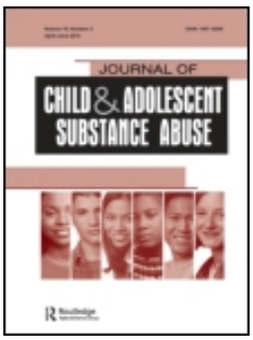

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Low Other-Regard and Adolescent Addiction

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ABSTRACT

Although 12-step literature posits inconsiderate behaviors to characterize alcoholics and addicts, there is little data to support this association among adolescent populations. Using a matched-pair study design with 579 youths ages 14 to 18 (52% female, 30% minority), a significant, dose-response relationship was found between greater alcohol and drug use severity and increased likelihood of driving under the influence, having unprotected sex with and without a history of sexually transmitted incidence, and low volunteerism among boys. Findings suggest that alcohol and drug use severity is associated with poor awareness of the impact of behaviors on others.

KEYWORDS

Adolescents; alcohol and drug use disorders; narcissism; prosocial behavior; service

Introduction

The twenty-first century has witnessed a dramatic increase in addiction among U.S. youths ages 12 to 25 (Mulye et al., 2008). The recent legalization of marijuana in several states, the plethora of prescription medications, and harder street drugs including methamphetamines give youths the greatest access to controlled substances that our nation has seen since the initiation of the "War on Drugs" (Hurley & Mazor, 2013). Adolescent alcohol and other drug (AOD) use curtails brain development and scholastic achievements, increases incidence and spread of infectious disease, potentiates the danger of risky sex, teenage pregnancy, school dropout, and criminal activity, and shortens life-course trajectories with associated medical comorbidities (Barber & Erickson, 2001; Brown & Tapert, 2000; Dawson, Grant, Stinson, & Chou, 2004; Guerri & Pascual, 2010; Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). The rising cost of AOD problems is estimated at $500 billion in increased criminal activity, higher health care costs, and lost productivity (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011).

In tandem, a confluence of national trends has fostered youth self-seeking and irresponsible behaviors. Millennial youths have been coined the "Me Generation" in reference to an increased sense of entitlement, diminished gratitude, and me-first orientation (Twenge, 2006). Youths have a greater focus on individualistic values, such as money, fame, and decreased concern for self-acceptance and community (Twenge, Campbell, & Freeman, 2012; Twenge & Foster, 2010). Youth volunteerism has dramatically declined, as well as their participation in community organizations, clubs such as Girl/Boy Scouts, after-school programs, and religious congregations (Putnam, 2000). Economic forces and changes in health care policies have extended the period of adolescence until age 27, which delays youth independence and maturation. Youths develop identity in a backdrop of increased consumerism that promotes "I" thinking, entitlement, and immediate gratification (O'Keeffe & Claker-Pearson, 2011). With the rise of new technologies, youths are fluent in delayed, one-sided conversations with little practice in listening skills, group cooperation, sensitivity to others, and tolerance. The epidemic problems of bullying and cheating are signs of diminished deference to others, rules, and citizenship (Nansel et al., 2001; Schmelkin, Gilbert, & Silva, 2010). The common single-parent household structure, few multigenerational households, and little discourse with neighbors translate into sparse adult guidance and discipline of youths (Darling, Fletcher, & Steinberg, 1994; Goldstein, 1999). Consequences to these trends are lost health benefits from helping others, instilled altruistic values from religious membership, group skills from club membership, and other-regard from community involvement (Hsing, Konrath, & O'Brien, 2010; Pagano, Carter, Johnson, & Exline, 2010). In sum, there are fewer stakes in place to offset self-centeredness and grandiosity during adolescence that rationalize youth AOD experimentation.

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Alcoholics Anonymous (AA) has long emphasized egocentric thinking as a root cause of addiction and helping others as its antidote. AA is the most commonly sought source of help for AOD problems, with 85% of AOD treatment programs recommending AA participation as adjunct treatment and municipal courts typically mandating AA meeting attendance for AOD-related offenses (Dill & Wells-Parker, 2006; Ducharme, Knudsen, & Roman, 2008; Kelly & Yeterian, 2008). In the backdrop of shrinking face-to-face communication, AA provides a natural mechanism for fostering group skills, a sense of community, leadership opportunities, identity development, and sober recreation. The fellowship has particular application for youths with AOD problems given its widespread availability, anonymity, lack of membership fees, required health insurance, or parental permission. With a primary purpose to stay sober and help others to achieve sobriety, service is at the core of the 12-step program. Burgeoning research points to giving service as integral to staying sober and in increasing other-regard (Pagano et al., 2013).

There is evidence to suggest that poor other-regard, often comorbid with narcissistic facets, underlies the disease of addiction and may increase with greater AOD use (Vaughn, DeLisi, Beaver, Wright, & Howard, 2007). The significant but low correlation between prosocial and narcissistic behaviors ($r = -.25$) suggests overlapping but distinct constructs (Pagano et al., 2013). While there is increased recognition of narcissism in the profile of alcoholics/addicts (American Psychiatric Association [APA], 2000; Cohen, Chen, Crawford, Brook, & Gordon, 2007; Guzikov, Zobnev, & Vale, 1997; Hall, Howard, & McCabe, 2010; Vaughn et al., 2007), the translation of research findings into practice is problematic. Formal diagnosis of narcissistic personality disorder requires 18 years of age, is rarely conveyed to a patient, has no pharmaceutical therapies, and is discordant with the intake assessment of a patient's strengths used for treatment planning. Identifying deficiencies in other-regard associated with addiction may offer more promise. Among juveniles, higher AOD use has been associated with lack of empathy and less monetary donation to charity or the homeless (Pagano et al., 2013; Montgomery, Vaughn, Thompson, & Howard, 2013). A longitudinal investigation of 1,065 youths has found lowered engagement with others, especially family, to distinguish youths who developed AOD problems (Henry, 2008). Yet, it is unclear whether there is empirical support for the classic descriptor of the alcoholic as a "tornado roaring through the lives of others" (AA, 2001). An association between lower other-regard and greater AOD use can inform treatment plans to increase awareness of the impact of personal actions on others.

This purpose of this study was to determine whether greater AOD severity among youths was associated with low other-regard as indexed by low volunteerism, driving under the influence (DUI), unprotected sex, and unprotected sex after infection with a sexually transmitted disease (STD). Main effects of AOD severity were also tested among grade (ninth and tenth versus eleventh and twelfth) and gender (girls versus boys) subgroups.

Methods

Procedures

Given the feasibility and ethical issues of randomly assigning youths to develop addiction, this study employed a quasi-experimental, matched-pair research design to compare youth behaviors across the AOD use spectrum. Data were collected in 2009 from two adolescent populations in northeast Ohio with a similar demographic profile (48% male, 32% minority, 8% Hispanic, 61% in ninth and tenth grades, 47% single-parent household), details of which are previously described (Kelly, Johnson, Pagano, & Stout, 2011; Prevention Research Center for Healthy Neighborhoods [PRCHN], 2009). To account for select characteristics associated with higher AOD use (Cohen et al., 2007; Hall et al., 2010), study participants with AOD dependency ($N = 195$) were matched by age, gender, minority status, and residency zip code to normative youths with no prior AOD exposure ($N = 195$) and normative youths with some AOD use history ($N = 195$). All procedures of this study were approved by the Case Western Reserve University (CWRU) Prevention Research Center for Healthy Neighborhoods, Institutional Review Board for human investigation, and a Certificate of Confidentiality from the National Institute on Alcohol Abuse and Alcoholism was obtained.

Normative youth sample

This study utilized data collected in spring 2009 among youths attending high school (grades 9 through 12) in Cuyahoga County (CC) as part of the 2009 national Youth Risk Behavior Survey (YRBS). High schools in CC participating in the 2009 YRBS followed the Centers for Disease Control and Prevention (CDC) data collection procedures of a two-stage cluster sample design. In the first sampling stage, 30 out of 79 high schools in the 31 school districts in CC were selected at random, with heavier weighting to schools enrolling greater numbers of ninth- through twelfth-grade students. Twenty (67%) of the contacted high schools agreed to participate; non-participating high schools contacted were relatively balanced between public (six schools) and private

(four schools). In the second sampling stage, individual classrooms in each participating school were selected at random. Passive parental permission was obtained by mailing home permission slips allowing parents to opt out their child from participating in the study. Students were informed that their participation was voluntary and anonymous. Surveys were completed by consenting students in selected classrooms on the day of the survey. A total of 76% of the eligible 6,597 students completed the survey, with non-response almost entirely accounted for by absenteeism. After data were cleaned, 4,525 (69%) usable surveys remained.

CC-YRBS participants endorsing either of the last two response categories of any AOD survey item (three recent items, eight lifetime items) were excluded from this study (23% of usable surveys). CC-YRBS participants endorsing no use to all 11 AOD survey items were categorized as never-users (26% of usable surveys). Those endorsing some use to at least one AOD item were categorized as some-users (51% of usable surveys). There were no significant background differences between selected ($N = 390$) and not selected ($N = 4{,}142$) CC-YRBS participants. As reported elsewhere (Pagano, Maietti, & Levine, 2014), rates of YRBS items endorsed by the selected normative sample were comparable to other regions.

Clinical youth sample

The clinical sample of AOD dependent youths was derived from the largest adolescent residential treatment provider in northeast Ohio. Inclusion criteria included the following: ages 14 to 18 years, English speaking, stable address and telephone, met *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*-IV-TR) diagnostic criteria for current AOD dependency, and medically stable. Exclusion criteria included a major health problem other than AOD dependency likely to require hospitalization, currently suicidal or homicidal, or expected incarceration in the subsequent 12 months. Participants were admitted into AOD treatment one week after a three-day AOD detoxification (if required). In the week before admission date, participants were sent an information packet with an invitation letter to participate in the study. Following admission, participants were approached to participate and given a brief description of the study. Eligible participants signed statements of informed consent (parent/legal guardian) and assent (youth).

Measures

Background, AOD use, and low other-regard variables were assessed with the national YRBS. The YRBS has demonstrated good test-retest reliability (κs = 0.61–0.80) and internal consistency ($\alpha = 0.74$) among AOD and adolescent populations (CDC, 2013; DuRant, Smith, Kreiter, & Krowchuk, 1999; Kann, Brener, Warren, Collins, & Gioviono, 2002; Shipp, Tortolero, Cooper, Baumler, & Weller, 1995).

Background

Background variables measured demographic and health characteristics, including gender, minority (Black) and Hispanic status, age, grade, parental education, single-parent household (no father/stepfather in household), zip code, body mass index (BMI), asthma history, health quality of life, and sexually transmitted disease (STD) history. BMI was calculated from youth self-report of height and weight using sex- and age-specific reference data from the 2000 CDC growth charts for adolescents (Kuczmarski et al., 2000). Participants endorsing "yes" to the item "Do you still have asthma?" were indexed with asthma history. To assess health quality of life, participants rated their health in general on a 5-point Likert scale from "excellent" to "poor" (Zullig, Valois, Huebner, & Wanzer, 2005). STD history was assessed from the item "Have you ever been told by a doctor or nurse that you had an STD?" In the clinical sample, STD history showed excellent agreement with medical exam report of 1+ STD ($\kappa = 0.60$; sensitivity = 0.75, specificity = 0.97).

Low other-regard

Using a task orientation rather than an ego orientation, low other-regard was defined as a behavior performed without focus on another's needs and inclinations (Roth, 2008). Three behaviors indicative of low other-regard included low volunteerism, driving under the influence (DUI), and unprotected sexual intercourse. Using a volunteerism threshold associated with better health outcomes (Lum & Lightfoot, 2005; Post, 2011), participants who spent less than five hours in an average month on volunteer work, community service, or helping people outside the home without pay were categorized with low volunteerism. Participants who drove a vehicle under the influence of AOD at least once in the past month were indexed with driving under the influence (DUI). Participants who endorsed not using a condom the last time they had sexual intercourse were considered to have had unprotected sex.

AOD use

Recent and lifetime AOD use was assessed with 11 YRBS items. With regards to the past month, three items measured frequency of alcohol use, heavy drinking (5+ drinks in a row within a couple of hours), and marijuana use. Eight items assessed the frequency of lifetime

use of alcohol, marijuana, cocaine, inhalants, heroin, methamphetamines, ecstasy, and non-prescribed schedule III/IV medications (NPM). Consistent with other research using the YRBS (Noffsinger et al., 2012), we categorized recent AOD use (0 times = no use, 1–9 times = some use, 10+ times = high use) and lifetime AOD use (0 times = no use, 1–19 times = some use, 20+ times = high use). AOD use items from the YRBS have shown high internal consistency (αs = 0.92–0.93; Pagano et al., 2014).

Statistical analytic plan

Statistical analyses were performed using the procedures CORR, FREQ, and LOGISTIC of SAS Version 9.2 (SAS Institute Inc., Cary, NC). Given the overall CC-YRBS response rate (46%) was below the accepted threshold for data weighting (60%), non-weighted data were used (Tabachnick & Fidell, 2001). Fisher's exact test for categorical variables and Wilcoxon Mann-Whitney rank-sum tests for continuous variables were used to test for differences between groups. Because impaired health could limit youth engagement in measured activities, univariate analyses initially compared AOD groups in rates of measured health conditions. A binary logit model stratified by pair assignment tested the difference in probability of low volunteerism, driving under the influence (DUI), and unprotected sexual intercourse. A log-linear Poisson regression fitted the ratio of STD incidence to years of exposure (date of first sex), with a Pearson correction for dispersion. Main effect of AOD group (never-users versus some-users versus substance dependent) and interaction term with subgroup (i.e., age group or gender) were tested in the logit model to maximize power available with the total sample ($N = 585$) and preserve a family-wise error rate of $p < .05$. Only variables associated with AOD use in univariate analyses ($p < .05$) were included in logit models. All reported p-values are two-sided.

Results

Background profile of study sample

Background characteristics of participants are presented in Table 1. Youths were 16 years of age on average (SD = 1.2), and 61% were in grades 9 and 10. Approximately half (48%) were male, 30% were African-American, and 9% were Hispanic. Forty-seven percent were from a single-parent household, and 18% had a parent who did not complete high school. The majority (74%) were within the normal body mass index (BMI) range and described their health as excellent or good (67%), and 17% had a history of asthma. Seventy-five percent of the sample reported having had sex, 13% of which had an STD history. There were no significant background differences between AOD groups and gender/grade subgroups with exception to having sex and an STD history, which were higher among never-users in comparison to some-users and addicted users ($p < .01$), and among ninth and tenth graders in comparison to eleventh and twelfth graders ($p < .01$).

AOD use of study sample

The most prevalent lifetime substances of some-users were alcohol (82%), marijuana (45%), and non-prescribed controlled substances (20%); the most prevalent lifetime substances of addicted users were also alcohol

Table 1. Background characteristics of study sample.

Background Characteristic		Total $N = 585$ (100%)	Never-Users $N = 195$ (33%)	Some-Users $N = 195$ (33%)	Addicted $N = 195$ (33%)
Age (years)		16.0 (1.2)	15.8 (1.3)	16.0 (1.3)	16.2 (1.1)
Male		279 (48%)	93 (48%)	93 (48%)	93 (48%)
Minority		177 (30%)	59 (30%)	59 (30%)	59 (30%)
Hispanic		51 (9%)	18 (9%)	18 (9%)	15 (8%)
Grade	9th–10th	357 (61%)	119 (61%)	119 (61%)	119 (61%)
	11th–12th	228 (39%)	76 (39%)	76 (39%)	76 (39%)
Single parent		277 (47%)	80 (41%)	101 (52%)	98% (50%)
Parent education	Some HS	106 (18%)	32 (16%)	45 (23%)	29 (15%)
	HS diploma	260 (44%)	77 (39%)	70 (36%)	113 (58%)
	BA+	219 (37%)	86 (44%)	80 (41%)	53 (27%)
BMI[a]	Underweight	18 (3%)	4 (2%)	4 (2%)	10 (5%)
	Normal	434 (74%)	136 (70%)	147 (76%)	151 (77%)
	Overweight	79 (14%)	32 (16%)	23 (12%)	24 (12%)
	Obese	54 (9%)	23 (12%)	21 (11%)	10 (5%)
Health quality	Excellent/good	393 (67%)	133 (68%)	127 (65%)	133 (68%)
	Fair	144 (25%)	41 (21%)	52 (27%)	51 (26%)
	poor	48 (8%)	21 (11%)	16 (8%)	11 (6%)
Asthma history		102 (17%)	37 (19%)	35 (18%)	30 (15%)

[a]BMI = body mass index categories based on age and gender growth charts.

Table 2. Alcohol and drug use of the study sample.

Time Period		I	Never-Users $N = 195$ (33%)	Some-Users $N = 195$ (33%)	Addicted $N = 195$ (33%)
Past month	1+ drink	0 days	0 (0%)	108 (55%)	103 (53%)
		1–9 days	0 (0%)	75 (39%)	80 (41%)
		10+ days	0 (0%)	12 (6%)	12 (6%)
	Binge drinking	0 days	0 (0%)	162 (83%)	115 (59%)
		1–9 days	0 (0%)	33 (17%)	69 (35%)
		10+ days	0 (0%)	0 (0%)	11 (6%)**
	Marijuana	0 times	0 (0%)	151 (77%)	75 (38%)
		1–9 times	0 (0%)	28 (14%)	37 (19%)
		10+ times	0 (0%)	16 (9%)	83 (43%)**
Lifetime	1+ drink	0 days	0 (0%)	0 (0%)	36 (19%)
		1–19 days	0 (0%)	110 (56%	36 (18%)
		10+ days	0 (0%)	49 (25%)	159 (82%)**
	Marijuana	0 times	0 (0%)	107 (55%)	0 (0%)
		1–19 times	0 (0%)	60 (29%)	8 (4%)
		20+ times	0 (0%)	28 (14%)	187 (96%)**
	Cocaine	0 times	0 (0%)	175 (90%)	112 (57%)
		1–19 times	0 (0%)	20 (11%)	15 (8%)
		20+ times	0 (0%)	0 (0%)	68 (35%)**
	Inhalants	0 times	0 (0%)	171 (88%)	135 (69%)
		1–19 times	0 (0%)	13 (7%)	34 (17%)
		20+ times	0 (0%)	11 (6%)	26 (13%)**
	Heroin	0 times	0 (0%)	182 (93%)	89 (46%)
		1–19 times	0 (0%)	2 (1%)	33 (17%)
		20+ times	0 (0%)	11 (6%)	73 (37%)**
	Meth[a]	0 times	0 (0%)	177 (91%)	111 (57%)
		1–19 times	0 (0%)	7 (4%)	25 (13%)
		20+ times	0 (0%)	11 (6%)	59 (30%)**
	Ecstasy	0 times	0 (0%)	178 (91%)	92 (47%)
		1–19 times	0 (0%)	17 (9%)	32 (16%)
		20+ times	0 (0%)	0 (0%)	71 (36%)**
	NPM[b]	0 times	0 (0%)	156 (80%)	99 (51%)
		1–19 times	0 (0%)	28 (14%)	31 (16%)
		20+ times	0 (0%)	11 (6%)	65 (33%)**

[a]Meth = methamphetamine;
[b]NPM = non-prescribed schedule III/IV medications.
**$p < .0001$.

(100%), marijuana (100%), and NPM (49%). With exception to a similar rate of recent alcohol use among some-users (45%) and addicted users (47%; ns), addicted users had significantly higher lifetime and recent AOD use across substances than some-users and never-users (Table 2).

Low other-regard of study sample

Seventy-seven percent of the sample volunteered less than five hours in an average month, 26% reported a DUI, and 55% did not use a condom at the last sexual intercourse. There were no significant gender or grade subgroup differences in rates of low other-regard indices, although there was a trend toward higher rates of unprotected sex among girls (56%) than boys (44%; $X^2 = 3.6$, $p = .07$).

Because there were no background characteristics associated with study outcomes, unadjusted odds from logit models were reported (Table 3). As shown in Table 3, there was a significant dose-response relationship between AOD severity and greater likelihood of DUI, having unprotected sex, and having unprotected sex with history of an STD. One significant subgroup

Table 3. Likelihood of low other-regard in study sample.

Low Other-Regard Indicator	Never-Users (A) 195 (33%)	Some-Users (B) 195 (33%)	Addicted (C) 195 (33%)	A:B RR	A:C RR	B:C RR
Low Volunteerism	151 (77%)	140 (72%)	163 (84%)	1.05	1.14	1.06
Males ($N = 279$)	70 (69%)	64 (75%)	80 (86%)	1.06	1.19*	1.12
Females ($N = 306$)	81 (75%)	76 (79%)	83 (81%)	1.05	1.08	1.02
Driving under the influence	–	15 (8%)	111 (57%)	–	–	1.64**
9th–10th grade ($N = 357$)	–	7 (6%)	66 (55%)	–	–	1.64**
11th–12th grade ($N = 228$)	–	8 (11%)	45 (59%)	–	–	1.63**
Unprotected sex[a]	34 (38%)	85 (56%)	120 (62%)	1.19*	1.26**	1.06
Unprotected sex with STD	2 (13%)	18 (60%)	26 (90%)	1.59*	2.14**	1.33**

[a]105 never-users and 44 some-users who were virgins exempt from analysis.
*$p < .01$. **$p < .0001$.

interaction revealed a significant dose-response relationship between AOD severity and greater likelihood of low volunteerism for boys but not girls.

Discussion

This study was the first to explore the dose-response relationship between higher AOD use and low other-regard in a large cohort representative of the adolescent population attending high school in the region (52% female, 30% minority; PRCHN, 2009). The potential confounders of age, gender, minority status, and residence (i.e., zip code), as well as characteristics associated with these variables, were addressed by the matched-pair study design. Consistent with prior research showing lower charitable giving among AOD-dependent youths in comparison to normative controls, volunteering at least five hours per month appears to have a significant, albeit small, protective effect on reducing risk of adolescent addiction (Carter, Johnson, Exline, Post, & Pagano, 2012). A significant, dose-response relationship between greater AOD severity and increased likelihood of low volunteerism was found for boys but not girls. Boys with addiction were more likely to report low volunteerism than boys with some and no AOD use history. Because of the zip code pairing criteria, findings are robust across regional differences in youth volunteerism opportunities. However, socialization practices may contribute to the gender differences observed. From an early age, girls are encouraged to be generous with their time and resources whereas boys learn to oppose others in male friendships (Tannen, 1994). Adherence to perceived social ideals may better disguise egocentric behaviors affiliated with AOD dependency for girls but not boys. This warrants future research.

In contrast, a significant, moderate, dose-response relationship was found between greater AOD severity and increased likelihood of behaviors that demonstrate lack of other-regard. DUI rates were significantly higher among AOD-dependent youths than youths with some AOD use history. Having unprotected sex was more prevalent among youths with addiction than some-users, whose risk was greater than never-users. Furthermore, participants with an STD history who did not use protection at the last sexual intercourse were more likely to be addicted users in comparison to some-users, whose risk was greater than never-users.

We interpret study findings through a lens of social skills deficits tied to the disease of addiction. Rather than a problem of moral character or psychopathology, alcoholics may be less sensitive to understand how their actions impact others as if hindered with characteristics aligned with autism. Recent neuroimaging genetic research shows evidence of addicts' blunted responsivity to others (Cservenka & Nagel, 2013). Alcoholics clearly seek but struggle with social connectedness, need external validation, and are hypersensitive to perceived criticism (Luhtanen & Crocker, 2005; Pagano et al., 2010). The tension between low insight about the impact of their actions on others and not fitting in is well captured in 12-step literature. "Almost without exception, alcoholics are tortured by loneliness… craving attention and companionship" (AA, 1981, p. 57). "He is like the farmer who came up out of his cyclone cellar to find his home ruined. To his wife he remarked, 'Don't see anything the matter here, Ma. Ain't it grand the wind stopped blowing?'" (AA, 2001, p. 82). Two relevant questions asked of AA members directly target the illness's blind spot regarding low other-regard: "Am I willing to think of other people, of their needs, instead of myself, in order to get rid of the drink problem?" (AA, 1939, p. 236) and "How will this affect the other?" (Lobell, 2004, p. 174).

There are several limitations of this study that should be noted. First, because study measures were assessed at one time point, direction of causation between AOD use and low other-regard is inconclusive. The low other-regard indicator most implicated by temporal sequencing is having unprotected sex with an STD history—to the extent youths were unaware of having an STD at the time of their last sex. For youths with an STD history who had unprotected sex at their last intercourse (26 clinical youths, 20 normative youths), deductive methods with other YRBS items (i.e., having sex with one or more partners in the last three months, date of last exam by a doctor or nurse) were used to ascertain temporal sequence of their most recent medical exam in relation to their last intercourse. With the most conservative assumption that youths were told they had an STD at their most recent medical exam, knowledge of having an STD preceded these youths' last intercourse that was unprotected by a minimum of two months ($M = 11$ months, range = 2–24 months). Future research with prospective data collection of STD incidences and unprotected sex incidences is exploring whether knowledge of having an STD among youths in active addiction versus sustained abstinence alters their likelihood of unprotected sex. Second, AOD use often accompanies risky sex and motor violations. However, the majority of high users did not drink or use drugs the last time they had sex (88%; Johnson, Carter, & Pagano, 2011), and the parallel rates of recent alcohol use of some users and addicted users cannot explain addicted users' greater likelihood of DUI. Third, as with all self-report instruments, social desirability bias may be present in YRBS survey items. However, the dose-response

association between low other-regard and AOD severity is likely to be greater than observed to the extent that minimization of socially unacceptable behavior is more pronounced among addicted users. Fourth, only a randomized clinical trial can take into account unmeasured confounding variables. However, the matched-pair study design rules out important select characteristics (age, gender, minority status, zip code) as alternative explanations for differences between AOD groups and partially adjusts for unmeasured confounders correlated with matched characteristics. Finally, low other-regard was indirectly measured by endorsed acts indicating low consideration of others. However, rates of low other-regard indices and an STD history among the 390 normative youths (78% low volunteerism, 9% DUI, 37% unprotected sex, 5% STD) were comparable to 2011 CC-YRBS rates (77% low volunteerism, 7% DUI, 35% unprotected sex, 4% STD; PRCHN, 2011). Among addicted users (N = 195), rates of unprotected sex were comparable to other samples of youths in residential treatment as well as STD history (Jenkins & Simmons, 1990; Liebschutz et al., 2003); Rounds-Bryant, Kristiansen, & Hubbard, 1999; Tapert, Aarons, Sedlar, & Brown, 2001, which showed high agreement with exam reports of having one or more STD incidence.

Conclusion

Living sober often requires daunting lifestyle changes that can be overwhelming. Simple behavioral modifications that are repeatedly practiced are recommended to produce an enduring change in other-oriented outlook. For example, asking how their actions made the other feel as part of the amends process may increase addicts' sensitivity to others. Approaches that cultivate alcoholics' empathic curiosity and capacity to empathically understand others without judgment, such as Alcoholics Anonymous-related helping (AAH), may not only help sustain sobriety and increase low other-regard, but also improve the quality of interpersonal relationships (Halpern, 2007; Mcevoy, Baker, Plant, Hylton, & Mansell, 2013; Pagano et al., 2013; Rogers, 1975). While empathic accuracy is a trainable skill, motivation for the alcoholic to learn how to take and appreciate another's perspective may be fostered by drawing attention to the discrepancy between the alcoholic's desire for interpersonal connectedness and harmful behaviors.

This research suggests that addiction is associated with low other-regard behaviors. Alcoholics' attendance at Al-Anon meetings, a program for those whose lives are impacted by addiction, may increase their awareness of how their actions affect others, which warrants future research.

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Declaration of interest

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