# **Written Assignment - Unit 7**

Computer Science, University of the People

PSYC 1504-01 Introduction to Psychology - AY2024-T4

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**Summary of the study**

The study, Key differences in brain development between autistic boys and girls, by Davis Health, looks into the differences found int the brins of autistic children focusing on the development and differences between boys and girls. The study used a group of children between the ages of 2-13 years old. It used MRI scans of 290 children diagnosed with autism (202 boys, and 88 girls) and an additional 139 children without autism. The children were sourced from the Autism Phenome Project (APP) and the Girls with Autism Imaging of Neurodevelopment (GAIN). The study found there was a difference in the cortex thickness across the gender line. Autistic girls were found to have a thicker cortex layer at age 3 and faster thinning as they grew up compared to the boys. This was an important study to show the need for and importance of making sure to take gender into account. The study used MRI scans of the children done at intervals between the ages of 2 to 13 years old.

**The Conclusions of the study**

The study found that autistic girls at the age of 3 have a thicker cortex layer than non-autistic girls of the same age, with about 9% difference. On the other hand, the difference between the thickness of the cortex layer between autistic and non-autistic boys was much less. On top of this, the autistic girl’s cortex layer thinned much faster as they developed and grew compared to the boys. But by mid-childhood the differences in the cortex layer were less pronounced.

The study concluded by stating that the biological differences and diagnostic biases create the disparity in autism diagnosis. The study also states that it is important to include both genders when conducting future studies into autism so that we get the full picture and not a partial biased result.

**Evaluation**

The study is a good look into the differences along the gender line and autism during brain development. By finding and emphasizing the thinning of the cortical layer in autistic girls the study shows us that it is very important to use early childhood to research and understand this condition. It also is important information towards early diagnosis and treatment even more so for the different genders.

One interesting limitation to the study is the focus on birth gender and not gender identity. It would be interesting to see a future study that also incorporates gender identity alongside birth gender to further see if there are any differences in the development of the brain. Another thing that is limited in the study is the focus on the cortical layer and its thickness, where there might be other brain and neurological structures that are also different and just as important.

**Social impact**

The study has a big impact on society, specifically on the diagnosis of autism. Knowing that there is a clear difference in the development of the brain in boys and girls will help make diagnosing autism more accurate when taking into consideration these facts. This could help reduce the underdiagnosis of autism in girls and help anyone who needs help early on in life.

**Integration with the course**

This study has a few ties to our course textbook, for example, ***neurodevelopment*** and ***longitudinal studies***. The study looks into cortical development which is mentioned in the textbook on how the brain structure changes over a lifetime as a response to both biology and environment. This emphasizes the need to run studies over long periods of time and not just at a single point in an individual’s life.

**Conclusion**

The study highlights the need for and importance of including both genders in studies and research into autism so that we can see the full impact of it over a person’s development and growth. While the findings focus on the biological gender and the differences in cortical thickness, they also call for the need for a more granular approach that can take into consideration the gender identity of the individual and other parts of the brains structure.

## References

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