



“I cannot stand the boredom.” Binge drinking expectancies in adolescence

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ABSTRACT

Introduction: The main aim of this study is to improve our knowledge on binge drinking behavior in adolescents. In particular, we tested a model of predictors of binge drinking focusing on boredom proneness; we also examined the predictive and mediating role of drinking expectancies on binge drinking. **Methods:** A questionnaire designed to assess current drinking behavior, such as binge drinking, drinking expectancies and boredom proneness, was administered to 721 Italian adolescents (61% females) aged between 13 and 19 years ($M = 15.98$, $SD = 1.61$). **Results:** Structural equation modeling confirmed the evidence on drinking expectancies as predicted by boredom proneness and as predictive of adolescents' binge drinking. Interestingly, disinhibition and relief from pain seem to play a more important mediating role between boredom and alcohol outcome. Conversely, no mediation was found for interpersonal and social confidence expectancies on binge drinking. **Conclusions:** In general, the results suggest that preventative interventions on alcohol misuse should focus on personality traits and underlying drinking expectancies.

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1. Introduction

Several studies have underlined that alcohol misuse is responsible for about 4.0% of the global burden of disease (e.g. Room, Babor, & Rehm, 2005). The impact of alcohol on global health is well known (e.g. Franco, 2015). In particular, the prevalence of drinking among adolescents causes serious issues in terms of the consequences for young people, as well as for families and society as a whole (Bellis et al., 2010; Oei & Morawska, 2004). Excessive alcohol use in adolescence has been shown to be associated with various injuries and health problems such as morbidity, mortality, injuries, suicide attempts, unwanted pregnancies, academic failure, and violence (Hingson, Heeren, Levenson, Jamanka, & Voas, 2002; Kuntsche, Knibbe, Gmel, & Engels, 2005; Perkins, 2002). Adolescents may be considered as “naive drinkers” (Bellis et al., 2010) as they are less capable of coping with intoxication than adults, they are likely to consume large amounts in a small time (binge drinking), and might also drink alcohol in situations that may expose them to other potential risks. Binge drinking is a very common behavior in this stage of life. Although the term “binge drinking” is widely used in contemporary society, there is no consensus definition and it has been used to describe rather different drinking patterns (Herring, Berridge, & Thom, 2008). Alternative terms to describe this risk-behavior include heavy episodic drinking, risky single-

occasion drinking, heavy sessional drinking and heavy drinking generally speaking (Berridge, Thom, & Herring, 2007). Consequently, the term binge drinking engenders some confusion, as it is often used as a synonym of drunkenness, making cross-cultural comparison difficult (Beccaria, Petrilli, & Rolando, 2015). In addition, there is no consensus as to what level of intake constitutes binge drinking (Herring et al., 2008). In general, binge drinking is used to describe a single drinking session leading to intoxication, often measured as having consumed more than X number of drinks on one occasion (Gmel, Rehm, & Kuntsche, 2003). In our study, according with Wechsler, Davenport, Dowdall, Moeykens, and Castillo (1994), binge drinking was defined as consuming five drinks in a row in the previous two weeks (later refined to five drinks for men and four for women). Wechsler and Austin (1998) defended the use of the term arguing that the definition of four/five drinks in a row represents the threshold for alcohol-related social problems. The same definition has been used also in European School Survey Project on Alcohol and Other Drugs (ESPAD) studies on alcohol use (ESPAD, 2003) and in many other surveys (Oei & Morawska, 2004; Syre, Martino-McAllister, & Vanada, 1997; Wechsler & Nelson, 2001). Binge drinking is often associated with aggressive behavior, unsafe sex, motor accidents and various psychological problems (Wechsler, Dowdall, Davenport, & Castillo, 1995) as well as with physical or cognitive impairment, interpersonal problems, and poor academic achievement (Wechsler et al., 1994).

Scholars have shown that adolescent alcohol misuse is a quite significant problem in Italy as well (e.g. D'Alessio, Baiocco, & Laghi, 2006; DiGrande, Perrier, Lauro, & Contu, 2000; Gallimberti et al., 2011). In

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general, studies have shown that young Italians drink less alcohol than their northern European counterparts (e.g. Ireland) but more as compared with adolescents in southern and eastern European countries (e.g. Greece and Romania) (Beccaria & Prina, 2010; Kuntsche, Rehm, & Gmel, 2004; Laghi, Baiocco, Liga, Lonigro, & Baumgartner, 2014). Italy is also a peculiar country where research's findings show a significant discrepancy between self-reported episodes of binge drinking and drunkenness (Beccaria et al., 2015; Hibell et al., 2012). According to ESPAD, binge drinking involves 35% of Italian adolescents (aged 15–16), a percentage slightly below the European average, but it is much higher on drunkenness frequency, which is 13% (Hibell et al., 2012). The discrepancy between these data has been ascribed to how drunkenness (meant as intoxication) is defined by teenagers in the “Mediterranean culture” and to the extent to which it is disvalued (Room, 2010). As Beccaria et al. (2015), southern European teenagers consider “drunk” in a more undesirable and deviant manner than teenagers elsewhere in Europe, and they have a greater inhibition about heavy drinking compared to their Northern European peers who have higher expectancies of disinhibition and may act accordingly. Petrilli, Beccaria, Prina, and Rolando (2014) found that Italian adolescents' images about drinking are still in line with Mediterranean tradition, as concerns the importance assigned to social drinking and the stigma instead attached to intoxication. According to Järvinen and Room (2007), Italian youngsters still seem belong to a “non-intoxication culture” (see Allamani, Beccaria, & Voller, 2010). At the same time, there has been growing awareness and concern about some changes in their alcohol drinking style and about the increased prevalence of binge drinking among young Italians as exemplified by those studies that show that binge drinking is very widespread between Italian adolescents, who do not represent marginal groups but ordinary consumers (e.g. Gallimberti et al., 2011). Italian drinking culture combines traditional and modern patterns of drinking with more globalized drinking patterns (Beccaria & Sande, 2003; Passini, 2013; Scafato, 2010). This is confirmed by growing alcohol consumption outside meals among youths aged 14–17 between 1998 and 2006 (see Beccaria & Prina, 2010): from 12.6% to 20.6% in general; from 9.7% to 16.8% for girls; from 15.2% to 20.2% for boys. For these cultural changes in alcohol drinking patterns the night-time economy (Measham & Brain, 2005) has certainly played an important role. In the past decade, in Italy too there has been a restyling of the “entertainment” where alcoholic beverages have taken a pivotal role: for instance, many new products and new methods of consume (suffice to think of the spread of “shots” among the young) have emerged (Beccaria et al., 2015). “Northern drinking habits” have spread to Italy so that adolescents today show a growing consumption of beer and spirits, a growing alcohol use at the weekends and an increased search for alcohol-related risk behaviors- (Room, 2010). In order to combat the growing problem of binge drinking and alcohol-related mortality, the Italian Government has recently adopted many strategies, including zero tolerance for drivers and stricter controls outside the discos (Laghi, Baiocco, Lonigro, Capacchione, & Baumgartner, 2012).

As regards gender differences, both international (e.g., Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009) and Italian studies (e.g. Gallimberti et al., 2011; Laghi et al., 2012) have shown that binge drinking and heavy drinking are widespread especially among adolescent males. Boys are more likely to consume alcohol than girls (e.g., Wilsnack, Vogeltanz, Wilsnack, & Harris, 2000), and male drinkers consume larger quantities of alcohol than females (e.g., Balabanova & McKee, 1999). In almost all the studies on gender differences, boys were more likely to present binge drinking behaviors (e.g., Kuntsche et al., 2004).

As far as the age of onset is concerned, many studies have shown that the early onset of alcohol use is closely related to alcohol problems (e.g. Guttmannova et al., 2011); for instance scholars have reported a relationship between early age of onset and risk for later alcohol dependence (Grant & Dawson, 1997). Furthermore, scholars have shown

that boys tend to start alcohol use at an earlier age than girls (e.g. Alvanzo et al., 2011; Buu et al., 2014).

As far as the expectancies for drinking are concerned, studies (e.g., Oei & Morawska, 2004) showed that both adolescent males and females engage in binge drinking behaviors for the positive expectations related to increased sociability or to reduce social anxieties. Indeed, adolescents frequently claim that they drink for fun, to be happy, to gain confidence, to be cool, or simply out of boredom (Broadbent, 1994; Guise & Gill, 2007). In general, expectancies are considered better predictors of alcohol consumption for adolescents than for adults (McNally & Palfai, 2001). Furthermore, research findings demonstrate that drinking expectancies are closely associated with alcohol use and misuse in both genders (Cronin, 1997; Kairouz, Gliksman, Demers, & Adlaf, 2002). The study of drinking expectancies is based on the assumption that people consume alcohol in order to attain certain valued outcomes (Cooper, 1994). In other words, drinking behavior is motivated by distinct needs that differently mediate precursors and consequences.

Various studies have shown that substance misuse is associated with personality traits (Lammers, Kuntsche, Engels, Wiers, & Kleinjan, 2013). Typically, the literature has demonstrated that high levels of sensation-seeking are positively related to binge drinking (D'Alessio et al., 2006; Greene, Krmar, Walters, Rubin, & Hale, 2000; Ichiyama & Kruse, 1998). High boredom proneness is a common aspect of sensation-seeking that may be related to binge drinking (Carlson, Johnson, & Jacobs, 2010). Boredom is defined as a complex phenomenon in which the level of stimulation is perceived as too low; the failure to reach optimal arousal results in the experience of boredom (Fisher, 1993). In general, boredom in leisure time has been shown to play a significant role in an adolescent's substance use (Caldwell & Smith, 1995; Sharp et al., 2011). Teens who felt bored were more likely to engage in dangerous alcohol abuse (Wegner, Flisher, Muller, & Lombard, 2006) and the escape from boredom is one of the most prominent expectancies for alcohol consumption among adolescents (Gordon & Caltabiano, 1996; Ziervogel, Ahmed, Flisher, & Roberston, 1998). In general, teens report high levels of boredom and disengagement from free time activities (Caldwell, Darling, Payne, & Dowdy, 1999; Larson & Richards, 1991; Sharp et al., 2011; Shaw, Caldwell, & Kleiber, 1996). Regarding gender differences in boredom proneness, scholars have provided contradictory results. Vodanovich and Kass (1990) showed that boys have higher levels of boredom experience than girls. Instead, Seib and Vodanovich (1998) found that women scored significantly higher on the Boredom Proneness Scale than men. However, no studies have suggested consistent gender differences on boredom proneness.

A few studies have examined the relationship between boredom proneness and patterns of alcohol use and the mediating role of drinking expectancies (Cooper, Frone, Russell, & Mudar, 1995; Goldstein, Flett, Wekerle, & Wall, 2009; Magid, MacLean, & Colder, 2007). However, these studies mainly focus on young adults rather than adolescents. Lammers et al. (2013) investigated early adolescence and found that drinking expectancies partly mediate the relationship between personality profiles and alcohol use patterns. In particular, the effects of impulsivity and sensation seeking on alcohol use were seen to be mediated by drinking expectancies.

2. Hypotheses

The main objective of this study was to examine how drinking expectancies mediated the relationships between boredom proneness and adolescent binge drinking behaviors in a large sample of Italian girls and boys. Binge drinking was studied as an attempt to cope with the boredom experience of adolescents who seek additional stimulation.

An initial hypothesis concerns the differences between girls and boys in alcohol use as well as in boredom, and drinking expectancies. In line with the literature previously described, we predicted that boys not only use alcohol more frequently and consume higher quantities,

but also begin to drink at a younger age. Instead, no differences were expected with regard to boredom proneness and drinking expectancies. A second hypothesis concerned the differences between adolescents who had experienced binge drinking in the last two weeks and those who had not. In this case, we expected binge drinkers to declare a more frequent use and a higher quantity of alcohol consumption, as well as a younger age of first approach to drinking behaviors. Moreover, we expected binge drinkers to express a greater feeling of boredom and to have higher scores on expectancies to drink. Finally, in a third hypothesis we expected boredom to predict binge drinking via the mediation effect of drinking expectancies. That is, we hypothesized that the effect of boredom proneness on binge drinking can be accounted by drinking expectancies.

3. Method

3.1. Participants

A total of 721 adolescents (61% females) from three schools in Licata, Sicily (Italy), participated in the survey: 326 (76.1% females) attended a high school, 169 (47.9% females) attended a technical college, and 226 (49.1% females) attended a vocational school. Their age ranged between 13 and 19 years ($M = 15.98$, $SD = 1.61$).

The procedure used satisfied the ethical requirements defined by the APA. Approval of the data collection was secured through the schools' managers and consent forms by parents were obtained before the task was administered. In each class, a researcher collected the questionnaires. No teachers were present when the students filled in the questionnaire.

3.2. Measures

An anonymous self-completed school survey was conducted in 2014. The questionnaire consisted of closed, self-completed questions which addressed young people's current drinking behavior, drinking expectancies and boredom proneness.

3.2.1. Frequency of alcohol use

Adolescents were asked how frequently they drank (1) beer, (2) wine, (3) strong drinks, and (4) bitters, on a 6-point scale (from 1 = never to 6 = every day).

3.2.2. Alcohol consumption

In line with D'Alessio et al. (2006), adolescents were asked: (1) their age at their first drink ever; (2) their age at first drunkenness; (3) how many drinks they consume in a typical night out (1 = one/two drinks, 2 = three drinks, 3 = four drinks, 4 = five or more drinks); (4) if in the last two weeks they had drunk more than 5 (4 for women) drinks in one night ("yes" or "no"); (5) if they drink on an empty stomach (1 = never, 2 = sometimes, 3 = often); (6) if they drive after drinking (1 = never, 2 = once; 3 = sometimes, 4 = often).

3.2.3. Boredom

The assessment was made through the Boredom Proneness Scale (BPS, Farmer & Sundberg, 1986) consisting of 28 items that range from "1" (highly disagree) to "7" (highly agree). The scale was validated in the Italian context by Craparo, Faraci, Fasciano, Carrubba, and Gori (2013). A high score across the scale's items (i.e., "Time always seems to be passing slowly" and "In any situation I can usually find something to do or see to keep me interested") is indicative of high boredom proneness. The theoretical background of this scale considers boredom proneness as a pathological personality trait significantly and positively associated with undesirable emotional states such as depression, hopelessness, loneliness, amotivational orientation, and negatively related to life satisfaction and autonomy orientation (Craparo et al., 2013). The internal reliability of the BPS is 0.79.

3.2.4. Drinking expectancies

The adolescents answered the Positive Drinking Expectancy Scale by D'Alessio et al. (2006), 12 items on a 5-point scale (from 1 = "absolutely untrue for me" to 5 = "absolutely true for me"). The scale evaluates three fundamental expectations: (1) sexual behavioral disinhibition ($\alpha = 0.62$), e.g., "drinking alcohol helps me to be more uninhibited;" (2) relief from pain, anxiety and stress ($\alpha = 0.68$), e.g., "drinking alcohol helps me not to think about my problems;" (3) interpersonal and social confidence ($\alpha = 0.60$), e.g., "drinking alcohol helps me to be nicer."

4. Analytical procedures

First, frequencies and means were computed on each variable. Second, we examined ANOVA differences for sex (Hypothesis 1) and binge drinking (Hypothesis 2) among study variables. Data were analyzed using SPSS version 18. Third, the mediation model (Hypothesis 3) was tested using multiple-step regression analysis using the PROCESS macro for SPSS (Hayes, 2013). In particular, we used so-called "Model 4" (simple mediation model) methodology. Significance of mediated paths was assessed using the 95% bias corrected and adjusted confidence intervals from 10,000 bootstrapped samples.

5. Results

In general, the adolescents reported frequencies of drinking around the mid-point of the scale, in particular as concerns beer (see Table 1, top left). Regarding alcohol consumption, the average age of the first drink was 12.80 years. The majority (70%) declared they had experienced drunkenness at least once and the average age of the first experience was 13.85 years. As regards the quantity of alcohol consumed, they reported drinking two or three drinks on a night out. Almost half of the participants (42.2%) said that in the last two weeks they had drunk more than 5 (4 for women) drinks in one night. Finally, they declared both that they sometimes drank on an empty stomach and drove after having a drink.

As far as sex differences are concerned (see Table 1, top right), an ANOVA showed that alcohol use and quantity, drive after drinking were significantly higher in boys than in girls, while the age of first drink and drunkenness were lower for boys. Instead, drinking on an empty stomach was the only variable not significantly different. Chi-square test showed that boys say they had experienced drunkenness at least once [$\chi^2(1, N = 720) = 10.35, p < 0.001$; 69.9% vs. 57.1%], and had practiced binge drinking [$\chi^2(1, N = 718) = 16.02, p < 0.001$; 51.4% vs. 36.3%] more than girls.

The participants were then divided between those who declared they had experienced binge drinking in the last two weeks ($n = 303$, 42.2%) and those who had not ($n = 415$, 57.8%). An ANOVA between these two groups showed that *binge drinkers* had significantly higher scores on alcohol use and quantity, drink on an empty stomach, and drive after drinking, while lower scores on the age of first drink compared to the other group. Instead the age of first drunkenness was not significantly different.

With regard to the other variables (see Table 1, lower part), in general the adolescents gave moderate scores to boredom, sexual behavioral disinhibition and relief from anxiety, while they assigned low scores to interpersonal and social confidence as motivations for alcohol use. No differences were found between genders, while in all the variables binge drinkers had higher scores.

5.1. Mediation analysis

To analyze the hypothetical mediation of drinking expectancies on the effect of boredom proneness on binge drinking (Hypothesis 3), two sets of regressions were computed. These two sets just differed as concerns the measure of the dependent variable (propensity to binge

Table 1
Means and ANOVA differences for sex and binge drinking among study variables.

Measures			Sex			Binge		
	M	SD	M girls	M boys	F	M no binge	M binge	F
Alcohol use								
Beer (1, 6)	3.57	1.71	3.28	4.04	35.78***	3.03	4.33	118.50***
Wine (1, 6)	2.33	1.49	2.14	2.63	19.11***	1.92	2.90	86.28***
Strong drinks (1, 6)	2.48	1.53	2.31	2.74	13.44***	1.89	3.30	189.86***
Bitters (1, 6)	1.69	1.21	1.42	2.10	58.08***	1.35	2.15	83.24***
Total use (1, 6)	2.77	1.00	2.61	3.00	27.47***	2.32	3.38	275.38***
Age of first drink	12.80	1.91	13.26	12.10	63.93***	13.16	12.37	28.87***
Age of first drunkenness	13.85	1.65	14.05	13.60	9.37**	13.97	13.77	1.96
Alcohol quantity (1, 4)	1.66	0.95	1.55	1.84	15.78***	1.16	2.29	358.39***
Drink on an empty stomach (1, 3)	1.63	0.61	1.63	1.63	0.00	1.42	1.91	131.81***
Drive after drinking (1, 4)	1.81	1.04	1.62	2.11	40.64***	1.38	2.40	223.20***
Boredom (1, 7)	3.77	0.75	3.77	3.76	0.03	3.63	3.94	31.24***
Sexual behavioral disinhibition (1, 5)	2.20	0.89	2.19	2.21	0.07	1.92	2.58	109.17***
Relief from pain, anxiety and stress (1, 5)	2.80	0.97	2.85	2.73	2.75	2.53	3.18	88.79***
Interpersonal and social security (1, 5)	1.75	0.75	1.74	1.74	0.00	1.61	1.93	31.86***

Note. The numbers in parentheses represent the scale range.

*** $p < 0.001$.

** $p < 0.01$.

drinking) which was identified by two modalities: the question concerning how many drinks they consumed in one night (on a scale from 1 to 4, Set 1); the question if in the last two weeks they had drunk more than 5 (4 for women) drinks in one night (dichotomic variable, Set 2). Independent (i.e. boredom) and mediation (i.e. the three dimensions of drinking expectancies) variables were the same in both sets of regression.

Multiple regression analyses showed that Set 1 explained 12% while Set 2 23% of the variance in binge drinking. As can be seen in Fig. 1, the significant estimated paths were similar and significant on both sets of regression except that the direct effect of boredom on binge drinking in Set 1 was considerably lower than in Set 2. In both sets, boredom positively predicted all three dimensions of drinking expectancies. Of these, sexual behavioral disinhibition and relief from pain positively predicted binge drinking. Instead, interpersonal and social confidence did not significantly predict binge drinking in either regression set. Regarding the

mediation effects of drinking expectancies, in both sets of regression the effect of boredom on binge drinking was partially mediated by sexual behavioral disinhibition (Set 1: indirect effect $B = 0.04$, sobel test $z = 2.69$, $p < 0.01$; Set 2: indirect effect $B = 0.14$, sobel test $z = 3.09$, $p < 0.01$) and relief from pain (Set 1: indirect effect $B = 0.03$, sobel test $z = 2.38$, $p < 0.01$; Set 2: indirect effect $B = 0.08$, sobel test $z = 2.72$, $p < 0.01$).

6. Discussion

The main aim of the present research was to analyze the predictors of binge drinking focusing on boredom proneness and drinking expectations in a sample of Italian adolescents. In particular, we expected boredom to have a positive effect on binge drinking via the mediation of drinking expectancies. Indeed, as the literature has shown (e.g., Hunter & Csikszentmihalyi, 2003), boredom proneness (considered as

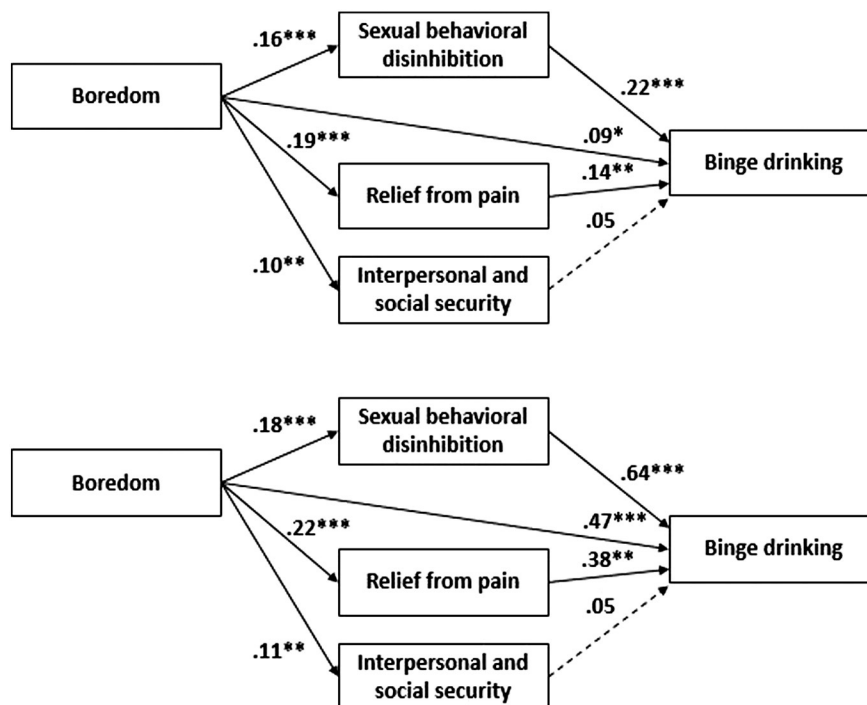


Fig. 1. Multiple regression analyses predicting binge drinking measured with quantitative (Set 1) and dichotomic (Set 2) variable. Note. Coefficients are unstandardized regression coefficients. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

dissatisfaction) is a quite frequent vulnerability condition for this stage of life and alcohol use may be seen as a way to escape from this state. In this sense, we expected that boredom could lead to binge drinking by fostering drinking expectancies, both psychological (e.g., disinhibition, distress) and social (e.g., congeniality, socialization), that is by supporting such beliefs in “alcohol binging” as functional and efficient for one’s own life.

Firstly, our findings reveal that binge drinking is a very common behavior in Italian adolescents, in particular among males. Our data are indeed very high even when compared to national surveys investigating alcohol consumption. The ESPAD survey (Hibell et al., 2012) claims that binge drinking involves 35% of young Italians, a percentage slightly below the European average. In our sample, almost half of the adolescents declared they had experienced binge drinking in the last two weeks and this percentage is higher than 50% for boys. Instead, the average age for the first drink (12.80 years) is just slightly lower compared to other findings (e.g. Beccaria & Sande, 2003) as a confirmation that the Italian adolescents’ first experiences with alcoholic beverages occur, on average, at the age of about 13–14. Moreover, the majority declared they had experienced drunkenness at least once and the average age of the first experience was below 14 years old. In general, all these data are in line with those studies (e.g., Room, 2010) that underline how so-called Mediterranean cultures are changing their drinking modalities to be closer to northern European customs. That is, if Mediterranean cultures traditionally tend to drink as an accompaniment to meals, more recently, especially in youngsters, these cultures are starting to adopt so-called “Northern European drinking patterns” characterized by heavy episodic drinking often for the purpose of intoxication (Calafat et al., 2011). Thus, Italian adolescents seem to be affected by a cultural shift supporting a hedonistic culture (Fry, 2011) whereby binge drinking is a pattern typical of a culture where drinking is a clear demarcation line between non-leisure and leisure time.

We should note that the high incidence of binge drinking highlighted in the present research may also be explained by the geographical origin of our sample, that is a rural zone of Sicily. As Donath et al. (2012) pointed out, rural zones are more frequently associated with binge drinking behaviors as compared to urban areas. Adolescents in rural areas may indeed have fewer alternatives for engaging in leisure activities than adolescents living in cities. This may lead to greater motivation for being involved in at-risk consumption patterns. In addition, national studies show that binge drinking has increased by 2.7% in Sicily in the last few years (ISTAT, 2013).

Secondly, as far as gender differences are concerned, our data confirm the literature (e.g., Wilsnack et al., 2009) suggesting that boys are more frequently affected by alcohol abuse and binge drinking behaviors than girls. Moreover, boys are more often involved in risk behaviors, such as drink driving. Otherwise, no significant gender differences were found as regards drinking on an empty stomach, a form of behavior also practiced by females. Consistent with our findings, Burke, Cremeens, Vail-Smith, and Woolsey (2010) reported no significant differences between males and females in regard to drinking on an empty stomach and explained that this behavior is adopted by both males and females in order to enhance alcoholic effects and possibly to avoid weight gain (mainly for females). Furthermore, no differences were seen in regard to boredom and drinking expectancies. Although several studies have shown disparities in scores on boredom (e.g. Seib & Vodanovich, 1998; Vodanovich & Kass, 1990), in accordance with Melton and Schulenberg (2009) we found no gender differences in our sample.

Thirdly, as hypothesized, binge drinkers adopt riskier drinking patterns than non-binge drinkers. However, it should be noted that no differences in regard to age of first drunkenness were found. This could mean that intoxication is conceived as a normal experimentation in adolescence; instead, the predictors of binge drinking can be found in the meanings attributed by young people to the intoxication experiences and to the effects they believe they can obtain from alcohol abuse.

According with several studies (e.g. Pabst, Kraus, Piontek, Mueller, & Demmel, 2014; Yurasek et al., 2015), alcohol expectancies, or the beliefs and anticipations about the effects/consequences of alcohol use, are predictive of alcohol consumption and problems. In particular, positive alcohol expectancies (e.g. “drinking alcohol helps me not to think about my problem”) – which refer to the perception of the positive effects of alcohol use – have been shown to be related to drinking patterns (Goldman, Del Boca, & Darkes, 1999). For instance, some scholars (Clark et al., 2012) have suggested that individual characteristics and alcohol expectancies (considered as metacognitions) have been involved in the dysregulated use of alcohol in binge drinkers.

Fourthly, the mediation model shows that boredom proneness has an effect on binge drinking also via the mediation of psychological drinking expectancies, that is by enhancing the idea of alcohol as promoting sexual behavioral disinhibition as well as a certain relief from pain and anxiety. Instead, even if boredom predicts social confidence, this variable appears to have no effect on binge drinking behaviors. These data suggest that a certain level of boredom may lead adolescents to consider alcohol abuse as an “antidote” for stress and anxiety and for a lack of stimulation but not as an answer to the need to conform. Similarly, in their multivariate model Lammers and colleagues (2013) showed that enhancement and coping expectancies play a more prominent mediation role between personality predispositions and binge drinking but less significant mediation associations were found for social expectancies. Our findings are in agreement with previous research (e.g., Magid et al., 2007) where no mediation effect of social expectancies was found for the association between individual characteristics, namely boredom proneness and alcohol frequency. We may suppose that the uncomfortable feeling of boredom calls for psychological effects such as “disinhibition” or “escape from problems” rather than “acceptance in the peer group” and “approval”. For example “feel like the others” and “be fashionable” (i.e. items of “interpersonal and social confidence”) are social motivations that did not mediate between boredom and binge drinking. Thus, adolescents who are bored seem to engage in binge drinking more to reach “chemical” than social effects.

Finally, as some scholars (e.g. Carlson et al., 2010; Finn, Sharkansky, Brandt, & Turcotte, 2000) have pointed out, a strong relationship exists between sensation-seeking traits and motivation mediators. Although we did not study the determinants of boredom in our sample, in accordance with Wegner et al. (2006) we might hypothesize that boredom in leisure time can be facilitated by under-stimulation, thus giving rise to suffering (Caldwell et al., 1999; Miller et al., 2014). If a certain level of boredom is a characteristic that often demarcates adolescence and its demanding path towards the construction of one’s identity, this variable may also be affected by the geographical situation of the participants in our study: i.e. a rural area of a large Italian island. The relative lack of leisure and recreational opportunities available to the adolescents in the town of Licata may indeed contribute to increased feelings of boredom. Moreover, for adolescents trying to cope with negative emotions or who drink for coping expectancies, this lack of recreational alternatives may further enhance the propensity to binge drinking behaviors.

6.1. Limitations, implications and future studies

This study had some limitations which need to be taken into account. First, given the cross-sectional survey design, causality and mediation can only be inferred. That is, although the results suggest statistical mediation, this should be more properly tested in a longitudinal model to capture the temporal requirements of mediation. Second, another limitation concerns the sole focus on boredom proneness. In the future, results should be controlled for other traits known to be important in the adolescent population, such as impulsivity, sensation seeking, anxiety sensitivity, and hopelessness.

However, despite these limitations, the results presented in this article are promising. The present research indeed provides some suggestions for the understanding of binge drinking behaviors. First, the

relevant role of drinking expectancies behind these behaviors (e.g., Patrick & Schulenberg, 2011) is confirmed, even if these expectancies are more psychological than social.

Second, results of our study may have implications for clinical intervention as well. Modifying positive beliefs about alcohol may lead to less drinking. Indeed, LaLiberte and Grekin (2015) underlie the relevance of implementing alcohol expectancy interventions or laboratory experiences that challenge participants to differentiate between the expected and actual (pharmacological) effects of alcohol. These expectancy interventions have been useful in both changing expectancies and beliefs about alcohol effects and in reducing alcohol consumption (Blume & Guttu, 2015; Fried & Dunn, 2012; Scott-Sheldon, Terry, Carey, Garey, & Carey, 2012).

Third, our results suggest the need for a deeper understanding of how underlying predictors of alcohol use (e.g., expectancies, attitudes, beliefs) influence drinking behavior across gender and culture, in order to interpret the increase in binge drinking and identify particular needs for intervention. From a clinical point of view, in accordance with Brown et al. (2008), we believe that interventions targeted on alcohol problems should suitably reflect the adolescents' expectancies. Having a good time with friends (social expectancies) is not such a risky expectancy as drinking to get high or out of boredom. Identifying predictors and mediators of binge drinking is important for tailoring alcohol prevention programs and for improving interventions more suited to young drinkers (Coffman, Patrick, Palen, Rhoades, & Ventura, 2007). In addition, the present study confirms the importance of acting preventatively in early adolescence (Lammers et al., 2013), as in this phase of life some personality vulnerabilities are associated with drinking expectancies, which in turn may cause at-risk drinking patterns.

Overall, the findings provide suggestions for future appropriate interventions focused on personality traits (Conrod, Castellanos, & Mackie, 2008; Lammers et al., 2013). These interventions should distinguish between different personality characteristics, taking into account not only the drinking expectancies of adolescents but also environmental aspects. Future research should also focus on contextual factors that can moderate the relationship between individual vulnerability traits (i.e. boredom proneness) and adolescent binge drinking as well as identifying which mechanisms link disinhibition and pain relief to bingeing (Carlson et al., 2010).

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Contributors

Author A designed the study and wrote most of the manuscript. Author B conducted the statistical analysis and wrote the Results section. Author C conducted literature searches and provided summaries of previous research studies. All the authors had approved the final manuscript.

Conflict of interest

All the authors declare that they have no conflicts of interest.

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