



The Impact of COVID on Neurology

Josleen St. Luce^{1,3}, Dr. Jontel Pierce²

¹ George Bush High School, Richmond, TX

² MIND Neurology Clinic, Sugar Land, TX

³ Gifted and Talented Mentorship Program, Fort Bend ISD, TX



Introduction

As the COVID pandemic has impacted our lives for more than two years, scientists have brought forth many questions as to how the pandemic affects different aspects of our lives. As I intend to pursue a career in neuroscience, I was intrigued at how this may affect neurology. While reviewing current literature on the topic, I noticed that the published research focused either on how people were affected neurologically after having COVID (Roy, Ghosh, et. al, 2020) (Taquet, Geddes, et. al, 2021) or neurology services themselves (García-Azorín, Seeher, et. al, 2021) (Matias-Guru, Sung, et. al, 2021). However, I sought to understand how the changes in everyday life caused by the pandemic impacted those with neurological conditions. Noticing this gap in the literature, I sought to understand the extent of this through this study. I hypothesized that patients would report negative changes to their neurological health such as the worsening and/or onset of new symptoms.

Objective

With this study, I seek to understand the extent to which the pandemic has affected the well-being of neurology patients and their care.

Methodology

The data for this study was collected through voluntary, anonymous survey response. I created a Google form which had two styles of questions: open-ended meant to contextualize later responses and Likert scaled (1-strongly disagree to 5 - strongly agree) questions to quantify data. Additionally, patients were given an optional space to elaborate on their responses. A QR code of the survey was posted in the MIND Neurology clinic from March 30 to April 15. Additionally, Dr. Pierce sent a message through her patient network with a link to the survey. Through these processes, twenty-one responses were collected.

Results

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

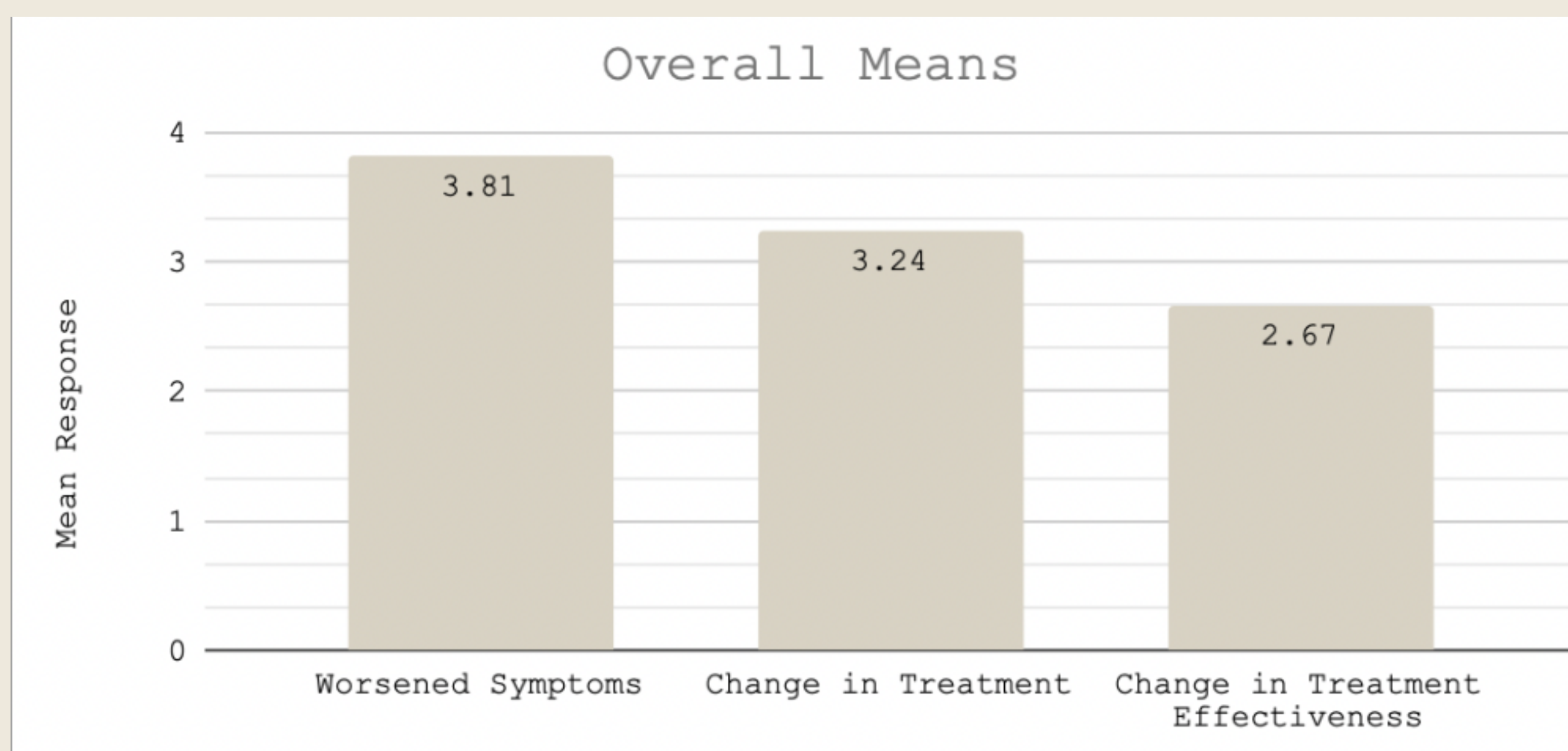


Figure 1

The graph to the left presents the mean responses to each question from the entire sample, whereas the graph below separates that data between the types of diagnoses the patients reported.

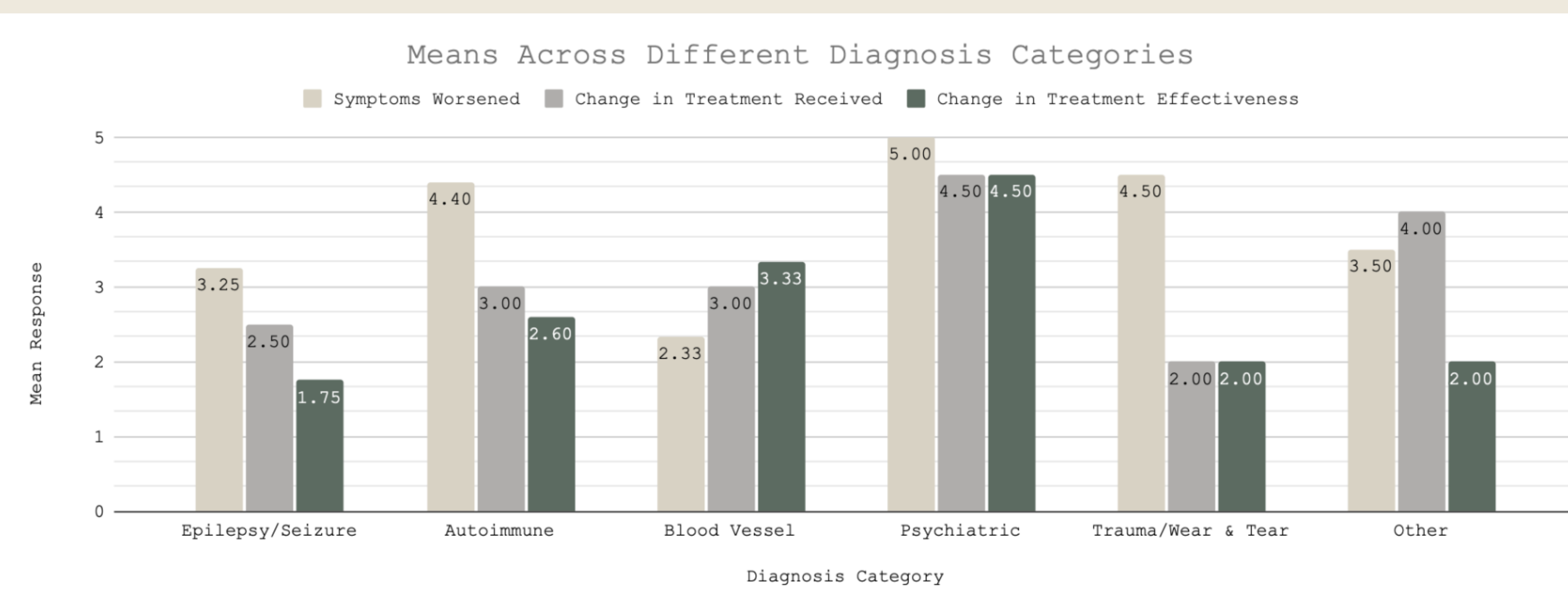


Figure 2

Although by an ANOVA test with a significance level of 0.5 none of these values would indicate that there is statistically significant variance between groups (categories of diagnoses), this graph shows which questions elicited the most variance between diagnosis categories.

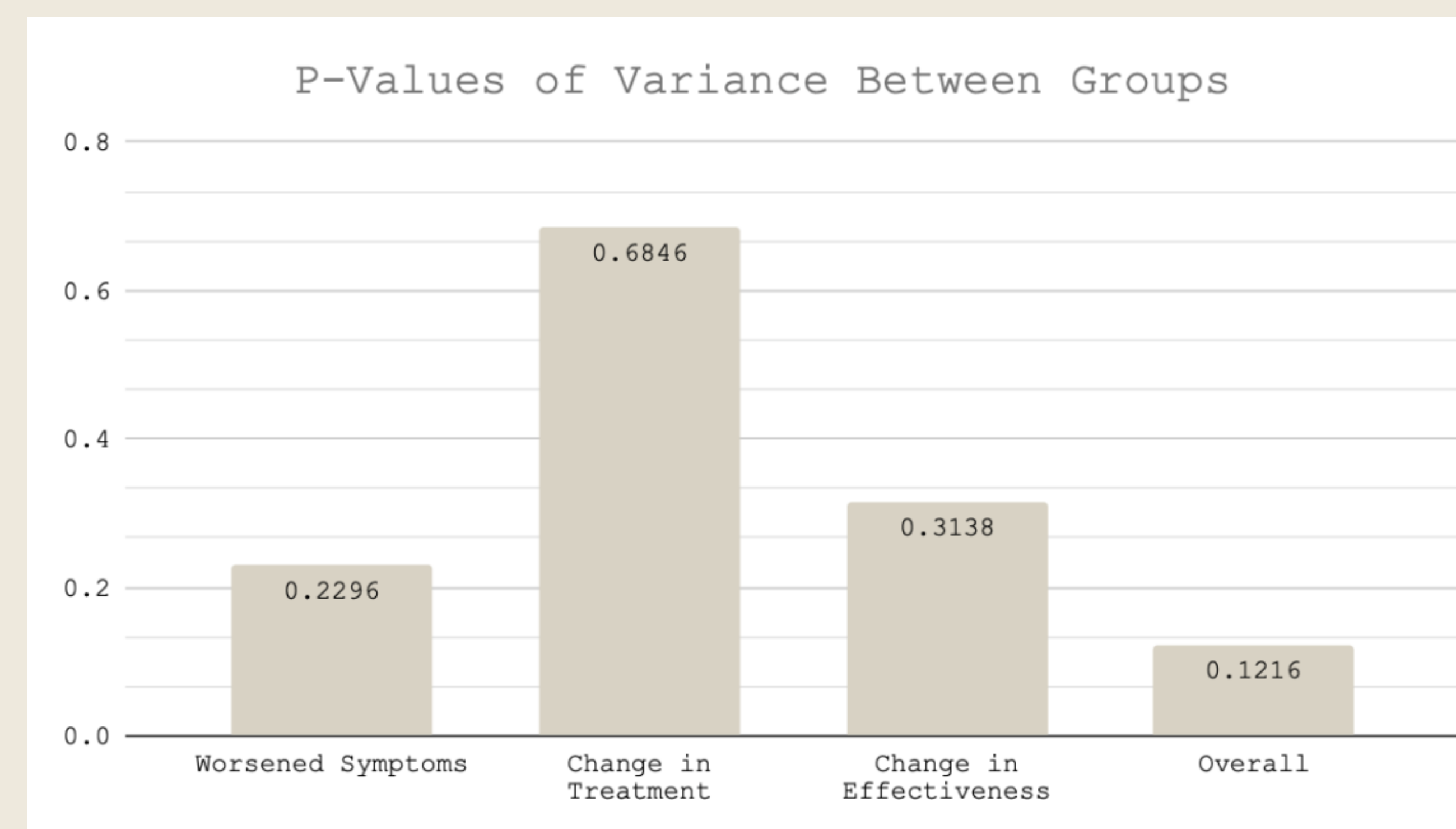


Figure 3

Findings/Conclusion

Overall, the data from this study shows that the pandemic has caused some negative impact on the neurological health of the patients in this sample. Many participants indicated that their symptoms have worsened after the pandemic -- fourteen participants responded "4" (Agree) or "5" (Strongly Agree). Responses to the second and third question were more divided. Figure 3 shows that the second question had the most variance between groups; Figure 2 illustrates this variance. This explains what the seemingly neutral mean of 3.24 does not outright show. Lastly, the data shows that change in treatment effectiveness was not widely experienced throughout the sample.

Discussion

Because of the nature of this sample, this data should not be used to generalize to the greater public. However, it is still illustrative of potential trends. For example, this study suggests the possibility that those suffering from psychiatric issues were more heavily affected than those suffering from other neurological issues. In the survey, many of those reporting having experienced worsened neurological conditions reported a major reason being that they were/are not able to visit their doctor as regularly. As telemedicine becomes increasingly popular, hopefully this issue can be partially curbed.