Published in final edited form as:
J Child Adolesc Subst Abuse. 2010 April 1; 19(2): 99–107. doi:10.1080/10678281003634876.

Readiness to change in adolescents screening positive for substance use in urban primary care clinics

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Abstract

Primary care physicians often perceive patients as unlikely to decrease their substance use and suggest this reluctance to change diminishes their willingness to screen and intervene. The literature on readiness to change has primarily focused on adults, and the available studies on adolescents have largely included hospitalized and/or incarcerated youths with severe substance-related difficulties. The present study focused on an urban primary care system's teenage population, which consists of youths typically engaging in less serious forms of substance use. One hundred sixty-eight of these youths ages 11–20 screened positive for substance use on a self-report questionnaire. These youths then completed the Readiness to Change Questionnaire. Nearly 60% of these positive screens were in the Action Stage, with another 16% in the Contemplation Stage. Depressive symptoms and suicidal ideation were positively associated with later stages of change. Implications for screening, prevention, and early intervention programs for adolescent substance use are discussed.

Keywords

adolescent; substance use; readiness to change

Introduction

Substance use is among the most prevalent and serious public health issues for adolescents in the United States. Primary care clinics are an excellent venue for identifying this concern because most youths are seen at least annually in these settings and because pediatricians are regarded as trustworthy experts regarding sensitive health topics. However, primary care physicians often perceive patients as unmotivated and unlikely to decrease their substance use (Aira, Kauhanen, Larivaara, & Rautio, 2003; Arborelius & Damstrom-Thakker, 1995; Beich, Gannik, & Malterud, 2002; Thom & Tellez, 1986). These providers view patients as having low readiness to change regarding alcohol and/or illicit drug consumption. This may lead pediatricians to decide against substance use screening, brief office-based interventions, and referrals to chemical dependency specialists.

This concept of readiness to change has been frequently explored in the substance abuse literature (Audrain et al., 1997; Carey, Maisto, Carey, & Purnine, 2001). While the literature on classifying patients into stages of change is not entirely consistent (Carey, Purnine, Maisto, & Carey, 1999), prior studies have suggested that patients often fit into one of three ordinal categories: Precontemplation (not even considering decreasing substance use), Contemplation (considering decreasing substance use), and Action (taking steps to decrease substance use). The literature on readiness to change has primarily focused on adults, and the available studies on adolescents have largely included hospitalized and/or incarcerated youths with severe

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substance-related difficulties (Barnett et al., 2002; Slavet et al., 2006; Yonas et al., 2005). Therefore, little research has been completed using this three-stage framework with a primary care system's teenage population, which consists of youths typically engaging in less serious forms of substance use.

The goals of this study were twofold. First, we described the readiness to change among 168 substance using adolescents seen in urban primary care clinics. Such information may challenge primary care providers' assumptions regarding patient interest in reducing substance use and will inform future substance use prevention and treatment programs. Second, we assessed if readiness to change differed by demographic (e.g., age, race/ethnicity, insurance status) and clinical (e.g., frequency of substance use, co-occurrence of depressive symptoms) characteristics. Such disparities may suggest modifications to interventions targeted for selected subgroups.

Method

Participants and Procedures

We obtained our sample from nine primary care clinics owned and operated through Nationwide Children's Hospital. Voluntary computerized screening for behavioral concerns was conducted in these clinics through our Health eTouch system, a web based application that collects self-report data from patients. One thousand five hundred twenty-eight patients completed this behavioral screening in the waiting and examination rooms of these clinics through secure wireless touch screen tablets. One hundred sixty-eight (11.0%) of patients screened positive for alcohol and/or illicit drug use during the past month. The sample for the present study consists of these 168 recent substance users.

Adolescents, ages 11–20 and accompanied by a parent or guardian (if under 18 years), were approached by either clinic receptionists or research assistants in the primary care waiting room. Recruitment rates for the clinic receptionists are undocumented because their workflow did not permit them to log consistently their attempts at approaching potential participants. However, recruitment rates for the study's three research assistants ranged from 60 to 95 percent.

For youths under age 18, consent was obtained from the parent or guardian accompanying the patient and assent was obtained from the youths. Youths over age 18 provided consent. Both paper and on-line versions of consent and assent forms were available for review by potential participants, although all signatures for consent and assent were captured on the tablet. Following consent and assent, youths were presented with the screening questions. This study was approved by Nationwide Children's Hospital's Institutional Review Board.

Measures

Demographic items—We collected patient's age, gender, race/ethnicity, and insurance status (private insurance versus Medicaid versus none) through a combination of the patient's registration data and self-report on the computerized tablets. Physicians also completed a short questionnaire in which they endorsed one of the following categories as the major reason for visit: well-visit, injury/illness, psychosocial, miscellaneous.

Substance use—We utilized the Comprehensive Addiction Severity Index for Adolescents (CASI-A). This adolescent self-report questionnaire has reasonable concurrent validity with clinical records of adolescent substance abuse (Meyers, McLellan, Jaeger, & Pettinati, 1995). All youths completing Health *e*Touch were presented with CASI-A items measuring use of tobacco, alcohol, marijuana, and inhalants within the past month. If the adolescent

acknowledged use, he or she was asked about frequency of use during the last month. All youths who reported use of tobacco, alcohol, marijuana, or inhalants were asked questions about use of other illicit substances (e.g., hallucinogens, cocaine). Moreover, the CASI-A assessed youths' self-report regarding number of negative consequences as a result of alcohol or drug use.

Readiness to change measure—We employed the 12-item self-report Readiness to Change Questionnaire (RTCQ; Rollnick, Heather, Gold, & Hall, 1992). In their review of various readiness to change questionnaires, Carey, Purnine, Maisto, and Carey (1999) concluded that "The RTCQ is a theory-based and reliable instrument when used with drinkers who are not seeking treatment. It remains the only measure of drinking behavior stage of change designed expressly for use in medical settings" (pg. 253). The RTCQ has three four-item subscales reflecting Precontemplation (e.g., "It's a waste of time to think about my drinking"), Contemplation (e.g., "I am at the stage where I should think about drinking less alcohol"), and Action (e.g., "I have just recently changed my drinking habits") stages. The respondent indicated level of agreement on a 5-point scale from strongly disagree to strongly agree. Precontemplation items were reverse scored so that higher scores for all three subscales represented greater readiness to change.

For the present study, we modified the wording of three Precontemplation Items due to concerns about the understandability of these original items for use with a strongly disagree to strongly agree scale. Specifically, we changed "I don't think I drink too much," "There is no need for me to think about changing my drinking," and "Drinking less alcohol would be pointless for me" to "My drinking is okay as it is," "It's all right for me to keep drinking as I do now," and "My life would still be the same, even if I drank less" respectively. This exact rewording has been utilized by others (National Health Committee, 1999) and may reduce concerns raised by Forsberg, Halldin, and Wennberg (2003) regarding the potentially confusing double negative phrasing of these three original items. In our adolescent primary care sample, coefficient alphas of 0.84, 0.60, and 0.83 were obtained for the Precontemplation, Contemplation, and Action subscales respectively. The Precontemplation and Action subscales had good internal consistency, with the Contemplation subscale having fair internal consistency.

Furthermore, we added the phrase "or drug use" after "drinking" to all 12 RTCQ statements because adolescents who screened positive for alcohol and/or illicit drug use completed these twelve items.

Depressive symptoms and suicidal ideation—We used the Centers for Epidemiologic Studies Depression Scale for Children (CES-DC), a 20-item self-report depression screening tool. The CES-DC has acceptable internal reliability, reasonable test-retest reliability, and moderate concurrent validity for adolescents (Faulstich, Carey, Ruggiero, Enyart, & Gresham, 1986; Fendrich, Weissman, & Warner, 1990). Suicidal ideation was assessed through a single question from the Patient Health Questionnaire for Adolescents (PHQ-A; Johnson, Harris, Spitzer, & William, 2002). Specifically, youths were asked "Has there been a time in the past month when you have had serious thoughts about ending your life?"

Data analysis

Frequencies, means, and standard deviations were utilized to describe the demographic and clinical characteristics of the sample. Univariate ordinal logistic regressions were initially constructed using stage of change as the dependent variable and various demographic and clinical variables as individual predictors. A multivariate model was then constructed using all significant predictors from the previous univariate models. Predictors with $p < .10$ were

considered significant in this multivariate analysis due to the exploratory and retrospective nature involving the Readiness to Change Questionnaire with an adolescent sample. We were also willing to assume a less stringent Type I error rate given the serious nature of adolescent substance use and other psychosocial concerns.

Results

Demographic characteristics

The average age of the 168 participants was 16.4 years (SD = 2.3). Seventy-two percent were female, and twenty-eight percent were male. Thirty-four percent of the sample was Caucasian, 62.4% were African-American, and 3.6% were other. The sample had predominantly public insurance, with 72.7% having Medicaid, 18.8% having private insurance, and 8.5% having no insurance. Thirty six percent of the sample had injury/illness as reason for visit, followed by well check-up (29.8%), miscellaneous (19.6%), and psychosocial (6.6%). Reason for visit was not coded by pediatricians for 8.3% of the sample.

Substance use

Data on the prevalence and frequency of substance use are reported in Table 1; most youths who screened positive for substance use were experimental or mild users. Nevertheless, youths reported an average of 3.1 negative consequences (SD = 3.4) as a result of alcohol or drug use.

Readiness to change

According to their scores on the Readiness to Change Questionnaire, 41 (24.4%) adolescents were in the Precontemplation Stage, 27 (16.1%) adolescents were in the Contemplation Stage, and 100 (59.5%) adolescents were in the Action Stage. Youth were placed in the stage with the highest scale score; if two scale scores were equal, then the youth were placed in the higher stage of change. Hannover and colleagues(2002) found that this original method of classification did not produce substantially different results than alternative approaches.

Depressive symptoms and suicidal ideation

The average score on the Center for Epidemiological Studies Depression Scale was 21.3 (SD =12.3). Sixty-three percent of our sample had clinically significant depressive symptom scores of 16 or higher. Twenty percent of our sample endorsed suicidal ideation within the past month.

Predictors of readiness to change

None of four demographic variables—age, gender, payor type (Medicaid/self-pay versus private), and race/ethnicity (Caucasian versus minority)—emerged as significant predictors of belonging to a later stage of change, all $p > .05$. None of the substance use variables—total number of substances used, frequency (in days) of alcohol use, frequency (in days) of marijuana use—emerged as significant predictors of stages of change, all $p > .05$. However, level of depressive symptoms ($p < .05$; Z-score = 2.22) and presence of suicidal ideation over the past month ($p < .05$; Z-score = 1.98) were each positively associated with later stages of change.

Our subsequent multivariate model was significant, with both depressive symptoms and presence of suicidal ideation being marginally significant predictors of stages of change, both $p < .10$. When depressive symptoms were held constant, youths endorsing suicidal ideation had a 76% chance of being in the Action stage compared to a 57% chance for youths not endorsing suicidal ideation. When suicidal ideation was held constant, youths with depressive symptom score of at least 16, 25, 35, and 45 had a 57%, 63%, 68%, and 73% chance respectively of being in the Action stage. In summary, the probability of being in the Action Stage increased when suicidal ideation was present and as depressive symptoms increased.

Discussion

There were three key findings for the present study. First, a substantial portion of primary care youths who screened positive for alcohol and/or illicit drug use within the past month reported some willingness to reduce their substance use. Nearly 60% of these positive screens were in the Action Stage, with another 16% in the Contemplation Stage. Williams et al. (2006) similarly found that three out of four Veterans Affair adult primary care outpatients who screened positive for alcohol problems were in either the Contemplation or Action Stages. Given that a large percentage of our youths reported only periodic use, adolescents seen in primary care sites may be excellent targets for prevention and early intervention efforts. Pediatricians should not assume that their adolescent patients are typically resistant to considering or taking steps to reduce substance use.

Second, sociodemographic characteristics did not correlate with stages of change, which suggested on a preliminary basis that the RCTQ did not have racial or socioeconomic biases in an adolescent sample. To our knowledge, our study is the first investigation to investigate sociodemographic differences on the RTCQ in an adolescent substance using sample.

Third, depressive symptoms emerged as a significant predictor of later stages of change. This result was consistent with Grothues et al. (2005) who found a similar relationship in an adult primary care sample, and with Barnett et al. (2002) who found a similar relationship in youths treated in an emergency department for alcohol overuse. Our study extended these previous results by using an adolescent primary care sample not being seen for an acute alcohol-related event. In addition, our study presented the novel finding that adolescent suicidal ideation was related to later stages of change. While depressive symptoms and suicidal ideation have a whole host of negative sequelae for adolescents, our cross-sectional data suggested that emotional distress might lead certain adolescents to at least consider reducing their experimental or mild levels of substance use. Therefore, pediatricians encountering particular youths who are both using substances and experiencing emotional distress may especially want to concentrate their prevention and treatment efforts on this subgroup.

Two limitations of our study are worth noting. First, unmeasured third variables (e.g., psychological mindedness) may have explained the emotional distress/later stage of change relationship. Second, given that we did not collect any information on youths who declined completion of the computerized screening, our results may not be fully generalizable to all adolescent primary care patients.

Future longitudinal studies are needed to determine if and how depressive symptoms predict actual reductions in adolescent substance use, not just motivation to change. Given our finding plus Karno and Longabaugh(2003) finding that depressive symptoms predicted poor treatment response to substance interventions for a subset of adults, depressive symptoms in adolescents might predict interest in reducing substance use but not necessarily a positive reaction to certain treatments. Future work on identifying possible moderating variables for adolescent substance-related treatment appears warranted to clarify if depressive symptoms impact response to various interventions.

Acknowledgments

National Institute of Drug Abuse R01DA018943-04

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Table 1

Substance Use Characteristics For Those Endorsing Alcohol or Illicit Drug Use

Prevalence of Use (%) for Each Substance			
Substance	**Reported Use**	**Denied Use**	**Did not answer question**
Tobacco	91 (54.2)	77 (45.8)	0
Alcohol	117(69.6)	50 (29.8)	1 (0.6)
Marijuana	83 (49.4)	85 (50.6)	0
Inhalants	9 (5.4)	157 (93.4)	2 (1.2)
Other	23 (13.7)	142 (84.5)	3 (1.8)

Frequency of Use(%) for Those Endorsing Substance Use			
Substance	**1–3 days per month**	**4–29 days per month**	**Daily use**
Tobacco	24 (26.4)	31 (34.0)	36 (39.6)
Alcohol	99 (84.6)	17 (14.5)	1 (0.9)
Marijuana	38 (45.8)	33 (39.8)	12 (14.4)
Inhalants	8 (88.9)	1 (11.1)	0

Quantity of Use on Days the Substance is Used		
Substance	**Amount**	**Frequency (%)**
Tobacco	Less than 10 times per day	73 (80.2)
	10 or more times per day	18 (19.8)
	No response	0
Alcohol	1–2 drinks per day	67 (57.3)
	3–4 drinks per day	27 (23.1)
	5 or more drinks per day	23 (19.6)