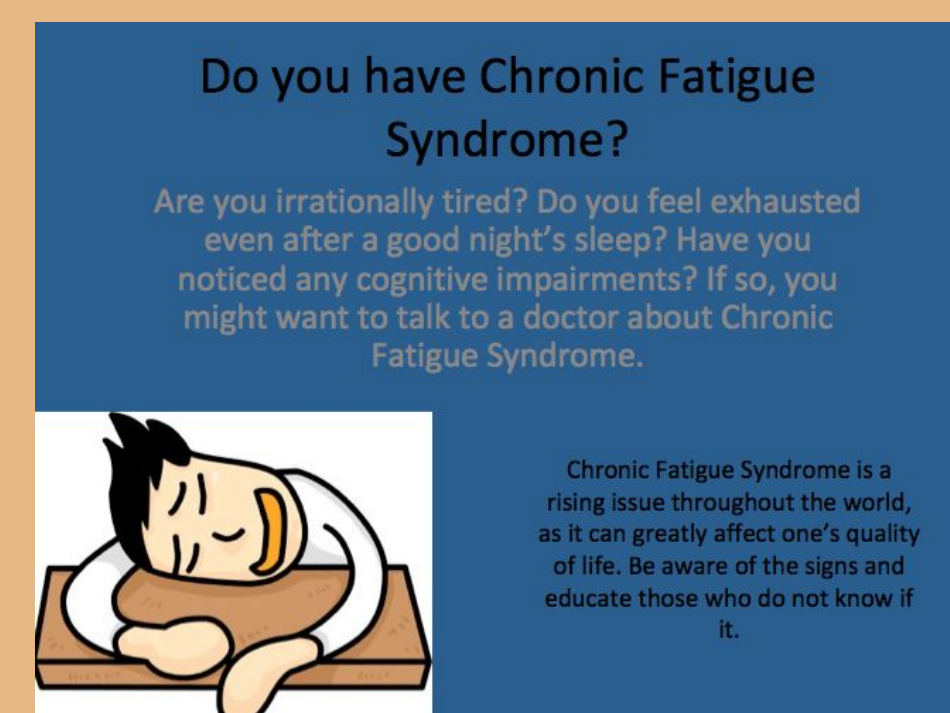


INTRODUCTION

What is Chronic Fatigue Syndrome and why is it important?

Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is an illness classified by extreme, long-term fatigue that is worsened by exercise. In 2015, it was reported that between 836,000 and 2.5 million people in the United States have ME/CFS, but most were not diagnosed. One of the most unique characteristics of ME/CFS, however, is its prevalence with other diseases; it rarely happens alone. Research has hinted at a connection to HIV, an autoimmune disease, and Alzheimer's, which deteriorates memory and mental function. **My research attempts to find the prevalence of ME/CFS with HIV through a comprehensive survey, and of ME/CFS with Alzheimer's through analyzing clinical research.**



DATA AND FINDINGS

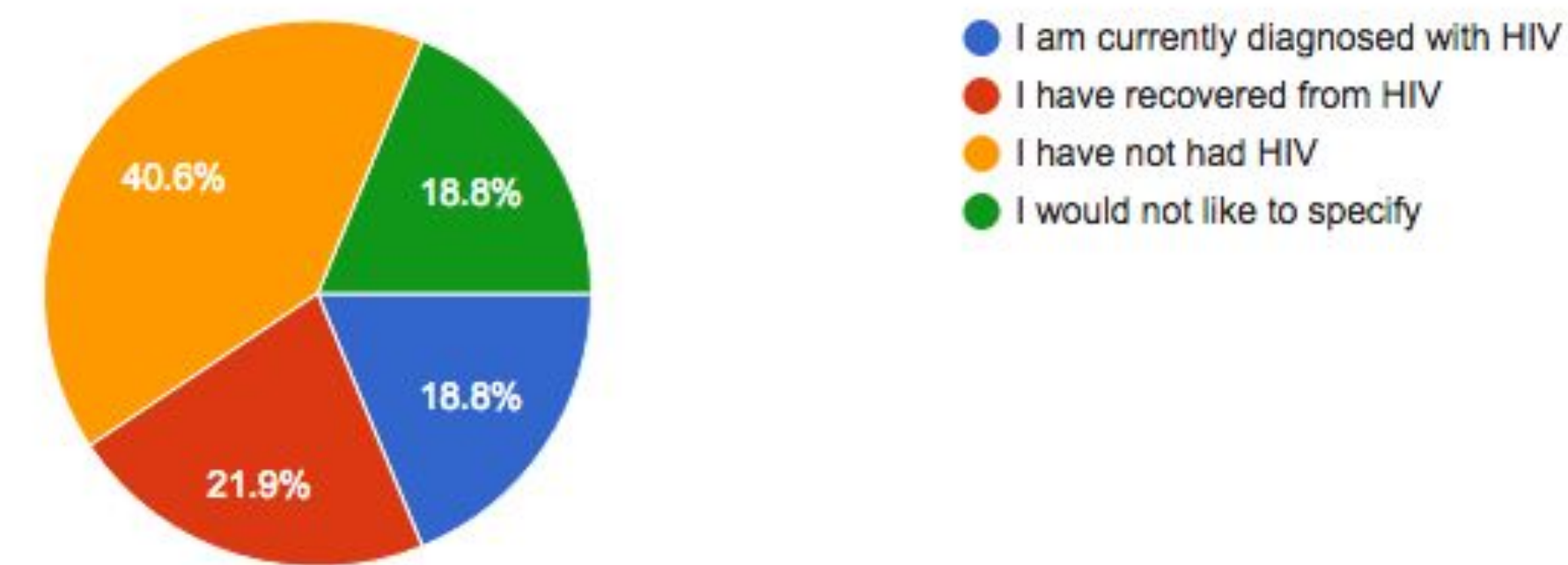


Figure 1: This chart represents the number of people who have taken my survey who have been diagnosed with or have recovered from HIV.

The main part of my research consisted of a survey that asked many questions based on ME/CFS and HIV, while attempting to use the criteria to diagnose the two. I found that out of my 55 results, only two patients have shown signs of both HIV and ME/CFS. While this may seem like a small percentage of the population, it is intriguing for this sample size. These two cases that have shown positive for both HIV and CFS are supposed to be extremely rare within the overall group of surveyed people. However, this could simply be an error due to the self-diagnosis portion of the survey. I would like to give it to a larger group of HIV or CFS diagnosed patients in order to find a more accurate representation of the statistics. My Alzheimer's research is solely based on clinical data that exists, such as brain scans and description of brain damage. Through analyzing established research, I hope to find more than one disease that connects with ME/CFS

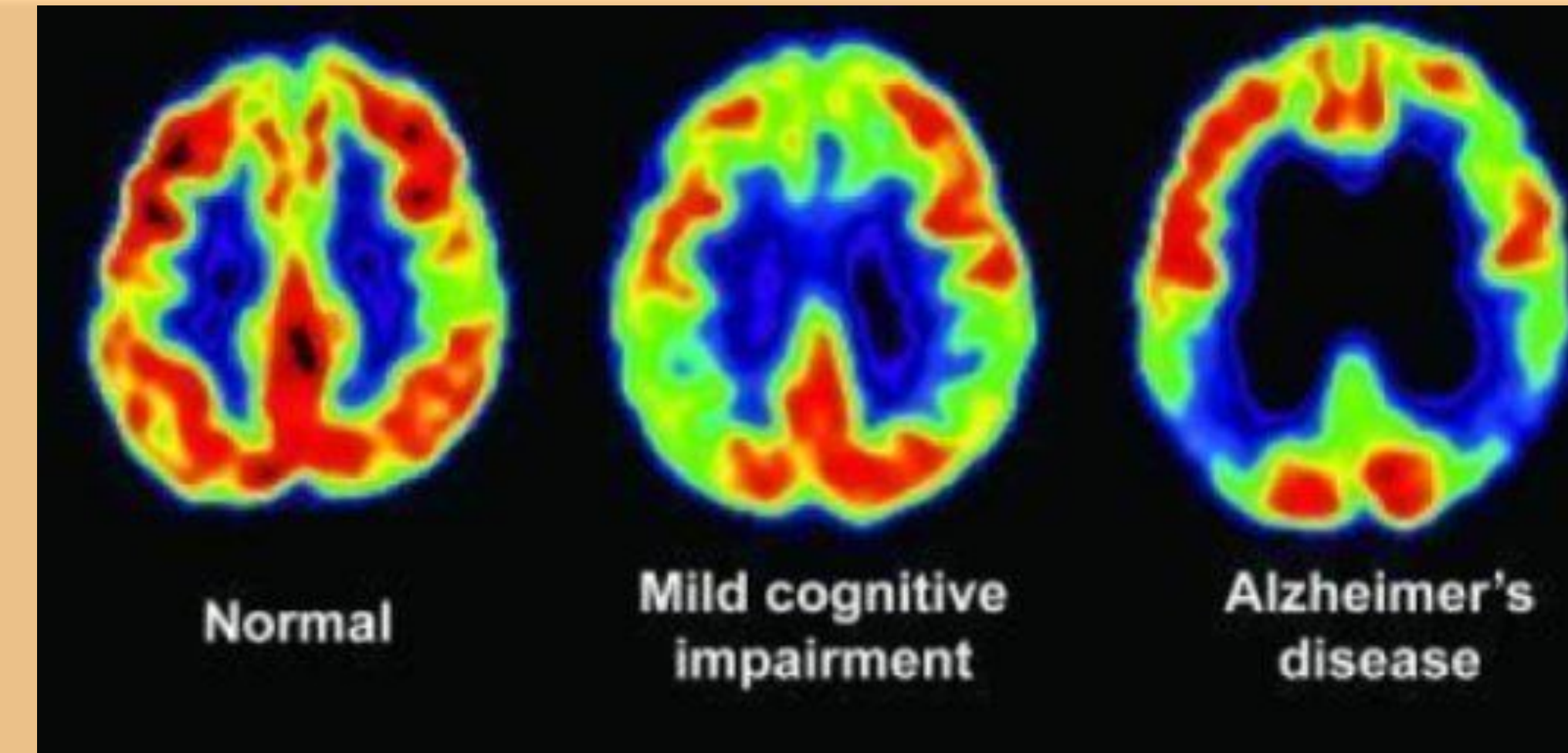


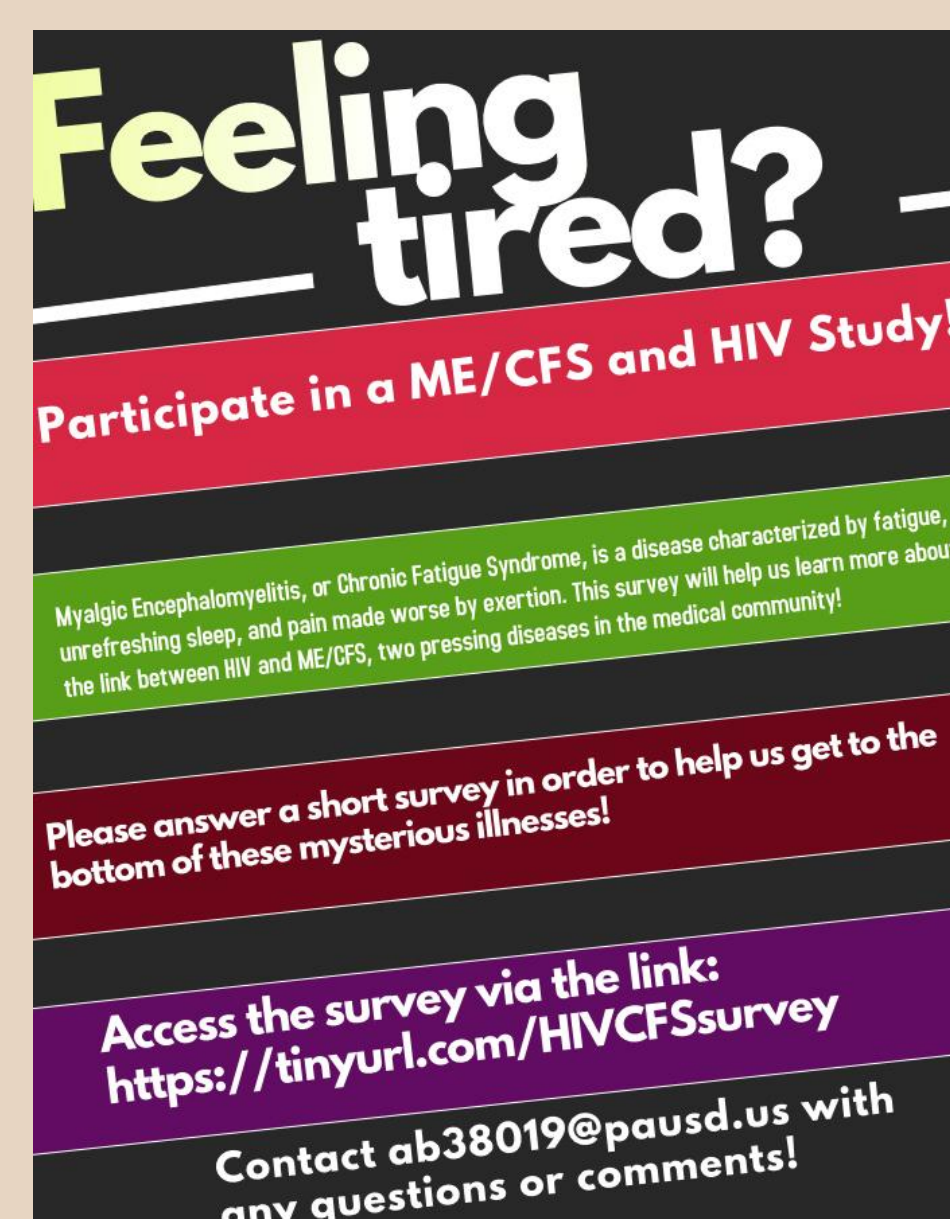
Figure 2: This image shows the brain damage within patients who suffer from Alzheimer's. It is very similar to the brain damage caused from ME/CFS.

CONCLUSIONS, IMPLICATIONS, AND NEXT STEPS

My data shows that the possible connection between ME/CFS and HIV/Alzheimer's is more plausible than expected. While at first just a theory, this could be a larger discovery in finding a cure to ME/CFS than the medical community thought. Despite this, my study is not fully comprehensive and does not apply to the scale of the entire United States population. I plan to keep my survey running into the summer and receive around 100 replies before closing it. This will hopefully give me a larger, more accurate sample size to work with when concluding more about these elusive illnesses. **The proposed link between ME/CFS, HIV, and Alzheimer's was thought to be very unlikely; however, the result that showed positive could lead to the medical community discovering that it is more common than expected.**

RESEARCH METHODOLOGIES

- To research ME/CFS, I created a survey that addresses the prevalence of CFS and other diseases, and I wrote a paper synthesizing currently known data.
- My research mostly consisted of a survey that showed the prevalence of diseases among patients with CFS. It was placed in HIV clinics and hospitals, and there is an online version as well.
- Using the results from my survey, I can apply the outcome to a larger scale to make a conclusion about the prevalence of diseases and ME/CFS.



This is the handout used to advertise the survey.

DISCUSSION, ANALYSIS, AND EVALUATION

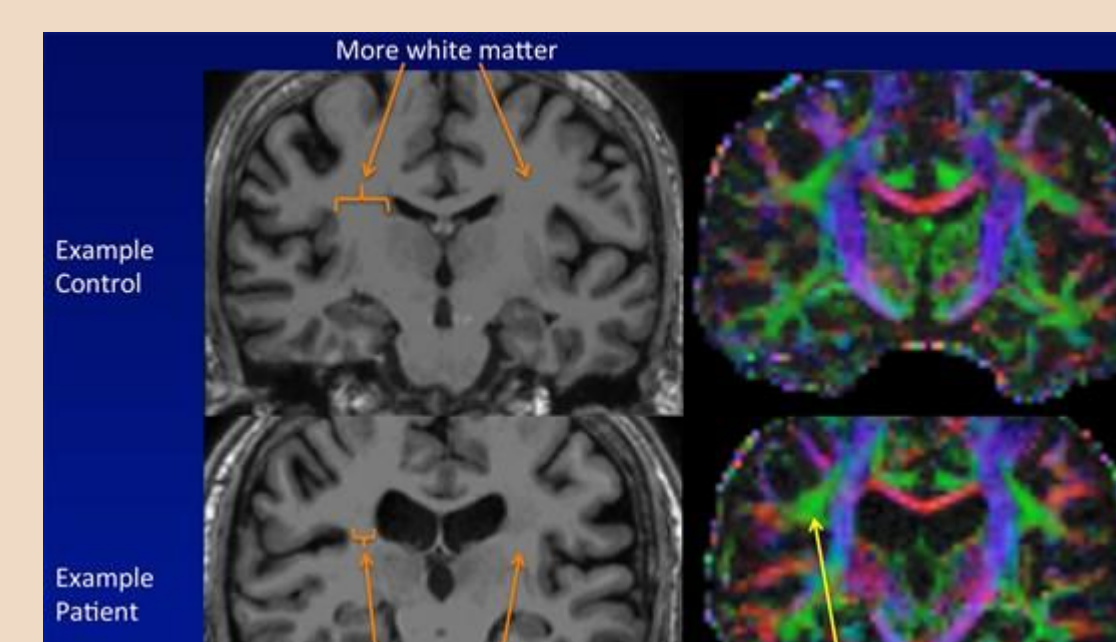
Why Choose These Specific Diseases to Research?

1. ME/CFS and HIV

- Both ME/CFS are diseases that attack the immune system.
- HIV was chosen for this experiment because it is a common immune disease. In addition, some of the symptoms between both overlap.

2. ME/CFS and Alzheimer's

- Recent studies have shown that the brain damage in patients with Alzheimer's and patients with ME/CFS look very similar.
- Studying where the brains were damaged and the severity of the damage will show researchers any notable correlations between the two.
- Below is a diagram that shows the brain damage of patients with ME/CFS, which shows similar damage to Alzheimer's



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