

ADHD Symptoms and Substance Use among Indigenous Adolescents: A Hazard Analysis

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Introduction

Adolescents diagnosed with ADHD are at higher risk for developing substance use/abuse disorder compared to their non-ADHD counterparts (Biederman et al., 2006). Moreover, recent studies suggest that even non-clinical levels of ADHD symptomatology may predict adolescent substance use/abuse (Glass & Flory, 2012). Importantly, no attempts have been made to examine ADHD symptoms as a risk factor for the development of substance use/abuse among indigenous adolescents, despite the high rates of substance use/abuse reported among this population (Whitbeck et al., 2008).

Purpose

The present study examined ADHD symptoms as a risk factor for the development of nicotine dependence, alcohol abuse/dependence, and marijuana abuse/dependence in a large sample of Indigenous youth as they progressed from early to late adolescence.

Method

Participants & Procedure

- 674 Indigenous adolescents (50% female)
- 3 data collection time-points:
 - Time 1 *M* age = 11.10 years (*SD* = .83)
 - Time 2 *M* age = 14.28 years (*SD* = .98)
 - Time 3 *M* age = 18.28 years (*SD* = .83)

Measures

Diagnostic Interview Schedule for Children (DISC-IV; Shaffer et al., 2000)

- ADHD symptoms
- Conduct disorder diagnoses (7.6% at Time 1)
- Nicotine dependence (20.2% at Time 3)
- Alcohol abuse/dependence (39.5% at Time 3)
- Marijuana abuse/dependence (32.7% at Time 3)

Results

Analytic Strategy

Cumulative lifetime rates for each substance use disorder by wave are presented in Figure 1a. Hazard rates for each substance use disorder by wave are depicted in Figure 1b. Discrete-time hazard models were estimated using Mplus 6.1 (Muthén & Muthén, 1998), in which the target variable at each wave was used as observed indicators of a latent factor. Conduct disorder was included as a control variable (see Table 1 for model results).

Main Findings

- **Conduct disorder:** Adolescents with a conduct disorder diagnosis were at greater risk for developing nicotine dependence, alcohol abuse/dependence, and marijuana abuse/dependence.
- **ADHD symptoms:** Inattentive, hyperactive-impulsive, and combined symptoms were significantly associated with subsequent risk for nicotine dependence, alcohol abuse/dependence, and marijuana abuse/dependence, even after considering the contribution of conduct disorder.

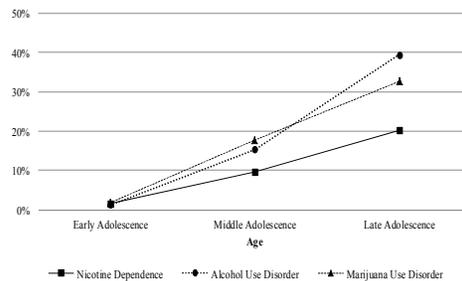


Figure 1a. Cumulative life-time rates for each substance use disorder by wave

Figure 1b. Hazard rates life-time rates for each substance use disorder by wave

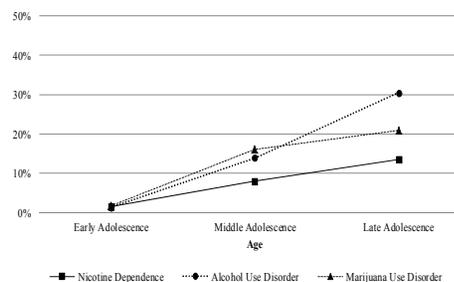


Table 1. Results for discrete-time series hazard models

	Nicotine			Alcohol			Marijuana		
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>B</i>	<i>SE</i>	<i>OR</i>
Inattentive Model									
ADHD Symptoms	.13	.04	1.14*	.12	.03	1.13*	.10	.03	1.11*
Conduct Disorder	.62	.26	1.85*	.58	.22	1.79*	1.11	.22	3.02*
Hyperactive-Impulsive Model									
ADHD Symptoms	.12	.04	1.13*	.10	.03	1.10*	.11	.03	1.12*
Conduct Disorder	.57	.27	1.76*	.58	.22	1.79*	1.04	.23	2.83*
Combined Model									
ADHD Symptoms	.08	.02	1.08*	.07	.02	1.07*	.07	.02	1.07*
Conduct Disorder	.54	.27	1.71*	.53	.22	1.71*	1.03	.23	2.80*

Note: *b*=unstandardized coefficient; *SE*= standard error; **p* < .05; *OR* = odds ratio.

Discussion

- Even non-clinical levels of ADHD symptomatology may increase the risk for developing substance abuse disorders during adolescence.
- Regardless of subtype distinction, ADHD symptoms represent a risk for the development of substance use disorders among Indigenous youths.

Implications

Our results highlight the utility of examining ADHD symptoms in understanding the development of substance use/abuse among indigenous adolescents.

- **Assessment:** Substance use/abuse evaluations will benefit from incorporating assessments of ADHD symptoms and conduct disorder to rule out the possibility of increased risk for substance use /abuse resulting from these conditions.
- **Treatment:** Reducing substance use/abuse may benefit from incorporating therapeutic efforts to alleviate ADHD symptoms.
- **Intervention:** Early identification of adolescents presenting ADHD symptoms may inform prevention efforts aimed at reducing the risk for developing substance use/abuse by identifying vulnerable individuals.

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