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Short communication

Smoking cessation efforts among substance abusing adolescents

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Abstract

Available research demonstrates that substance abusing youth are heavy cigarette smokers for whom the behavior persists into adulthood. As such this population represents an important target for intervention. In order to inform treatment design, the present paper described cessation efforts, including motives and methods for quitting, in a sample of cigarette smoking adolescents who received inpatient or outpatient treatment for substance abuse. The 183 participants were on average 16.2 years old, 45% were females, and 72% were white. Consistent with studies of community and high risk youth samples, the majority of participants had previously attempted cessation, yet reported little success in maintaining abstinence. Health emerged as a frequently endorsed motive for cessation and stopping abruptly (cold turkey) was the most commonly reported strategy for quitting.

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Keywords: Adolescents; Smoking cessation; Substance abuse**1. Introduction**

Recent years have seen increasing attention to the issue of adolescent smoking cessation, with a growing number of studies examining interventions and factors related to cessation. Existing studies demonstrate that substance abusing adolescents smoke at substantially higher rates than youth in the general population (Upadhyaya et al., 2002; Myers and Brown, 1994), have a high rate of smoking persistence (Myers and Brown, 1997), and evidence tobacco-related health consequences (Myers and Brown, 1994). These data highlight the importance of smoking cessation treatment for this population.

To date, no published reports have described naturalistic smoking cessation efforts among clinical samples of substance abusing youth. Research with general population samples indicates that more than half of adolescent smokers report intentions to quit smoking and a majority report prior cessation attempts (Burt and Peterson, 1998; Ershler et al., 1989; Stanton et al., 1996; Sussman et al., 1998b). However, data on the duration of adolescent abstinence following ces-

sation attempts demonstrate a frequent and rapid return to smoking (Burt and Peterson, 1998; Pierce et al., 1998; Zhu et al., 1999). Thus, it appears that a majority of adolescent smokers desire to quit smoking and engage in cessation attempts, yet experience little success. Whether these patterns hold among adolescent substance abusers is currently unknown.

Despite recent attention to the issue of adolescent smoking cessation (Henningfield et al., 2000), little is known regarding features of smoking cessation efforts, such as motives for cessation and methods of quitting, among high risk youth or adolescents in general. A few published studies have examined adolescents' motives or reasons for wanting to quit smoking. Health concerns were most consistently endorsed as reasons for quitting across all studies reviewed (Stone and Kristeller, 1992; Dozois et al., 1995; Sussman et al., 1998a; Stanton et al., 1996; Riedel et al., 2002). Other reported motives included pressure from peers, expense (Sussman et al., 1998a), concern about being addicted (Stone and Kristeller, 1992), and pressure from family members (Riedel et al., 2002).

Few studies have addressed methods employed during adolescent efforts at smoking cessation. In a focus group study (Balch, 1998), adolescent participants identified quitting "cold turkey" (stopping abruptly), gradual reduction and

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quitting together with a friend as potential methods for quitting. In a survey of out-of-school youth in Australia who were at least weekly smokers (Stanton et al., 1999), stopping abruptly was endorsed most frequently as the preferred strategy, followed by cutting down slowly, not buying cigarettes, changing to a lower nicotine brand and using a cessation program. However, findings from these studies did not necessarily reflect methods actually employed by participants during cessation attempts. Currently we know little about strategies employed by substance abusing and other adolescents in their efforts at smoking cessation. Greater understanding of adolescent motives for smoking cessation and the nature of cessation efforts may serve to inform intervention design.

The goals of the present paper were to describe cessation efforts for cigarette smoking adolescents receiving inpatient and outpatient treatment for alcohol and other drug abuse. Frequency of past and current cessation efforts, as well as self-efficacy and motivation for cessation, were described for the full sample. In addition, characteristics of smoking cessation efforts, including duration of abstinence, and motives and methods used for cessation were described for adolescents who had previously attempted cessation. Such information may prove valuable for the design of smoking cessation interventions for this adolescent population.

2. Subjects and methods

2.1. Subjects

Included in the present study were 183 adolescents who had ever smoked at least weekly and were drawn from three studies of adolescent substance abusers. Informed consent was obtained separately from adolescent participants and a parent/legal guardian (for those under 18 years of age). The included participants were on average 16.2 years of age ($S.D. = 1.2$; range, 13.0–18.8), 83 (45%) were females, and 72% were White, 16% Hispanic, 5% Asian-American and 7% of other ethnicities. Participants met DSM-III-R (American Psychiatric Association, 1987) diagnostic criteria for abuse or dependence on at least one substance (other than nicotine). Table 1 reports demographics separately for inpatients, outpatients, and the full sample. The inpatient sample included 92 of 104 adolescent participants in a single study of outcome following inpatient substance abuse treatment conducted from 1994 to 1999. Excluded were 10 subjects who had never smoked cigarettes and 2 who were missing data on cessation methods and motives. The outpatient sample consisted of 91 adolescents receiving outpatient treatment for alcohol and other drug abuse. This sample included all 35 participants in a smoking cessation treatment development study conducted from 1996 to 1998, as well as 56 of 57 participants in a separate treatment outcome study of a smoking cessation intervention for adolescents receiving outpatient substance abuse treatment conducted from

Table 1
Demographic, cigarette-use and smoking cessation variables for inpatients, outpatients, and full sample

	Inpatient (<i>n</i> = 92)	Outpatient (<i>n</i> = 91)	Full sample (<i>n</i> = 183)
Demographic variables			
Age (<i>M(S.D.)</i>)	16.0 (1.1)	16.5 (1.1)	16.2 (1.2)
Gender (% female)	59.8	30.8	45.4
Ethnicity (% white)	75.0	68.1	71.6
Cigarette-use variables			
Smoking frequency (% smoking daily)	76.1	70.3	73.2
Cigarettes per day (<i>M(S.D.)</i>)	14.7 (11.2)	9.8 (8.1)	12.3 (10.0)
Smoking cessation			
Ever quit smoking (%)	60.9	63.7	62.3
Attempted cessation past year (%)	59.8	49.4	54.8
Likelihood to quit smoking (<i>M(S.D.)</i>)	4.5 (3.3)	5.4 (3.0)	4.8 (3.2)
Confidence in ability to quit (<i>M(S.D.)</i>)	5.0 (3.4)	5.1 (3.3)	5.1 (3.3)
Desire to quit (<i>M(S.D.)</i>)	5.5 (3.2)	6.5 (3.0)	6.0 (3.1)

1998 to 2001. Excluded was one subject who was missing data on cessation methods and motives. For the smoking cessation treatment studies, the intervention was embedded in their substance abuse treatment program, and all smokers were required to attend, thus subjects were not self-selected based on a desire to quit smoking.

2.2. Methods

Data used in the present study were collected during the baseline interview for all subjects, and prior to onset of the smoking intervention for participants in the treatment studies. Baseline interviews for the inpatient subjects were conducted prior to discharge from treatment. At the time these data were collected, no local youth substance abuse treatment programs addressed tobacco use as part of their intervention.

2.2.1. Measures

Clinical Interview (Brown et al., 1989): The clinical interview assesses demographics (age, socioeconomic status, education, family characteristics, etc.), treatment history and psychosocial functioning (e.g., academics, extracurricular activities, social functioning). Demographic variables from this questionnaire were used in the present study.

Teen Smoking Questionnaire (TSQ) (Myers et al., 2000): This instrument is a semi-structured interview that assesses lifetime smoking history (e.g., age of onset, past attempts at smoking cessation), current smoking (quantity and frequency), and levels of motivation and self-efficacy and likelihood for quitting smoking (these three items scored on a 10 point Likert-type scale). In addition, motives/reasons for smoking cessation attempts and methods employed in

previous cessation efforts were assessed. Six motives for cessation were assessed (pressure from parents or friends, cost, health, smoking is a nasty habit, or other reasons), with each scored as yes (was a motive) or no (not a motive) with respect to prior cessation efforts (“other reasons” reported were recorded verbatim). In addition, adolescents were asked to select the single most important reason for their attempts at smoking cessation from this list. For smoking cessation methods, participants were presented with a list of seven items (“cold turkey”, cessation program, with friends, gradual reduction, substitute other tobacco product, nicotine replacement, or another method) and asked to report which they had employed in their prior cessation attempts, each item coded as yes or no.

3. Results

Sixty two percent of participants in the full sample (114 of 183) had previously attempted smoking cessation in their lifetime and 54% reported a quit attempt within the last year. On scales of 1–10, those who had tried to stop smoking also reported an average likelihood of 4.97 (S.D. = 3.19) of not smoking in 1 year, an average of 5.06 (S.D. = 3.35) on confidence for quitting, and an average of 5.98 (S.D. = 3.15) on motivation to quit. Cigarette use and smoking cessation variables for inpatients, outpatients, and the full sample are reported in Table 1.

Participants who had attempted cessation reported an average of 2.6 (S.D. = 2.6) lifetime quit attempts, with a range of 1–20. Almost half (40%) of those who had attempted cessation reported a single attempt while 28% reported two attempts and an additional 14% reported three cessation attempts. When asked about the longest duration for which they had abstained following a cessation attempt, participants reported a range of 1–912 days of abstinence from smoking, with a median of 18 days. In the present sample, 50% reported returning to smoking within 1 week of cessation, 65% within 30 days, 93% within 6 months, and 98% within 1 year.

Participants who had attempted cessation endorsed on average 2.3 (S.D. = 1.1) motives for quitting. The most frequently endorsed reason for quitting was health (60%), followed by “nasty habit” (58%), pressure from parents (39%), other reason (32%), and cost (23%). Pressure from friends (14%) was the least frequently endorsed motive. Since a significant minority of participants reported an “other reason” for quitting, these responses were tabulated for descriptive purposes. Of the “other” responses, 36% reflected quitting because of sports/fitness or hobbies, another 20% reflected a desire to gain control over addiction and 16% included reference to some form of restriction on the behavior (e.g., cannot smoke in house, parental sanctions). Table 2 displays frequency of motives endorsed. When asked to identify the single most important reason for quitting, health was endorsed most frequently (40%), whereas all other motives

Table 2

Motives and methods for adolescent smoking cessation: frequency of endorsement (%) for inpatients, outpatients, and full sample

	Adolescents who attempted cessation		
	Inpatient (n = 56)	Outpatient (n = 58)	Full sample (n = 114)
Motives for quitting			
Health	56	64	60
Nasty habit	66	52	58
Pressure from parents	42	36	39
Other reason	7	55	32
Expense	26	21	23
Pressure from friends	20	9	14
Methods for quitting			
Cold Turkey	89	90	90
Gradual reduction	48	47	47
Quitting together with friends	36	26	31
Nicotine replacement therapy	16	26	21
Replacing with another tobacco product	4	12	8
Smoking Cessation Program	2	7	4
Other	2	7	5

were endorsed by less than 20% of respondents (other reason 17%; pressure from friends 14%; pressure from parents 13%; nasty habit 12%).

Stopping abruptly was the most commonly reported cessation method, having been employed by 90% of those who had attempted cessation. As shown in Table 2, approximately half reported quitting by gradual reduction (47%), followed by quitting together with a friend (31%) and using nicotine replacement products (NRTs) (21%).

4. Discussion

Findings regarding cessation attempts by substance abusing youth were consistent with previous studies examining community and high-risk adolescent samples. Almost two-thirds of participants had previously attempted cessation, with a majority having tried to quit on more than one occasion. Of note, the 1 year prevalence of cessation attempts in the present sample was similar to that reported for a sample of high school seniors who were established smokers (Burt and Peterson, 1998). Although a few participants in our study reported abstaining for 6 months after attempting cessation, almost two-thirds had resumed smoking within 1 month of a cessation attempt, a proportion similar to that reported by Pierce and his colleagues (1998) from a large scale survey of California youth. Overall it appears that substance abusing youth attempt cessation at rates comparable to adolescent smokers in the general population and have similarly poor outcomes following cessation efforts.

Examination of motives for cessation revealed that health consequences and perception of smoking as a “nasty habit” were the most commonly reported reasons for quitting. Pressure from parents was another frequently reported motive. However, health was overwhelmingly endorsed as the most important reason for quitting, selected twice as often as the next most common motive. This finding is similar to reports from the few other studies of adolescent cessation motives. That participants reported relatively few motives for cessation (two on average) along with a rapid return to smoking following quit attempts serves to support the position that adolescent smokers typically accrue relatively few negative consequences from smoking, and thus may have low motivation or momentum for change. This may be particularly true for substance abusing adolescents, for whom the consequences of smoking likely pale in comparison to the problems incurred from alcohol and other drug use.

A number of cessation strategies were commonly employed by adolescents in the present study. As with the previous investigations of adolescent cessation methods, stopping abruptly (“cold turkey”), quitting with friends and gradual reduction were frequently reported strategies. Interestingly, almost one-quarter of those who had attempted cessation in the present study had used nicotine replacement products, a method not mentioned in prior studies of adolescent cessation methods. However, a recent study of NRT use by smoking and non-smoking adolescents reported that NRT was used by 40% of former smokers (Klesges et al., 2003). The relatively frequent use of NRT by adolescents is somewhat surprising since over-the-counter purchases of such products are restricted to individuals over the age of 18, and since no clear clinical guidelines have been established for the use of NRT with adolescent smokers (Fiore et al., 2000). Taken in concert, these data suggest that youth access to and utilization of NRT requires further examination. Very few participants reported taking part in smoking cessation programs, a finding that may reflect limited availability or awareness of youth-focused cessation interventions. Alternately, these data are consistent with evidence that only a small proportion of adolescent smokers are likely to seek formal assistance for changing smoking behaviors (Stanton et al., 1999; Balch, 1998). Detailed studies that examine how adolescents prepare to quit smoking, how they obtain information regarding quitting strategies, and which methods are used in the course of a specific attempt are needed to better understand the cessation process and to further inform approaches for providing assistance and support for such efforts.

Several limitations of the present study must be considered when interpreting the results. First, the data collected relied on self-report by participants and were subject to recall bias. In addition, participants responded to a limited list of cessation motives and methods and assessment of cessation motives did not evaluate the relative importance of different reasons for quitting. Thus, assessment of a greater range of cessation motives and of their relative importance will help further characterize influences on substance abusing ado-

lescent smoking cessation efforts. In addition, other variables such as drug of choice, severity of substance involvement and stage of treatment represent potential influences on smoking cessation efforts by substance abusing adolescents that require further study. Consistency of the present findings with other published reports increases our confidence in the results reported herein. However, more refined and standardized measures of adolescent smoking cessation motives and methods are needed to further our understanding of the process of smoking cessation for substance abusing youth and other adolescent populations. Finally, the present investigation was limited by its cross-sectional design. Prospective studies are needed to examine whether cessation motives and methods, along with other potential variables of influence, are related to the outcomes of such efforts.

Our earlier studies identified adolescents in treatment for substance abuse as a particularly heavy smoking population at high risk for tobacco-related health consequences (Myers and Brown, 1994, 1997). The present study, conducted on more recent clinical samples of substance abusing youth, extends these findings and demonstrates that the majority of adolescent smokers treated for substance abuse have attempted cessation and report at least moderate motivation for quitting. These data highlight the potential utility of addressing adolescent tobacco use in the course of substance abuse treatment.

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