

Stigmatizing attitudes and gender in adolescents:

Stigma towards ADHD

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Dr. Christopher J. Hand

School of Education

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Abstract

The following is an investigation into the gender differences in stigmatizing attitudes among adolescents to ADHD positive peers which could be used to inform future practice and policy decisions in schools. Secondary data from White et al. was used for the analysis (2020). Data was originally collected via self-report questionnaires to measure stigmatizing attitudes towards vignette characters. Average scores for preferred social distance was calculated for both groups and an independent t-Test was conducted. Results showed a statistical difference between the groups however the difference was small and there are various confounding factors. The results of the study are largely inconclusive, and more research is needed into this topic to understand the relationship between gender and stigma towards mental illness.

Key Words: *mental health; adolescents; stigma; ADHD; gender*

Introduction

This study will investigate the way adolescent students react to peers that display ADHD symptoms, specifically whether there is a difference in preferred social distance to the symptomatic child between male and female peers. For the purposes of this paper males or boys will be used interchangeably to refer to biological males, and females or girls will refer to biological females. There is no data on the participants gender identity other than their biological categorization.

The literature suggest that males and females use different social behavioural models including in how an ADHD diagnosis presents itself (Lau et al., 2021). There has been much research into the outcomes of this divergence for mental health diagnoses, which have consistently shown that males score higher in externalizing behaviours leading them to be much more likely to be diagnosed with ADHD than their female peers who tend to exhibit internalizing behaviours (Lau et al., 2021). This is in line with the general differences between males and females, particularly at a young age, such as elevated aggression and acting out in boys and a higher emphasis on social acceptance for girls. Although it is still unclear how much of the higher diagnosis rate for boys is due to actual population differences as opposed to over-reporting in boys and/or under-reporting in girls by a biased healthcare system, what is clear is that boys with ADHD are more "visible" (Lau et al., 2021).

The stigma associated with ADHD symptoms is similarly well-documented (Jastrowski et al., 2007; Lau et al., 2021; Mukolo & Heflinger, 2011; Na & Mikami, 2018; Tannoia & Lease, 2020; Wiener et al., 2012; White et al., 2020) as is gender homophily in young children (Tannoia & Lease, 2020) implying that boys are statistically more likely to be stigmatized than girls and that girls would prefer a greater social distance than boys to peers with ADHD.

Literature Review

The primary research to be used in this investigation is White et al.'s 2020 study titled *Is disclosing an autism spectrum disorder in school associated with reduced stigmatization?* This study used a vignette and questionnaire model to investigate the effect of diagnosis disclosure on peer stigmatization in adolescent students. Although the researchers' interest was specifically in ASD, they also collected data on attitudes towards neurotypical and ADHD vignettes. This data will be used later to investigate the relationship between gender and stigma towards ADHD, if any.

The study design of vignette and questionnaire is very typical for this type of investigative research. Of the seven papers collected as part of the literature review for this study, five utilized vignettes (Jastrowski et al., 2007; Mukolo & Heflinger, 2011; Na & Mikami, 2018; Wiener et al., 2012; White et al., 2020), all seven utilized questionnaires (Jastrowski et al., 2007; Lau et al., 2021; Mukolo & Heflinger, 2011; Na & Mikami, 2018; Tannoia & Lease, 2020; Wiener et al., 2012; White et al., 2020), and three utilized parent and/or teacher reports (Lau et al., 2021; Tannoia & Lease, 2020; Wiener et al., 2012). Other techniques included interviews (Na & Mikami, 2018; Wiener et al., 2012) and classroom observations (Na & Mikami, 2018; Tannoia & Lease, 2020). None of the studies specifically looked at gender differences in response to the ADHD peer within the classroom, although one study reported that females prefer more social distance to the family of the affected child but not to the child itself. As this study was of adult attitudes towards children with ADHD, it is of limited applicability.

The current study

The hypothesis to be tested in this paper is that there is a statistically significant difference between boys and girls in mean social distance scores with girls scoring higher. If

there is a statistically significant difference this may have implications for school policy, teacher practice, and adult intervention models currently in use.

Method

Mean, variance, standard deviation and error were calculated for each group and analyzed by an independent T-Test. Additionally, histograms were made for each group and a regression analysis was conducted for further confirmation of results.

Participants

An original sample size of 250 students was collected in the original research of which 248 were analyzed. Of this number a subset of 212 was selected for this investigation for reasons of usability, e.g. availability of gender information. This dataset was divided into two groups, 111 males and 101 females. Two age groups were present, 11-12 and 14-16. The participants all attended the same secondary school which was recruited for the study by opt-in. Consent was obtained through an opt-out mechanism for parents and an opt-in mechanism for students (White et al, 2020).

Materials

Stimuli/Apparatus

The participants were shown vignette profiles of three imaginary boys, one neurotypical, one with ASD, and one with ADHD. Stock pictures were included with the vignettes as well as character descriptions including both positive and negative attributes. The participants classes were assigned roughly half and half to the disclosure condition and non-disclosure condition of the ASD diagnosis and all students in the same class were in the same condition. It is unstated whether the ADHD diagnosis was disclosed in the vignettes (White et al, 2020).

Measures

The participants were then given self-report questionnaires to capture demographic data and a set of scales to assess their attitudes towards the fictional adolescents in the vignettes. Scales for Social Distance, Personal Responsibility, and Negative Affect were used for assessing stigma. This investigation is uniquely interested in the Social Distance Scale, which consists of eight items designed to capture different stigmatizing attitudes with a 5-point scale (1=Strongly disagree to 5 = Strongly agree). Higher scores reflect the desire for more social distance to the boy. This scale was adapted from three different scales long used in studies of this type for Social Distance, Shared Activities, and Openness (White et al, 2020).

Design & Procedure

Secondary data was used from White et al.'s (2020) study on effects of disclosure of ASD diagnosis on peer stigmatizing attitudes. For this investigation gender was selected as the independent variable (IV) and Social Distance Score as dependent (DV). As a preliminary step the data was analyzed by simple descriptive statistics and visuals were modeled. An independent two-tail T-Test was conducted to compare the means of the two subgroups, male and female, and look for a statistical difference. Further confirmation of results was obtained via regression analysis (Appendix A).

Ethical considerations

Consent for all involved was obtained in three ways. First the school chose to opt-in when offered the chance to participate, second parents were given an opt-out option if they didn't want their child to participate, and finally the participants had to opt-in on the day of the study and were free to refuse participation. 0.8% of pupils chose not to participate. All responses were collected anonymously to protect participant confidentiality (White et al., 2020). As this investigation is using secondary data, special consideration must be given to the

original intent of the participants and original researchers. Since this investigation bears high similarity in design and purpose to the one carried out by the original team, it is assumed with reasonable confidence that the data is being used ethically.

Data analysis

The IV was used to separate the two groups which are the subject of the investigation. The DV was used to calculate mean, standard deviation, standard error of the mean, and variance. This data was then used to create visual representations of the two subgroups in the form of Mean Social Distance bar chart with error bars (Figure 1) as well as histograms of the distribution of the two groups (Appendix A). Finally, the raw data, IV and DV, were used to conduct an independent two-tail T-Test (Table 1). Further confirmation was obtained via a Regression Analysis (Appendix A).

Results

The male group (N=111) had a mean social distance value of 23.09, SD 4, SEM 0.41, and variance of 54.61. The female group (N=101) had a mean social distance score of 21.36, SD 5, SEM 0.52, and variance of 26.96. The means are represented in Figure 1 below. The histograms of the distribution showed a normal central distribution although the male group had a second peak on the high end. The independent t-Test, represented in Table 1, showed a significant difference between the groups [p-value = 0.037]

Figure 1. Bar chart of average ratings of Social Distance for vignettes describing a pupil with ADHD diagnosis for male and female participant subgroups.

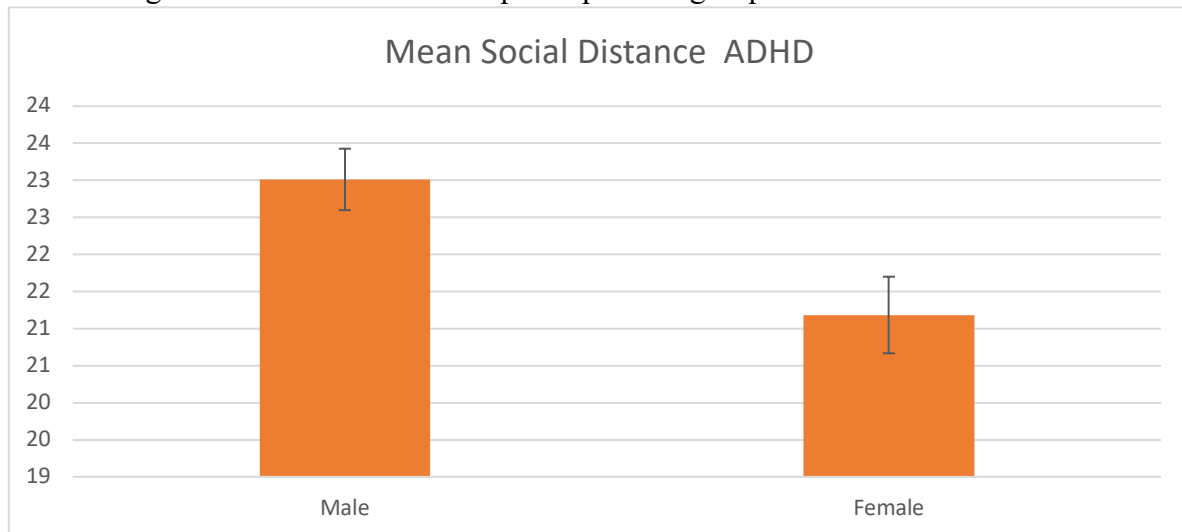


Table 1: Two-Sample t-Test Assuming Unequal Variances

	<i>Male</i>	<i>Female</i>
Mean	23.01287001	21.18387552
Variance	54.60502759	26.96258629
Observations	111	101
Hypothesized Mean Difference	0	
df	198	
t Stat	2.099529516	
P(T<=t) one-tail	0.018518626	
t Critical one-tail	1.652585784	
P(T<=t) two-tail	0.037037251	
t Critical two-tail	1.972017478	

Discussion

The results of the study are largely inconclusive. The female group had a lower mean than the male which is contrary to the stated hypothesis that the girls would prefer greater distance than the boys, however the means were very close to each other, suggesting that whatever difference exists is small. On the other hand, the variance was roughly double for the male group, likely due to the second peak at the high end of the distribution which may have skewed the results. This suggests the existence of a small subset of boys that prefer maximum distance. Notably the female group had no responses at the high end of the distribution. There could be many explanations for this, and more data is needed to see if this is a repeatable

pattern. If it is then it may suggest that adolescents with ADHD will face increased stigmatization for boys particularly at the extreme range of the distribution, which may have implications for bullying-prevention policies. Further analysis could also be done which excludes these outliers to see the differences in the majority of the group. The root cause of this difference could simply be attributed to increased aggression and anti-social tendencies in adolescent boys compared to girls, or there could be other undiscovered factors which merit further investigation.

Another limitation of this study is that the results were gathered via self-report questionnaires and vignettes, leading to the possibility of response bias as well as different results in real world situations. To more accurately assess the real-life experiences of ADHD positive adolescents it may be necessary to use real world data such as bullying incidence data however this is notoriously difficult to collect accurately due to incomplete reporting. Additionally, all of the vignettes used in the study were of adolescent boys, which may have implications for how both groups responded given the relative lack of opposite-sex bullying compared to same-sex bullying.

The t-Test showed a statistical, albeit small, difference between the averages of the groups leading to a rejection of the null hypothesis. Regression analysis (Appendix A) also showed a statistical difference with a Significance F of 0.031, however with an R Square of 0.022 it also showed that the variation between the groups that is attributable to gender is small.

Conclusion

The results are inconclusive, and more research is needed to understand the complicated interplay dynamics of gender, mental illness, and stigma within adolescents. Although the results showed a statistically significant difference between groups, thus rejecting the null hypothesis, the difference is small and the gender accounts for very little of the variance.

References

- Jastrowski, K.E., Berlin, K.S., Sato, A.F., & Davies, W.H. (2007). Disclosure of attention-deficit/hyperactivity disorder may minimize risk of social rejection. *Psychiatry*, 70(3), 274-282.
- Lau, T.W.I., Lim, C.G., Acharryya, S., Lim-Ashworth, N., Tan, Y.R., & Fung, S.S.D. (2021). Gender differences in externalizing and internalizing problems in Singaporean children and adolescents with attention-deficit/hyperactivity disorder. *Child and Adolescent Psychiatry and Mental Health*, 15(3), 1-11.
- Mukolo, A., & Heflinger, C.A. (2011). Factors associated with attributions about child health conditions and social distance preference. *Community Mental Health Journal*, 47, 286-299.
- Na, J.J., & Mikami, A.Y. (2018). Pre-existing perceptions of adhd predict children's sociometrics given to classmates with adhd. *Journal of Child and Family studies*, 27, 3218-3231.
- Tannoia, D.P., & Lease, A.M. (2020). Link between inattentive, hyperactive/impulsive, and disorganized behaviors and peer disliking analyzed with quadratic assignment procedure. *Journal of Child and Family studies*, 29, 1123-1135.
- Wiener, J., Malone, M., Varma, A., Markel, C., Biondic, D., Tannock, R., & Humphries, T. (2012). Children's perceptions of their adhd symptoms: Positive illusions, attributions, and stigma. *Canadian Journal of School Psychology*, 27(3), 217-242.
- White, R. Barreto, M., Harrington J., Kapp, S.K., & Russell, G. (2020). Is disclosing an autism spectrum disorder in school associated with reduced stigmatization? *Autism*, 24(3), 744-754

Appendix A

Figure 2. Histogram distributions of male and female social distance scores

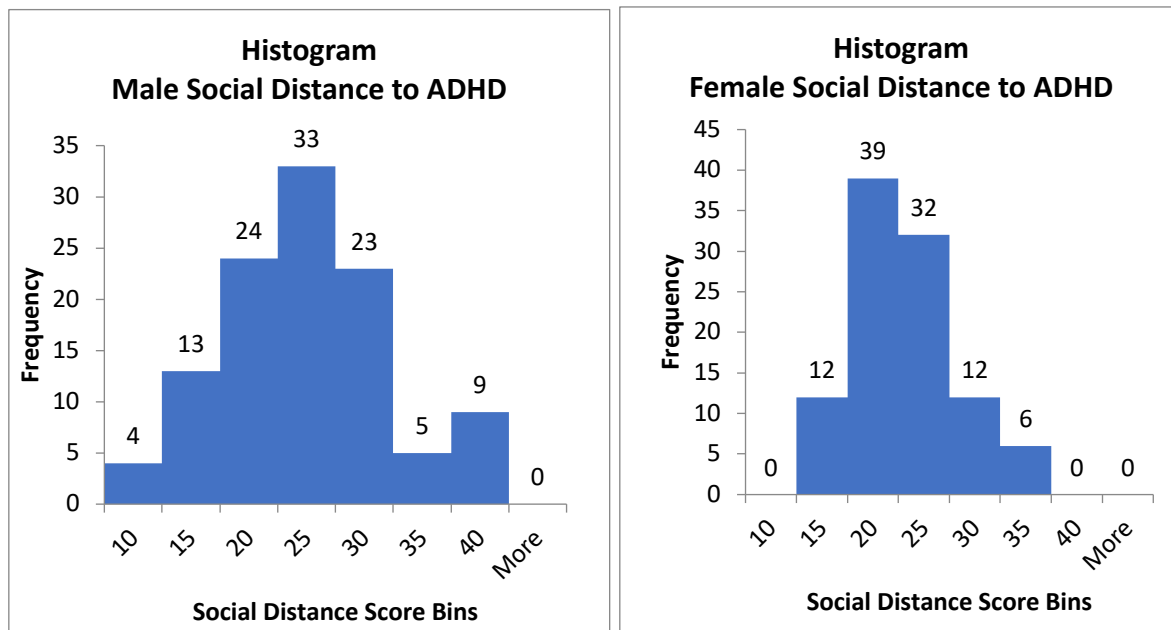


Figure 3: Regression analysis output

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.147
R Square	0.022
Adjusted R Square	0.017
Standard Error	6.429
Observations	211.000

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	190.45	190.45	4.61	0.03
Residual	209	8638.02	41.33		
Total	210	8828.47			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	24.99	1.38	18.07	0.00	22.26	27.71
1	-1.90	0.89	-2.15	0.03	-3.65	-0.16