

# Clinical Correlates of Alcohol Abuse among Adolescent Psychiatric Inpatients in Israel

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## ABSTRACT

**Background:** Recent epidemiological studies have reported a world-wide increase in the rates of alcohol use among adolescents. Research has shown a strong link between alcohol abuse and psychiatric disorders. This study explored the clinical and demographic correlates of adolescents with a history of alcohol abuse (AA) compared to adolescents with no history of alcohol abuse (NAA) among a group of adolescent psychiatric inpatients in Israel.

**Method:** Two hundred and thirty-eight subjects were screened, all were patients consecutively admitted to an adolescent inpatient unit at a university-affiliated mental health center in Israel during a 4-year period

**Result:** Patients in the AA group were more prone to have a history of suicide attempts and self-injury compared to patients in the NAA group. Prevalence of attention-deficit disruptive behavior disorders was more common in the AA group, and these patients were more prone to have a history of criminal activity and drug use. Median length of hospitalization was greater in the NAA group.

**Limitations:** Limitations concerning attribution of causality due to the cross-sectional nature of this study.

**Conclusion:** Higher prevalence of criminal behavior, self-injury and suicide attempts associated with alcohol abuse may be related to higher levels of impulsivity, indicated by higher prevalence of attention-deficit disruptive behavior disorders. Alcohol-related disorders should be carefully screened and addressed in adolescent psychiatric units and in consequent ambulatory treatment settings.

## INTRODUCTION

In recent years, research has shown a strong link between psychopathology and the excessive use of psychoactive substances. This is particularly true in adolescence, a critical period for the development of various psychological and social skills, which may be impaired by recurrent substance use (1). Within the general population, consistent findings show an association between alcohol use disorders and psychopathology, including mood disorders, conduct disorders and suicide attempts (2-4). There have been reports focusing on clinical samples of inpatient adolescents linking alcohol abuse and dependence with increased prevalence of mood and conduct disorders (5-7), yet additional clinical correlates of alcohol use disorders among psychiatric inpatient adolescents have not been reported. Moreover, there are currently no reports on the rates of alcohol abuse among adolescent psychiatric inpatients in Israel. As rates of alcohol use are lower in Israel compared to other high-income countries (8), exploring the prevalence of alcohol abuse in the Israeli inpatient adolescent population and the clinical characteristics of this population is important

## METHODS

Participants included 238 patients (57% girls, 43% boys) admitted to the adolescent inpatient unit at a university-affiliated mental health center in Israel during a 4-year period. The mean age at admission was 15.8 ( $\pm$ 4.3) years and the median duration of hospitalization was 64.5 days. The study was approved by the Institute's Ethics Review Board.

## Disclosure of interest

S. L. has received speaking fees from Jansen-Cilag and Reckitt-Benckiser, and consulting fees from Lundbeck.

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Data regarding participants' demographic and clinical status was collected using the hospital's electronic medical record. Diagnoses referred to diagnosis at discharge. All diagnoses at discharge were based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (9). Diagnoses were based on several assessments, including primary structured psychiatric interview upon admission, additional biweekly assessments, as well as recurrent clinical team discussions. Final diagnosis was confirmed and signed by the unit director (G.R.), a certified child and adolescent psychiatrist, prior to discharge. Similar diagnostic procedure has been previously used and reported by the authors (10).

Independent sample t-test was used for comparing parametric variables of alcohol abusers (AA) and non alcohol abusers (NAA). Though we focused on alcohol use disorders (i.e., abuse or dependence), the category of alcohol abusers was used since none of the subjects were diagnosed with alcohol dependence. Mann-Whitney test was used for comparing median length of hospitalization. Non-parametric variables were compared using Chi-square analyses. Fisher's exact test was used when appropriate.

## RESULTS

No significant differences were found in sociodemographic variables and age at admission between individuals in the AA group and those in the NAA group. Alcohol abuse was not documented as a cause for admission in any of the cases. The mean age at admission was 16.0 in the AA group and 15.8 in the NAA group [ $t(236)=-0.21$ ,  $P=0.83$ ]. A Mann-Whitney test revealed a significant difference between the median length of hospitalization in the AA group (39 days) and the NAA group (79 days), [ $U=2506$ ,  $P<0.05$ ].

Among individuals in the AA group, 51.6% reported a history of suicide attempts compared to 29.3% of the NAA patients [ $\chi^2(1, 238)=6.43$ ,  $P<0.05$ ], and 36.4% of individuals in the AA group reported history of self-injurious acts compared to 16.1% in the NAA group [ $\chi^2(1, 238)=7.61$ ,  $P<0.01$ ] (Table 1). Among individuals in the AA group, 33.3% reported history of criminal acts compared to 4.9% in the NAA group [ $\chi^2(1, 238)=28.61$ ,  $P<0.001$ ], and 66.7% of the AA group reported history of drug abuse vs. 7.3% of the NAA group [ $\chi^2(1, 238)=76.26$ ,  $P<0.001$ ]. The most common diagnosis in the AA group was attention-deficit and disruptive behavior disorder, with a prevalence rate of 27.3% compared to 11.2% among NAA patients [ $\chi^2(1, 238)=6.29$ ,  $P<0.05$ ]. Psychotic disorder was the most com-

mon diagnosis at discharge among individuals in the NAA group (34.6%), which tended to be higher than that in the AA group (18.2%, [ $\chi^2(1, 238)=3.52$ ,  $P=0.06$ ]).

**Table 1.** Sociodemographic and clinical correlates of adolescents with alcohol abuse (AA) compared to adolescents with no alcohol abuse (NAA) in an inpatient adolescent psychiatric ward.

	Alcohol abusers (n=33)	Non alcohol abusers (n=205)	P-Value
Drug Abuse			
Yes	22 (66.7%)	15 (7.3%)	<0.001
History of Violence			
Yes	13 (39.4%)	62 (30.2%)	0.29
History of Criminal Acts			
Yes	11 (33.3%)	10 (4.9%)	<0.001
History of Childhood Trauma			
Yes	8 (24.2%)	31 (15.1%)	0.19
Suicide Attempts			
Yes	17 (51.6%)	60 (29.3%)	0.01
Self-injurious behavior			
Yes	12 (36.4%)	33 (16.1%)	0.006
Previous Admissions			
Yes	3 (9.1%)	10 (4.9%)	0.40 <sup>a</sup>
Prescribed antipsychotics			
Yes	19 (57.6%)	124 (60.5)	0.75
Prescribed antidepressants			
Yes	10 (30.3%)	65 (31.7%)	0.87
Prescribed Mood Stabilizers			
Yes	6 (18.2%)	37 (18.0%)	0.98
Prescribed ADHD Medication			
Yes	1 (3%)	17 (8.3%)	0.48 <sup>a</sup>
Psychotic disorder at discharge			
Yes	6 (18.2%)	71 (34.6%)	0.06
Mood disorder at discharge			
Yes	7 (21.2%)	58 (28.3%)	0.78
Anxiety Disorder at discharge			
Yes	4 (12.1%)	37 (18%)	0.61 <sup>a</sup>
Attention deficit and disruptive disorder at discharge			
Yes	9 (27.3%)	23 (11.2%)	0.012
Other Diagnosis at discharge			
Yes	7 (21.2%)	26 (12.7)	0.19

ADHD: attention deficit and hyperactivity disorder.

<sup>a</sup>Fisher's exact test.

## DISCUSSION

Alcohol abuse among adolescents is a major health concern and significant associations with psychiatric problems are well known. In this study we focused on a specific population of adolescents hospitalized in a psychiatric unit. Alcohol abuse was found to be significantly associated with suicide attempts, self-injury, criminal acts and drug abuse. Prevalence of alcohol abuse among adolescent psychiatric inpatients in this study was roughly 14%. These rates are lower than those reported on hospitalized adolescents in studies from other high-income countries (11). As rates of alcohol use among adolescents in the general population in Israel are lower than those reported world-wide (12), our findings should be understood in this context.

Individuals in the AA group were significantly more prone to receive a diagnosis of attention-deficit and disruptive behavior disorder at discharge. It has been suggested that of all core symptoms of both attention-deficit and disruptive behavior disorders, impulsivity level has the strongest correlation with alcohol dependence (13). Higher levels of impulsive cognition and behavior may increase the risk of alcohol abuse, while excessive consumption of alcohol, in turn, may contribute to impulsive behavior. Notably, individuals in the AA group were also prone to report history of criminal acts, suicide attempts and self-injurious behavior, all strongly associated with impulsive behavior (14, 15).

Analysis revealed that patients in the AA group were hospitalized for a significantly shorter period of time than those in the NAA group. This finding may have an implication for health care policy. As adolescent inpatients suffering from alcohol abuse are released more rapidly from psychiatric hospitalization, their potential drinking problem should be carefully screened for in psychiatric adolescent units and properly addressed by ambulatory services. This may imply that health care services in the community should be available to treat adolescents with alcohol-related disorders. Particularly, this would require competency on the part of the physician (e.g., pediatrician, psychiatrist) to recognize and treat these disorders. Recent reports show low levels of self-reported competency in this field by physicians in Israel (16). Ultimately, as a medical disorder requiring a biopsychosocial approach the diagnosis and treatment of alcohol abuse among individuals suffering from psychiatric disorders should be conducted in the medical system, as opposed to a solely psychosocial approach

which is currently the predominant mode in the treatment of substance use disorders in Israel.

Limitations of this study should be recognized. First, the relatively small number of participants in the AA group suggests caution regarding generalization of the results. Second, due to its retrospective nature, the data reported is correlative and thus hold limitations concerning attribution of causality (17).

This study explored the clinical correlates of alcohol abuse among Israeli adolescent inpatients. Rates of alcohol abuse in this population were lower than reported among psychiatric adolescent inpatients from other high-income countries, a finding which is in line with lower rates of alcohol abuse in the general population in Israel compared to high-income countries. A history of alcohol abuse was found to be associated with higher rates of attention-deficit and disruptive behaviors, as well as higher rates of suicide attempts, self-injury and criminal acts, all of which may be associated with an underlying tendency towards impulsive behavior. As alcohol abuse was also associated with shorter hospitalizations, this suggests careful screening for alcohol-related problems in psychiatric adolescent units, and particularly appropriate referral to continuous treatment in ambulatory services. Given the various links between alcohol abuse and psychopathology among adolescents, both problems should be addressed in an integrative manner. Psychiatric follow-up services for adolescents should be proficient in treating co-occurring psychiatric disorders and alcohol use disorders.

### Contribution of authors:

1. Daniel Feingold: Analysis and interpretation of data, drafting.
2. Uri Nitzan: Conception and design, final approval.
3. Gideon Ratzoni: Conception and design, final approval.
4. Shaul Lev-Ran: Conception and design, critical revision, final approval.

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