Trends in cognition and behavior in patients with MCI and dementia during the pandemic

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The Covid-19 Pandemic has been well-documented for its adverse effects on aging communities. It impacted physical health, posed additional risks to safety within social isolation, and decreased access to resources.
Differing levels of cognitive decline characterize dementia and mild cognitive Impairment.

- Risk factors for dementia include obesity, low social contact, low physical activity, etc.
- The highest risk factor for a dementia diagnosis is Aging. For adults aged 65 to 69, 2 out of every 100 people will have dementia.
Gaps in the literature remain on how the Covid-19 pandemic disrupted the lives of a specific population of aging individuals: those with dementia.
Aims

01 Literature Review

Conduct a review on the existing literature surrounding cognition, dementia patients, and the Covid-19 pandemic timeline.

02 Analyses+ Individual Project

From the literature review, multiple gaps are identified, which warrant future study. From there, I would use the existing data sets and settle on an idea. A possible future direction aside from the main goal of my analysis is creating a case report on dementia rates during the pandemic.
Methodology:
1. PubMed, Google Scholar, Franklin Library searches
2. Compiling the articles and going through them
3. Writing a summary to serve as a background for future papers aside from the literature review

Challenges:
- How to fine-tune your searches and know what you’re looking for
Findings

There were two main findings noted in changes in cognition and behavior in patients who experience MCI or Dementia:

- There were greater drops in cognition during the pandemic as compared to before
- Greater prevalence of neuropsychiatric symptoms
Due to the Covid-19 pandemic, many necessary services were required to move online or shut down completely.

- Older adults were more likely to experience changes in necessary appointments.
- Increase in provider-based cancellations, pandemic-based fears, and caregiver availability.
- Health check-ups, therapies, and medications were all put at risk.
Due to the restrictions of the pandemic and the need for social isolation, reported levels of physical activity went down in older adult populations.

- Routines were often disrupted

- One study found that eleven out of thirty-six patients progressed to severe dementia during the pandemic

- Previous research indicates that physical activity and cognitive health have a direct relationship
Loss of Social Contact

A lack of social contact has been shown to have adverse effects across populations, with extra consideration given to older populations who may rely on caregivers/social relationships to maintain well-being and health.

- Social contact is essential to maintaining mood, communication skills, and symptom management for those with dementia.
- Those living alone are at the most significant risk.
Aim 2: Data Analyses

After the initial literature review, we then started to look at the gaps in what we had found. This is what would make up subsequent data analyses.

Early parts of this aim included:

- Spent time drafting abstracts for possible analyses ideas
- Looked at the existing datasets to see what is feasible
- Created a statistical plan to prepare and run the analyses and pull appropriate data
Welcome Researchers

This website provides researchers access to data, documentation and other resources for the National Health and Aging Trends Study (NHATS) and the National Study of Caregiving (NSOC). If you are an NHATS or NSOC participant, please visit www.mynhats.org.
Social Protective Factors and Dementia

Definition:
Social protective factors are social/situational factors that serve as a resilience or protective factor against deficits in old age.

Examples:
Socioeconomic status, community engagement, and physical activity will all be independent variables within this study.

Methodology:
Use a proportional hazards regression: multivariate cox proportional hazards model to estimate hazard ratios that describe the relationship between the protective factors and dementia outcomes.

Hypothesis:
The presence of social protective factors will protect against worsening cognition and dementia outcomes in older adults during the Covid-19 pandemic.
### Creating a Statistic Plan

#### NHATS Round 11

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**DISPLAY INSTRUCTIONS:**
Use "$\text{Some Question Stem}$" display.
Display CM, 1, 2, and 4 on the same screen.

**uestion Text:**
People in [this/SP’s] community know each other very well. Do you agree a lot, a little, or do you not agree?

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**DISPLAY INSTRUCTIONS:**
Use "$\text{Same Question Stem}$" display.
Display CM, 1, 2, and 4 on the same screen.

**uestion Text:**
People in [this/SP’s] community are willing to help each other. [Do you agree a lot, a little, or do you not agree?]

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Currently: I am working on finishing the statistical plan which will be used to pull appropriate variables from the NHATS dataset to run the subsequent analysis with.

- Includes going through instruction manuals and sorting through variable names for the best representation of each protective factor
- Undergoing R-studio training to better prepare myself to run the analyses

Future Steps: Continue to work with Dr. Willis and Dr. Hamedani to run the analyses and work on finishing a manuscript. Connect with the team’s R statistician to work on analyses.

- Write a case report on dementia rates
- Write the manuscript on social protective factors and dementia
Lessons Learned

1. Working Independently

I was given a lot of freedom with how I got the work done, where I wanted my work to go etc. I had to learn how to be proactive and search for answers, manage my time, and meet mentors with where they are at.

2. Epidemiological-Based Research

Previous research experiences I've had have been very focused on a certain population or was very niche. To be able to focus on a large population requires a lot of consideration with how you look and analyze the data.

3. Knowing What To Study

Not all research questions are good questions, or questions that people will care about. Something that is interesting may not be novel, or something publishable. Research is an institution just like anything else and there are certain considerations into what makes a good research question.
Acknowledgments

I’d like to extend my gratitude to..
Dr. Allison Willis
Dr. Ali Hamedani
Dr. Phuong Nguyen
Gear-Up and SUMR Fellowship and Faculty
Joanne Levy
Chichi Nwadiogbu


