

ADHD Symptomology in Children and Adolescents during the COVID-19 Pandemic

Chelsea Chen, Maria Rogers, Yuanyuan Jiang, Janet Mah, Emma Climie



ADHD symptom severity increased through the pandemic, especially in older children when initial symptom severity is considered.

INTRODUCTION Children and adolescents with ADHD are exceptionally vulnerable to being negatively impacted by the COVID-19 pandemic due to disruptions to routine, remote learning difficulties, and reduced access to services. In Canada, there is a need for longitudinal research on the impacts of the pandemic response on children and adolescents' ADHD symptomology.



RESEARCH QUESTIONS

- (1) How did Canadian children's and adolescents' ADHD symptom severity change throughout the pandemic?
- (2) How does a child's developmental stage at the onset of the pandemic impact ADHD symptomology change during and post-pandemic?

METHODS A Canada-wide, observational, longitudinal study with four time points spanning 2021 to 2023. Parents of children with and without ADHD, ages 3 – 18, answered a 30-45min questionnaire via Qualtrics. We used ADHD subscales from the Child and Adolescent Symptom Inventory–Progress Monitor–Parent Form to operationalize ADHD severity in three ways: overall, Hyperactive/impulsive, and Inattentive.

- (1) We conducted paired-sample t-tests
- (2) We conducted three linear regressions, one for each of the three outcome variables, with child's grade, and the interaction between symptomology and grade at T1 as predictors.

RESULTS & DISCUSSION

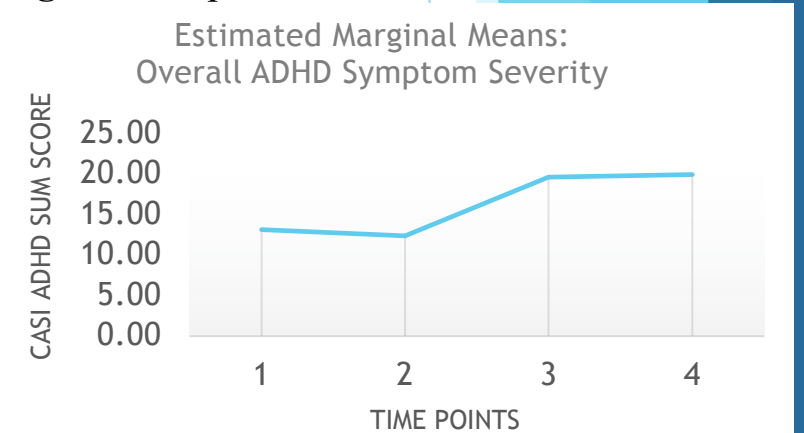
- From spring 2021 to spring 2023, ADHD symptomology showed an increase, with hyperactive/impulsive symptom severity ($\bar{x} = 3.72$, $SD = 2.91$, $N = 105$,) increasing slightly more than inattentive symptoms ($\bar{x} = 3.29$, $SD = 2.66$, $N = 105$)
- Age alone was not a significant predictor for ADHD symptom change. However, when initial symptom severity is considered, children who were older at the beginning of the pandemic were more likely to show increased ADHD symptom severity as the pandemic progressed.
- This suggests that the combination of age and the initial symptom severity is important in explaining changes in symptom severity over time and that the relationship between age and symptom severity change may vary depending on the initial symptom severity level.

IMPLICATIONS

- Supports timely and effective prevention and mitigation interventions to address the specific needs of families and children with ADHD during, before, and after pandemic-like events.
- Informs appropriate allocation of resources by educators, health professionals, and policymakers, especially when resources are limited..

More Results and Figures

Figure 1. Repeated-measures ANOVA



Overall: $F(3, 168) = 141.1$, $p < .001$, $N = 228$
Hyperactive: $F(3, 168) = 91.78$, $p < .001$, $N = 228$
Inattentive: $F(3, 168) = 91.39$, $p < .001$, $N = 228$

Table 1. Paired-sample t-test between T1 and T4

x	Sample mean		
	Overall ADHD	Hyperactive	Inattentive
T1	12.16 (SD = 3.67)	5.92 (SD = 2.17)	6.24 (SD = 1.96)
T4	19.17 (SD = 4.10)	9.65 (SD = 2.41)	9.52 (SD = 2.36)

Overall: $t(104) = 16.42$, $p < .001$, $d = 4.66$, 95% CI = [1.22, 1.78]
Hyperactive: $t(104) = 16.42$, $p < .001$, $d = 2.91$, 95% CI = [1.02, 1.53]
Inattentive: $t(104) = 16.42$, $p < .001$, $d = 2.66$, 95% CI = [.98, 1.4]

Regression results

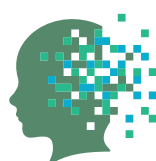
The relationship between age and symptom severity change was not statistically significant for overall symptomology ($t(105) = .024$, $p = .98$, $R^2 = .00$), hyperactive ($t(105) = 1.10$, $p = .27$, $R^2 = .01$), and inattentive ($t(105) = -1.17$, $p = .25$, $R^2 = .01$).

However, when the interaction between age and symptom at T1 is entered as a second predictor ($F(2, 102) = 18.54$, $p < .001$, $R^2 = .27$), age showed a significant positive effect on overall symptomology change ($B = 1.85$, $SE = .33$, $p < .001$), and the interaction term showed a small but significant negative effect ($B = -.14$, $SE = .024$, $p < .001$).

This is also true for hyperactivity/impulsiveness ($F(2, 102) = 29.45$, $p < .001$, $R^2 = .37$) and inattentiveness ($F(2, 102) = 9.32$, $p < .001$, $R^2 = .15$) symptom change.



Carleton
University



ROGERS
Child Mental Health Labs



uOttawa