

# Smoking Cessation During Treatment Among Youth With and Without ADHD

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## INTRODUCTION

- Tobacco use is the number one preventable cause of disease, disability and death in the US<sup>1</sup>
- Three out of four patients entering treatment smoke<sup>2,3</sup>
- ADHD doubles smoking rate in youth<sup>4</sup>
- Smoking cessation improves outcomes among adult patients<sup>5</sup>
- Study aim:** This is the first study to examine impact of smoking cessation on treatment response among youth with and without ADHD

## METHODS

- 195 youths (50% F, 30% black) aged 14-18
- Recruited in Northeast Ohio
- Assessed at intake, weekly for 8 weeks, at discharge
- Data sources: youth interviews, clinician reports, biomarkers, medical records
- 4 outcomes:
  - quitter status
  - treatment response (12-step participation including AA-related helping and meeting attendance, drug use, global functioning)
- Predictors: quitter status, ADHD
- Covariates: background, intake severity (clinical, addiction, nicotine)
- Fisher's exact test, Kruskal-Wallis  $\chi^2$  test
- Multivariate regressions predicting 4 outcomes

## REFERENCES

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## SAMPLE AT INTAKE

Table 1. Intake profile of sample

intake variable	total 195,100%	smoking 149,76%	not smoking 46,24%
background			
male	93 (48%)	70 (47%)	23 (50%)
minority	59 (30%)	43 (29%)	16 (35%)
hispanic	15 (8%)	13 (9%)	2 (4%)
age (years)	16.2 (1.1)	16.3 (1.1)	15.3 (1.0)
9-10 <sup>th</sup> grade	119 (62%)	85 (58%)	34 (74%)
single parent	98 (50%)	74 (50%)	24 (52%)
parent education <HS	114 (74%)	107 (72%)	37 (80%)
rural/small town	103 (53%)	78 (52%)	25 (54%)
good health	133 (68%)	101 (68%)	32 (70%)
ADHD	113 (58%)	97 (65%)*	16 (36%)
attempted suicide	46 (24%)	41 (28%)*	5 (11%)
trauma experiences	1.7 (1.5)	1.9 (1.4)*	1.2 (1.4)
property crimes	2.1 (1.4)	2.2 (1.4)	2.0 (1.3)
violent crimes	1.7 (1.6)	1.8 (1.7)	1.5 (1.3)
AOD severity			
readiness for change	11.0 (2.5)	10.9 (2.5)	11.2 (2.5)
years of use	3.4 (1.5)	3.4 (1.5)	3.3 (1.6)
12-step			
service	25.1 (10.4)	26.5 (10.5)	26.2 (10.5)
meeting attendance	2.8 (7.3)	5.2 (12.8)	4.7 (11.7)
step-work	63.5 (13.7)	63.1 (14.1)	65.0 (12.1)
Outcomes			
percent days using	0.6 (0.3)	0.6 (0.3)	0.5 (0.2)
at intake			
cravings	33.5 (11.3)	33.8 (11.4)	32.6 (11.1)
functioning	49.5 (2.7)	49.6 (2.7)	49.2 (2.3)

notes: \*p<.05. \*\*p<.01: AOD=alcohol and other drugs

## RESULTS

- Table 1. At intake, smokers → more trauma, suicide attempts, ADHD
- Table 2.
  - 50% of smokers had no cigarettes during treatment
  - ADHD: 4 X less likely to quit during treatment
  - Quitters and Continuing Smokers with and without ADHD similar at intake
- Table 3.
  - ADHD → less step-work and service (unless quitter)
  - Continuing Smokers → higher drug cravings, but more step-work (unless co-morbid ADHD)
  - Continuing Smokers with ADHD → lowest step-work, service
  - Continuing Smokers w/o ADHD → service participation similar to quitters with or without ADHD

## PREDICTORS OF SMOKING CESSATION

Table 2. Characteristics associated with quitting versus continuing to smoke during treatment

intake variable	Estimate (SE)	$\chi^2$	p	OR	95% CI
background					
male	-0.41 (0.41)	0.98	0.32	0.66	0.29, 1.50
minority	-0.40 (0.46)	0.75	0.38	0.66	0.27, 1.67
hispanic	-1.21 (0.71)	2.88	0.09	0.29	0.07, 1.22
age	-0.04 (0.18)	0.06	0.79	0.95	0.66, 1.38
single parent	-0.55 (0.40)	1.83	0.17	0.57	0.26, 1.28
parent education	0.03 (0.16)	0.04	0.82	1.03	0.75, 1.44
rural_sm	-0.84 (0.44)	3.61	0.06	0.42	0.18, 1.03
health	-0.07 (0.43)	0.03	0.86	0.92	0.39, 2.19
clinical					
adhd	1.96 (0.44)	19.80	0.0001	4.12	3.00, 6.01
attempted suicide	-0.44 (0.45)	0.95	0.32	0.64	0.26, 1.55
trauma experiences	0.18 (0.14)	1.63	0.20	1.20	0.91, 1.60
property crimes	0.23 (0.16)	1.99	0.15	1.27	0.91, 1.77
violent crimes	-0.24 (0.14)	2.72	0.09	0.78	0.59, 1.05
AOD severity					
readiness for change	-0.13 (0.24)	0.30	0.58	0.87	0.54, 1.41
years of use	-0.21 (0.57)	0.13	0.71	0.81	0.26, 2.52
nicotine					
no.days smoking	0.01 (0.02)	0.65	0.41	1.01	0.98, 1.06

## DISCUSSION

- ADHD decreases likelihood of smoking cessation
- Smokers discharged with higher drug cravings but more focused during treatment unless impaired by ADHD
- Less focus from not smoking counteracted through service participation
- Clinical Implications:**
  - Smokers with ADHD aided by service participation
  - Consider stimulants for ADHD during AOD treatment

## SMOKING CESSATION & TREATMENT RESPONSE

Table 3. Treatment response among smokers versus quitters with and without ADHD

treatment response variable	total	smoking (74)		not smoking	
		no adhd	adhd	no adhd	adhd
	149 (100%)	13 (19%)	61 (81%)	39 (51%)	36 (49%)
treatment duration (weeks)	10.3 (2.4)	10.7 (2.5)a	9.9 (2.8)a	10.4 (2.0)a	10.6 (1.9)a
12-step					
meeting attendance	30.5 (17.2)	26.4 (5.1)a	23.0 (3.4)a	27.5 (3.9)a	25.5 (4.3)a
step-work	72.5 (11.3)	77.5 (3.3)a	66.5 (2.5)c	70.5 (2.7)b	70.5 (2.9)b
service	35.4 (8.8)	34.9 (2.5)a	26.9 (1.6)b	32.4 (1.9)a	31.6 (2.1)a
outcomes					
percent days using	0.5 (0.4)	0.5 (0.1)a	0.4 (0.1)a	0.5 (0.1)a	0.6 (0.1)a
cravings	9.4 (8.8)	10.7 (2.9)a	10.6 (1.8) a	4.0 (2.1)b	6.1 (2.9)b
functioning	61.3 (6.0)	59.9 (1.6)a	56.6 (1.1)a	59.1 (1.3)a	58.6 (1.4)a

NOTES: comparisons control for intake variables in Table 1: no differences between groups with same letter

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