The Relationship between Parental Monitoring, Peer Pressure, and Motivations for Responsible Drinking among Italian Adolescents: The Mediating Role of Positive Alcohol Expectancies

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This is the author version of the manuscript. It has been peer-reviewed and accepted for publication in *The Journal of Genetic Psychology*. The final published version is available at https://doi.org/10.1080/00221325.2022.2113026.

Relationships between Parental Monitoring, Peer Pressure, and Motivations for Responsible Drinking among Italian Adolescents: The Mediating role of Positive Alcohol Expectancies.

This study investigated the associations between parental monitoring, peer pressure, and motivations for responsible drinking, taking also into account the mediating role of positive alcohol expectancies. Participants were 579 Italian adolescents, aged 14-20 years (*M* = 16.39 years, *SD* = 1.27; 55.3% females), involved in a cross-sectional survey. They were administered online self-report questionnaires. Structural equation modelling revealed both direct and indirect positive associations among study variables. Parental monitoring was positively associated both directly and indirectly, through the mediation of positive alcohol expectancies, with adolescents' motivations for responsible drinking; peer pressure was negatively and indirectly associated with adolescents' motivations for responsible drinking, via the mediation role of positive alcohol expectancies. Findings highlight the importance of environmental factors with regard to motivations for responsible drinking, suggesting the opportunity to implement prevention programs to improve parental monitoring and increase adolescents' skills to manage peer pressure and to develop realistic expectancies about drinking.

Keywords: parental monitoring, peer pressure, motivations for responsible drinking, positive alcohol expectancies, adolescence.

Introduction

It is largely known that adolescence is a period of life which presents the greatest risk of starting to use psychoactive substances like tobacco, alcohol or other drugs (Khlat et al., 2020; Smit et al., 2018). Among these, alcohol is certainly the one most widely used by adolescents across world (Smit et al., 2018) and its consumption during adolescence is associated with serious negative health consequences both in the short and long term (DeWit et al., 2014; Donovan, 2004; Pitkänen et al., 2005). As is widely known, adolescence is characterized by the seeking of new sensations (Azpiazu et al., 2015) and among these drinking that represents a way to satisfy adolescents' curiosity about forbidden or socially unacceptable behaviors, as well as a way to help them to be accepted by peers since they perceive theirs elves as more fun after having drunk (Ergene et al., 2019; Kinard, 2006). Moreover, adolescents bear witness to drinking behaviors of adults and peers on a daily basis, since drinking is widespread and encouraged by celebrations, social and business situations, religious ceremonies, and cultural events that in some ways permit and justify the practice of drinking (Meloni & Laranjeira, 2004).

For all these reasons, researchers have focused their studies on trying to understand the psychological processes underlying drinking behaviors in adolescence (i.e., Brody & Ge, 2001; Lannoy et al., 2021; Seo et al., 2018). Although the literature have focused overall on the risk factors for the use of alcohol and the negative consequences related to its consumption at a young age (Donovan, 2004; Merline et al., 2008; Yuen et al., 2020), there is a growing interest on psychological factors that lead adolescents to responsible drinking behavior (Gray et al., 2021). Indeed, it is important to pay attention to factors related to responsible drinking in order to prevent alcohol abuse and consequently risky behaviors and adverse events related to this abuse, like road accidents or health diseases.

Responsible drinking behaviors have been defined in several ways by both politicians and academic researchers (Gray et al., 2021; Maani & Petticrew, 2018). For instance, Towers and colleagues (1994) refer to the avoidance of negative consequences and unsafe drinking situations.

Instead, Rubington (1996) defines it as the avoidance of disordered behaviors, whereas de Graaf and colleagues (2015) refer to a specific alcohol consumption limit (e.g., no more than one glass of alcohol per day). Moreover, Barry and Goodson (2011) define the concept of responsible drinking as any drinking behavior that does not harm oneself or others. According to these authors is very important to take into account motivations, beliefs, and attitudes associated with responsible drinking. In particular, in line with the theory of planned behavior (Ajzen, 1991), the motivations for responsible drinking is strongly associated with responsible drinking behaviors: the more motivated an individual is to drink responsibly, the stronger the individual's intention to engage in that behavior, and the stronger the likelihood that the behavior will occur. For this reason, in the current paper we focused on motivations for responsible drinking and their psychological correlates.

The literature on drinking behaviors has tried to acquire some insights about the factors that lead youths to drink responsibly, focusing on both individual and environmental factors. In particular, some scholars have underlined the role of environmental factors in determining teens' drinking behaviors since they are particularly sensitive to social and environmental influences (Blakemore & Mills, 2014; Colich et al., 2021; Steinberg & Morris, 2001). These scholars provided empirical evidence that variables like parental monitoring (Calafat et al., 2014; van Der Vorst et al., 2006) and peer pressure (Allen et al., 2003; Borsari & Carey, 2001) play a key role in influencing the patterns and extent of adolescents' alcohol consumption.

Parental monitoring can be defined as a set of parenting behaviors aimed at paying attention to and tracking adolescent's whereabouts, activities, adaptations, and friendships (Dishion & McMahon, 1998). Some authors have underlined that it is positively associated with responsible drinking since parents who are involved in adolescents' lives and know what their children are doing are in a good position to promote motivations for positive and healthy behaviors in their sons and daughters (Wadolowski et al., 2016; Yakam, 2021). Peer pressure, instead, refers to the influence exerted by a peer group to lead a person to change his/her attitudes, value, or behaviors in order to conform to group norms (Hardcastle, 2002). With respect to alcohol use, it is understood as

any direct or indirect influence by peers on drinking behaviors, through ways of encouraging, inviting, challenging or provoking that has been shown to be negatively associated with motivations for responsible drinking (Barry & Goodson, 2011; Tran et al., 2019).

Although the researches shows direct associations between parental monitoring and peer pressure on the one hand, and motivations for responsible drinking, on the other hand, certain studies have shown that these associations may also be mediated by other variables of personal nature (Tran et al., 2019). Among these, an important role is often played by alcohol expectancies. Indeed, adolescents seem to modulate their drinking behaviors on the basis of positive or negative outcome expectancies linked to alcohol initiation and consumption maintenance (Jones & Gordon, 2017; Richards et al., 2020). Positive expectancies concern perceived personal benefits related to drinking alcohol (e.g. social disinhibition, physical power), while the negative ones refer to the detrimental effects on psycho-physical well-being (e.g. loss of control, addiction) related to drinking behaviors. In particular, positive expectancies may assume a dangerous role in relation to the amount and mode of drinking, as the belief that alcohol brings positive benefits is negatively correlated to motivations for responsible drinking (Kuntsche et al., 2007; Kuntsche et al., 2010).

Considering that positive alcohol expectancies can be influenced by environmental factors such as parental monitoring and peer pressure (Cumsille et al., 2000; Ting et al., 2015), and that these in turn influence motivations for responsible drinking, it is possible to hypothesize that positive alcohol expectancies mediate the association of parental monitoring and peer pressure with motivations for responsible drinking. To our knowledge, previous research has only focused on the mediating role of positive alcohol expectation in the association between environmental factors like peer pressure and alcohol consumption (Scheier & Botvin, 1997; Smit et al., 2018; Walther et al., 2017). Instead, no studies so far have explicitly focused on motivations for responsible drinking as outcome. Thus, the present study is aimed at filling this gap by analyzing the associations between environmental factors (parental monitoring and peer pressure) and motivations for responsible

drinking among adolescents, shedding light on the mediating role of positive expectancies towards alcohol in this relationship.

Parental Monitoring and Motivations for Responsible Drinking

Parents play an important role in determining adolescents' personal development since they influence their children's values, health behavior and lifestyle (Jang et al., 2013; Koning et al., 2014). In particular, as described above, parental monitoring has been shown to be associated with reduced adolescent drinking (Carroll et al., 2016; Nash et al., 2005; Patrick & Schulenberg, 2013; Ryan et al., 2010; Tobler & Komro, 2010) and to a guidance for a responsible drinking (Wadolowski et al., 2016; Yakam, 2021).

Evidence has been provided that there is a negative association between parents' knowledge of children's whereabouts, social activities and peers and the tendency to use alcohol during adolescence (Branstetter & Fuman, 2013; Inguglia et al., 2021; Thompson et al., 2015), whereas high parental monitoring and supervision contribute to minimize teens' involvement in dangerous situations and may encourage motivations for responsible drinking (Bohnert et al., 2012; Fletcher et al., 2004). This may be explained because during adolescence many youths find difficult to develop a more autonomous and volitional regulation, so parental monitoring provides them with guidance to enhance their sense of responsibility by encouraging their motivations to adhere to positive and healthy lifestyles (Aquilino, 2006; Thompson et al., 2015).

Different studies have focused on the direct effect of parental monitoring on motivations for responsible drinking (Wadolowski et al., 2016; Yakam, 2021). However, no study so far has ever investigated the indirect effects of parental monitoring on motivations for responsible drinking. As underlined above, the association between parental monitoring and motivations for responsible drinking can be mediated by positive alcohol expectancies. Indeed, parental monitoring is negatively associated with positive alcohol expectancies, the greater is the parental monitoring, the lower are expectancies respect beneficial effects of alcohol use (Jackson et al., 2021). Moreover, positive alcohol expectancies are negatively associated with motivations for responsible drinking

(Buyucek et al., 2019). In light of this, the present study seeks to enhance our knowledge in this field by examining the indirect associations between parental monitoring and adolescents' motivations for responsible drinking through positive expectancies towards alcohol.

Peer Pressure and Motivations for Responsible Drinking

Peer pressure is another environmental factor that contributes to shape adolescents' thoughts, expectancies and behaviors towards alcohol. It was largely assumed that during adolescence individuals conform their own behavior to that of their peers in order to be accepted in the peer group, sometimes even engaging in negative behavior, for instance alcohol abuse (Allen et al., 2005; Ogunwale, 2013). In particular, scholars have showed that adolescents who are exposed to peers who drink are more likely to accept and justify alcohol use (Kaplow, Curran, & Dodge, 2002) and, consequently, that peer pressure can be negatively associated with motivations for responsible drinking (Barry & Goodson, 2011; 2012).

Some studies have suggested that motivations for responsible drinking are not only directly affected by peer pressure, but instead this relationship may be mediated by other variables like positive expectancies toward drinking (de Visser et al., 2013). Indeed, peer pressure has been shown to be significantly related to higher alcohol expectancy (Wood et al., 2001) because the exposure to social drinking models and peers' drinking approval increase the possibility of develop positive expectancies about the effect that alcohol will have on adolescents' life that, in turn, reduce the motivation to drink responsibly (Buyucek et al., 2019; Cumsille et al., 2000; Martino et al., 2006; Ouellette et al., 1999; Scheier & Botvin, 1997).

However, to the best of our knowledge, no research has yet investigated the indirect effects of peer pressure on motivation for responsible drinking via positive alcohol expectancies. In light of this, the present study seeks to increase our knowledge by examining the indirect associations between peer pressure and adolescents' motivations for responsible drinking through the mediation of positive alcohol expectancies.

Alcohol Expectancies and Motivations for Responsible Drinking

As highlighted in the previous paragraphs, a potential mediator of the relationships between environmental factors (i.e., parental monitoring and peer pressure) and motivations for responsible drinking are positive alcohol expectancies (Jester et al., 2015; Smit et al., 2018). Before the onset of alcohol consumption, the alcohol expectancies of youths are based on principles of social learning (Bandura & McClelland, 1977) and are shaped by the environment (e.g., family and peers) (Brown, Christiansen, & Goldman, 1987). According to alcohol expectancy theory (Jones, Corbin, & Fromme, 2001), alcohol expectancies represent a cognitive factor constantly correlated with the initiation of alcohol use and the ways in which it is used by individuals (Brown et al., 1987; Jester et al., 2015; Pedersen et al., 2014). In this perspective, if an adolescent believes that using alcohol will help him or her to alleviate negative affect (such as social anxiety or depression) as well as to obtain positive consequences, like making new friends, he or she will be more likely to use alcohol.

Therefore, positive alcohol expectancies may represent an important mediational pathways between individual or environmental factors and adolescents' motivations for responsible drinking (de Visser et al., 2013; Settles et al., 2014; Smit et al., 2008). According to the systematic review performed by Smit and colleagues (2008), it was shown that in 12 out of 18 studies, positive alcohol expectancies mediated the relationship between individual and environmental predictors and adolescents' alcohol use patterns (e.g., quantity, frequency, and drunkenness). In particular, positive expectancies about alcohol consumption, such as relaxation, social disinhibition, and physical power constitute an important factor of motivation to drink responsibly and are negatively associated with responsible drinking since they reduce the perception of risk (Brumback et al., 2021; Kuntsche et al., 2005; Wood & McMurray, 2018).

In light of these findings and considerations, it seems interesting to analyze the role of positive alcohol expectancies as a mediator between environmental predictors and adolescents' motivations for responsible drinking. However, although Buyucek and colleagues (2019) have already found a negative relation between positive alcohol expectancies and motivations for responsible drinking, no studies so far have analyzed the mediating role of alcohol expectancies

with respect to the associations of parental monitoring and peer pressure with adolescents' motivations for responsible drinking. Hence, the current study seeks to fill this gap.

The Current Study

In the present study, we sought to contribute to a more detailed knowledge of the relationships between parental monitoring, peer pressure and motivations for responsible drinking among adolescents. In doing so, we were also interested in exploring the mediating role of positive alcohol expectation in the association between parental monitoring and peer pressure, on the one hand, and adolescents' motivations for responsible drinking, on the other hand. To our knowledge, research has never examined a combination of such variables in a comprehensive model.

Framed from a conceptual framework based on an integration of alcohol expectancy theory (Jones et al., 2001) with studies on the effects of parental monitoring and peer pressure on adolescents' drinking behaviors (Johnson & Johnson, 1999) and motivations for responsible drinking (Barry & Goodson, 2011), we proposed the following hypotheses:

H1: parental monitoring is negatively associated with positive alcohol expectancies;

H2: parental monitoring is indirectly associated with motivations for responsible drinking through the mediating role of alcohol expectancies: the higher the parental monitoring, the less the adolescents develop positive alcohol expectancies and, in turn, the more they are motivated to drink responsibly;

H3: peer pressure is positively associated with positive alcohol expectancies;

H4: peer pressure is indirectly associated with motivations for responsible drinking through the mediating role of alcohol expectancies: the greater the peer pressure, the more the positive expectation towards alcohol use and the less the adolescents are motivated to drink responsibly.

Materials and Methods

Participants and Procedures

A total of 579 Italian adolescents, aged between 14-20 years (M = 16.39 years, SD = 1.27; 55.3% females), participated in the current cross-sectional study. Two participants did not indicate

their gender. Participants were recruited from high schools and professional institutes located in the urban area of a southern region of Italy. Table 1 shows the other information about the family characteristic.

Table 1 about here

Most of the adolescents lived with intact families (84.6%) and in their parents' home (87%). Also, the educational background of their parents was high: 33.5% had a university degree and the 37.1% a high school diploma. Participants were asked to report the age they began drinking alcohol indicating that for males the age was 14 years (22.5%) and for females was 15 years (22.5%). In addition, were asked to indicate if they had six or more drinks in a single setting, showing that the 53.3% of males and the 36.9% of the females answered yes.

All participants were informed about the objectives of the study and gave their informed consent, and approvals were obtained from School Authorities and parents. Data collection was conducted with an online questionnaire administered in the computer laboratory of each school by researchers and trained interviewers. All participants completed the questionnaire anonymously in collective sessions which took approximately 25 minutes during the regular school day and did not receive any incentives for their participation. Ethical approval for this study was obtained from XXXXX (blinded for review) Ethics Committee (Approval number N. 34926 of 2019.04.08).

Translation procedures

Based on the objectives of the present study, all the measures were translated from English into Italian according to the guidelines of the International Test Commission (2017). Specifically, the scales were forward and back-translated. Forward translation (English to Italian) was performed by one translator, whereas the back translation from Italian to English was performed by a second translator. Minor discrepancies were solved by consensus.

Measures

Demographics

Participants were asked to report general information about their gender, age, parental education and employment, family structure, current place of living, and specific information about alcohol use.

Peer pressure

To measure the effect of peer pressure, we adapted two items of the Peer Pressure, Conformity, and Popularity scale (Santor et al., 2000). The items (e.g., "If my friends are drinking, it would be hard for me to resist, having a drink") are scored on a Likert-type scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Cronbach's alpha for this study was .68 (M = 2.13, SD = 1. 90, 95% CI [.64, .71]).

Parental monitoring

The five-item parental monitoring scale (Stattin & Kerr, 2000) was used for the estimation of parental monitoring. Participants were asked to rate the extent to which parents monitored their parents know about their activities (e.g., "Do your parents know what you do in the afternoon after school?"). The scale used a five-point Likert-type scale, from 1 (*never*) to 5 (*always*). Coefficient alpha for this study was 0.81 (M = 4.18, SD = .15, 95% CI [.79, .84]. The results of the confirmatory factor analysis indicated that all the items loaded on the scale, robust χ^2 (2, N = 579) = 1.37, p = .50, CFI = 1.00, TLI = 1.00, RMSEA = .00, 90% CI [.00, .07], SRMR = .00.

Positive Alcohol Expectancies

The Alcohol Expectancy Questionnaire, Adolescent Brief-positive scale (AEQ-ABp) (Stein et al., 2007) was used to assess positive expectancies towards alcohol. The scale consists of four items rated on a Likert-type scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). An example of an item of the AEQ-ABp is: "Alcohol generally has powerful positive effects on people (makes a person feel good or happy; future seems brighter)". Cronbach's alpha for this study was 0.71 (M = 1.98, SD = .30, 95% CI [.67, .75]). The results of the confirmatory factor analysis indicated that all the items loaded on the single factor, robust χ^2 (2, N = 579) = .38, p = .83, CFI = 1.00, TLI = 1.00, RMSEA = .00, 90% CI [.00, .05], SRMR = .00.

Motivations for Responsible Drinking

For the present study, we assessed motivations for responsible drinking by using the motivation sub-scale of the Characteristics of Responsible Drinking Survey (CHORDS – Barry & Goodson, 2011), which consists of 21 items rated on a Likert-type scale ranging from 1 (*never*) to 5 (*always*). For example, "When I drink responsibly, one of my motivations is because I do not want to get drunk". Specifically, the motivation sub-scale assessing the extent to which various intrapersonal (e.g., religious convictions), interpersonal (e.g., desire not to upset significant others or parents), and other contextual factors (e.g., having to drive home, work- and school-related obligations) facilitate responsible drinking. However, according to Barry & Goodson (2011) despite the different aspects assessed by the motivation for responsible drinking scale, the results of the original reliability analysis suggested that all the items can perform as a single factor emphasising the importance of applying a validation process to confirm the factorial structure of the variables. Therefore, confirmatory factor analysis was performed on the current sample to confirm the hypothesized five-factor structure of the motivation for responsible drinking scale. The results of the analysis showed a poor fit, robust χ^2 (179, $N = 579$) = 706.38, $p < .001$, CFI = .87, TLI = .84, RMSEA = .07, 90% CI [.07, .08], SRMR = .08. We also tested the unidimensional factorial structure of the scale, but the results were still unsatisfactory. Consequently, we decided to assess the validity of the instrument by carrying out new statistical analyses to better identify the factorial structure of the scale (see Results section, for the details).

Data analysis plan

Before running the data analyses, all the variables of the study were screened to inspect cases with missing values, and univariate normality (skewness and kurtosis). To identify multivariate outliers, Mardia's multivariate kurtosis test was used. Descriptive statistics and Pearson's correlations, using a bootstrap sample of 500 (with 95% bias-corrected and

accelerated confidence intervals), were computed. The internal reliability was obtained by calculating the alpha of Cronbach (α). SPSS 26 package was used to run the preliminary statistical procedures.

Next, the factorial structures of the scales were evaluated (see Method section) by computing a confirmatory factor analysis (CFA) and using the weighted least squares mean and variance adjusted (WLSMV) estimator as a method of parameter estimation (Muthén & Muthén, 2014). The WLSMV is highly recommended for the analysis of ordinal and dichotomous variables (DiStefano & Morgan, 2014). As Hu and Bentler (1999) recommend, multiple indices were used to evaluate the model fit (adopted cut-offs in brackets): the chi-square (χ^2) test value with the associated *p*-value ($p > .05$), comparative fit index (CFI ≥ .95), Tucker–Lewis Index (TLI ≥ .95), root-mean-squared error of approximation (RMSEA ≤ .06), and its 90% confidence interval, and standardized root mean square residual (SRMR < .08).

Since the CFA result of the motivation for responsible drinking scale was unsatisfactory, an exploratory-confirmatory cross-validation strategy was applied for a better trimming of its factorial structure (Hancock & Mueller, 2013). According to this approach, the factor structure of the motivation for responsible drinking scale was tested randomly dividing the whole sample into two sub-samples. The first sub-sample (N = 308, 53.9% females, M_{age} = 16.38, SD = 1.29) served as a sample to examine motivation for responsible drinking scale dimensionality through a robust Parallel Factor Analysis (PFA) based on minimum rank factor analysis and polychoric correlation matrix (Timmerman & Lorenzo-Seva ,2011). The PFA was performed with the software FACTOR (Lorenzo-Seva and Ferrando 2006). The second sub-sample (N = 271, 56.8% females, M_{age} = 16.41, SD = 1.24) served as a validation sample where confirmatory factor analysis (CFA) was used to test the replicability of the factor model (Thompson, 1994).

Finally, structural equation modelling (SEM) was used to separately test a partial and a full mediating model to verify whether the proposed mediator, positive alcohol expectancies, fully explained the relationships between predictors and motivation for responsible drinking scale. Age

and gender were also controlled. Finally, an alternative model was tested in which positive alcohol expectancies was identified as a dependent variable and both factors of the motivation for responsible drinking scale were considered as mediators. CFA and SEM were performed by using Mplus 7.04 (Muthén & Muthén, 2014).

Results

Results 1 (Factorial structural of the motivation for responsible drinking scale)

Preliminary results

By checking for univariate and multivariate outliers, the values of skewness and kurtosis fell in the range of -2 to + 2. However, Mardia's coefficient was, 9.48, $p < .05$, demonstrating multivariate non-normality. Consequently, robust estimators were used in the following analyses.

Parallel and confirmatory factor analysis of the motivation for responsible scale

Based on the KMO criterion, sampling adequacy was good, 0.88. Bartlett's test of sphericity showed that the correlation matrix was suitable for PFA, robust $\chi^2 = 1895.6$; $df = 45$, $p < .001$. The adequacy of the factor solution was based on the interpretability of the solution, and salient factor loadings (> .30). Therefore, items that had factor loadings lower than 0.30, and with salient cross-loadings of greater than 0.30 on two or more factors were excluded from further analyses. The results of PFA suggested a two-factor solution, which explained 68% of the total variance. According to the content of the items, the first factor (F1), which factorial structure was similar to the original scale excepted for item 8, was labelled "Knowledge of one's personal alcohol-related limits" (items, 1, 4, 11, 15, 18). The second factor (F2) was labelled "Extrinsic motivations" (items, 9, 16, 19, 20, 21).

Next, starting from the two-factor solution, a CFA was performed by allowing each item to load on the hypothesized factor and to be freely estimated. The variance of each factor was set at 1.0 to guarantee the measurement scale and factor co-variance was permitted. The model fit was satisfactory, robust χ^2 (32, $N = 579$) = 106.34, $p < .001$, CFI = .99, TLI = .99, RMSEA = .06, 90% CI [.05, .08], SRMR = .03. Items' standardized loadings (λ) ranged from 0.61 to 0.91. Finally, we

tested a single factor model, which results indicated a poor fit to the data, robust χ^2 (33, N = 579) = 445.51, p < .001, CFI = .94, TLI = .92, RMSEA = .15, 90% CI [.13, .16], SRMR = .06.

Reliability of the motivation for responsible drinking scale

The motivation scale total score showed good internal consistency reliability, α = .91 (*M* = 2.70, *SD* = .67, 95% CI [.90, .92]. For the two factors, the values of the internal consistencies were also good, F1- Knowledge of one's personal alcohol-related limits, α = .88, *M* = 3.42, *SD* = .25, 95% CI [.86, .89]; F2 - Extrinsic motivations, α = .79, *M* = 2.51, *SD* = .30, 95% CI [.79, .82]. The result of the correlation between the two factors was acceptable, $r(579) = .597$, $p < .001$.

Results 2 (Mediational Analysis)

Preliminary results

No missing values on the main variables of the study were identified in the dataset. By inspecting for univariate and multivariate outliers, problems with kurtosis (higher than 2 for the only Monitoring variable) was detected (see Table 1). However, Mardia's coefficient was, 37.09, p < .01, demonstrating multivariate non-normality. This result suggested the adoption of robust estimators.

Descriptive, correlations

The descriptive statistics and the correlations among the variables are shown in Table 2. The Monitoring score was negatively correlated with Peer pressure and Positive alcohol expectancies and positively correlated with both the Motivations for responsible drinking factors. Also, Peer pressure was positively associated with Positive alcohol expectancies but was not related to the Motivations for responsible drinking factors. A significant and negative association emerged between the Motivations for responsible drinking factors and Positive alcohol expectancies. However, all the preconditions for computing the SEM analysis were satisfied.

Table 2 about here

Mediation Analysis

First, we tested a full mediated model by removing the direct paths from Peer pressure and Monitoring to F1 and F2, respectively. The results showed an adequate fit to the data, robust χ^2 (194, N = 577) = 106.34, p < .001, CFI = .98, TLI = .98, RMSEA = .04, 90% CI [.04, .05], SRMR = .08. Next, we tested a partial mediation model by including all the possible paths among the variables. The fit of the revised model was also satisfactory, robust χ^2 (190, N = 577) = 380.48, p < .001, CFI = .98, TLI = .98, RMSEA = .02, 90% CI [.04, .05], SRMR = .07. The results of the comparison between the more restrictive model versus the less restrictive one showed that they did not differ significantly, $\Delta\chi^2$ (4, N = 577) = 14.37, p = .006. Therefore, these findings indicate retaining the full mediation model. Figure 1 illustrates the model results with specific factor loadings and direct effects among the variables.

Finally, we tested an alternative model in which Positive alcohol expectancies was identified as a dependent variable and both factors of the motivation for responsible drinking scale were considered as mediators. Although the fit of the alternative was acceptable, robust χ^2 (192, N = 577) = 577.05, p < .001, CFI = .96, TLI = .95, RMSEA = .06, 90% CI [.05, .06], SRMR = .08, the results indicated that the full mediation model was superior.

Figure 1 about here

The results of the indirect effects are listed in Table 3.

Table 3 about here

Discussion

Adolescence is a developmental period in which risk taking behaviors frequently occur (Khlat et al., 2020; Smit et al., 2018). In particular, some of these behaviors are related to alcohol consumption and many scholars are increasingly interested in studying psychological factors which provide protection against alcohol abuse and lead to responsible drinking behavior (Gray et al., 2020). Among these factors, several studies have focused on the role of some environmental factors like parental monitoring and peer pressure that are directly or indirectly associated with

adolescents' motivations for responsible drinking (Barry & Goodson, 2011; Barry & Goodson, 2012; de Visser et al., 2013; Wadolowski et al., 2016; Yakam, 2021).

Starting from these premises, the current study has explored the associations between parental monitoring and peer pressure with motivations for responsible drinking among adolescents. In doing so, we were also interested in exploring the mediating role of adolescents' positive expectancies towards alcohol in the relations between parental monitoring, peer pressure and motivations for responsible drinking. In general, our initial hypotheses were supported by the findings.

With regard to parental monitoring, the findings of the study highlighted that it seems negatively and significantly associated with adolescents' positive expectancies towards alcohol. Moreover, results confirmed also that there is an indirect and significant association between parental monitoring and motivations for responsible drinking (both knowledge of one's personal alcohol-related limits and extrinsic motivations) through the mediating role of positive expectancies towards alcohol. In particular, adolescents who perceived higher levels of parental monitoring experience less positive expectancies towards alcohol that, in turn, were associated with more motivation to drink responsibly.

As underlined by several scholars, parental monitoring is an important factor linked to motivations for responsible during adolescence because youths are not yet completely independent and need kinds of guidance by parents to develop an autonomous sense of responsibility and awareness of one's personal limits related to alcohol drinking (Aquilino, 2006; Thompson et al., 2015). Parents' knowledge of adolescents' activities, friendships and habits has been shown to be associated with higher levels of adolescents' healthy and safe behaviors, in particular in our case with higher levels of motivations for responsible drinking (Wadolowski et al., 2016; Yakam, 2021). Indeed, data showed a positive and significant correlation between parental monitoring and motivation for responsible drinking. However, the present results provided support that parental monitoring is indirectly related to adolescents' motivations for responsible drinking through the

mediating effect of positive alcohol expectancies. Indeed, as Jackson and colleagues (2021) underlined, the perception of having parents who supervise and know the life-styles and the behaviors of adolescents tend to be associated with lower and more realistic adolescents' expectancies with respect the potential beneficial effects of alcohol use (Jackson et al., 2021), and consequently with more caution and responsibility in alcohol consumption, being aware of the external rewards or sanctions related to drinking abuse as well as of one's personal limit related to drinking alcohol. It seems that through their monitoring of youths' activities, parents tend to instill in them a sense of responsibility and awareness of the negative consequences of alcohol consumption, maybe through an active and open dialogue on drinking behaviors and their consequences.

With regard to peer pressure, it was positively and significantly associated with adolescents' positive expectancies towards alcohol. Furthermore, findings showed that peer pressure is indirectly related to motivations for responsible drinking through the mediating role of positive expectancies towards alcohol. In particular, adolescents who perceived higher levels of peer pressure tended to report more positive expectancies towards alcohol and consequently exhibited less motivation to drink responsibly.

Although some studies have already found that peer pressure may affect negatively and directly motivations for responsible drinking because adolescents who hang around with peers who drink are more likely to be motivated to drink alcohol frequently and in huge quantity (Barry & Goodson, 2011; Barry & Goodson, 2012), our results showed no direct associations between peer pressure and motivations for responsible drinking since these variables are not significantly related. Instead, in line with our hypotheses, we found an indirect association mediated by alcohol expectancies, through which peer pressure leads to more positive representations and beliefs about alcohol that, in turn, lead to less motivation to drink responsibly. This is in line with previous studies showing that the exposure to peer may increase the possibility of develop positive alcohol

expectancies and in turn the probability of being motivated to drink in a less responsible way during adolescence (Wood et al., 2001).

Limitations and Implications

The current study has potential limitations that must be taken into consideration. First, the cross-sectional design of the study makes difficult to infer the direction of the relationships among the study variables. Hence, further longitudinal studies are needed in order to conclude about the direction of the relationships among these variables. Second, the study is only focused on environmental factors that are associated with motivations for responsible drinking. Future research should focus also on individual factors (e.g. self-esteem, emotional problems), as they are also risk factors associated with drinking behaviors in adolescence (Bartsch et al., 2017; Lannoy et al., 2021). The third limit is that we took into account only one aspect of parental monitoring, namely parental knowledge, whereas it might be interesting to also analyze the way in which parents gather this information (e.g. through solicitation or child disclosure) in order to better understand the process of parental monitoring. Fourth, this study focused only on positive alcohol expectancies but it would be interesting to investigate also the role of negative expectancies towards alcohol in the associations between the study variables. Finally, the current study involved only a sample of adolescents, whereas it would be also interesting to analyze motivations for responsible drinking among preadolescents in order to prevent alcohol consumption at a younger age, as well as to focus on emerging adults who take frequently part in "drinking parties" at college or after work. Thus, future studies research should investigate also these target groups in order to draw comparisons between different age groups.

Despite these shortcomings, the current study represents an attempt to analyze a relatively understudied topic like the mediation of positive alcohol expectancies in the associations between parental monitoring and peer pressure, on the one hand, and adolescents' motivations for responsible drinking, on the other hand. Our findings are in line with the alcohol expectancy theory (Jones et al., 2001) and theory of planned behavior applied to alcohol consumption (Barry &

Goodson, 2011), according to which the patterns of alcohol consumption can be predicted by individuals' expectancies about the effects of this consumption as well as by individuals' motivations towards responsible drinking. In particular, positive expectancies, like being a better or an happier person, after having drunk represent an important motivation that may lead to drink frequently and in huge quantity. Moreover, in line with Bronfenbrenner's ecological model (Bronfenbrenner, 1979) our findings suggest that adolescents' positive alcohol expectancies as well as their drinking behaviors are associated and affected by environmental forces, like the parents or peers. Furthermore, the current study suggests that the processes and mechanisms through which parental monitoring and peer pressure are associated with adolescents' motivations for responsible drinking are more complex than often though and bring into play other intervening variables. Future research should investigate in deep this issue in order to identify if other variables are involved in these processes.

Finally, our findings have practical implications for the prevention of alcohol abuse in adolescence. On light of our results, it would be useful to design such programs by taking into consideration the important role of environmental factors. In particular, prevention programs should be directed also towards parents, helping them to improve their communication competences and monitoring strategies with their daughters or sons. For instance, interventions should be aimed at equipping parents with skills to keep an eye on their children's activities and relationships without being invasive (Inguglia et al., 2020). Furthermore, intervention programs should focus on adolescents' skills to face peer pressure towards irresponsible drinking, for instance, providing them resources for avoiding the overestimation of positive effects of alcohol consumption.

Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article's supplementary materials

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Table 1.

Family characteristics.

Family environment	Category	Father	Mother
Parental education	University	137 (23.7)	194 (33.5)
	Vocational school	90 (15.5)	71 (12.3)
	Secondary school	203 (35.1)	215 (37.1)
	Middle school	124 (21.4)	89 (15.4)
	Elementary school	21 (3.6)	8 (1.4)
	No education	4 (0.7)	2 (0.3)
Parental occupation	Yes	560 (96.7)	574 (99.13)
	Unemployed	8 (1.3)	2 (0.3)
	Missing	11 (1.9)	3 (0.5)

Note.

Data is *n* (%).

Table 2

Descriptive statistics and bootstrapped Pearson bivariate correlation matrix with 95% bias-corrected and accelerated (BCa) confidence intervals (bootstrap sample of 500) among study variables (N = 579).

	1	2	3	4	5	6
1. Monitoring	-					
2. Peer pressure	-0.31***	-				
	[-0.39, -0.23]					
3. Positive Alcohol Expectancies	-0.28***	0.50***	-			
	[-0.37, -0.20]	[0.42, 0.57]				
4. F1 - Knowledge of one's personal	0.14**	-0.06	-0.16***	-		
alcohol-related limits	[0.06, 0.22]	[-0.14, 0.02]	[-0.25, -0.08]			
5. F2 – Extrinsic motivation	0.09*	-0.03	-0.10*	0.60***	-	
	[0.01, 0.17]	[-0.10, 0.05]	[-0.18, -0.03]	[0.55, 0.65]		
6. Age	-0.07	0.11*	0.02	0.20***	0.19***	-
	[-0.14, 0.01]	[0.02, 0.20]	[-0.07, 0.11]	[0.12, 0.28]	[0.11, 0.27]	
Skewness	-1.34	0.83	0.75	-0.51	0.38	0.10
Kurtosis	2.38	-0.03	-0.02	-0.68	-0.70	-0.57

M	4.18	2.13	1.99	3.42	2.51	16.39
SD	0.75	1.09	0.83	1.20	1.12	1.27

Note. Values in square brackets indicate the 95% BCa confidence interval (lower limit and upper limit) for each correlation.

*p< .05. **p < .01. ***p < .001.

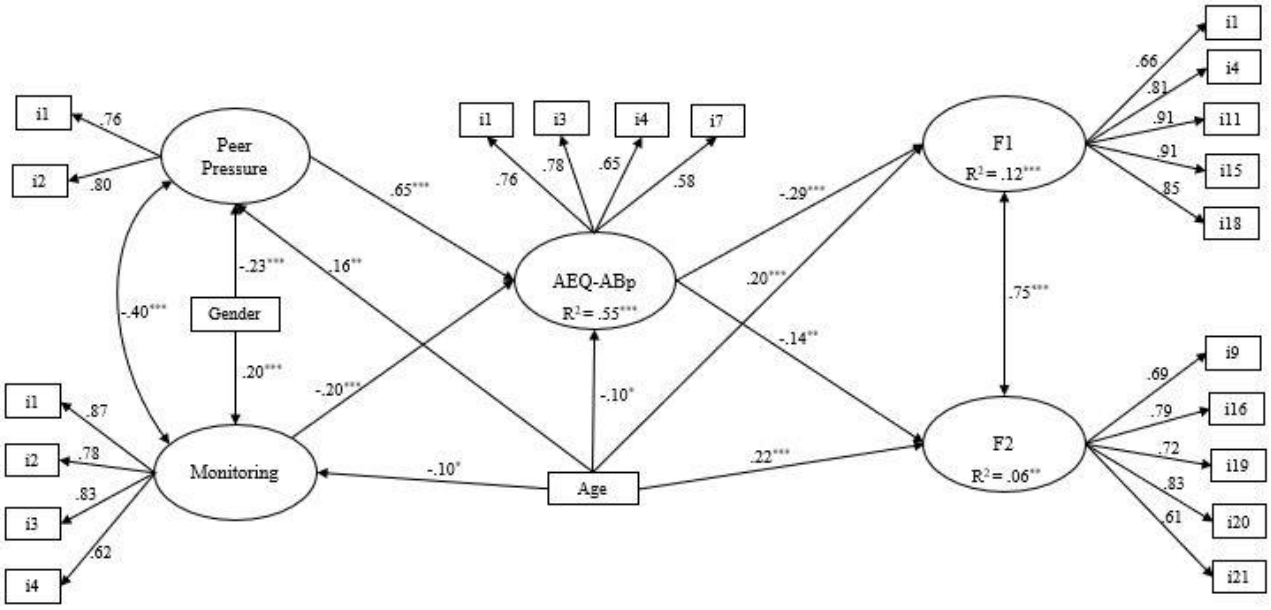
Table 3

Specific indirect effects in the full partial mediating model.

Predictor	Mediator	DV	β	SE	*p*
Monitoring	AEQ-ABp	F1	0.06	0.02	0.002
Monitoring	AEQ-ABp	F2	0.03	0.01	0.038
Peer pressure	AEQ-ABp	F1	-0.19	0.03	0.000
Peer pressure	AEQ-ABp	F2	-0.09	0.03	0.008

Note. AEQ-ABp = Alcohol Expectancy Questionnaire, Adolescent Brief-positive.

Figure 1. Completely standardized parameter estimates of the SEM model. The factor loadings of the items are significant ($p < .001$).



Note. F1 = Knowledge of one's personal alcohol-related limits; F2= Extrinsic motivations; AEQ-ABp = Alcohol Expectancy Questionnaire, Adolescent Brief-positive.

*p< .05. **p < .01. ***p < .001.