



Smoking Cessation and Adolescent Treatment Outcomes

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Background

- Cigarette smoking is the leading preventable cause of death
- 3 of 4 patients with substance use disorders (SUD) smoke
- Quitting smoking does not hinder and can improve AOD treatment response in adults
- Early initiation of smoking compounds tobacco-related health problems
- Impact of smoking cessation on adolescent treatment response unclear

Study Aims

- To explore impact of smoking cessation on youth AOD use, psychosocial functioning, and 12-step participation during treatment

Methods

Subjects

- 195 adolescents (102 girls, 93 boys) enrolled from Feb. 2007- Aug. 2009
- Inclusion criteria: ages 14-18 years, stable address, DSM-IV SUD diagnosis
- Exclusion criteria: chronic medical problem likely to require hospitalization, current suicidal/homicidal ideation, impending incarceration
- 175(90%) completed treatment, 10(5%) prematurely discharged, 6(4%) discharged to a higher-level facility, and 4(2%) hospitalized for medical complications

Procedures

- 90-minute assessment at intake and discharge
- Semi-structured interviews, medical chart review, biomarkers, clinician-, parent- and youth-reports
- Subjects paid \$25 for completed assessments
- Approved by the University Hospitals Case Medical Center Institutional Review Board
- NIAAA Certificate of Confidentiality

Measures

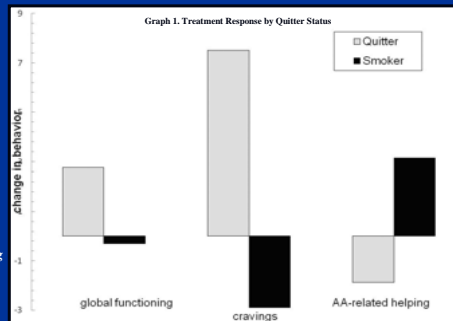
- Background characteristics (Table 1)
- AOD severity indices: treatment history, readiness for change, levels of AOD use
- Outcome variables: AOD use (urine toxicology screens, AOD cravings), psychosocial functioning, 12-step participation (meeting attendance, AA-related helping)

Statistical Analysis

- SAS Version 9.2
- Fisher's exact test
- Wilcoxon rank-sum test
- Multivariate regression analyses
- Model covariates: age, gender, race, parental marital status and education, felony history, AOD severity indices

Smoker Characteristics	Total (N=195, 100%)	Non-smokers (N=46, 24%)	Smokers (N=149, 76%)
Background			
Age (M,SD)	16.2(1.1)	15.9(1.0)	16.3(1.1)
Male	93 (48%)	23 (50%)	70 (47%)
Ethnicity	59 (30%)	16 (35%)	43 (29%)
Race	15 (8%)	2 (4%)	13 (9%)
Single parent household	98 (50%)	24 (52%)	74 (50%)
Parental IPV (inpatient or time)	101 (52%)	37 (80%)	101 (67%)
Felony history	108 (56%)	37 (80%)	101 (67%)
AOD			
Prior treatment*	33 (17%)	1 (2%)	28 (19%)
Readiness for change (M,SD)	0.8 (0.1)	0.8 (0.1)	0.7 (0.1)
% of days using alcohol	0.20 (0.21)	0.12 (0.04)	0.22 (0.18)**
alcoholism	0.02 (0.10)	0.01 (0.02)	0.02 (0.08)
hallucinogens	0.01 (0.04)	0.01 (0.02)	0.01 (0.03)**
cocaine	0.02 (0.07)	0.00 (0.01)	0.02 (0.07)**
marijuana	0.21 (0.38)	0.00 (0.20)	0.42 (0.39)**
inhalants	0.04 (0.13)	0.01 (0.07)	0.05 (0.16)**
sedatives	0.02 (0.08)	0.01 (0.02)	0.02 (0.10)
stimulants	0.06 (0.20)	0.00 (0.20)	0.11 (0.36)**
12-Step			
AA-related helping (M,SD)	26.2 (10.3)	23.1 (10.4)	26.5 (10.3)
Meeting attendance (M,SD)	8.0 (3.1)	7.6 (3.1)	8.7 (3.1)
Discharge at intake			
AOD severity (M,SD)	33.8 (11.3)	28.8 (11.3)	34.8 (11.3)
Global Functioning (M,SD)	49.5 (2.1)	49.2 (2.1)	49.6 (2.1)

Intake Characteristics	12-Step Variables				Outcome Variables			
	AAH	M	M	N	AOD Cravings	Global Functioning	Tobacco cessation	N
Quitter Status	0.1 (0.1)	0.1*	0.1 (0.1)	1.6	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	44*
Intake variables								
Age	1.1 (0.0)	1.1*	1.1 (0.0)	0.1	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	0.9
Male	0.1 (0.0)	0.1	0.1 (0.0)	1.8	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	1.5
Ethnicity	0.1 (0.0)	0.1	0.1 (0.0)	2.4	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	1.1
Single parent household	-0.1 (0.0)	0.0	-0.1 (0.0)	0.3	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	3.2
Parental IPV (inpatient or time)	0.1 (0.0)	0.1	0.1 (0.0)	0.4	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	0.3
Felony history	0.1 (0.0)	0.1	-0.1 (0.0)	0.2	0.1 (0.1)	-0.1 (0.1)	0.1 (0.1)	0.2
Prior treatment	1.1 (0.0)	1.1*	1.1 (0.0)	0.3	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	32.0**
Readiness for change	0.1 (0.0)	0.1	0.1 (0.0)	0.8	-0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	1.1
Prior treatment	0.1 (0.0)	0.1	0.1 (0.0)	1.1	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	4.8
No days smoking	-0.1 (0.0)	0.1	-0.1 (0.0)	1.2	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	3.2



Results

Intake Characteristics (Table 1)

- 195 youth
 - 48% male
 - Average age 16.2 years
 - 50% with single parent
 - 30% African-American, 8% Hispanic
 - 87% with felony history
 - 99% with substance dependence, 61% with comorbid alcohol dependence, 92% with comorbid marijuana dependence
 - Limited 12-step participation
 - 75% were smokers
 - Youths smoked 1 pack per day on most days
- Youth smokers presenting at intake had less abstinence in the prior month and used more alcohol, hallucinogens, marijuana, and inhalants than non-smokers

Discharge Characteristics (Table 2)

- 90% completed treatment
- 49% of smokers did not smoke during treatment
- Quitters vs. continued smokers: similar intake profile, treatment completion rates
- Similar NRT rates for continued smokers (4%) and quitters (6%)

Smoking Cessation and Treatment Response (Graph 1)

- Quitters 60% less likely to test positive for AOD ($p < .05$)
- Greater reduction in AOD cravings among quitters ($p < .01$)
- Greater increase in psychosocial improvements among quitters ($p < .01$)
- Greater service participation among quitters ($p < .05$)

Acknowledgements:

The presenters wish to thank the New Directions program, staff, and participants in this study.

Role of Funding Source: This research was supported in part by grants awarded to Dr. Pagano from the National Institute on Alcohol Abuse and Alcoholism (NIAAA, K01 AA015137) and the John Templeton Foundation (JTF #13591). The NIAAA and JTF had no further role in study design; in the collection, analysis, and interpretation of data.

Discussion

- First study to explore impact of smoking cessation on adolescent treatment response
- Large sample of high-risk juvenile offenders with substance dependence, including 102 girls
- Rigor of assessments (biomarkers, TLFB, multiple informants)
- Advanced analytic methods
- Naturalistic study in clinical care setting
- Youth smokers enter treatment with greater addiction severity than non-smokers
- Youths who quit smoking had greater AOD and psychosocial improvements than youths who continued to smoke
- Increased likelihood of quitting smoking with AA-related helping

Clinical Implications

- Findings support smoke-free environments
- Integration of tobacco interventions/NRT into treatment
- Educate patients and staff that smoking cessation is feasible and associated with improved AOD outcomes
- Encouraging AA-related helping may further quit attempts

Future Research

- Explore the causality between smoking cessation, AA/NAAA-related helping and AOD treatment outcomes
- Studies about sustaining tobacco abstinence after treatment