

**Beyond the Laws: Parental Monitoring, Perceived Acceptability of Underage Drinking and Alcohol
Use Among Belgian Youth**

Catherine Cimon-Paquet¹, Marie-Hélène Véronneau¹, & Cécile Mathys²

¹ Department of Psychology, Université du Québec à Montréal, Montréal, Québec, Canada

² Department of Criminology, University of Liège, Liège, Belgium

Author Note

Correspondence concerning this article should be addressed to Cécile Mathys, Associate Professor, Department of Criminology, Faculty of Law, Political Science and Criminology, University of Liège, Bât. B33 - Quartier Agora - Place des Orateurs 1, 4000 Liège, Belgium. E-mail: cecile.mathys@uliege.be; Phone: +324 366 22 66. Fax: +32 4 366 31 44.

Other authors' contact information: Catherine Cimon-Paquet, cimon_paquet.catherine@courrier.uqam.ca; Marie-Hélène Véronneau, veronneau.marie-helene@uqam.ca.

The last author is the principal investigator on this study.

This version of the article has been accepted for publication in the Journal of Youth and Adolescence, after peer review, but is not the Version of Record and does not reflect post-acceptance improvements, or any corrections. The Version of Record is available online at :

<https://doi.org/10.1007/s10964-024-01948-1>.

Use of this Accepted Version is subject to the publisher's Accepted Manuscript terms of use

<https://www.springernature.com/gp/open-research/policies/accepted-manuscript-terms>

Abstract

Parental monitoring behaviors are negatively associated with adolescent substance use. Yet, the processes explaining these associations are still unclear. The current study examined adolescents' knowledge of minimum legal drinking age laws and their perceived acceptability of underage drinking as potential mediators of the links between parental monitoring behaviors and youth alcohol use. The sample included 1154 Belgian adolescents ($M_{\text{age}} = 16.34$, $SD = 1.33$; 71% girls), who were recruited in Wallonia (54.9%) and in Flanders (45.1%). Path analyses revealed that higher parental rule setting, but not solicitation, was related to lower alcohol use. Acceptability of underage drinking mediated this link, but not knowledge of the laws. Results suggest that beyond laws regulating the minimum legal drinking age, alcohol use prevention programs should consider the importance of parental rule setting and youth's perceived acceptability of underage drinking.

Keywords: alcohol use, adolescence, underage drinking, parental monitoring, legal socialization

Introduction

Alcohol consumption during adolescence is associated with long-lasting changes in brain structure and cognitive functioning (for a review, see Lees et al., 2020). Youth alcohol use also puts adolescents at higher risk for alcohol problems later in life (Silins et al., 2018). Although youth alcohol use declined in the past decades, it remains prevalent as more than 80% of youth drink alcohol prior to the age of 17, with the highest rates in the world being reported in European countries (Inchley et al., 2018). Notably, the Belgian minimum legal drinking age is 16 years for fermented drinks (e.g., beer and wine), and 18 years for spirits, which is much lower than in other countries from the Global North. Extant studies show that parenting practices, such as general and alcohol-specific parental monitoring, can effectively reduce alcohol use (Bo et al., 2018). Yet, these studies do not clarify the mechanisms through which parental monitoring reduces alcohol use. As parental monitoring contributes to legal socialization (Baz Cores & Fernández-Molina, 2022), this study sets out to examine the role of parents in the internalization of minimum legal drinking age laws among Belgian youth. More specifically, knowledge of the laws and acceptability of underage drinking will be considered as potential mediators of the associations between parental monitoring behaviors and youth alcohol use.

Parental Monitoring and Adolescents' Alcohol Use

Parental knowledge of their youth's whereabouts and relationships is consistently identified as a protective factor for youth alcohol use. It is negatively related to the frequency of alcohol use among adolescents, both concurrently and longitudinally (for a review and meta-analysis, see Yap et al., 2017). Monitoring behaviors aim at increasing parental knowledge, and they are particularly important as adolescents spend an increasing amount of free time without their parents (Stattin & Kerr, 2000). One pervasive limitation in past research on parental monitoring is that this construct has mostly been assessed by measuring parental knowledge, irrespective of how parents gather information about their youth.

In recent decades, a slow shift occurred in assessment procedures after scholars have highlighted the need to consider parental knowledge and monitoring practices separately (Kerr et al., 2012). In fact, to develop useful interventions, it is critical to pinpoint specifically which parental behaviors contribute to preventing alcohol use. Parental monitoring includes two different types of behaviors: solicitation and rule

setting¹ (Stattin & Kerr, 2000). Solicitation takes place when parents initiate discussions with their adolescent, for example by taking the time to sit with them and asking them about what they did the night before with their friends. Parental rule setting refers to limits and boundaries that parents set regarding their adolescent's out-of-home activities. For instance, parents may require their youth to ask for permission to go out on school nights.

Evidence suggests that parents report higher levels of parental monitoring behaviors than their youth and that these differences are larger for rule-setting behaviors than parental solicitation (Kapetanovic & Boson, 2022). Additionally, meta-analytic data suggest that parent and youth reports of parental rules decrease over time, although only parents report a decrease in parental solicitation (Lionetti et al., 2019). The documented discrepancies between parental and youth reports of parental monitoring may reflect normative processes through which youth gain independence or social desirability biases among parents. Importantly, youth reports (but not parental reports) of higher parental monitoring are associated with later alcohol use onset and binge drinking onset during adolescence, controlling for parent–youth relationship quality (Rusby et al., 2018). Thus, it is crucial to examine youth perceptions of parental monitoring related to alcohol use, among adolescents with different drinking profiles (i.e., abstainers and alcohol users), especially as they reach the minimum legal drinking age.

Beyond general parental rules, alcohol-specific rule setting behaviors constitute one of the strongest correlates of youth alcohol use (van der Vorst et al., 2005). In a study including more than 11,500 adolescents, restrictive parental attitudes towards offspring drinking and higher parental monitoring were associated with higher odds of the youth abstaining from using alcohol (Larm et al., 2018). More precisely, when parents did not allow their youth to get drunk and knew where they were on Saturday nights (thus reflecting higher parental knowledge), their adolescents were less likely to drink alcohol. Increasing alcohol-specific rules has also been shown to be effective in reducing alcohol use in intervention studies (e.g., Koning et al., 2011). Importantly, a meta-analysis and systematic review of intervention studies highlighted the need to consider both general and alcohol-specific parental behaviors in interventions

¹ Parental rules are often referred to as parental control in the parental monitoring literature. However, the authors chose to use the terms “parental rules” throughout the manuscript to reduce confusion with psychological control (e.g., external pressure, guilt-inducing behaviors, punishments, and threats; see Omer et al., 2016 for the difference between behavioral and psychological control).

targeting youth alcohol use, and to examine the mechanisms through which parental monitoring can reduce youth alcohol use (Bo et al., 2018). In the current study, youth knowledge of the laws and perceived acceptability of underage drinking are considered as possible pathways.

Youth Knowledge of the Laws and Perceived Acceptability of Underage Drinking

Alcohol control policies, notably minimum legal drinking age laws, have been adopted by most countries to reduce youth alcohol use. The Health Behaviour in School-aged Children (HBSC) study, which includes data from 37 countries, revealed that alcohol control policies are effective and related to a lower prevalence of weekly drinking and risk of drunkenness (Bendtsen et al., 2014; Leal-López et al., 2020). Thus, stricter laws may explain the documented decrease in youth alcohol use observed in the last decades (Inchley et al., 2016). However, the HBSC data also indicate that adopting a minimum legal drinking age has limited effects, suggesting that the laws alone are not sufficient to reduce youth alcohol use in the long term.

Alcohol use is often associated with social benefits and sexual cues, as well as social success in popular culture, notably in advertisement (for a review, see Courtney et al., 2020). During adolescence, youth are vulnerable to these alcohol cues because their brains are particularly sensitive to rewards and social influences (Braams et al., 2015). As they mature, adolescents' abilities to think about complex and abstract topics increase, and consequently, they are less likely to obey the laws without questioning (Fine et al., 2020). Considering adolescents' cognitive, social, and neurobiological development, youth perceptions of the laws are critical when studying underage drinking. Above and beyond law enforcement, adolescents need to internalize and feel obliged to obey the laws to achieve an effective reduction of underage drinking. Accordingly, it is essential to examine how proximal factors, such as the family context, may affect youth alcohol use beyond the laws regulating the minimum legal drinking age, notably by shaping their perception of underage drinking.

Parenting and Internalization of the Laws

Parental monitoring plays a role in youth legal socialization, an essential process that shapes adolescents' attitudes and beliefs about laws and rules. To illustrate, police legitimacy perceptions, an indicator of legal socialization, was identified as a mediator of the relation between parental monitoring and youth delinquency (Baz Cores & Fernández-Molina, 2022). Akin to police legitimacy perceptions, youth

perceptions of underage drinking may be affected by parental monitoring behaviors as considerable variability exists in the extent to which parents respect the minimum legal drinking ages. One study examined changes over time in parental permissiveness regarding youth alcohol use (i.e., maximum number of drinks allowed on one occasion) and found that 28% of parents increased their permissiveness drastically after their adolescent reached the legal drinking age (21 years old in the United States; Calhoun et al., 2018). However, 27% of parents increased their permissiveness earlier, during the transition to college, or were already highly permissive during high school. Given that this study was conducted in the USA, it is essential to also examine parental behaviors in a country where underage drinking is highly prevalent to deepen our understanding of parental behaviors regarding youth alcohol use. Belgium is an excellent geographic region for this endeavor, as 24% of 15-year-olds are weekly alcohol users, and 42.9% report that they were drunk at least once in their lifetime (Bendtsen et al., 2014). Of importance, Belgian youth can drink legally five years before American youth (at least for some alcohol, including beer and wine). Extant studies show that parental monitoring decreases over time (for a meta-analysis, see Lionetti et al., 2019), thus it is possible that this decrease is influenced by the minimum legal drinking age.

Considering that the minimum legal drinking age is lower in Belgium than in most other countries, it is relevant to examine the role of parental monitoring behaviors in a sample of Belgian youth comprised of both individuals who are legally allowed to drink alcohol and others who are not.

Parents may share their attitudes about youth alcohol use through discussions with their adolescents. It is possible that parents who enforce strict rules until their youth reach the minimum legal drinking age also promote better legal socialization by discussing the importance of the laws when explaining the rationale behind their own rules. Yet, some scholars have proposed that parental behaviors may have a larger impact on their youth than what they communicate (Tael-Öeren et al., 2019). For instance, a parent may say that adolescents should not consume any alcohol before attaining the legal drinking age, but tolerate or even offer alcohol to underage youth during social events. Supporting this hypothesis, a meta-analysis and systematic review of longitudinal studies revealed that adolescent alcohol use was negatively associated with parental monitoring, general and alcohol-specific rules, but unrelated to parents' general or alcohol-specific communications (Yap et al., 2017). Thus, parental rules may be more

effective than parental solicitation in the internalization of minimum legal drinking ages and for preventing alcohol use.

Additional Factors Associated with Youth Alcohol Use

In addition to parental monitoring, other characteristics of the family context are associated with youth alcohol use. Among family alcohol-related behaviors, parental supply of alcohol and early initiation of alcohol use within the family context are of interest. Parental supply of alcohol to underage youth is associated with alcohol use and alcohol-related harms (Mattick et al., 2018). Moreover, early initiation to alcohol use is associated with later frequency of alcohol use and alcohol-related problems during adolescence (Colder et al., 2018). Numerous parents allow their children to taste alcohol at an early age (prior to 13 years), and this behavior is likely to be more prevalent in sociocultural contexts supportive of alcohol consumption. The Belgian minimum legal drinking age is 16 years for beer and wine, and 18 years for spirits, which is much lower than in other countries from the Global North. Even within Belgium, previous reports revealed that some regions have specific cultural norms related to parental permissiveness regarding early alcohol use (i.e., Flanders vs Wallonia; Inchley et al., 2018).

Individual factors are also known to relate to youth substance use, including age, gender, and religion. Boys and older youth have higher levels of weekly alcohol use than girls and younger adolescents (Inchley et al., 2018). In addition, youth's religiosity constitutes a protective factor for adolescents' substance use (for a meta-analysis, see Russell et al., 2020).

Current Study

The role of parental monitoring in preventing youth alcohol use is well-documented. However, previous studies did not examine differences in parental monitoring according to minimum legal drinking ages. Moreover, the processes underlying the associations between specific parental monitoring behaviors and youth alcohol use remain unclear. This study aimed to examine whether parental monitoring behaviors vary according to youth legal status, in a Belgian sample where the minimum legal drinking age is lower than in many other countries from the Global North (i.e., 16 rather than 18 years old). It was expected that levels of parental monitoring behaviors would be higher and that their associations with alcohol use would be stronger among underage youth (Hypothesis 1). In addition, this study sets out to examine adolescents' knowledge of the laws regarding the minimum legal drinking age and perceived acceptability of underage

drinking as potential mediators of the links between parental monitoring behaviors and youth alcohol use. It was expected that higher parental monitoring, operationalized as higher levels of parental solicitation and general and alcohol-specific rules, would be associated with lower acceptability of underage drinking and higher knowledge of the laws. In turn, lower acceptability and higher knowledge would relate to lower alcohol use (Hypothesis 2). Building on previous studies, it was hypothesized that alcohol-specific rule setting would be the strongest parental correlate of lower alcohol use, and that general rule setting would be a stronger predictor than parental solicitation (Hypothesis 3). Given that differences in alcohol use have been reported according to gender, age, religion, Belgian regions, family alcohol-related behaviors, and age of initiation of alcohol use, these variables were included as covariates.

Methods

Participants and Procedure

The sample includes 1154 participants (705 girls, 449 boys). This study is part of a larger project aiming to examine the Belgian laws on legal drinking age (ALCOLAW; Van Havere et al., 2018). The research team contacted 52 randomly selected Belgian secondary schools, and 11 school administrators agreed to invite their students to take part in this study. Youth were aged between 13.00 and 23.50 years ($M = 16.34$, $SD = 1.33$). Consequently, 42.3% could not drink legally, 47.7% could drink beer or wine, but not spirits, and 10% of the sample could legally drink any alcohol. Of the 1154 participants, 88.5% identified as Belgian and 11.5% identified as having another ethnicity. Youth were recruited in different Belgian areas; 54.9% were recruited in Wallonia and 45.1% in Flanders. Adolescents living in Wallonia completed the questionnaire first, and then, data were collected in Flanders. This allowed the research team to add additional questions about alcohol-specific rules in the questionnaire filled out by Flemish youth.

Participants were invited to fill out a paper-and-pencil questionnaire during school hours. Adolescents provided written consent. They did not receive any compensation for their participation. Parents received a letter explaining the study procedure and returned a form if they did not want their adolescent to take part in the study. The research protocol was approved by a committee including academics and professionals who were part of the project.

Measures

All questionnaires were translated to French and Flemish, and verified by two researchers. A pre-test was also conducted with a sample of youth similar to those included in the study.

Alcohol use. The Adolescent Alcohol Involvement Scale (AAIS; Mayer & Filstead, 1979) was used to assess alcohol use. This scale includes 14 items and shows excellent internal consistency, Cronbach $\alpha = .94$. Of the 1154 participants, 250 (22%) reported that they did not consume any alcoholic beverages and were thus considered abstainers. According to the AAIS guidelines, 57% ($n = 660$) of the sample were moderate drinkers and had a score lower than 36, whereas 21% ($n = 244$) were considered problematic drinkers as they obtained a score higher than 37. This scale shows adequate sensitivity and reliability, and is recommended to assess adolescent drinking behaviors (Mayer & Filstead, 1979; McKay & Dempster, 2016).

Perceived parental monitoring. Adolescents' perceptions of parental solicitation and rules were assessed by French and Flemish adaptations of Stattin and Kerr's (2000) scales, using a Likert scale ranging from 1 (*never*) to 4 (*always or almost always*). The Parental Solicitation subscale measures how often parents discuss with their adolescents about their free time and whereabouts using 5 items, including "In the past month, have your parents initiated/started a conversation with you about your free time?", $\alpha = .77$. The Parental Control subscale assesses parental rules about adolescent's friendships and activities and includes 6 items, such as "If you go out on Saturday night, do you have to tell your parents beforehand about who will be with you and where you are going?", $\alpha = .82$.

Parental rules about alcohol use. Parental rules about alcohol use were assessed in the Flemish sample ($n = 517$) with 10 items from the parental rules towards adolescent drinking questionnaire (Van der Vorst et al., 2005) measuring boundaries and rules set by parents regarding adolescent alcohol consumption, $\alpha = .93$, such as "I am allowed to drink alcohol on the weekends." Possible answers vary between 1 (*not applicable at all*) to 4 (*always applicable*). The mean of the items was reverse scored so that higher scores indicate higher levels of parental rule setting.

Knowledge of the laws and perceived acceptability of underage drinking. Two vignettes were presented to assess adolescents' knowledge and perceived acceptability of the Belgian laws surrounding alcohol consumption (see Table 1). The two vignettes describe illegal situations involving underage drinking. In the first vignette, underage youth buy a bottle of liquor, whereas in the second vignette, adolescents order a beer. In Belgium, youth are allowed to drink beer and wine legally starting at age 16. However, stronger alcohol such as liquors can only be sold to adults 18 years of age or older. For each

vignette, adolescents were asked “According to the law, to what extent do you think this situation is legal (i.e., authorized or not by law?)” and provided answers using a Likert scale from 1 (*not at all legal*) to 10 (*completely legal*). Scores were reversed so that higher scores would indicate higher knowledge of the laws.

In this sample, the scores on knowledge of the laws for both vignettes revealed a highly skewed distribution, because about half of the sample answered that the situation was not at all legal. Therefore, scores were recoded as binary to better suit the data and reflect whether the adolescents knew the laws; 1 (*not at all legal*) was recoded as 1 (*yes*), and all other answers were recoded as 0 (*no*). Recoding the variable as multinomial (no, sort of, and yes) would not be possible because the group sizes would be highly unequal. A sum score for knowledge of the laws was computed using both vignettes. The second question was “According to you, do you consider this situation authorized?” using a scale from 1 (*not authorized at all*) to 10 (*completely authorized*). It assessed perceived acceptability of underage drinking according to their own set of norms, beliefs, and values. Higher scores represent higher acceptability of the situations. A mean score was computed as data for both vignettes were significantly and positively related to each other, $r = .42, p < .001$.

Table 1

Descriptions of the Vignettes Involving Illegal Situations

-
- | | |
|---|---|
| 1 | <i>It is Friday afternoon, and it is 5 pm. Laurent, Mathilde, and Adrien, all 17 years old, finished school an hour ago and decide to go to the local night shop. Laurent and his friends enter the store, go around the shelves and finally choose a bottle of Vodka and a bottle of Coke. They pay and leave the store.</i> |
| 2 | <i>On Wednesday afternoon, Camille and Renaud, both 15 years old, go to the movies for the first time together. The movie is nice, and Renaud suggests to Camille to extend the afternoon in a local café. Camille and Renaud order two Jupiler [beers].</i> |
-

Note. In Belgium, youth are allowed to drink beer and wine legally starting at age 16. However, stronger alcohol such as liquors can only be sold to and consumed by adults older than 18 years of age. Jupiler is one of Belgium’s most popular beers and has existed since 1853.

Family alcohol-related behaviors. Three multiple choices questions of the Adolescent Alcohol Involvement Scale (AAIS; Mayer & Filstead, 1979) were not included in the youth alcohol use scores, but were related to parental drinking behaviors. First, participants were asked “What are the reasons that motivated you to consume alcohol for the first time?” Among other answers, participants could select the option “My parents, my family offered it to me.” If they did, their answer was coded 1; otherwise, it was coded 0. Second, participants were asked “With whom do you generally consume alcohol?”. Again, if participants selected “With my parents or other adults in my family”, their answer was coded 1. Last, participants were asked “How do you get alcohol?” and their answer was coded 1 if they answered “Through my parents or other adults in my family”. A sum score was computed based on the three items, varying between 0 and 3.

Age of initiation of alcohol use. Participants were asked “At what age did you drink alcohol for the first time?” Answers were rated on a Likert scale from 1 (*before 10 years old*), 2 (*between 10 and 13 years*), 3 (*between 14 and 15 years*), 4 (*after 15 years*), and 5 (*recently*).

Sociodemographic data. Age in years, gender, and religion were assessed using self-reports. Gender was coded 0 (*girls*) and 1 (*boys*). Among all adolescents, 45.7% identified themselves as Atheist, 37.5% as Catholic, 12.8% as Muslim, and 4.0% as following another religion. An ANOVA revealed that alcohol use differed across religions, $F(3, 1150) = 172.26, p < .001$. Post hoc analyses using Bonferroni correction revealed that Atheists did not differ from Catholics, $p = 1.00$. However, both groups differed significantly from Muslims and adolescents who followed another religion, all $ps < .001$. Atheists and Catholics drank significantly more alcohol than their peers. Thus, religion was recoded as a binary variable differentiating Atheists and Catholics from Muslims and youth having another religion. Finally, as participants lived either in Flanders or in Wallonia, the Belgian region in which recruitment took place was considered a covariate.

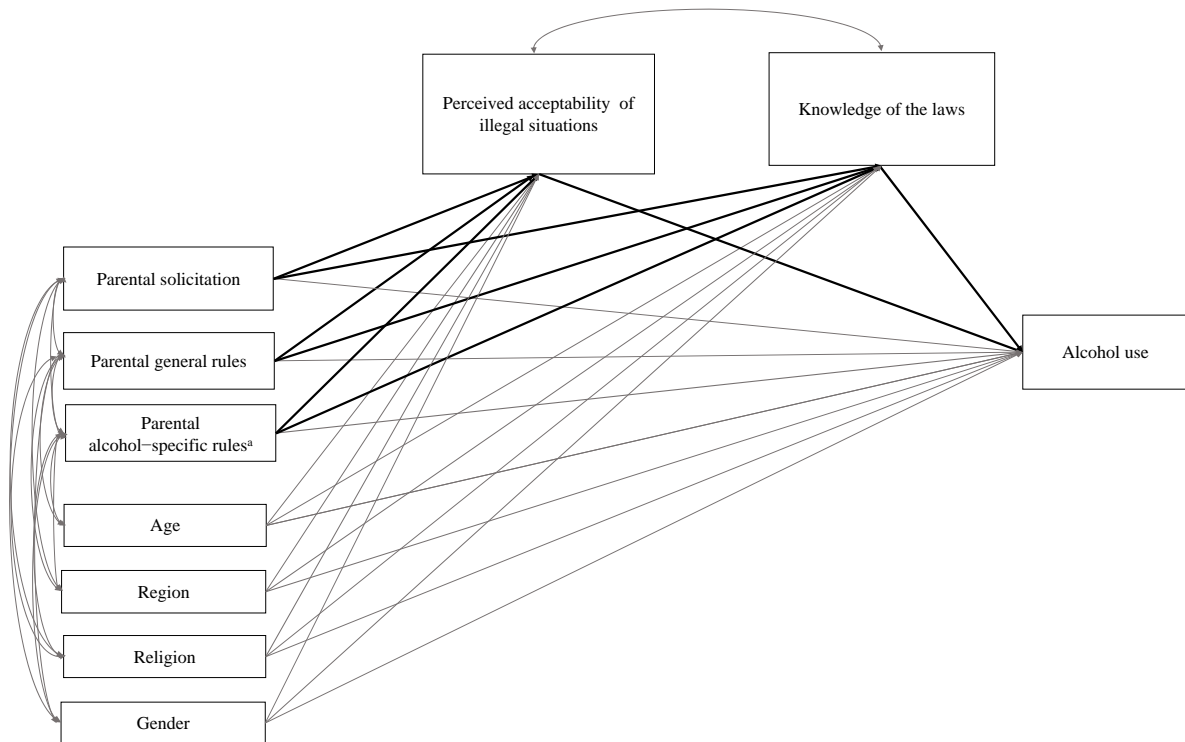
Analytic Strategy

Descriptive statistics and bivariate correlations between all variables were examined. Since participants filled out the questionnaires during school hours, there was no missing data on variables of interest. Some items used in the subscales had missing data (< 1%). However, when participants answered more than 80% of the items of a specific subscale, a mean score was computed, including items with valid data. *T*-tests were used to detect differences in parental monitoring behaviors according to legal status. As

the minimum legal drinking age for beer and wine in Belgium is 16 years, age was coded as follows: 0 (*Less than 16 years old*) and 1 (*16 years and older*). Multiple regressions were used to examine if legal status moderated the association between parental monitoring and alcohol use. If the interaction term was significantly related to alcohol use, then the interaction was decomposed, and the simple slopes were examined.

Next, path analyses were estimated in Mplus (Muthén & Muthén, 2017) including parental monitoring behaviors as predictors, knowledge of the laws and perceived acceptability of underage drinking as potential mediators, and alcohol use as the dependent variable (see Figure 1). Given that the alcohol use data revealed a distribution with a high frequency of zeroes (i.e., abstainers, $n = 205$), a first series of models was examined predicting the odds of being an abstainer or an alcohol user using logistic regressions. A second series of models was estimated among alcohol users only, using a continuous alcohol use score. In all models, bootstrapping (10,000 samples, with 95% bias-corrected confidence intervals [CI's]) was used to estimate the indirect effects. For the models with a continuous outcome, goodness of fit was assessed using different indicators and was considered adequate if the Comparative Fit Index (CFI) > .95, the Tucker and Lewis Index (TLI) > .90, the Root Mean Square Error of Approximation (RMSEA) < .05, and if the chi-square statistic was nonsignificant (Grimm et al., 2017).

Multiple-group analyses were conducted to identify differences according to gender or region (Flanders or Wallonia). The model fit of a constrained model (i.e., all the regression paths between the main variables were forced to be equal across groups) was compared to the model fit of an unconstrained model (i.e., all the paths were allowed to vary across groups). The Comparative Fit Index (CFI) was used to compare models with a continuous alcohol outcome measure because of our large sample size. If Δ CFI was .01 or greater (Cheung & Rensvold, 2002), comparisons revealed significant differences across groups. The likelihood ratio test was used to compare models with the binary alcohol variable, as the CFI was not available. If significant differences occurred, then each regression path was individually constrained to identify the ones that varied across groups.

Figure 1*Proposed Theoretical Model*

Note. ^aParental alcohol-specific rules have only been measured in the Flemish sample ($n = 517$). The paths in bold represent the hypothesized mediation paths.

Results

Preliminary Analyses

Descriptive statistics and bivariate correlations are presented in Table 2. Four univariate outliers were identified and winsorized for the age variable. All variables were distributed normally and showed adequate variability. Twenty multivariate outliers (1.73% of the full sample) were identified by examining Mahalanobis distances at the critical chi-square value at $p = .001$. These participants were kept in the final sample as they did not influence the results. Finally, there was no multicollinearity among all variables, $VIF < 5$. Bivariate correlations revealed that perceived parental solicitation was associated with lower acceptability of underage drinking and higher knowledge of the law, yet it was unrelated to adolescents' alcohol use. Perceived parental rules were related to lower acceptability of underage drinking and alcohol use, however they were unrelated to knowledge of the laws. Both acceptability of underage drinking and knowledge of the laws were positively associated with alcohol use. Among the Flemish subsample, parental

alcohol-specific rules were associated with lower acceptability of underage drinking, lower knowledge of the law, and lower alcohol use. Finally, as adolescents' gender, age, region, religion, family alcohol-related behaviors, and age of initiation were all related to other variables of interest, they were kept in the final models as covariates.

Table 2*Means, Standard Deviations, and Correlations*

Variable	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10	11
1. Parental solicitation	3.04 (0.86)	—										
2. Parental general rules	3.92 (0.89)	.33***	—									
3. Parental alcohol-specific rules	3.34 (1.09)	.02	.39***	—								
4. Perceived acceptability of illegal situations	5.34 (2.65)	-.10**	-.14***	-.25***	—							
5. Knowledge of the laws	1.04 (0.84)	.08*	-.02	-.12**	-.22***	—						
6. Alcohol use	25.03 (15.65)	-.04	-.28***	-.61***	.49***	.08**	—					
7. Age	16.34 (1.33)	-.01	-.35***	-.44***	.00	.17***	.33***	—				
8. Gender ^a	61.10% girls	-.16***	-.18***	.09*	.08**	.01	.06*	.05	—			
9. Region ^b	54.94% French	.06*	-.20***	—	.07*	.14***	.21***	.18***	.06*	—		
	83.2%										—	
10. Religion ^c	Atheist or Catholic	.00	.10**	.17***	-.32***	.00	-.52***	-.05	-.05	-.28***		
11. Age of alcohol-use initiation	3.74 (1.44)	.07*	.17***	.43***	-.41***	-.02	-.78***	-.07*	-.07*	-.14*	-.29***	—
12. Family alcohol-related behaviors	1.03 (1.20)	.03	.04	-.26***	.06*	-.02	.23***	-.03	-.09*	.07*	.49***	-.45***

Note. All *Ns* = 1154, except for parental alcohol-specific rules, *n* = 515.

^a0 = girls, 1 = boys. ^b0 = Wallonia, 1 = Flanders. ^c0 = atheist or catholic, 1 = other religion. **p* < .05. ***p* < .01. ****p* < .001.

Differences According to Legal Status

Results from T-tests did not show differences in parental solicitation between youth who were underage and those who were older than 16 years, $t(1152) = -.291, p = .771$. However, findings did show a statistically significant difference in parental general rules, $t(1149.97) = 8.76, p < .001$, such that underage youth reported stricter parental rules. There was also a significant group difference in alcohol-specific rules, $t(513) = -10.58, p < .001$. However, parents were stricter with older adolescents than among underage youth. Additional T-tests revealed that alcohol use is higher among youth who can legally drink, $t(1152) = -10.18, p < .001$. Moreover, legal status was not associated with acceptability of underage drinking, $t(1152) = 0.27, p = .786$, yet it was associated with knowledge of the laws, $t(1082.18) = -6.68, p < .001$, suggesting that older youth had higher levels of knowledge.

To identify possible interactions between parental monitoring and legal status, multiple regressions predicting alcohol use were examined. Controlling for gender, religion, region, age of initiation, and family drinking behaviors, legal status moderated the links between parental solicitation and alcohol use when included as a continuous variable (among alcohol users), $b = -.11, p = .022$, but not when using a binary variable (i.e., comparing users and abstainers), $b = .05, p = .439$. Simple effects revealed that the association between parental solicitation and alcohol use was only significant among youth who were underage, $b = .13, p = .006$, but not among youth who could legally drink alcohol, $b = -.01, p = .882$. The interaction term (parental solicitation by legal status) was not significantly related to alcohol use when including alcohol-specific rules in the Flemish sample, $p = .490$ and $p = .931$.

Similar to parental solicitation, the interaction term between parental general rules and legal status was significant when alcohol use was coded as a continuous variable, $b = .11, p = .039$, but not when using a binary variable, $b = .00, p = .958$. Simple effects revealed that the association between parental general rules and alcohol use was stronger among youth who were underage, $b = -.31, p < .001$, than among youth who could legally drink alcohol, $b = -.17, p < .001$. The interaction term (parental general rules by legal status) was not significantly related to alcohol use when including alcohol-specific rules in the Flemish sample, $p = .458$ and $p = .392$.

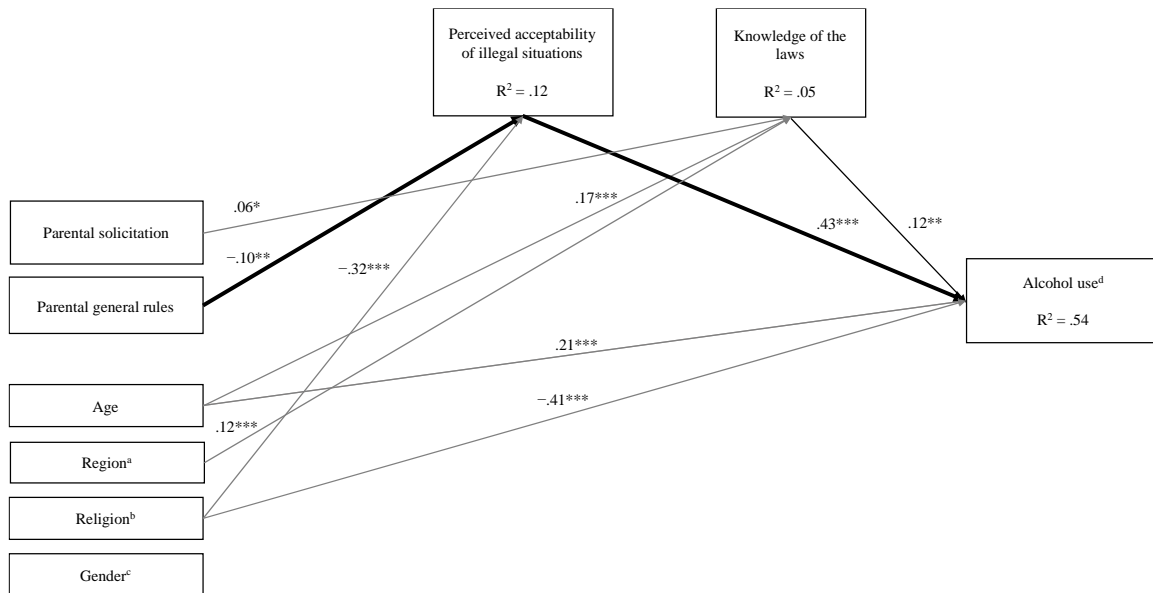
Finally, the interaction term between alcohol-specific rules and legal status significantly predicted alcohol use as a continuous variable, $b = .16, p = .007$, controlling for indicators of family alcohol use,

early initiation of alcohol use, gender, region, and religion. Simple effects revealed that the association between parental alcohol-specific rules and alcohol use was stronger among youth who were underage, $b = -.72, p < .001$, than among youth who could legally drink alcohol, $b = -.50, p < .001$. Results remained the same as the interaction term (parental alcohol-specific rules by legal status) was significantly associated with alcohol use when using a binary variable (users vs abstainers), $b = .35, p = .031$.

Models Differentiating Abstainers and Alcohol Users

Analyses revealed that it was not possible to include family alcohol-related behaviors as a covariate when alcohol use was coded as a binary variable because of multicollinearity. When family alcohol-related behaviors were included in the models, they strongly predicted the odds of being an alcohol user, $b = .88, p < .001$.

Parental solicitation and general rules. The first model included the full sample and a binary outcome (i.e., predicting the odds of being an alcohol user; see Figure 2). Findings revealed that higher parental general rules were associated with lower perceived acceptability of underage drinking, $b = -.10, p < .001$. In turn, higher perceived acceptability of underage drinking was related to higher odds of being a drinker, $b = .43, p < .001$. Mediation analyses revealed that acceptability of underage drinking was a significant mediator of the relation between parental rules and alcohol use, $c' = -.04 (.02), p = .004, CI 95\% [-0.07, -0.01]$. Parental solicitation was unrelated to acceptability of underage drinking, but was positively related to knowledge of the laws, $b = .06, p < .001$. Knowledge of the laws was also associated with higher odds of being an alcohol user, $b = .12, p < .010$. However, knowledge of the laws was not a significant mediator of the link between solicitation and alcohol use, $c' = .01 (.00), p = .109, CI 95\% [0.00, 0.02]$. All predictors explained 53.7% of the variance in alcohol use, 12.0% of the variance in perceived acceptability of illegal situation, and 5.0% of the variance in knowledge of the laws. Multiple group analyses revealed no differences according to gender, $\Delta-2LL(8) = 13.01, p > .05$, nor region, $\Delta-2LL(8) = 11.43, p > .05$.

Figure 2*Model With a Binary Alcohol Use Measure Using the Full Sample*

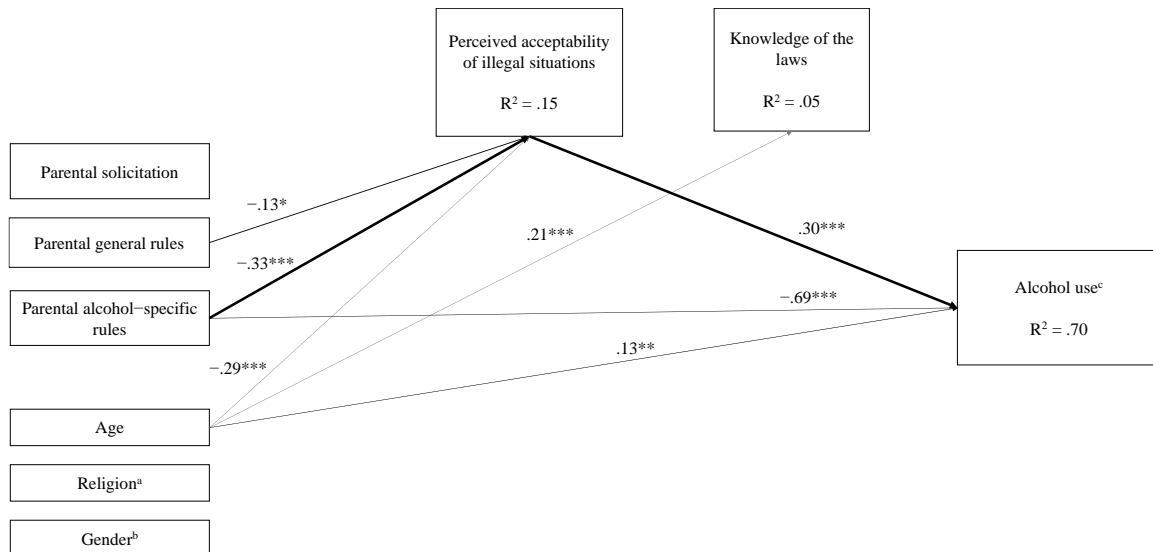
Note. All estimates are standardized. The significant indirect effects are in bold. Intercorrelations are not displayed in the figure for clarity purposes. ^a0 = Wallonia, 1 = Flanders. ^b0 = atheist or catholic and 1 = other religion. ^c0 = girls, 1 = boys. ^d0 = abstainers, 1 = alcohol drinker.

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

Parental alcohol-specific rules. A second model predicting the odds of being an alcohol user examined the effect of parental alcohol-specific rules among Flemish adolescents only (see Figure 3). This model replicates the results from the full sample. However, the indirect effect from parental general rules on adolescents' alcohol use through acceptability of underage drinking was not statistically significant, $c' = -0.03$ (0.09), $p = .062$, CI 95% [-0.08, -0.01]. Furthermore, higher adolescents' perceptions of parental alcohol-specific rules were associated with lower perceived acceptability of illegal situations, $b = -.33$, $p < .001$, which was related to higher alcohol use, $b = .30$, $p < .001$. As expected, the link between parental alcohol-specific rules and alcohol use was significantly mediated by perceived acceptability of illegal situations, $c' = -0.10$ (0.03), $p = .001$, CI 95% [-0.16, -0.06]. All predictors explained 69.5% of the variance in alcohol use, 14.8% of the variance in perceived acceptability of illegal situation, and 5.4% of the variance in knowledge of the laws. Multiple group analyses revealed no gender differences, $\Delta-2LL$ (9) = 11.22, $p > .05$.

Figure 3

Model With a Binary Alcohol Use Measure Including Alcohol-Specific Parental Behaviors Among Flemish Participants Only



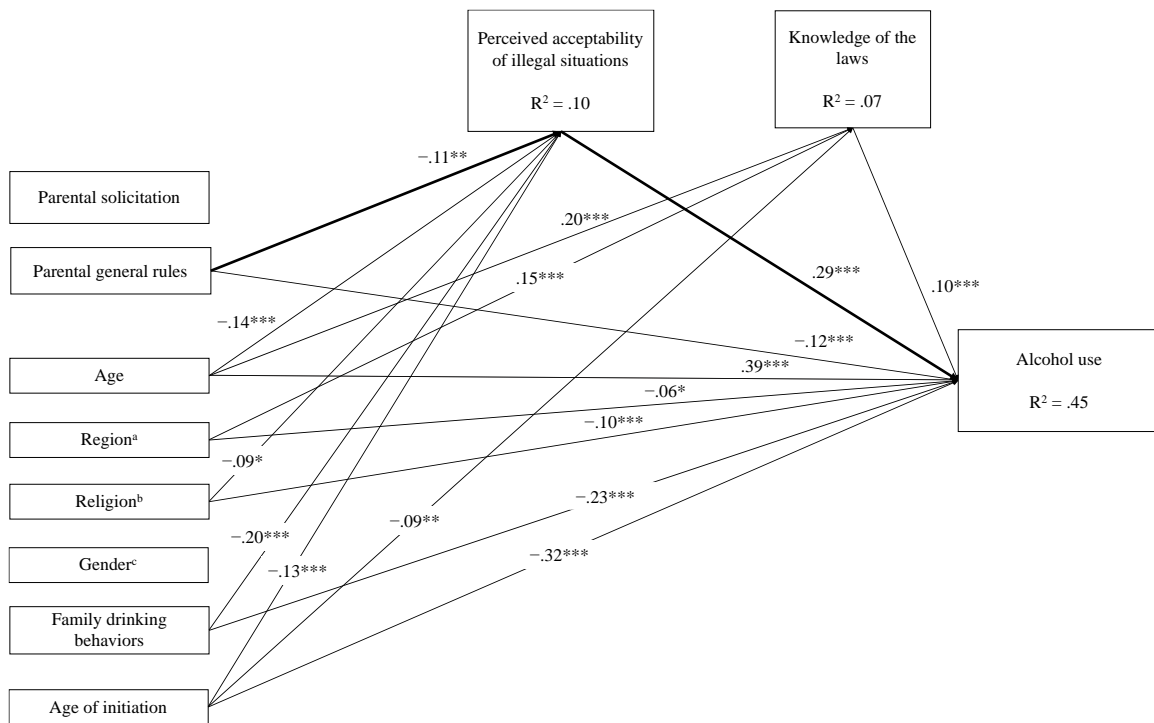
Note. All estimates are standardized. The significant indirect effects are in bold. Intercorrelations are not displayed in the figure for clarity purposes. ^a0 = atheist or catholic and 1 = other religion. ^b0 = girls, 1 = boys. ^c0 = abstainers, 1 = alcohol drinker. * $p < .05$. ** $p < .01$. *** $p < .001$.

Models Predicting Alcohol Use as a Continuous Score

Parental solicitation and general rules. The model predicting alcohol use among alcohol users only (see Figure 4) revealed an excellent fit, $\chi^2(1) = 0.27, p = .606, CFI = 1.00, TLI = 1.02, RMSEA = .00 [.00-.07], p = .860, SRMR = .002$. Results suggest that higher parental general rules were associated with lower perceived acceptability of underage drinking, $b = -.11, p = .006$, but not with higher knowledge of the laws, $b = .07, p = .058$. In turn, higher acceptability of underage drinking and knowledge of the laws were related to higher alcohol use, $b = .29, p < .001$, and $b = .10, p < .001$. Mediation analyses revealed that acceptability of underage drinking was a significant mediator of the relation between parental general rules and alcohol use, $c' = -.03 (.01), p = .009, CI 95\% [-0.06, -0.01]$. In contrast, parental solicitation was unrelated to both acceptability, $b = -.05, p = .145$, and knowledge of the laws, $b = .07, p = .054$. All predictors explained 45.3% of the variance in alcohol use, 9.8% of the variance in perceived acceptability of illegal situation, and 6.9% of the variance in knowledge of the laws. Multiple-group analyses revealed that the main regression paths (i.e., excluding covariates) did not vary across regions, $\Delta CFI < .001$, nor gender, $\Delta CFI = .015$.

Figure 4

Model With a Continuous Alcohol Use Measure Among Alcohol Users From the Full Sample



Note. All estimates are standardized. The significant indirect effects are in bold. Intercorrelations are not displayed in the figure for clarity purposes. $\chi^2(1) = 0.27, p = .606, CFI = 1.00, TLI = 1.02, RMSEA = .00 [0.00-0.07], p = .860, SRMR = .002$.

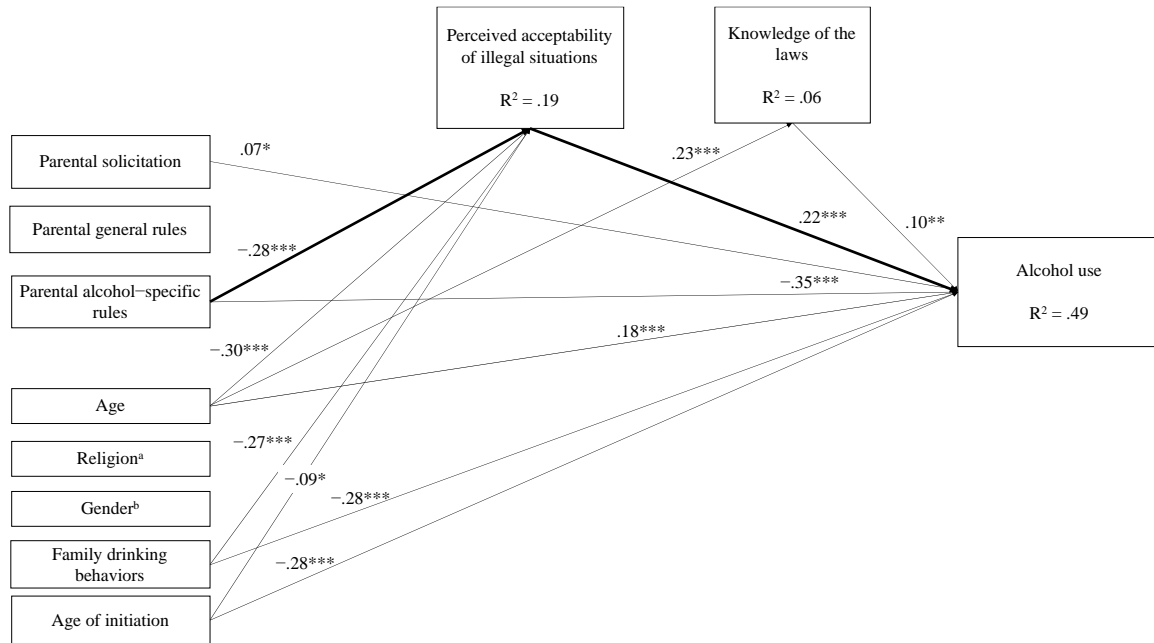
^a0 = Wallonia, 1 = Flanders. ^b0 = atheist or catholic and 1 = other religion. ^c0 = girls, 1 = boys.

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

Parental alcohol-specific rules. A second model predicting alcohol use examined the additional effect of parental alcohol-specific rules among Flemish adolescents (see Figure 5), and also revealed an excellent fit, $\chi^2(1) = 0.70, p = .403, CFI = 1.00, TLI = 1.00, RMSEA = .00 [.00-.12], p = .623, SRMR = .006$. In this model, the associations between parental general rules and perceived acceptability of underage drinking, $b = -.10, p = .051$, and between parental general rules and knowledge of the laws, $b = .10, p = .063$, were not statistically significant. Consequently, perceived acceptability of underage drinking and knowledge of the laws did not mediate the association between parental general rules and alcohol use. However, higher adolescents' perceptions of parental alcohol-specific rules were associated with lower perceived acceptability of underage drinking, $b = -.28, p < .001$, which was positively related to alcohol use, $b = .22, p < .001$. As expected, the link between parental alcohol-specific rules and alcohol use was mediated by acceptability of underage drinking, $c' = -0.06 (0.02), p < .001, CI 95\% [-0.09, -0.03]$. Parental alcohol-specific rules were not associated with knowledge of the laws, $b = -.03, p = .593$. All predictors explained 48.8% of the variance in alcohol use, 18.7% of the variance in perceived acceptability of illegal situations, and 5.8% of the variance in knowledge of the laws. Multiple-group analyses revealed that the main regression paths (i.e., excluding covariates) did not vary across gender, $\Delta CFI < .001$.

Figure 5

Model With a Continuous Alcohol Use Measure Including Alcohol-Specific Parental Behaviors Among Flemish Alcohol Users Only



Note. All estimates are standardized. The significant indirect effects are in bold. Intercorrelations are not displayed in the figure for clarity purposes. $\chi^2(1) = 0.70, p = .403, CFI = 1.00, TLI = 1.02, RMSEA = .00 [0.00-.12], p = .623, SRMR = .006.$

^a0 = atheist or catholic and 1 = other religion. ^b0 = girls, 1 = boys. ^c0 = abstainers, 1 = alcohol drinker.

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

Sensitivity Analyses

To test for the robustness of the results, final models were examined with knowledge of the laws entered as a continuous rather than a binary variable. Most of the main results were replicated, and new associations with knowledge of the laws emerged. When alcohol use was entered as a binary variable and using the full sample, the indirect effect from parental rules to alcohol use through acceptability remained significant. In contrast with the main results, the association between parental solicitation and knowledge of the laws was no longer significant, $b = .06, p = .079$, and the link between parental general rules and knowledge of the laws became significant, $b = .09, p = .012$. Indirect effects revealed that knowledge of the laws was an additional mediator of the relation between parental general rules and alcohol use, $c' = .02 (.01), p = .022, CI 95\% [0.01, 0.13]$.

In the model including Flemish participants only and including parental alcohol-specific rules, the indirect effect from parental alcohol-specific rules to alcohol use (entered as a binary variable) through acceptability of underage drinking remained significant. An additional link became significant, as parental solicitation was positively associated with knowledge of the laws, $b = .08, p = .014$. Another significant association emerged between knowledge of the laws and alcohol use, $b = .15, p < .001$. Of note, the link between parental general rules and acceptability of the laws was no longer significant, $b = -.02, p = .676$, and an association between parental solicitation and acceptability of underage drinking emerged, $b = -.08, p = .020$. Accordingly, additional indirect effects emerged from parental solicitation to alcohol use (as a binary variable) through perceived acceptability, $c' = -.03 (.01), p = .023, CI 95\% [-.06, -.01]$ and knowledge of the laws, $c' = .01 (.01), p = .043, CI 95\% [0.002, 0.03]$.

When alcohol use was entered as a continuous variable in a model including the full sample, the main results remained the same. The indirect effect from parental rules to alcohol use through perceived acceptability remained significant. However, in contrast with the main results, the association between parental general rules and knowledge of the laws became significant, $b = .15, p < .001$. Indirect effects revealed that knowledge of the laws was an additional mediator of the relation between parental general rules and alcohol use, $c' = .02 (.01), p = .007, CI 95\% [0.01, 0.03]$. These results were also found among the Flemish sample and the indirect effect from parental alcohol-specific rules to alcohol use through acceptability remained significant.

In sum, the indirect effects found in the main results remained significant in all models with knowledge of the laws entered as a continuous variable. Whether alcohol use was considered as binary or a continuous variable, additional links between knowledge of the laws and other variables emerged, which is likely due to the additional variability that continuous scores involve. Results with continuous scores of knowledge of the laws were not presented in the Main Analyses section because the knowledge of the laws variable is not normally distributed, as about half of the responses were on either end of the Likert scale.

Discussion

During adolescence, parental monitoring behaviors decrease as youth gain independence. Yet, research examining how parental monitoring changes when youth reach the minimum legal drinking age is scarce. Moreover, although the association between parental monitoring and lower youth alcohol use is well-documented, studies need to uncover the processes through which specific parental monitoring behaviors may lead to decreased youth alcohol use. This study examined the differences in parental monitoring behaviors according to youth legal status in Belgium, a sociocultural context more tolerant of youth alcohol use than other countries, as evidenced by its minimum legal drinking ages (i.e., 16 for fermented drinks, and 18 for spirits). Additionally, knowledge of the minimum legal drinking ages and perceived acceptability of underage drinking were considered as potential mediators of the links between parental monitoring behaviors (general and alcohol-specific) and youth alcohol use. Findings suggest that parental monitoring changes after youth reach the legal drinking age, and that perceived acceptability of underage drinking partly explains the links between parental rule-setting and lower alcohol use.

Parental Behaviors and Minimum Legal Drinking Ages

In most studies conducted in countries from the Global North, the minimum legal drinking age varies between 18 and 21 years old. Yet, in Belgium, the minimum legal drinking age is set to 16 years for fermented drinks (e.g., beer and wine). It was expected that consistent with the laws, parental monitoring would be higher and that the links between parental monitoring and alcohol use would be stronger before youth reach the legal drinking age. Findings revealed that in a Belgian sample, parental solicitation did not differ according to legal status, but parental general rules were significantly lower after youth reached 16 years old. Contrary to the first hypothesis, parental alcohol-specific rules were higher among youth who reached the legal drinking age. These results contrast those from a previous study conducted in the USA showing that for many parents, permissiveness regarding alcohol use remarkably increased after 21 years old, the legal minimum drinking age (Calhoun et al., 2018). This difference may be due to the five-year gap between the minimum legal drinking age in Belgium and in the USA. At 16 years old, brain development is ongoing, and thus, youth are highly sensitive to rewards and social cues (Braams et al., 2015). Given that, in the current study, alcohol use was higher among youth who could drink legally, it may be that parents increased their vigilance and wanted to prevent excessive alcohol use among their adolescents. This

hypothesis is consistent with the vigilant care model (Omer et al., 2016) positing that parents should increase their monitoring behaviors when they are concerned about their adolescents' behaviors. In contrast to Belgian parents, American parents may recognize that when their youth reach the age of 21, the transition to adulthood is ongoing and that the maturity of their youth's brain allows them to better self-regulate and understand the risks associated with substance use.

Findings further suggest that the negative association between parental solicitation and alcohol use was only significant when the latter variable was coded as a continuous variable and among underage youth. Similar results emerged with parental general rules. The negative association between parental general rules and alcohol use was also stronger among underage youth than among older youth, and only varied according to legal status when alcohol use was included as a continuous variable. Therefore, parents who monitored their youth's behaviors did not prevent them from drinking alcohol, but they did reduce the quantity of alcohol underage youth consumed, presumably preventing binge drinking.

It may be that general parental monitoring reduces opportunities related to alcohol use (e.g., through curfews and supervision of activities), thereby not directly preventing alcohol use as is the case with alcohol-specific monitoring behaviors. Findings suggest that the negative association between parental alcohol-specific rules and alcohol use was stronger among underage youth, whether alcohol use was considered as a binary or a continuous variable. Most studies examining parental monitoring and their correlates focus on between-family variance. Previous studies thus suggest that families with higher monitoring levels have youth with lower externalizing behaviors, including alcohol use, aggressive behaviors, and delinquency. However, recent evidence shows that when examining within-family processes, parental monitoring behaviors do not reduce delinquent and aggressive behaviors over time (Vrolijk et al., 2023). This suggests that general parental monitoring behaviors may relate to other factors that prevent externalizing behaviors (e.g., affiliation with deviant peers), rather than preventing them per se. In all, results suggest that societal regulations regarding youth alcohol use such as laws and alcohol-specific family rules cumulate and are significantly more effective when combined in preventing youth alcohol use.

Acceptability of Underage Drinking as a Mediator

This study moves forward the field of youth alcohol use by investigating youth internalization of alcohol-related laws. Knowledge of the laws regarding the minimum legal drinking age and perceived

acceptability of underage drinking were examined as potential mediators of the links between parental monitoring behaviors and youth alcohol use. Partially confirming the second hypothesis, negative perceptions of underage drinking mediated the links between parental rule setting behaviors and youth alcohol use. It may be easier for adolescents to resist alcohol use if they are supported by external regulation processes provided by their parents. Over time, youth may internalize and integrate parental rules so that it facilitates self-regulation. In line with this, both parents' rule setting and adolescent self-control were found to mediate the effect of an alcohol use prevention program on youth's alcohol consumption (Koning et al., 2011). Self-control and internalization of law-consistent rules are also known to protect youth from negative peer influences during adolescence (Hirtenlehner et al., 2021). Moreover, adolescents whose parents provide stricter rules tend to avoid friendships with frequent drinkers (McCann et al., 2019). Avoiding peers with problematic drinking behaviors may help youth avoid peer pressure during a developmental period when the influence of peers is especially important. In contrast, parents who are more permissive may explicitly or implicitly share that alcohol-specific laws are not important to them. Parents who are less restrictive regarding alcohol-specific rules and those who are not inclined to punish underage drinking are more likely to allow their children to taste or sip alcohol prior to the age of 13 year (Colder et al., 2018). These parental behaviors start during early adolescence, and may lead youth to believe that underage drinking is acceptable.

Even though this study suggests that parental rules are an efficient mechanism to prevent alcohol use, it is important to keep in mind that such parental behaviors are more effective when combined with autonomy support (Rodríguez-Meirinhos et al., 2020). When examining parental monitoring, it is useful to consider the broader relational context in which monitoring behaviors take place. If parental rules are enforced with psychological control, such as threats, punishments and guilt-inducing behaviors, this may lead to further oppositional defiance, internalizing and externalizing behaviors (Brenning et al., 2019). Adolescents may increase secrecy and perceive parental solicitation as intrusive rather than caring. By explaining the rationale behind these rules, giving their youth meaningful choices, and considering their adolescent's perspective, parents and their youth may negotiate and find some common ground that is satisfying for both of them. Sharing the rationale and values underlying their monitoring behaviors can facilitate the process through which parental rules can be autonomously internalized (Mageau & Joussemet,

2023). The internalization process may help youth delay the onset and regulate their own alcohol use, thereby shifting from parental regulation to self-regulation and feeling of autonomy.

Knowledge of the Laws as a Mediator

Contrary to the second hypothesis, results suggest that knowledge of the laws did not mediate the links between parental behaviors and alcohol use among adolescents. Most of the examined parental monitoring behaviors were not associated with knowledge of the laws in the final models. Yet, bivariate correlations revealed that parental alcohol-specific rules were negatively related to knowledge of the laws. On the one hand, it may be that when parental rules are strict and adolescents internalize them, they do not need to know alcohol-related laws. On the other hand, it may also be that other socialization agents are more important than parents with regard to knowledge of the laws. For instance, adolescents have many opportunities to learn about alcohol-specific laws at school, with peers, through laws enforcement or through public health media campaigns (Harding et al., 2016).

Unexpectedly, knowledge of the laws was associated with higher alcohol use, although the effect size was small. It may be that adolescents who abstain or have low levels of alcohol use don't feel that alcohol-specific laws are relevant to their situation. Conversely, youth who drink alcohol regularly may be reminded by their peers, community members, or even police officers about the laws. Many adolescents know the laws regarding underage drinking, but do not comply. Although young children and adults tend to comply, adolescents aged 15-17 have the lowest perceived obligation to obey the laws (Fine et al., 2020). This may be especially true during adolescence when brain maturation is still ongoing: youth are more prone to put into question existing rules, and risk-taking is higher than during other developmental periods (Spear, 2018). In Belgium, the laws regarding underage drinking are complex and are different for beer and other types of alcohol. It is likely that youth question why beer is allowed at age 16, while other types of alcohol, such as liquors, are only allowed at age 18 (Van Havere et al., 2018). Fear of punishment can motivate youth to obey the laws, but for legal socialization to effectively occur, adolescents must understand the laws and find their own internal motivations to comply with them (e.g., find them important; Van Petegem et al., 2021). Relatedly, our findings suggest that acceptability, which may reflect norms and attitudes towards underage drinking, is a more important predictor of alcohol use than mere knowledge of the laws.

Sensitivity analyses were used to verify the stability of findings when using the full range of possible answers instead of dichotomizing the measure of youth's knowledge about the law. These analyses revealed that some associations involving parental monitoring and youth knowledge of the laws became significant. Despite these possible associations, it is challenging to interpret what youth referred to when they answered that the situation involving underage drinking was "sort of" legal. As the associations between parental monitoring behaviors and knowledge of the laws were positive, it may be that youth who have stricter parents believe that the consequences of underage drinking are also more severe. Conversely, youth who had parents who were less involved in parental monitoring behaviors perhaps knew that underage drinking was against the law, but may have believed that the associated consequences were mild.

Parental Monitoring and Youth Alcohol Use

Both parental general and alcohol-specific rules were concurrently and additively associated with lower odds of being a drinker, and to lower alcohol use among adolescents who consumed alcohol. This finding is in line with previous studies showing that parental monitoring and restrictive alcohol-specific rules are associated with lower alcohol use (Yap et al., 2017). Furthermore, the current study adds to existing evidence by supporting the need for parental interventions targeting not only alcohol-specific rules, but also general rule setting such as imposing curfews or requiring the adolescent to provide information about where they spend their nights and weekends when they are not with their parents (Bo et al., 2018).

Confirming the third hypothesis and in line with extant studies, results reveal that parental solicitation, an aspect of parent-adolescent communication, is not as important as parental rules for preventing youth alcohol use (see Yap et al., 2017, for a meta-analysis). These findings support that parental rule setting and solicitation have different implications in adolescents' development and that scholars should examine these parental behaviors as opposed to parental knowledge, as proposed by Stattin and Kerr (2000). Furthermore, this study highlights the importance of studying specific parental behaviors which may be associated with youth alcohol use. These results provide further support for the hypothesis that parental behaviors have a stronger impact than what parents may say. If parents accept underage drinking on some occasions, adolescents may feel cognitive dissonance and prioritize behaviors, displayed through constant rules, over their parents' discourse.

Family Drinking Behaviors and Gender Differences

Family drinking behaviors constitute a strong predictor of being an alcohol user during adolescence. Because of their strong association with alcohol use, family drinking behaviors could not be included in the final models that predicted whether youth would be abstainers or users in this study. During adolescence, parental alcohol-related behaviors are more important than what parents communicate to their youth (Tael-Öeren et al., 2019). When parents initiate their youth to alcohol, provide them with alcoholic drinks, or even drink with them, they may convey the message that it is acceptable or even desirable to drink within the family context even when under 16 years of age.

Nevertheless, in the final models including only youth who consumed alcohol, it was possible to include family drinking behaviors as a predictor. Perhaps surprisingly, results showed that family drinking behaviors were associated with lower acceptability of illegal situations and lower alcohol use. Family drinking behaviors are thus associated with higher odds of being a drinker, but they are also related to lower quantity of alcohol use and lower acceptability of underage drinking among drinkers. It is essential to consider the sociocultural context of Belgium, a country where beer is central to the cultural heritage. Belgium adapted its laws regarding the minimum legal drinking age relatively recently, in 2009, and many scholars and knowledge users suggest that the legislation is more stringent than societal attitudes towards youth drinking (Van Havere et al., 2018). Therefore, parents may share their cultural heritage with their youth while preventing excessive alcohol use, for instance, by having some alcohol-specific rules. Both situational vignettes involved underage drinking outside the family context (i.e., with friends or a romantic partner), so they may not fully capture the experience of youth who restrain alcohol drinking to the family context. Future studies should investigate differences in drinking behaviors in various social contexts.

It is noteworthy that multiple group analyses revealed that the findings did not vary across genders. Accordingly, parental monitoring was equally effective in preventing alcohol use among boys and girls. In the final models, gender was not associated with perceived acceptability of underage drinking, knowledge of the laws, nor alcohol use. This finding contrasts with previous evidence that boys have higher levels of weekly alcohol use than girls (Inchley et al., 2018). Previous studies also found that parental monitoring was more efficient in preventing early alcohol use initiation in girls than in boys (for a meta-analysis, see Yap et al., 2017). These differences may be due to the fact that we did not examine differences

in parental monitoring according to parental gender as some previous studies did. It may be relevant to investigate how the association between parental monitoring and alcohol use varies depending on both child and parental genders.

Strengths and Limitations

This study had several strengths, including the use of situational vignettes to assess acceptability of underage drinking and knowledge of the minimum legal drinking ages. Notwithstanding these strengths, it is important to acknowledge that beer is a core component of Belgian culture, and that European adolescents have the highest alcohol use levels, suggesting general acceptability of youth alcohol use (Inchley et al., 2018). It would thus be insightful to replicate this study in other cultural contexts. In line with this idea, although the minimum drinking age laws differ across different types of alcohol in Belgium, the parental rules towards adolescent drinking questionnaire does not take these differences into account.

Other limitations of this study include the fact that it relied on youth self-reports and on a cross-sectional design. Relatedly, data on family structure or parental drinking were not collected. Yet, evidence suggests that youth who did not grow up in intact families (i.e., with both parents) and those whose parents had an alcohol use disorder have a higher risk of developing an alcohol use disorder themselves (Holst et al., 2020), so these variables should be included in future studies on this topic. As alcohol initiation prior to 13 years of age is relatively common, parental socialization regarding alcohol use starts prior to adolescence (Colder et al., 2018). It would be preferable to use a longitudinal design to truly portray the internalization process of the laws regulating youth alcohol use. In addition, peers were not included in this study, although the role of social contexts in drinking behaviors is well-documented (McCann et al., 2019). Finally, future studies should also include a measure of autonomy support, as parental monitoring is more effective when combined with high levels of autonomy support (Rodríguez-Meirinhos et al., 2020). Thus, these factors could interact in predicting youth internalization of the laws.

Conclusion

Parental monitoring is often referred to as a key protective factor in youth alcohol use. Yet, little is known regarding possible changes in parental monitoring behaviors after youth reach the legal drinking age and how it may differ across cultures. Moreover, the processes through which parental monitoring reduces youth alcohol use remained unclear. This study contributes to the field of research on youth alcohol use by examining perceptions of underage drinking and knowledge of the laws as processes through which parental monitoring may reduce alcohol use among a sample of Belgian youth. Findings suggest that in Belgium, parental monitoring behaviors become less effective and change after youth reach 16 years old, the minimum legal drinking age. Results also suggest that monitoring behaviors are related to lower youth perceived acceptability of underage drinking, which, in turn, relates to lower alcohol use. Findings highlight that beyond minimum legal drinking age laws, global prevention efforts to prevent youth alcohol use should include parental monitoring, as well as youth attitudes towards underage drinking. In all, this study supports the importance of minimum legal drinking age laws but also suggests that beyond the laws, parental monitoring behaviors and youth perceptions of underage drinking are determinants of youth alcohol use during adolescence.

References

- Baz Cores, O., & Fernández-Molina, E. (2022). An empirical approach to the study of legal socialization in adolescence. *European Journal of Criminology*, *19*(2), 237–258.
<https://doi.org/10.1177/1477370819896212>
- Bendtsen, P., Damsgaard, M. T., Huckle, T., Casswell, S., Kuntsche, E., Arnold, P., de Looze, M. E., Hofmann, F., Hublet, A., Simons-Morton, B., ter Bogt, T., & Holstein, B. E. (2014). Adolescent alcohol use: A reflection of national drinking patterns and policy? *Addiction*, *109*(11), 1857–1868.
<https://doi.org/10.1111/add.12681>
- Bo, A., Hai, A. H., & Jaccard, J. (2018). Parent-based interventions on adolescent alcohol use outcomes: A systematic review and meta-analysis. *Drug and Alcohol Dependence*, *191*, 98–109.
<https://doi.org/10.1016/j.drugalcdep.2018.05.031>
- Braams, B. R., van Duijvenvoorde, A. C., Peper, J. S., & Crone, E. A. (2015). Longitudinal changes in adolescent risk-taking: A comprehensive study of neural responses to rewards, pubertal development, and risk-taking behavior. *Journal of Neuroscience*, *35*(18), 7226–7238.
<https://doi.org/10.1523/JNEUROSCI.4764-14.2015>
- Brenning, K. M., Antrop, I., Van Petegem, S., Soenens, B., De Meulenaere, J., Rodríguez-Meirinhos, A., & Vansteenkiste, M. (2019). I won't obey!: Psychologically controlling parenting and (non)-clinical adolescents' responses to rule-setting. *Journal of Clinical Psychology*, *75*(6), 1034–1046.
<https://doi.org/10.1002/jclp.22750>
- Calhoun, B. H., Maggs, J. L., & Loken, E. (2018). Change in college students' perceived parental permissibility of alcohol use and its relation to college drinking. *Addictive Behaviors*, *76*, 275–280.
<https://doi.org/10.1016/j.addbeh.2017.08.025>
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255.
https://doi.org/10.1207/S15328007SEM0902_5
- Colder, C. R., Shyhalla, K., & Frndak, S. E. (2018). Early alcohol use with parental permission: Psychosocial characteristics and drinking in late adolescence. *Addictive Behaviors*, *76*, 82–87.
<https://doi.org/10.1016/j.addbeh.2017.07.030>

- Courtney, A. L., Casey, B. J., & Rapuano, K. M. (2020). A neurobiological model of alcohol marketing effects on underage drinking. *Journal of Studies on Alcohol and Drugs*, Supplement 19, 68–80. <https://doi.org/10.15288/jsads.2020.s19.68>
- Fine, A., Thomas, A., van Rooij, B., & Cauffman, E. (2020). Age-graded differences and parental influences on adolescents' obligation to obey the law. *Journal of Developmental and Life-Course Criminology*, 6(1), 25–42. <https://doi.org/10.1007/s40865-020-00134-8>
- Grimm, K. J., Ram, N., & Estabrook, R. (2017). *Growth modeling: Structural equation and multilevel modeling approaches*. Guilford Press.
- Harding, F. M., Hingson, R. W., Klitzner, M., Mosher, J. F., Brown, J., Vincent, R. M., Dahl, E., & Cannon, C. L. (2016). Underage drinking: A review of trends and prevention strategies. *American Journal of Preventive Medicine*, 51(4), S148–S157. <https://doi.org/10.1016/j.amepre.2016.05.020>
- Hirtenlehner, H., Bacher, J., Leitgöb, H., & Schartmueller, D. (2022). Do morality and self-control protect from criminogenic peer influence? Testing multidimensional person–environment interactions. *Justice Quarterly*, 39(1), 78–112. <https://doi.org/10.1080/07418825.2021.1903069>
- Holst, C., Tolstrup, J. S., Sørensen, H. J., & Becker, U. (2020). Family structure and alcohol use disorder: a register-based cohort study among offspring with and without parental alcohol use disorder. *Addiction*, 115(8), 1440–1449. <https://doi.org/10.1111/add.14932>
- Inchley, J., Currie, D., Vieno, A., Torsheim, T., Ferreira-Borges, C., Weber, M. M., Barnekow, V., & Breda, J. (Eds.) (2018). *Adolescent alcohol-related behaviours: Trends and inequalities in the WHO European Region, 2002-2014: Observations from the Health Behaviour in School-aged Children (HBSC) WHO collaborative cross-national study*. WHO Regional Office.
- Inchley, J., Currie, D., Young, T., Samdal, O., Torsheim, T., Auguston, L., Mathison, F., Aleman-Diaz, A., Molcho, M., Weber, M., & Barnekov, V. (Eds.) (2016). *Growing up unequal: Gender and socioeconomic differences in young people's health and well-being. Health behavior in school-aged children (HBSC) study: International report from the 2013/2014 survey*. WHO Regional Office.
- Kapetanovic, S., & Boson, K. (2022). Discrepancies in parents' and adolescents' reports on parent-adolescent communication and associations to adolescents' psychological health. *Current Psychology*, 41(7), 4259–4270. <https://doi.org/10.1007/s12144-020-00911-0>

- Kerr, M., Stattin, H., & Özdemir, M. (2012). Perceived parenting style and adolescent adjustment: Revisiting directions of effects and the role of parental knowledge. *Developmental Psychology, 48*(6), 1540–1553. <https://doi.org/10.1037/a0027720>
- Koning, I. M., van den Eijnden, R. J. J. M., Engels, R. C. M. E., Verdurmen, J. E. E., & Vollebergh, W. A. M. (2011). Why target early adolescents and parents in alcohol prevention? The mediating effects of self-control, rules and attitudes about alcohol use. *Addiction, 106*(3), 538–546. <https://doi.org/10.1111/j.1360-0443.2010.03198.x>
- Larm, P., Livingston, M., Svensson, J., Leifman, H., & Raninen, J. (2018). The increased trend of non-drinking in adolescence: The role of parental monitoring and attitudes toward offspring drinking. *Drug and Alcohol Review, 37*(S1), S34–S41. <https://doi.org/10.1111/dar.12682>
- Leal-López, E., Moreno-Maldonado, C., Inchley, J., Deforche, B., Van Havere, T., Van Damme, J., Buijs, T., Sánchez-Queija, I., Currie, D., Vieno, A., & De Clercq, B. (2020). Association of alcohol control policies with adolescent alcohol consumption and with social inequality in adolescent alcohol consumption: A multilevel study in 33 countries and regions. *International Journal of Drug Policy, 84*, Article 102854. <https://doi.org/10.1016/j.drugpo.2020.102854>
- Lees, B., Meredith, L. R., Kirkland, A. E., Bryant, B. E., & Squeglia, L. M. (2020). Effect of alcohol use on the adolescent brain and behavior. *Pharmacology Biochemistry and Behavior, 192*, Article 172906. <https://doi.org/10.1016/j.pbb.2020.172906>
- Lionetti, F., Palladino, B. E., Moses Passini, C., Casonato, M., Hamzallari, O., Ranta, M., Dellagiulia, A., & Keijsers, L. (2019). The development of parental monitoring during adolescence: A meta-analysis. *European Journal of Developmental Psychology, 16*(5), 552–580. <https://doi.org/10.1080/17405629.2018.1476233>
- Mageau, G. A., & Joussemet, M. (2023). Autonomy-supportive behaviors: Common features and variability across socialization domains. In Ryan, R. M. (Ed.), *The Oxford Handbook of Self-Determination Theory* (pp. 509–528). Oxford University Press.
- Mattick, R. P., Clare, P. J., Aiken, A., Wadolowski, M., Hutchinson, D., Najman, J., Slade, T., Bruno, R., McBride, N., Kypri, K., Vogl, L., & Degenhardt, L. (2018). Association of parental supply of alcohol with adolescent drinking, alcohol-related harms, and alcohol use disorder symptoms: A prospective

cohort study. *The Lancet Public Health*, 3(2), e64–e71. [https://doi.org/10.1016/S2468-2667\(17\)30240-2](https://doi.org/10.1016/S2468-2667(17)30240-2)

- Mayer, J., & Filstead, W. J. (1979). The Adolescent Alcohol Involvement Scale. An instrument for measuring adolescents' use and misuse of alcohol. *Journal of Studies on Alcohol*, 40(3), 291–300. <https://doi.org/10.15288/jsa.1979.40.291>
- McCann, M., Jordan, J.-A., Higgins, K., & Moore, L. (2019). Longitudinal social network analysis of peer, family, and school contextual influences on adolescent drinking frequency. *Journal of Adolescent Health*, 65(3), 350–358. <https://doi.org/10.1016/j.jadohealth.2019.03.004>
- McKay, M. T., & Dempster, M. (2016). The reliability and factorial validity of the Adolescent Alcohol Involvement Scale in a large sample in the United Kingdom. *Journal of Substance Use*, 21(2), 177–178. <https://doi.org/10.3109/14659891.2014.995725>
- Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide (8th ed.)*. Authors.
- Omer, H., Satran, S., & Driter, O. (2016). Vigilant care: An integrative reformulation regarding parental monitoring. *Psychological Review*, 123(3), 291–304. <https://doi.org/10.1037/rev0000024>
- Rodríguez-Meirinhos, A., Vansteenkiste, M., Soenens, B., Oliva, A., Brenning, K., & Antolín-Suárez, L. (2020). When is parental monitoring effective? A person-centered analysis of the role of autonomy-supportive and psychologically controlling parenting in referred and non-referred adolescents. *Journal of Youth and Adolescence*, 49, 352–368. <https://doi.org/10.1007/s10964-019-01151-7>
- Rusby, J. C., Light, J. M., Crowley, R., & Westling, E. (2018). Influence of parent–youth relationship, parental monitoring, and parent substance use on adolescent substance use onset. *Journal of Family Psychology*, 32(3), 310–320. <https://doi.org/10.1037/fam0000350>
- Russell, A. M., Yu, B., Thompson, C. G., Sussman, S. Y., & Barry, A. E. (2020). Assessing the relationship between youth religiosity and their alcohol use: A meta-analysis from 2008 to 2018. *Addictive Behaviors*, 106, Article 106361. <https://doi.org/10.1016/j.addbeh.2020.106361>
- Silins, E., Horwood, L. J., Najman, J. M., Patton, G. C., Toumbourou, J. W., Olsson, C. A., Hutchinson, D. M., Degenhardt, L., Fergusson, D., Becker, D., Boden, J. M., Borschmann, R., Plotnikova, M., Youssef, G. J., Tait, R. J., Clare, P., Hall, W. D., & Mattick, R. P. for the Cannabis Cohorts Research Consortium. (2018). Adverse adult consequences of different alcohol use patterns in adolescence: An

- integrative analysis of data to age 30 years from four Australasian cohorts. *Addiction*, *113*(10), 1811–1825. <https://doi.org/10.1111/add.14263>
- Spear, L. P. (2018). Effects of adolescent alcohol consumption on the brain and behaviour. *Nature Reviews Neuroscience*, *19*, 197–214. <https://doi.org/10.1038/nrn.2018.10>
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, *71*(4), 1072–1085. <https://doi.org/10.1111/1467-8624.00210>
- Tael-Öeren, M., Naughton, F., & Sutton, S. (2019). The relationship between parental attitudes and children's alcohol use: A systematic review and meta-analysis. *Addiction*, *114*(9), 1527–1546. <https://doi.org/10.1111/add.14615>
- van der Vorst, H., Engels, R. C. M. E., Meeus, W., Deković, M., & Van Leeuwe, J. (2005). The role of alcohol-specific socialization in adolescents' drinking behaviour. *Addiction*, *100*(10), 1464–1476. <https://doi.org/10.1111/j.1360-0443.2005.01193.x>
- Van Havere, T., Dirkx, N., Vander Laenen, F., De Clercq, B., Buijs, T., Mathys, C., van Praet, S., Deforche, B., El Houti, A., Van Damme, Van der Kreeft, P., & Lemaître, A. (2018). *The law of 2009 concerning the selling and serving of alcohol to youths: From state of the art to assessment*. Belspo. <https://hdl.handle.net/2268/220431>
- Van Petegem, S., Trinkner, R., van der Kaap-Deeder, J., Antonietti, J. P., & Vansteenkiste, M. (2021). Police procedural justice and adolescents' internalization of the law: Integrating self-determination theory into legal socialization research. *Journal of Social Issues*, *77*(2), 336–366. <https://doi.org/10.1111/josi.12425>
- Vrolijk, P., Van Lissa, C. J., Branje, S., Meeus, W. H., & Keizer, R. (2023). Within-family linkages between parental monitoring and adolescents externalizing problems with autonomy support as a moderator. *Journal of Research on Adolescence*, *33*(4), 1179–1195. <https://doi.org/10.1111/jora.12868>
- Yap, M. B. H., Cheong, T. W. K., Zaravinos-Tsakos, F., Lubman, D. I., & Jorm, A. F. (2017). Modifiable parenting factors associated with adolescent alcohol misuse: A systematic review and meta-analysis of longitudinal studies. *Addiction*, *112*(7), 1142–1162. <https://doi.org/10.1111/add.13785>

Authors' Affiliations and Research Interests

Catherine Cimon-Paquet, M. Sc., is a doctoral student at the Université du Québec à Montréal. Her major research interests include family relationships, sleep and educational pathways.

Marie-Hélène Véronneau is an Associate Professor at the Université du Québec à Montréal. Her major research interests include educational success and attainment, social and behavioral adjustment, and mental health.

Cécile Mathys is an Associate Professor at the University of Liège. Her major research interests include juvenile delinquency, antisocial and risk behaviors.

Acknowledgements

We gratefully acknowledge the participants of this study and Sarah van Praet, Nicky Dirckx, and Adam El Houti for their assistance in data collection.

Authors' Contributions

C.C.P. planned and conducted the analyses, interpreted the results, and drafted all sections of the manuscript; M.H.V. took part in planning the analyses and interpreting the results, and edited the draft; C. M. conceived the study and contributed to the data collection, took part in planning the analyses and interpreting the results, and edited the draft. All authors read and approved the final manuscript.

Data Sharing Declaration

The datasets analyzed during the current study are not publicly available. The data are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors report no conflict of interests.

Funding

The research project was funded by the Belgian Science Policy Office through the Belgian Research Action through Interdisciplinary Networks (Federal Research Program On Drugs, contract number DR/00/071). This work was also supported by the Québec Research Funds – Society and Culture (award number 2021-B2Z-281986) and the Social Sciences and Humanities Research Council (award number 207-2021-2022-Q1-02294) to CCP; the Québec Research Funds – Society and Culture Research Team Support grant (315353) and the Québec Research Funds – Health Research Scholar award junior 2 (266652) to MHV.

Compliance with Ethical Standards and Ethical Approval

The research protocol complied with the American Psychological Association's ethical standards in the treatment of participants. It was approved by the ALCOLAW committee (i.e., academics and professionals who were part of the project). Neither my co-authors nor I have any conflicts of interest.

Informed Consent

Adolescents provided written consent. They did not receive any compensation for their participation. Parents received a letter explaining the study procedure and returned a form if they did not want their adolescent to take part in the study.