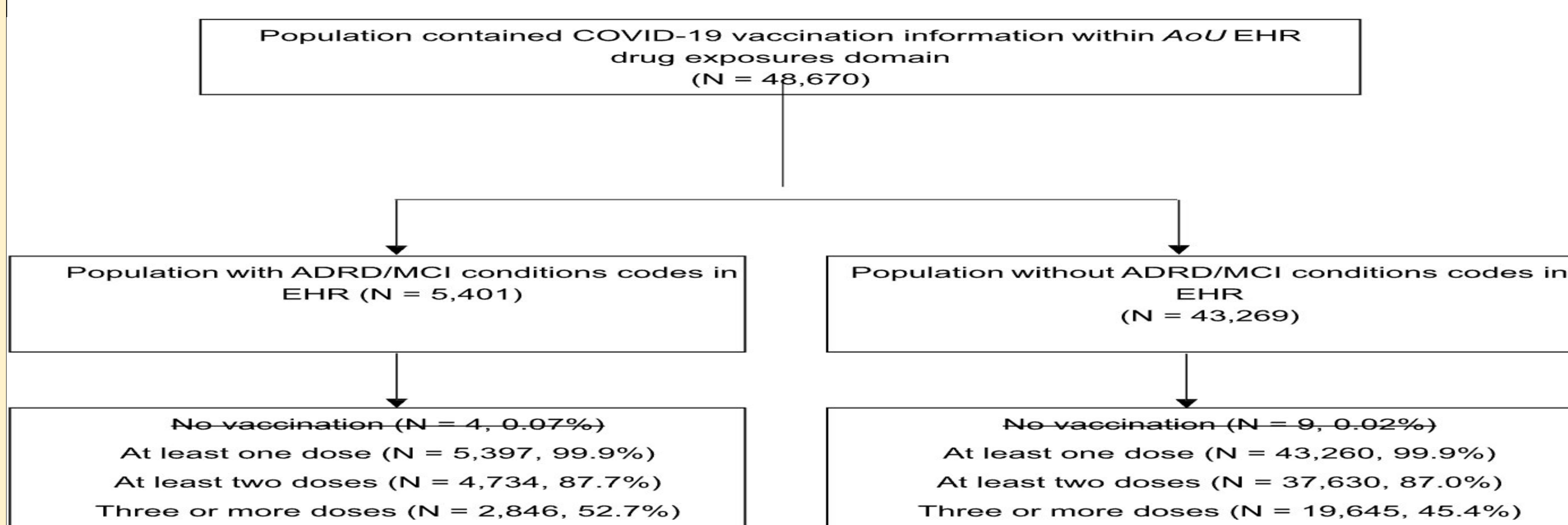
Results

- The study analyzed the effectiveness of COVID-19 vaccination over different time intervals, categorizing protection duration from 0-7 days to 1.5 years post-vaccination.[1]
- Protection duration data indicates that patients remained uninfected for up to 1.5 years post-vaccination, with 98.5% protection within the first 7 days after full vaccination, 76.4% protection at 3-6 months post-vaccination and 54.2% protection at 1.5 years, indicating a gradual decline in immunity.[2]
- Older adults (>65) had the highest initial protection (98.8%) but showed the steepest decline over time, while younger individuals (18-44) had a slightly lower initial protection (98.4%) but demonstrated more stable long-term protection.[3] Middle-aged adults (45-64), however, experienced a steady decline, reaching 54% protection at 1.5 years, similar to older adults.[4]
- ADRD patients had lower overall vaccine uptake compared to non-ADRD individuals, supporting the hypothesis that cognitive decline, caregiver influence, and social determinants impact vaccine hesitancy.[5]

Figure 2-7. Line Graphs showing ADRD Vaccination Effectiveness amongst Different Ages, Sex at Birth, Race, Income Level, Education Level and Employment Status in ADRD/MCI and non-ADRD/MCI Cohorts
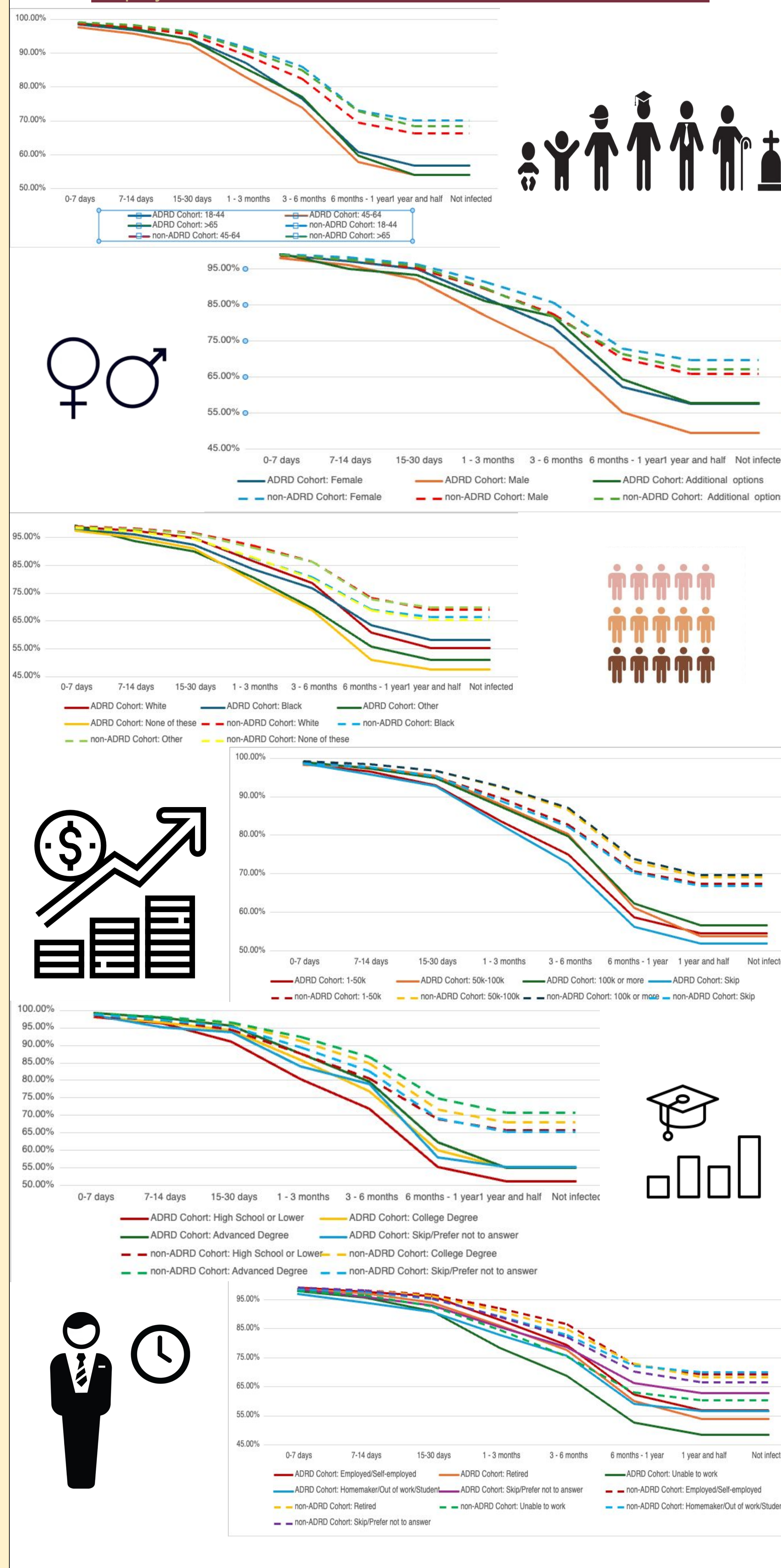
Discussion

- The CDC report highlights disparities in vaccine uptake across racial, socioeconomic, and educational backgrounds, aligning with this study's findings.[1] The MMWR analysis shows higher vaccination rates among individuals with college degrees and incomes above $75,000, whereas ADRD patients often face financial and healthcare access barriers, exacerbating hesitancy.[2]
- The protection duration data aligns with findings from the CDC Morbidity and Mortality Weekly Report (MMWR), which shows a positive correlation between higher income, education levels, and increased vaccine coverage in the general population.[3]
- A key strength of this study is its large dataset (48,670 participants), enabling robust ADRD and non-ADRD comparisons.[4] The mixed-methods approach integrates quantitative data and literature review, providing deeper insights into vaccine hesitancy. Caregiver involvement and medical literacy emerge as strong predictors of vaccine acceptance.[5]
- However, limitations exist due to potential coding errors of vaccination dates from the electronic health record database used for CDC's vaccination cart, limited ADRD subtype representation, and difficulty quantifying healthcare access disparities and misinformation, making the findings inconclusive for caregiver involvement and medical literacy to improve vaccine uptake in ADRD populations.[6]

Conclusion

- This study investigates COVID-19 vaccine hesitancy and protection duration in ADRD patients, a population at high risk for severe COVID-19 complications.[1] Vaccine effectiveness declines over time, with 98.5% protection in the first 7 days dropping to 54.2% after 1.5 years, reinforcing the need for booster doses to sustain immunity.[2]
- Vaccine hesitancy correlates with ADRD severity—early-stage patients show higher acceptance, particularly when caregivers have greater medical literacy and trust in healthcare providers.[3] As cognitive decline progresses, hesitancy increases due to caregiver burden, misinformation, and healthcare access barriers.[4] Advanced-stage ADRD patients have the lowest vaccination rates, largely due to diminished autonomy and caregiver reluctance.[5]
- Caregiver education and involvement are key determinants of vaccine acceptance. Higher education and income levels correlate with greater vaccine uptake, as highlighted in both this study and the CDC's MMWR.[6] However, misinformation and healthcare disparities contribute to lower vaccination rates, especially among low-income caregivers with limited medical knowledge.[7]
- To improve vaccination rates, targeted public health strategies should focus on prioritizing booster doses, enhancing caregiver education, and reducing socioeconomic barriers to vaccine access.[8]

Resources

Scan the QR code to see the references used, to download a copy of the poster, as well as see the presenter's contact information.