

## Research Article

### Underage drinking in the south of Italy: alexithymia attachment expectancies of alcohol and binge / heavy drinking behavior in adolescents

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## Abstract

The hypotheses were that alexithymia and attachment will be positively associated with the alcohol expectancies and that alexithymia, attachment, and alcohol expectancies will predict the binge and heavy drinking behavior in adolescence. The 317 students (16-18 years old; male 148, female 169) completed the self-report scales: Toronto Alexithymia Scale 20, Inventory of Parent and Peer Attachment, My Alcohol Consumption and the Positive Drinking Expectancy Scale. The scores of alienation towards parents and the levels of externally-oriented thinking were positively associated with the levels of expectancies of alcohol (disinhibition, relief and social). The heavy drinkers showed higher levels of alienation towards parents and of externally-oriented thinking than light drinkers. Regression models showed that to be male, older, and higher levels of expectancies of "relief from suffering" were able to predict drinking behavior. The findings suggest that the inability to manage negative emotions and parental alienation can drive the adolescents to consider alcohol drinking as a social and emotional modulator.

**Keywords:** Alexithymia; Attachment; Alcohol Expectancies; Binge Drinking

## Introduction

Binge drinking is characterized by an amount of four or five drinks in a single occasion within the past two weeks [1], where a drink is defined as equivalent to an amounts of alcohol: a 12-oz (360 mL) bottle or can of beer, a 4-oz (120 mL) glass of wine, a 12-oz (360 mL) bottle or can of wine cooler, or a shot of liquor (1.25 oz or 37 mL), either straight or in a mixed drink.

The binge drinking is a style of alcohol consumption common in adolescents and it is associated with sexually transmitted diseases, suicide, and other disorders [2]. Binge drinking is also associated with interpersonal violence and negative social costs such as vandalism and injuries [2]. As recently reported [3] in the United States, the prevalence of past-month binge drinking in college samples aged 18–22 years was 40% [4]. The 20% of Canadian undergraduate students reported typically drinking five or more drinks per drinking occasion in the past year, and the 19% engaged in

heavy episodic drinking of five or more drinks at least twice a month [5].

A national survey found that among young Canadians aged 15–24 years in 2011 who were past-year drinkers, 18% had binge drank in the past week [6].

In Italy, the alcohol consumption in adolescent is lower than the consumption in adolescents who live in Northern European countries [7], however the number of Italian adolescent drinkers is increasing [8].

The alcohol expectancies had been proposed to be significant predictors of drinking styles [9]. Different expectations have been investigated about drinking alcohol behavior, such as drinking for social security or drinking to regulate negative emotions [10]. A recent study [11] reported that specific beliefs about alcohol effects appear to contribute to the drinking behavior and that the commonly endorsed reasons fell into two main categories:

“to avoid problems” or “to reduce negative feelings” versus “to be cool” or “to feel part of a group”.

Others studies showed that the frequency of undertaking risk behaviors by adolescents is associated with the social relations [12-16]. Stickley and colleagues [17] reported that the relationship with peers may have a crucial role in undertaking risk behaviors by adolescents where to attend peers who consume alcohol increases the probability to occur in binge drinking behavior.

The parental support appears to be a protective factor [16] that moderates the vulnerability to risk behaviours [14] and may reduce the negative impact of the peers group on risk behaviors [13,18]. Others studies showed the association between alexithymia (lack of ability to recognize and to describe emotions) [19] and use or abuse of alcohol reporting that from 40% to 60% of individuals that abused of alcohol were also alexithymics [20-22].

The aim of the present study was to test whether alexithymia and attachment were associated with the alcohol expectancies and with binge and heavy drinking behavior.

The hypotheses were that alexithymia and attachment will be positively associated with the alcohol expectancies and that alexithymia, attachment, and alcohol expectancies will predict the binge and heavy drinking behavior in adolescence.

## Method

### Sample

In the present study the participants were recruited and interviewed in five schools of a city in the south of Italy. Inclusion criteria were: Italian healthy students and age 16-18.

Participation in this study was voluntary and only those students who received written parental/guardian consent, and gave written consent themselves were eligible to participate. Students were made fully aware they could withdraw from the study at any step of it. This study was approved by the Ethics Committee of Dynamic and Clinical Psychology Department of Sapienza University of Rome.

### Measures

Four self-report questionnaires were administrated to the participants.

Toronto Alexithymia Scale (TAS-20): It is the most commonly used measure of alexithymia. Alexithymia refers to people who have trouble identifying and describing emotions and who tend to minimise emotional experience and focus attention externally. TAS-20 is a 20-items

range from 1 (disagree) to 5 (agree). The TAS-20 has three subscales or factors: difficulty identifying feelings subscale (F1); difficulty describing feelings subscale (F2); and externally-oriented thinking subscale (F3). Reliability was  $\alpha = .81$  and test-retest was  $r = .77$  [23].

Inventory of Parent (IPPA-Parent) and Peers Attachment (IPPA-Peers): IPPA-Parent (28 items) and IPPA-Peers (25 items) measure the multi-factorial type of attachment in adolescence [24-26]. It assesses the positive and negative affective and cognitive dimensions of adolescents' relationships with their parents and close friends. The items range from 1 (never) to 5 (often). The IPPA-Parent and the IPPA-Peers present three subscales: trust, communication, and alienation. The trust subscale measures the agreement of mutual understanding and respect in attachment relationships, the communication subscale measures the extent and quality of spoken communication, and the alienation subscale measures feelings of anger and interpersonal alienation. The Alienation subscale is reverse-scored (inverted-scale). IPPA-Parents scale score reliabilities ranged from  $\alpha = .83$  (alienation and communication) to  $.84$  (trust); IPPA-Peers scale score reliabilities ranged from  $\alpha = .64$  (alienation and communication) to  $.88$  (trust). The internal consistency of the two scales in the version parents and peers is respectively  $\alpha = .93$  and  $\alpha = .92$  [25,26].

From the My alcohol Consumption [27] only two questions were selected, “when you drink how many drinks you consume?” and “have you ever drank more than 5 drinks (4 for girls) on one occasion during the last two weeks?”, that allows the classification of subjects according to the alcohol consumption in binge drinkers (from 1 to 4 episodes of binge drinking in the last of two weeks) and heavy drinkers (more of 4 episodes of binge drinking in the last of two weeks).

The Positive Drinking Expectancy Scale (PDMS) measures the three most important expectancies on alcohol. The questionnaire is 12 items range from 1 (false) to 5 (true) divided in three scales: sexual and behaviour disinhibition, relief from suffering, anxiety and stress, and social and interpersonal security. Reliability was ranges from  $\alpha = .76$  to  $.83$  [27].

## Procedure

The general objective of the study was explained of the school principal and to parents of underage students. Informed consent was required from adult students and parents of underage students. Subsequently, in the classrooms the study was also exposed to students; then the questionnaires self-report were distributed who had agreed to participate. There was no set time limit.

## Statistical Analysis

All statistical analyses were conducted using Statistica 5.1 (StatSoft Inc. 1994-1997).

Correlation analyses were performed in order to test the association between gender (biserial-point  $r_{bp}$ ) alexithymia and attachment (Pearson  $r$ ) on the alcohol expectancies and alcohol drinking behavior.

Analysis of variance (ANOVAs: Fisher F; MANOVA: Wilks Lambda) were conducted in order to evaluate the differences between the subjects light, binge, and heavy drinking on alexithymia, attachment and alcohol expectancies. Chi square were performed in order to test differences on gender distributions (males vs. females) among groups.

Finally regressions models (mathematical linear regression) were performed in order to test the hypothesized predictors (alexithymia and attachment) for each alcohol expectancies and in order to test the hypothesized predictors (alexithymia, attachment, and alcohol expectancies) for alcohol drinking behavior (light, binge, heavy). Only the variables that showed a significant effect with outcome in ANOVAs and correlation analyses were inserted in the regression linear models. P-value less that 0.05 was considered significant.

## Results

A total of 317 adolescents (male 148, female 169) 16-18 years olds were included in the final sample.

In Table 1 the expectancy of sexual and behavior disinhibition was positively correlated with the Total TAS-20 scores ( $r = 0.20$ ;  $p = 0.0001$ ), F1 ( $r = 0.17$ ;  $p = 0.002$ ) and F3 ( $r = 0.19$ ;  $p = 0.001$ ), parent alienation levels ( $r = -0.22$ ;  $p = 0.0001$ ; inverted-scale), and peer alienation levels ( $r = -0.15$ ;

$p = 0.009$ ; inverted-scale); and was negatively correlated with parent communication levels ( $r = -0.13$ ;  $p = 0.017$ ).

The expectancy of relief from suffering, anxiety and stress was positively correlated with total TAS-20 ( $r = 0.24$ ;  $p = 0.0001$ ), F1 ( $r = 0.23$ ;  $p = 0.0001$ ), F3 ( $r = 0.20$ ;  $p = 0.0001$ ), parent alienation ( $r = -0.26$ ;  $p = 0.0001$ ; inverted-scale) and peer alienation ( $r = -0.11$ ;  $p = 0.042$ ; inverted-scale) levels; and negatively correlated with parent communication ( $r = -0.12$ ;  $p = 0.031$ ) levels.

The expectancy of social and interpersonal security was positively correlated with total TAS-20 ( $r = 0.21$ ;  $p = 0.0001$ ), F1 ( $r = 0.15$ ;  $p = 0.008$ ), F3 ( $r = 0.21$ ;  $p = 0.0001$ ), parent alienation ( $r = -0.22$ ;  $p = 0.0001$ ; inverted-scale) and peer alienation ( $r = -0.20$ ;  $p = 0.0001$ ; inverted-scale) levels.

The model of mathematical linear regression on the expectancy of sexual and behavior disinhibition was significant ( $R = 0.28$ ;  $R^2 = 0.08$ ;  $R^2_{adj} = 0.07$  F (3,313) = 8.8  $p = 0.00001$ ): the parent alienation ( $\beta = -0.17$ ; B = -0.12;  $t = -2.6$ ;  $p = 0.008$ ; inverted-scale); and F3 ( $\beta = 0.15$ ; B = 0.16;  $t = 2.8$ ;  $p = 0.005$ ) were able to predict the expectancy of sexual and behavior disinhibition.

The model of mathematical linear regression on the expectancy of relief from suffering, anxiety and stress was significant ( $R = 0.33$ ;  $R^2 = 0.11$ ;  $R^2_{adj} = 0.10$  F (4,312) = 9.3  $p = 0.000001$ ): the parent alienation ( $\beta = -0.18$ ; B = -0.13;  $t = -2.9$ ;  $p = 0.0038$ ; inverted-scale); F3 ( $\beta = 0.23$ ; B = 0.23;  $t = 2.6$ ;  $p = 0.0091$ ), and F1 ( $\beta = 0.24$ ; B = 0.19;  $t = 1.9$ ;  $p = 0.0542$ ) were able to predict the expectancy of relief from suffering, anxiety and stress.

The model of mathematical linear regression on the expectancy of social and interpersonal security was significant ( $R = 0.35$ ,  $R^2 = 0.12$ ;  $R^2_{adj} = 0.11$  F (5,311) = 8.7  $p = 0.000001$ ): the parent alienation ( $\beta = -0.24$ ; B = -0.11;  $t = -2.3$ ;  $p = 0.020$ ; inverted-scale), gender ( $\beta = -0.18$ ; B =

			TAS				Parent			Peer		
			Total	F1	F2	F3	Trust	Comm.	Alien.	Trust	Comm.	Alien.
Alcohol expectancies	Gender	Age										
Disinhibition	$r_{bp} = 0.10$ $p = 0.078$	$R = 0.08$ $P = 0.149$	$r = 0.20$ $p = 0.0001$	$r = 0.17$ $p = 0.002$	$r = 0.08$ $p = 0.167$	$r = 0.19$ $p = 0.001$	$r = -0.08$ $p = 0.139$	$r = -0.13$ $p = 0.017$	$r = -0.22$ $p = 0.0001$	$r = 0.03$ $p = 0.590$	$r = 0.02$ $p = 0.676$	$r = -0.15$ $p = 0.009$
Relief	$r_{bp} = 0.05$ $p = 0.358$	$R = 0.02$ $P = 0.684$	$r = 0.24$ $p = 0.0001$	$r = 0.23$ $p = 0.0001$	$R = 0.08$ $p = 0.145$	$r = 0.20$ $p = 0.0001$	$r = -0.10$ $p = 0.061$	$r = -0.12$ $p = 0.031$	$r = -0.26$ $p = 0.0001$	$r = 0.03$ $p = 0.634$	$r = 0.03$ $p = 0.636$	$r = -0.11$ $p = 0.042$
Social	$r_{bp} = 0.21$ $p = 0.0001$	$r = -0.01$ $p = 0.911$	$R = 0.21$ $P = 0.0001$	$r = 0.15$ $p = 0.008$	$R = 0.11$ $P = 0.058$	$r = 0.21$ $p = 0.0001$	$r = -0.08$ $p = 0.133$	$r = -0.11$ $p = 0.060$	$r = -0.22$ $p = 0.0001$	$r = -0.01$ $p = 0.821$	$r = -0.00$ $p = 0.951$	$r = -0.20$ $p = 0.0001$

**Table 1.** Correlations (Pearson  $r$ ) between alcohol expectancies (sexual and behavior disinhibition expectancy, relief from suffering anxiety and stress expectancy, social and interpersonal security expectancy) and age, TAS (total, F1, F2, F3), parent trust, parent communication, parent alienation, peer trust, peer communication, peer alienation.

-1.1;  $t = -3.3$ ;  $p = 0.0011$ ),  $F_3$  ( $\beta = 0.14$ ;  $B = 0.09$ ;  $t = 2.5$ ;  $p = 0.0123$ ) were able to predict the expectancy of social and interpersonal security.

As shown in Table 2 gender distribution (males/females) was significantly different (Chi square (df:2): 60.4;  $p = 0.0000001$ ) between light, binge, and heavy drinkers (80(38%) / 133(62%) vs. 45(61%) / 29(39%) vs. 23(77%) / 7(23%)). Manova alcohol drinking behavior (light vs. binge vs. heavy) on age, sexual and behavior disinhibition expectancy, relief from suffering anxiety and stress expectancy, social and interpersonal security expectancy, TAS (total, F1, F2, F3), parent trust, parent communication, parent alienation, peer trust, peer communication, peer alienation was significant (Wilks Lambda: 0.8; R di Rao (28,602): 2.5;  $p = .00002$ ).

	LIGHT DRINKING (L)	BINGE DRINKING (B)	HEAVY DRINKING (H)	F (2,314)	p-value	Post Hoc comparisons
Gender Males/Females	80/133	45/29	23/7	Chi square (df:2): 60.4	0.0000001	H vs. L; $p=0.000001$ B vs. L; $p=0.000001$ H vs. B; $p=0.000001$
Age	17.0±1.0	17.3±1.0	17.5±1.5	3.8	0.023	H>L; $p=0.0192$
Disinhibition	7.6±4.5	10.3±3.9	11.7±4.8	18.3	0.000001	H>L; $p=0.000003$ B>L; $p=0.00001$
Relief	7.5±4.4	9.7±3.8	12.1±4.3	19.8	0.000001	H>L; $p=0.000003$ B>L; $p=0.00012$ H>B; $p=0.0101$
Social	5.3±2.7	6.6±2.6	7.3±4.1	10.3	0.00005	H>L; $p=0.00040$ B>L; $p=0.00083$
TAS -Total	49.9±10.2	50.3±10.8	52.6±10.9	0.9	0.41	
TAS -F1	17.2±5.5	17.7±5.5	17.4±6.3	0.2	0.81	
TAS -F2	13.2±4.2	13.1±4.6	13.6±4.0	0.2	0.82	
TAS -F3	19.6±4.3	19.5±4.8	21.5±4.6	2.8	0.063	H>L; $p=0.022$ H>B; $p=0.033$
Parent Trust	40.8±6.2	41.4±6.1	40.5±6.0	0.3	0.71	
Parent Communication	35.6±7.6	35.2±7.9	34.5±7.2	0.2	0.78	
Parent Alienation	29.8±6.2	28.6±6.6	26.8±6.7	3.5	0.032	H>L; $p=0.0163$
Peer Trust	41.1±7.4	42.5±6.1	41.9±7.5	1.2	0.30	
Peer Communication	29.6±6.4	30.5±5.4	29.7±6.6	0.5	0.59	
Peer Alienation	26.4±4.4	25.4±4.4	25.2±4.7	1.9	0.151	

**Table 2.** Analysis of Variance (Fisher F) alcohol drinking (light vs. binge vs. heavy) on age, sexual and behavior disinhibition expectancy, relief from suffering anxiety and stress expectancy, social and interpersonal security expectancy, TAS (total, F1, F2, F3), parent trust, parent communication, parent alienation, peer trust, peer communication, peer alienation. Manova: Wilks Lambda: 0.8; R di Rao (28,602): 2.5;  $p = .00002$ .

Heavy drinkers were significantly older compared to light drinkers (heavy: mean  $17.5 \pm 1.5$  vs. light: mean  $17.0 \pm 1.0$ ;  $F(2,314) = 3.8$ ;  $p = 0.023$ ; post hoc:  $p = 0.0192$ ).

Compared to light drinkers, binge and heavy drinkers showed higher scores of the expectancy of sexual and behavior disinhibition ( $F(2,314) = 18.3$ ;  $p = 0.000001$ ; post hoc:  $p = 0.00001$ ;  $p = 0.000003$ ), expectancy of relief from suffering anxiety and stress ( $F(2,314) = 19.8$ ;  $p = 0.000001$ ; post hoc:  $p = 0.00012$ ;  $p = 0.000003$ ), expectancy of social

and interpersonal security ( $F(2,314) = 10.3$ ;  $p = 0.00005$ ; post hoc:  $p = 0.00083$ ;  $p = 0.00004$ ). Only for the expectancy of relief from suffering anxiety and stress, binge drinkers showed a significant difference with heavy drinkers ( $9.7 \pm 3.8$  vs.  $12.1 \pm 4.3$ ;  $F(2,314) = 19.8$ ;  $p = 0.000001$ ; post hoc:  $p = 0.0101$ ).

The  $F_3$  score was higher in heavy drinkers compared to light and binge drinkers ( $F(2,314) = 2.8$ ;  $p = 0.063$ ; post hoc:  $p = 0.022$ ;  $p = 0.033$ ). Parent alienation levels (inverted-scale) was higher in heavy drinkers compared to light drinkers ( $F(2,314) = 3.5$ ;  $p = 0.032$ ; post hoc:  $p = 0.0163$ ).

The model of linear regression on light, binge, and heavy drinking was significant ( $R = 0.46$ ;  $R^2 = 0.21$ ;  $R^2_{adj} = 0.20$ ;

$F(6,310) = 14.0$ ;  $p = 0.000001$ ): gender ( $\beta = -0.26$ ;  $B = -0.35$ ;  $t = -5.1$ ;  $p = 0.000001$ ), the expectancy of relief from suffering anxiety and stress ( $\beta = 0.26$ ;  $B = 0.0$ ;  $t = 3.2$ ;  $p = 0.0013$ ), and age ( $\beta = 0.13$ ;  $B = 0.1$ ;  $t = 2.5$ ;  $p = 0.013$ ) were able to predict light, binge, and heavy drinking.

## Discussion

The findings of the present study show that to be male, older, and to have higher levels of "relief from suffering,

anxiety and stress" expectancy towards alcohol clearly increased the probability to increase alcohol drinking behavior in adolescence. This result shows that the expectancy of "to avoid problems" or "to reduce negative feelings" is the central predictor for binge and heavy drinking. Differently "to be cool" or "to feel part of a group" did not seem affect alcohol drinking behavior in adolescents. This findings are coherent with a previous study showing that feelings of isolation, depression and emotion-regulation difficulties increased the possibility to use alcohol [28,29].

Moreover higher levels of externally oriented thinking and parent alienation were clearly associated with all the three alcohol expectancies, "sexual and behavior disinhibition" "relief from suffering anxiety and stress" and "social and interpersonal security", showing that lower emotional ability and parental support can have a crucial role to build own expectancies toward alcohol drinking. Also difficulty describing feelings and emotions was associated at limit with the alcohol expectancy of "relief from suffering anxiety and stress" showing that impairment in managing emotions could drive to consider alcohol in order to avoid negative emotions.

Among the three alcohol expectancies only "social and interpersonal security" was associated with gender, showing that the expectancy of increase the social security through drinking alcohol was greater in adolescent males compared to the females. This finding suggests a greater vulnerability in adolescent males to consider alcohol drinking as a social facilitator in order to be more "adequate" or "cool"[11,30]. Moreover consistently with previous studies [31,32], the male adolescents clearly had a higher probability to have binge and heavy drinking than females.

Heavy drinking, according to other research, increased with the age [33] and with higher parent alienation. During a college period, entails decrease exposure to parental controls and increase exposure to peer influences, as well as to opportunities to engage in deviant behaviors as drinking alcohol and using drugs [34-36].

Parent and also peer alienation was clearly associated with an increase of all the three expectancies towards alcohol showing the central role of the social relationships to orient the alcohol expectancies. Many studies showed that a good relationship with parents is an important protective factor, where the caregivers seem prevent the association between the use and positive expectations of alcohol [16]. A possible explanation could be that a good attachment with parents and peers allows the adolescent to avoid considering alcohol drinking as a social facilitator [37].

Previous study showed the association between alexithymia and alcohol use [38]. In the present study, only "externally oriented thinking" was clearly associated with the three expectancies. The inability to manage negative emotions and

overall the tendency to avoid internally oriented-thinking could drive the adolescents to consider alcohol drinking as emotional modulator.

In the present study the predictive models showed that attachment and emotional variables were associated with alcohol expectancies, which were associated with binge and heavy drinking. The predictive models confirmed the lack of direct association between socio-emotional variables and alcohol drinking behaviors. This finding clearly shows that emotional and social impairments affect the expectancies towards alcohol, but not affect the binge and heavy drinking behavior.

In the present study the sample was very homogeneous for age (16-18 years old) and for origin area of participants (south of Italy). Despite this homogeneity allow to control the influence of intervenient variables, this is an important limit of the study considering that the findings can not be generalized to the adolescents from the rest of Italy. Another limit was that the data were collected by self-reports, where the adolescents may have provided socially desirable responses.

In conclusion the findings clearly suggest that the inability to manage negative emotions and parental alienation can drive the adolescents to consider alcohol drinking as a social and emotional modulator. Coherently only the expectancies related "to avoid problems" or "to reduce negative feelings" were able to predict binge and heavy drinking.

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