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## COVID Lockdown Impact on Education: Analyzing Test Scores by State and Age

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# COVID Lockdown Impact on Education: Analyzing Test Scores by State and Age

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## Abstract

- The COVID pandemic lockdowns gave rise to profound changes around the world. From remote jobs to mask mandates, the US had to find ways to combat the pandemic. One of these ways was to enact lockdowns where people had to stay home if they were not “non-essential workers” and remain at least 6 feet away in public spaces. Some states implemented longer lockdowns with stricter mask mandates while others had no rigid mandates or lockdowns. This led to the mass shift to remote learning in school around the US.
- This study examines the relationship between lockdown length in the different states and various standardized test scores including the NAEP (4<sup>th</sup> grade standardized test) ACT, and SAT.
- **I hypothesized that test scores taken during and after the pandemic will be lower than those pre-pandemic.**
- **I also predicted that the longer the lockdown lasted, the lower the standardized test scores would be.**

## Methodology

- To perform this experiment, I looked at information regarding high school (ACT/SAT) and elementary (NAEP) test scores and lockdown duration by state that was publicly available.
- To achieve the results, I created four different graphs comparing the various test scores with the length on time in lockdown
- I received data from the National Center for Education Statistics regarding ACT scores ranging from 2020-2022 and SAT scores for 2020 and 2023 (Digest of Education Statistics, 2020). I also gathered NAEP reading and math scores for 2019 and 2022 from The Nation’s Report Card (National Data explorer – ETS, 2019). I then found lockdown duration statistics from Ballotpedia. Next, I ran a Pearson correlation with days in lockdown on the x axis and average test scores on y axis.
- The following states had no lockdown mandate: Arkansas, Iowa, Nebraska, North and South Dakota, Wyoming
- The following states had the most lockdown days: California (162 days) and New Mexico (251) (States that issued lockdown and stay-at-home orders in response to the coronavirus (COVID-19) pandemic, 2020.)

Figure 1

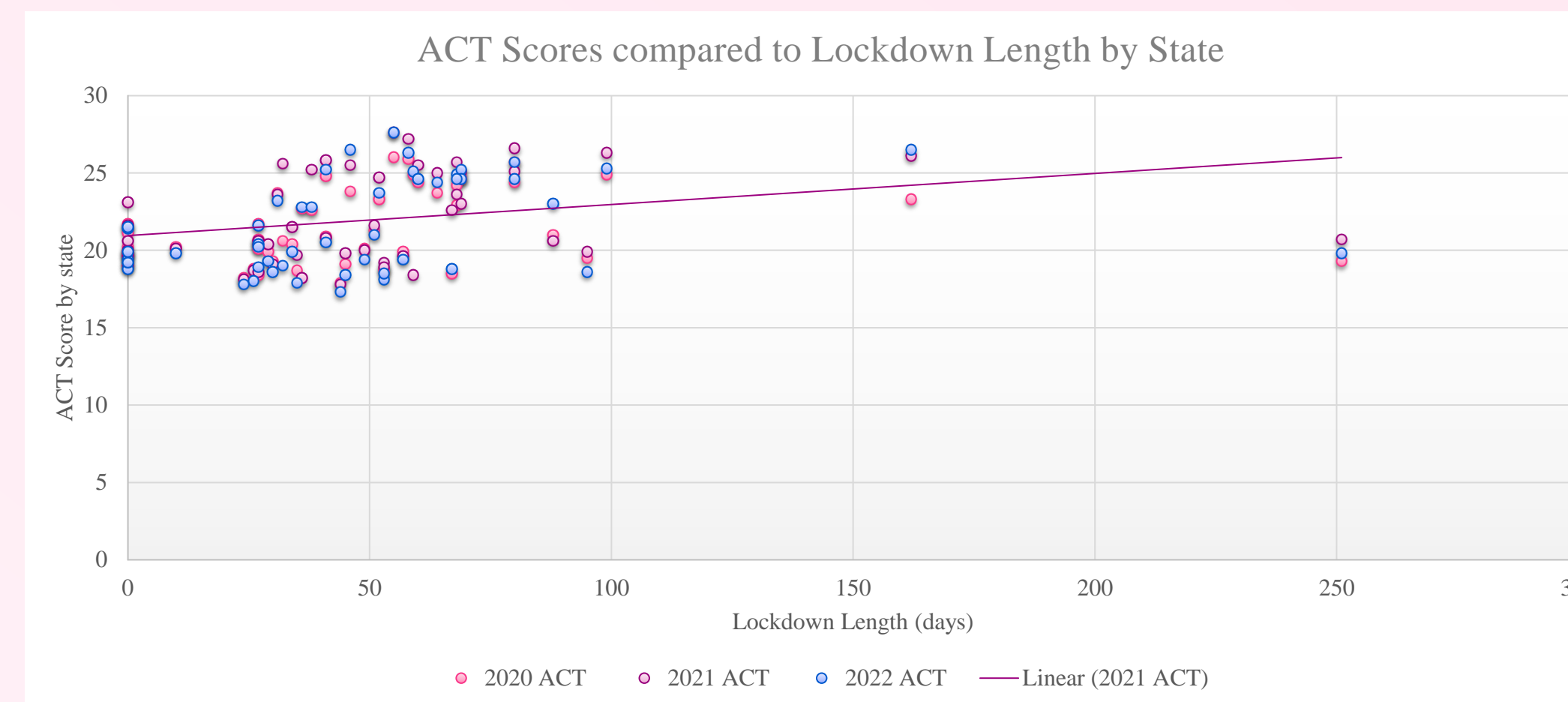


Figure 2

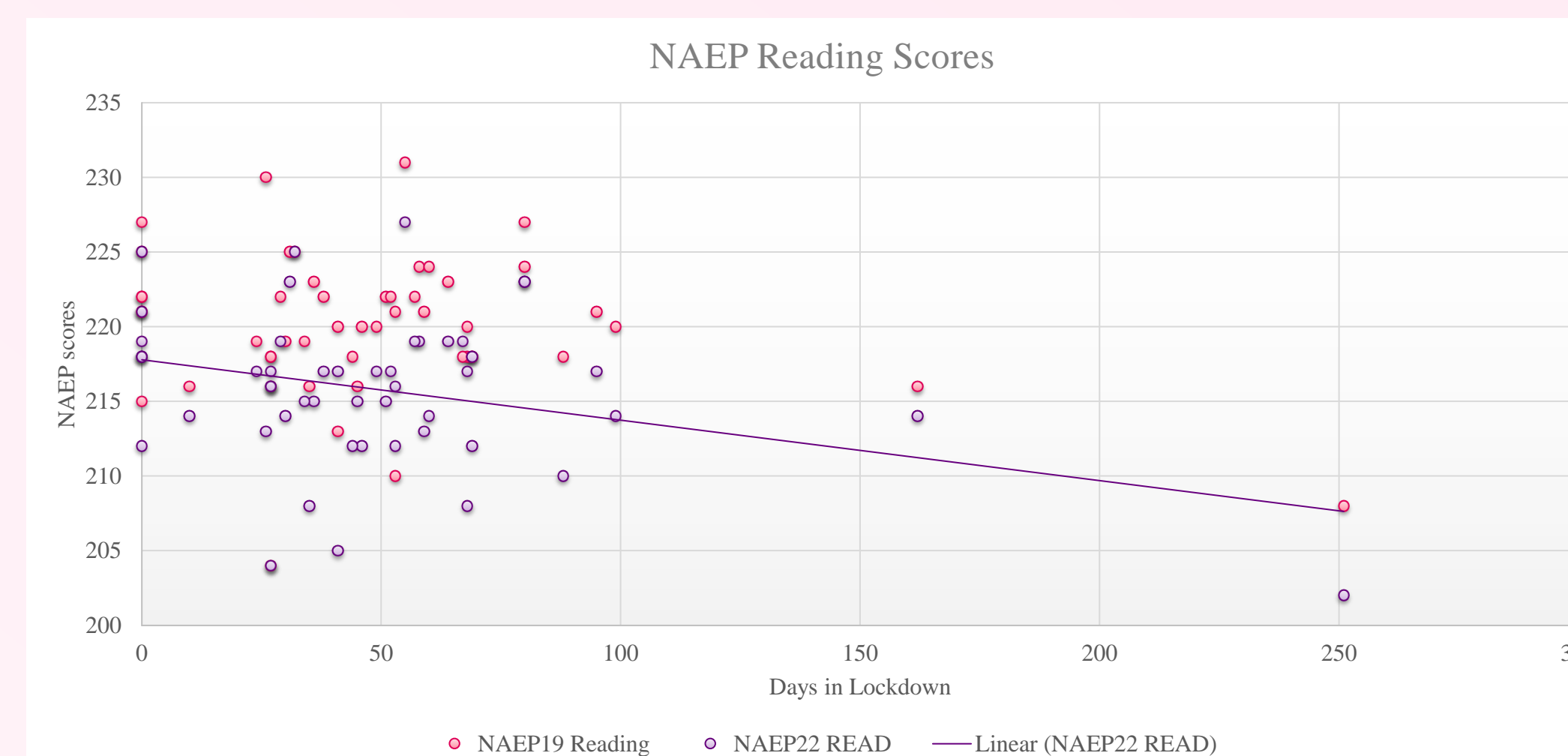


Figure 3

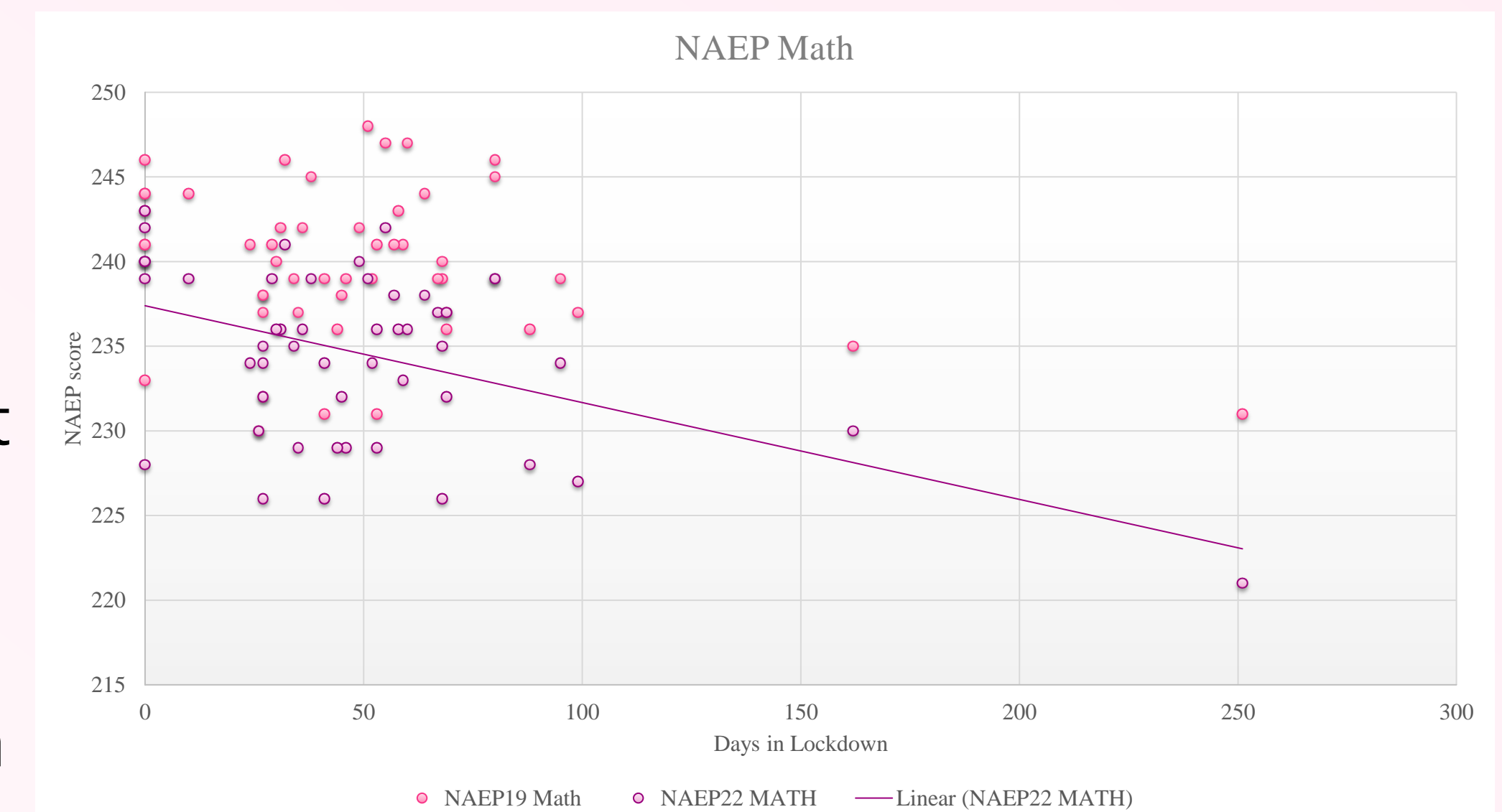
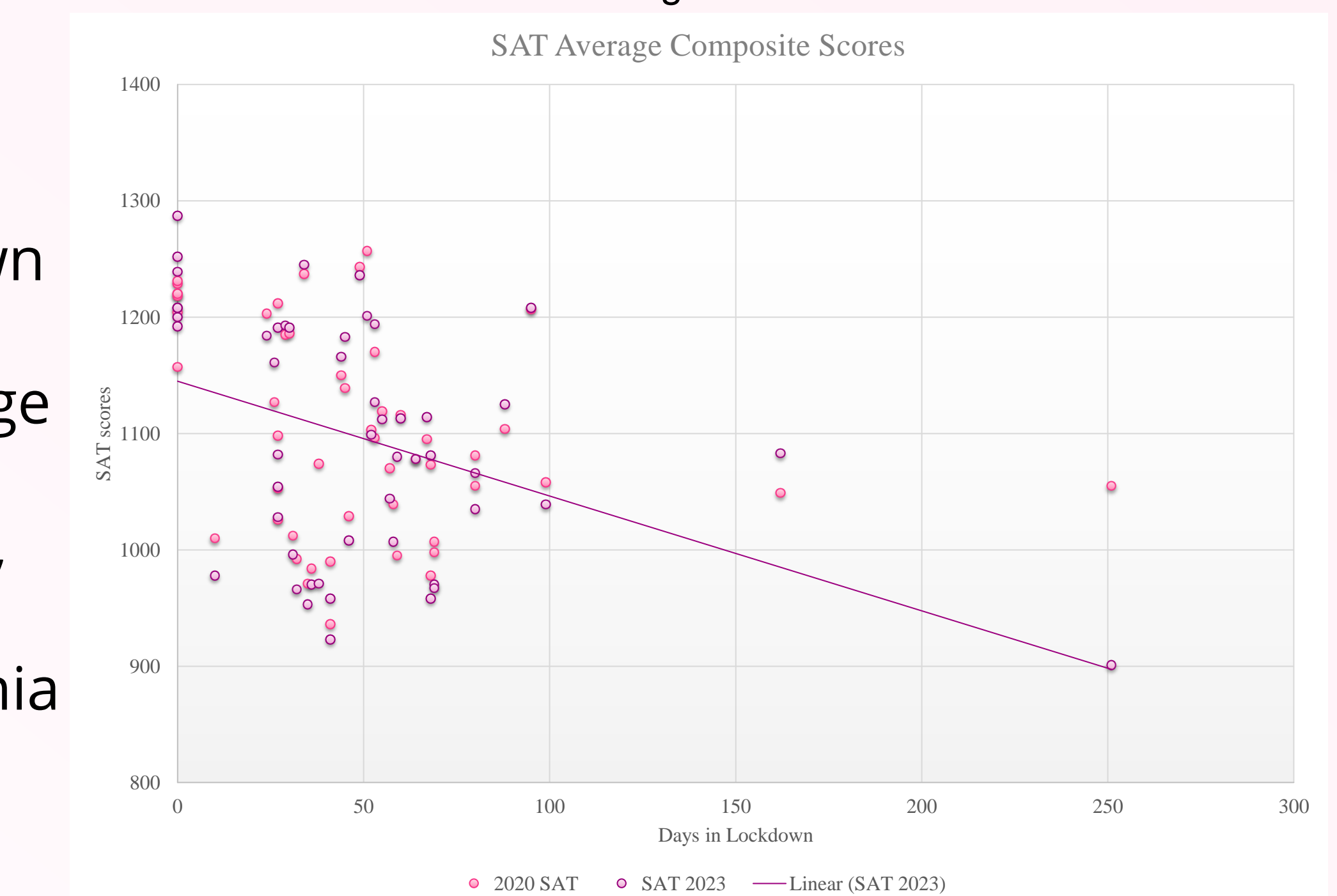


Figure 4



## Conclusion/Future Directions

- Results:
- My hypothesis regarding test scores being lower post pandemic than pre-pandemic was confirmed:
  - The national composite ACT in 2021 was lower (20.3) than in 2020 (20.7)
  - The average NAEP scores for both reading and math were lower in 2022 (post-pandemic) compared to 2019 (pre-pandemic)
  - The national composite SAT score in 2020 was higher (1051) than in 2023 (1028)
- My hypothesis regarding the correlation between lockdown duration and lower test scores was confirmed for all tests excluding the ACT:
  - The trendlines for the graphs regarding the NAEP and SAT scores show a slight negative relationship
- Limitations
  - NAEP scores unavailable for 2020-2021
- Future directions
  - Find possible correlation between mental health during the pandemic and its relationship to academic performance
  - Examine possible correlation between reduced social activity and academic accomplishment

## Sources

- *Digest of Education Statistics, 2020*. National Center for Education Statistics (NCES) Home Page, a part of the U.S. Department of Education. (2021, March). [https://nces.ed.gov/programs/digest/d20/tables/dt20\\_226.40.asp](https://nces.ed.gov/programs/digest/d20/tables/dt20_226.40.asp)
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