Contribution of frequency and structured leisure activities features to the alcohol use: perception of adolescents from the northwest county of Croatia

Matea Belošević and Martina Ferić

Laboratory for Prevention Research (Prevlab), Department of Behavioural Disorders, Faculty of Education and Rehabilitation Sciences, University of Zagreb, Zagreb, Croatia

ABSTRACT
One of the most important contexts for adolescent development, along with family, school, and community, is leisure. However, leisure time can be associated with risk behaviours such as substance use, as adolescence is also known as a time of experimentation. This study aims to determine the extent to which adolescents’ frequency of participation in structured leisure activities (SLA), perceptions of context, motivational factors, and the experience of participating in SLA contribute to adolescents’ alcohol use (lifetime prevalence, monthly prevalence, binge drinking). Regression analyses were conducted with 1.431 high school students who reported having participated in SLA. This cross-sectional study showed that perceptions of context, motivational factors, and experience of participating in SLA contribute to adolescent alcohol use. The study confirms that leisure context can have a protective effect on the substance use path. The findings may be helpful in developing strategies and interventions within SLA context.

Introduction
Along with family, school, and community, leisure is one of the most important contexts in which adolescents can develop (Coatsworth et al., 2005; Xie et al., 2017). However, adolescence is also known as a time of excitement and experimentation, so the leisure context can be associated with risk behaviours such as substance use.

Nowadays, substance use is an easy way for adolescents to satisfy the normal developmental need for risk and excitement (Hamidullah et al., 2020; Lisdahl et al., 2018). Patterns of substance use range from experimentation and irregular use to the development of a habit and addiction. This process involves multiple pathways for which there is no single cause and depends mainly on individual choices influenced by internal, biological, and external factors from the environment and society (European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2020). Epidemiological data at both Croatian and European levels show that adolescents consume alcohol most frequently of all substances (ESPAD Group, 2020). More than half of adolescents aged 15–16 years reported having consumed alcohol at least once in their lifetime and 13% of them reported having been intoxicated in the past 30 days (ESPAD Group, 2020). In Croatia, 70.4% of high school students have consumed alcohol in the past 30 days (Laboratory for Prevention Research, ERF UNIZG, 2019). It should be noted that the law prohibits the consumption, i.e. the sale or distribution of alcoholic beverages to minors in Croatia, and yet 87% of 16-year-old students in Croatia report that
they could easily or very easily obtain alcoholic beverages (ESPAD Group, 2020). The legislation in Croatia is well defined. The problem lies in its implementation, i.e. the fact that many adults violate it by allowing children and young people to access alcohol (stores, cafes, clubs, etc.). Alcohol is an integral part of tradition and ‘culture’ in Croatia on all occasions. Alcohol is present at both celebrations and mourning ceremonies, and it is extremely difficult to change the established attitudes of society (Hrvatski zavod za javno zdravstvo (HZJZ), 2013). And the most important cultural and sociological risk factors for the use of addictive substances are the availability of addictive substances, the social environment that encourages or allows the use of addictive substances, poor criminal justice policies, and too little social attention to the problem (NIDA Research – Based Guide, 2008).

One way to understand adolescent leisure development through leisure is from an action-in-context perspective, which seeks to explain the reasons behind adolescents’ choices by focusing on the interaction of leisure activity, context, and experience (LACE model; Caldwell, 2011; Caldwell & Faulk, 2013) as important factors that ‘create conditions that either serve to protect the youth from negative or risk behaviours or to promote positive and healthy development’ (Caldwell & Faulk, 2013, p. 50).

There are several classifications of leisure activities, the most common being unstructured and structured leisure activities (SLA). Unstructured leisure activities are often associated with risk behaviours or considered ‘inconclusive,’ meaning they are not thought to contribute to the developmental benefits of participation (Caldwell, 2008; Pulver et al., 2015). SLA are characterized by a clear structure with defined rules and goals, are supervised by adults, have a regular schedule, and focus on skill building (Mahoney et al., 2006). Caldwell, 20088, p. 7 describes the benefits of SLA as ‘goal-oriented and/or creative and expressive; require discipline and focused attention; offer challenges to overcome; involve cooperation and interaction with others; build skills and increase one’s level of competence; and require persistence, commitment, and continuity of participation over time.’ Regarding SLA participation, studies show that it positively correlates with better physical and mental health in adolescents (Aumêtre & Poulin, 2018; Badura et al., 2015; Sarriera et al., 2014) and reduces the likelihood of risk behaviours in adolescents (Aumêtre & Poulin, 2018; Badura et al., 2018; Caldwell & Witt, 2018).

Referring to the LACE model, Caldwell and Smith (2006) argue that when evaluating the contribution of leisure to adolescent development, it is important to consider the motivation, experience, and context of the activity. Activities take place in contexts, meaning there are elements embedded in the activity or environment that influence adolescents experience of the activity (Caldwell, 2017; Caldwell & Faulk, 2013). In addition, leisure contexts should provide opportunities and contribute to positive developmental outcomes (Caldwell & Witt, 2018).

Therefore, the term experience in the LACE model refers to the experiential, affective, and motivational aspects of the activity (Caldwell, 2017). When an adolescent’s abilities match the demands of the environment and there is clear feedback about performance, adolescents are more likely to actively participate (Caldwell, 2017; Caldwell & Faulk, 2013). Leisure is not necessarily a positive experience for adolescents and can be associated with anxiety, stress, loneliness, isolation, and boredom. These negative leisure experiences may be associated with poor adjustment or risk behaviours.

Motivation is a driving force for SLA participation. The reason or motivation to participate in an activity is likely more important than the activity itself, whether it is structured or unstructured (Caldwell & Faulk, 2013). Autonomous or self-determined motivation means engaging in a behaviour because it fulfils personally relevant goals (Deci & Ryan, 2000). Intrinsic motivation means that the person engages in an activity for its own sake (to achieve a personally relevant goal) rather than out of a desire for an external reward (Lee et al., 2012; Wallhead et al., 2014). In addition to intrinsic motivation, identified motivation in adolescents has also been cited as a factor positively associated with adolescent well-being (Hansen, et al., 2003). Introjected leisure motivation is associated with peer influence or pressure (Caldwell, 2005). Positive peer pressure may be
related to supporting participation in socially desirable activities, while negative peer pressure may be related to promoting risk behaviours. When considering the negative effects associated with leisure motivation, amotivation and extrinsic motivation are thought to contribute the most, although there is not much literature in the leisure field to support this with empirical evidence (Caldwell et al., 2010). Individuals who are extrinsically motivated may adopt certain behaviours because of external conditions, internalized self-evaluations, the personal importance of consequences, or because they are completely congruent with the person’s other values (Deci & Ryan, 2008).

Prevention efforts for adolescent substance use should include interventions that incorporate and address leisure opportunities (International Narcotics Control Board, 2013). Generally, substance use prevention programs focus on skill development without a focus on leisure as an important context for life skills development (Motamedi et al., 2020). In contrast, SLA and especially sports activities are widely used to promote positive adolescent development and prevent risk behaviours. However, UNODC & (WHO; 2018) note that in the area of out-of-school activities, sports and other SLA and out-of-school interventions, there is not yet sufficient evidence of effectiveness or the evidence is weak or contradictory and requires further research. In light of this, further research is needed in this area to provide scientific evidence of the conditions under which SLA contributes to positive developmental outcomes for adolescents. The purpose of this article is to examine, from an adolescent perspective, how structured leisure activities (SLA) may contribute to adolescent alcohol use. More specifically, it aims to determine the extent to which adolescents’ frequency of SLA participation, perceptions of context, motivational factors, and the SLA experience contribute to adolescents’ alcohol use (lifetime prevalence, monthly prevalence, binge drinking (BD)).

Methods

Participants and procedure

This cross-sectional study was conducted from March to May 2021 as part of the research project ‘Quality of leisure time as a protective factor for the development of behavioral problems’. The study aimed to cover the entire student population (who agreed to participate in the study) of all regular high schools in Krapinsko-zagorska County, Croatia. The total sample consists of 2823 students from 9 high schools, representing 66.48% of the total student population in Krapinsko-zagorska County, Croatia. For the purposes of this study, only students who indicated that they participated in SLA were included in the sample (N = 1431, 51%).

Students were asked to select a SLA that they attend (or attended prior to the restrictions due to the COVID 19 pandemic), that is most important to them, and that they attend at least 1 hour per week. The data collected show that most adolescents participate in group sports activities (36.6%) and individual sports activities (23%). In addition, 21% of them participate in musical-art activities (performance and fine arts), 3.3% in educational activities, and 5% in community-oriented activities. Participants were between 14 and 21 years old (M = 18.87, SD = 1.23). 44.8% of participants were female, while 2.4% of participants did not want to provide gender information. In a professional 2- or 3-year education programme, 20.7% of students were enrolled, 52.7% were enrolled in a professional 4- or 5-year education programme, and 26.6% were enrolled in a gymnasium programme. Participants were also distributed approximately evenly among the first (29.8%), second (29.4%), and third years of study (22.9%), with fewer students in the fourth (16.4%) and fifth years (1.6%) due to the presence of 2- and 3-year school programme in the sample. Regarding the financial situation of the family, 19% of the participants reported that the financial situation was average, while 60% of them described it as good.
The study was conducted by completing an online questionnaire (45 minutes, Survey Monkey tool) in collaboration with the professionals at the high schools. All study participants signed an informed consent form before completing the questionnaire. The consent to participate included information about the research and its aims, the methods of data processing, the rights and protection of participants and possible risks, as well as the procedures for protecting personal data (ensuring anonymity in relation to the IP address from which the link was accessed) and the possibilities of being informed about the results of the study. Participants were informed that their participation was anonymous and voluntary and that they were free to terminate their participation at any time (see Ethics Statement for more details).

**Measures**

Questionnaire of youth leisure time consists of 15 questions on the following topics: The amount of leisure time during the week and on weekends; the activities adolescents typically spend their leisure time on; the frequency of SLA participation (a) from January 2019 to January 2020 – before the pandemic COVID 19 and (b) due to the pandemic restrictions COVID 19–2020 and early 2021; the types of SLA in which youth participate; changes in patterns of SLA participation due to the COVID 19 pandemic; payment for SLA in which youth participate; inability to participate in SLA due to the COVID 19 pandemic. In the analysis presented in this article, the question about the frequency of SLA participation before the pandemic COVID 19 were included. Students estimated the frequency of participation during the week (Monday through Friday) and on weekends (Saturday and Sunday). Finally, a continuous variable-frequency of adolescents’ participation-before the pandemic COVID 19 (FAP BEFORE) ($\alpha = 0.68$) and frequency of adolescents’ participation-due to pandemic restrictions COVID 19–2020 and early 2021 (FAP DURING COVID 19) ($\alpha = 0.78$) was created to indicate the frequency of SLA participation on a monthly basis (from 0 to 28 times). These two variables are moderately significantly positively correlated ($p < 0.05$; $r = 0.605$).

The context of participation in leisure activities (developed by Belošević and Ferić [2021]) was created based on the theoretical research model (LACE model; Caldwell, 2005, 2011). The questionnaire consists of 11 items and includes questions about emotional and physical safety during participation in leisure activities, opportunities for creativity, sense of belonging, and relationships with leaders and other participants during participation in leisure activities. Participants were asked to read the questions and indicate their level of agreement on a 5-point scale (1 = strongly disagree; 5 = strongly agree). The factor analyses conducted (Exploratory Factor Analysis & Confirmatory Factor Analysis) revealed that the questionnaire consists of 3 factors: safety ($\alpha = .84$), opportunities ($\alpha = .92$), and relationships ($\alpha = .90$; Belošević & Ferić, 2021). The scale score consists of 3 means (for each subscale).

The Free Time Motivation Scale for Adolescents (FTMSA; Baldwin & Caldwell, 2003) was used to assess five types of motivation – amotivation ($\alpha = .89$), external ($\alpha = .77$), introjected ($\alpha = .77$), identified ($\alpha = .83$) and intrinsic ($\alpha = .94$). For each item, participants were asked to indicate their level of agreement on a 5-point scale (1 = strongly disagree; 5 = strongly agree). The scale score consists of 5 means (for each subscale) indicating the degree of motivation to participate in leisure activities.

The Youth Experience Survey (YES) (Hansen & Larson, 2005) inventories experiences in domains of personal and interpersonal development. Personal development experiences are represented by three scales on the YES scales: Identity experiences ($\alpha = .83$), Initiative experiences ($\alpha = .03$) & Emotion regulation experiences ($\alpha = .87$). Interpersonal development experiences are also represented by three scales: Teamwork and social skills experiences ($\alpha = .93$), Positive relationship experiences ($\alpha = .85$) & Adult networks and social capital experiences ($\alpha = .85$). The YES also includes five scales dealing with negative experiences: Stress ($\alpha = .84$), Inappropriate adult behaviour ($\alpha = .93$), Negative peer influences ($\alpha = .90$), Social exclusion ($\alpha = .85$) & Negative group dynamics ($\alpha = .83$). For each item,
responses’ rate whether they had a particular experience during their recent involvement on a 4-point scale ranging from not at all (1) to yes, definitely (4). Scale scores are computed as averages; thus, scale values range from 1 to 4, with 4 representing the highest possible rate of occurrence.

The CTC Youth Survey explores behaviours related to attitudes towards school, Internet use, risk sexual behaviours, experiences of peer violence, abuse in relationships, gambling, and alcohol and drug use. In this study, focus is on alcohol use. Alcohol use questions addressed early onset of alcohol use, lifetime prevalence, monthly prevalence of alcohol use, and binge drinking (BD).

- Early onset of alcohol use (2 items, e.g. ‘Please mark your age when you first had more than just a few sips of beer, wine, or hard liquor (e.g. vodka, whiskey, or brandy)?’).
- Lifetime prevalence of alcohol use (1 item, e.g. ‘How many times IN YOUR LIFETIME have you drink beer, wine, and hard liquors?’); The composite measure of lifetime alcohol use gives values from 1 to 5, where 1 is never and 5 is every day. The outcome variable, lifetime prevalence, is categorized as follows: low risk = never and 1–2 times; medium risk = 1–2 times per month; and high risk = 1–2 times per week and every day.
- Monthly prevalence of alcohol use (1 item, e.g. ‘How many times in THE PAST 30 DAYS have you drink beer, wine and hard liquors?’); The composite variable alcohol use in the past 30 days gives values from 1 to 5, where 1 is never and 5 is every day. Monthly prevalence of alcohol use among adolescents is the outcome variable, distinguished as follows: low risk = never; medium risk = 1 or 2 times per month; and high risk = once or few times a week and every day.
- Binge drinking (1 item, e.g. ‘Look back at the past 2 weeks. On how many occasions have you had 5 or more drinks in a row over that period?’). The composite variable BD gives values from 1 to 6, where 1 is not even once and 6 is 10 or more times.

CTC Youth Survey have been validated in previous studies conducted in Croatia (e.g. Mihić et al., 2011).

Statistical data analysis

All statistical analyses were performed with SPSS 21.0 (IBM, Armonk, NY, USA). Descriptive statistics were used to determine sample characteristics, including means and standard deviation, skewness, and kurtosis. The descriptive parameters of the analysed variables are shown in Table 1. The statistical significance, general strength, and direction of the relationships between the examined variables were analysed using Pearson’s correlation coefficients.

Frequency of SLA participation, perceptions of context, motivational factors, and SLA experience were used as predictors. In addition, lifetime prevalence, monthly prevalence of alcohol use, and BD were set as criterion variables.

As the study was conducted during the pandemic COVID –19, adolescents were asked about frequency of SLA participation, before the pandemic and in the time of pandemic restrictions (2020 and early 2021). Both variables on frequency of participation were included in the data analysis, and there were no differences in the results. Therefore, the most methodologically appropriate model was to use the variable ‘FAP BEFORE’ when examining its contribution to lifetime prevalence and the variable ‘FAP due to COVID 19’ when examining its contribution to monthly prevalence of adolescent alcohol use and BD (recent experience with alcohol use).

Two types of analyses were conducted. (1) Multinomial logistic regression analyses were used to examine the association between the frequency of adolescent SLA participation (FAP BEFORE/FAP DURING COVID 19), adolescents’ perceptions of the context, factors of motivation and SLA experience as predictors, and lifetime and monthly prevalence of adolescent alcohol use as criteria. (2) Finally, Poisson regression was used to examine the association between FAP DURING COVID 19, adolescents’ perceptions of context, factors of motivation and SLA experience, and adolescent BD.
The first step was to meet the requirement of testing for multicollinearity, that is, to determine whether predictors were overly correlated with each other. VIF values greater than 10 are considered problematic because they indicate a strong linear correlation between predictors (Pituch & Stevens, 2016). The analysis showed that there was no multicollinearity, as the analysis revealed VIF values below 5. In all cases, the differences were significant when p < 0.05. In addition, the plots of the standardized residuals showed no obvious signs of funnelling compared to the standardized predicted values, indicating that the assumption of homoscedasticity was met. P-P plot and the values of skewness and kurtosis were interpreted to determine the normality of the distribution. Because the values of skewness and kurtosis for all observed variables were within acceptable limits, it was concluded that the condition for normality of the distribution was met (which is within the threshold of 3 for skewness and a value of 10 for kurtosis established by Kline (2011)). In all cases, differences were significant when p < .05.

Results

**Contribution of frequency of adolescent SLA participation, perceptions of the context, factors of motivation and SLA experience to the adolescent’s alcohol use**

As a preliminary step, Pearson correlation coefficients were calculated between the frequency of SLA participation (FAP BEFORE and FAP DURING COVID), perceptions of context (safety, opportunities, and relationship), motivational factors (external, identified, introjected, and intrinsic), and SLA experiences (identity experiences, initiative experiences, emotion regulation experiences, teamwork and social skills experiences, positive relationship experiences, adult networks and social capital experiences, and negative experiences), as well as adolescent alcohol use (lifetime and monthly prevalence and BD).
The highest correlation coefficient between predictor variables was found between perceptions of the context factors-opportunities and relationship \((r = .87, p < .05)\) and between all negative experience factors (correlation coefficients ranged from .77 to .84), indicating multicollinearity. To eliminate multicollinearity, we formed a composite score from the redundant variables (Tabachnick & Fidell, 2013). Following the procedures described in Tabachnick and Fidell (2013), the newly created composite variables (opportunities × relationship) & negative experiences (stress × inappropriate adult behaviour × negative peer influences × social exclusion x-negative group dynamics) did not indicate multicollinearity.

**Lifetime prevalence of alcohol use**

Multinomial logistic regression was performed to model the relationship between the predictor variables and the lifetime prevalence of alcohol use. The full model was significantly reliable \((N = 1431; \chi^2(30) = 183.641; p < .000 \text{ (Table 2)}\). External motivation \((\chi^2(2) = 6.88)\), identified motivation \((\chi^2(2) = 7.61)\), experiences with teamwork and social skills \((\chi^2(2) = 2.89)\), positive relationship experiences \((\chi^2(2) = 6.86)\), experiences with adult networks and social capital \((\chi^2(2) = 10.00)\), and negative experiences \((\chi^2(2) = 4.63)\) had a significant main effect on lifetime prevalence of alcohol use.

**Table 2.** Multinomial logistic regression analyses with adolescents’ frequency of SLA participation, perceptions of the context, factors of motivation and SLA experience as predictors, and adolescents’ lifetime prevalence of alcohol use as a criterion.

| Lifetime prevalence of adolescents’ alcohol use | B(S.E.) | OR | CI |
|-----------------------------------------------|--------|----|----|
| Low vs High risk                              |        |    |    |
| FAP BEFORE                                    |        |    |    |
| CONTEXT                                       |        |    |    |
| Safety                                        | -.004(0.012) | 1.004 | (.980–1.029) |
| Opportunities x Relationship                  | -.107(0.133) | .898 | (.691–1.167) |
| Amotivation                                   | .069(0.130) | 1.071 | (.830–1.382) |
| External                                      | -.003(0.131) | .997 | (.771–1.290) |
| Identified                                    | -.344***(0.133) | .709 | (.546–921) |
| Introjected                                   | .086(0.127) | 1.085 | (.863–1.091) |
| Intrinsic                                     | -.210(0.126) | .811 | (.633–1.038) |
| Identity experiences                          | -.058(0.200) | .944 | (.638–1.396) |
| Initiative experiences                        | .302(0.238) | 1.353 | (.848–2.159) |
| Emotion regulation experiences                | .202(0.173) | 1.224 | (.873–1.717) |
| Teamwork and social skills experiences        | .245(0.211) | 1.277 | (.845–1.930) |
| Positive relationship experiences             | -.539*(.226) | .583 | (.374–.909) |
| Adult networks and social capital experiences | .081(0.202) | 1.084 | (.730–1.611) |
| Medium vs High risk                           |        |    |    |
| FAP BEFORE                                    |        |    |    |
| CONTEXT                                       |        |    |    |
| Safety                                        | -.019(0.013) | .981 | (.957–1.006) |
| Opportunities x Relationship                  | .118(0.140) | 1.125 | (.856–1.480) |
| Amotivation                                   | -.038(0.136) | .963 | (.738–1.256) |
| External                                      | -.285*(0.136) | .752 | (.576–.981) |
| Identified                                    | .222(0.137) | 1.249 | (.955–1.633) |
| Introjected                                   | -.003(0.129) | .997 | (.774–1.284) |
| Intrinsic                                     | -.052(0.134) | .949 | (.730–1.234) |
| Identity experiences                          | .301(0.207) | 1.351 | (.901–2.027) |
| Initiative experiences                        | .009(0.246) | 1.009 | (.623–1.633) |
| Emotion regulation experiences                | .284(0.177) | 1.328 | (.938–1.880) |
| Teamwork and social skills experiences        | .366*(0.215) | 1.441 | (.945–2.199) |
| Positive relationship experiences             | -.558*(0.231) | .573 | (.364–.901) |
| Adult networks and social capital experiences | -.405*(0.209) | .667 | (.443–1.005) |
| Physical experiences                          | -.122*(.115) | .886 | (.707–1.108) |

Note: Reference category is high risk; CI = 95% confidence interval; R2 = 0.190 (Nagelkerke); Model \(\chi^2(30) = 183.641, p < .000; \)*p < .05, **p < .01; boldface odds ratios (OR) are significant at \(p < .05\); FREQUENCY OF ADOLESCENTS’ PARTICIPATION (before the pandemic COVID 19) = FAP BEFORE.
From the Wald statistics, in the low vs. high-risk group, identified motivation made the largest independent contribution to the model and in the medium vs. high-risk group, positive relationship experiences made the largest independent contribution to the model.

**Low vs. high risk**
Among motivational factors, external motivation predicted lifetime prevalence of alcohol use ($b = -0.34$, $p < .05$). Adolescents who rated themselves as more extrinsically motivated were 0.70 times less likely to belong to the low-risk group, i.e. those who used alcohol less frequently in their lifetime, than the group of adolescents with high lifetime alcohol use (who belong to the high-risk group). Identified motivation also predicted lifetime prevalence of alcohol use ($b = 0.36$, $p < .05$). Adolescents who rated themselves as more identified motivated were 1.44 times more likely to be in the low-risk group than the high lifetime alcohol use group. Results by SLA experience show that positive relationship experiences ($b = -0.53$, $p < .05$) and negative experiences ($b = -0.23$, $p < .05$) predicted lifetime prevalence of alcohol use. Adolescents who estimated that their SLA participation contributed more to the development of positive relationship experiences (0.58 times) and to the development of negative experiences (0.79 times) were less likely to be in the low-risk group than in the high-risk lifetime alcohol use group.

**Medium vs. high risk**
According to motivational factors, extrinsic motivation predicted lifetime prevalence of alcohol use ($b = -0.285$, $p < .05$). Adolescents who rated themselves as more extrinsically motivated were 0.75 times less likely to be in the medium-risk group, i.e. those who used alcohol moderately in their lifetime, than the group of adolescents with high lifetime alcohol use (who were in the high-risk group). Also, in relation to SLA experiences, results show that experiences of teamwork and social skills ($b = 0.36$, $p < .05$) and experiences of adult networks and social capital ($b = -0.40$, $p < 0.05$) predicted lifetime prevalence of alcohol use. Adolescents who rated that their SLA participation contributed more to the development of teamwork and social skills experiences were 1.44 times more likely to be in the medium-risk group, i.e. those with moderate lifetime alcohol use, than in the high lifetime alcohol use group (those in the high-risk group). Adolescents who assess that their SLA participation contributed more to the development of adult networks and social capital experiences are 0.66 times less likely to belong to the medium-risk group, than to the high-risk group of lifetime alcohol use.

**Monthly prevalence of alcohol use**
Multinomial logistic regression was performed to model the relationship between the predictor variables and the criterion variable monthly prevalence of alcohol use. The full model was significantly reliable ($N = 1431; \chi^2(30) = 97.233; p < .01$ (Table 3). The following predictor variables were independently associated with monthly prevalence of alcohol use: external motivation ($\chi^2(2) = 6.70$), safety ($\chi^2(2) = 9.54$), identity experiences ($\chi^2(2) = 9.76$), initiative experiences ($\chi^2(2) = 16.52$), and positive relationship experiences ($\chi^2(2) = 9.04$). From the Wald statistics, initiative experiences make the largest independent contribution to the model.

**Low vs. high risk**
Among motivational factors, results show that external motivation predicted monthly prevalence of alcohol consumption ($b = -0.30$, $p < .05$). Adolescents who perceive themselves as more extrinsically motivated are 0.73 times less likely to belong to the low-risk group, i.e. those who consume alcohol less frequently per month, than the group of adolescents with high alcohol consumption per month (who belong to the high-risk group). In addition, results related to experiences of SLA participation, show that identity experiences ($b = -0.39$, $p < .05$), initiative experiences ($b = 0.87$, $p < .05$), and positive relationship experiences
Table 3. Multinomial logistic regression analyses with adolescents’ frequency of SLA participation, perceptions of the context, factors of motivation and SLA experience as predictors, and adolescents’ monthly prevalence of alcohol use as a criterion.

| Monthly prevalence of adolescents’ alcohol use | B(S.E.) | OR  | CI       |
|-----------------------------------------------|---------|-----|----------|
| Low vs High risk                              |         |     |          |
| FAP DURING COVID 19                          |         |     |          |
| CONTEXT                                      |         |     |          |
| Safety                                        | .010(.012) | 1.010 | (.987–1.034) |
| Opportunities x Relationship                 | −.078(.127) | 0.925 | (.721–1.156) |
| MOTIVATION                                    |         |     |          |
| Amotivation                                   | −.015(.130) | 0.985 | (.764–1.270) |
| External                                      | −.303(.127) | .739  | (.576–0.947) |
| Identified                                    | .196(.123)  | 1.216 | (.956–1.547) |
| Introjected                                   | −.170(.117) | 0.843 | (.670–1.062) |
| Intrinsic                                     | −.155(.105) | 0.856 | (.697–1.052) |
| EXPERIENCE                                    |         |     |          |
| Developmental experiences                     |         |     |          |
| Identity experiences                          | −.398(.182) | .672  | (.471–0.959) |
| Initiative experiences                        | .876**(.224) | 2.402 | (1.550–3.723) |
| Emotion regulation experiences               | .005(.162)  | 1.006 | (.732–1.381) |
| Teamwork and social skills experiences        | .021(.154)  | 1.021 | (.755–1.382) |
| Positive relationship experiences             | −.344*(.154) | .709  | (.524–0.958) |
| Adult networks and social capital experiences | .004(.143)  | 1.004 | (.758–1.329) |
| Negative experiences                          |         |     |          |
| Medium vs High risk                           |         |     |          |
| FAP DURING COVID 19                          |         |     |          |
| CONTEXT                                      |         |     |          |
| Safety                                        | −.002(.011) | .941  | (.976–1.020) |
| Opportunities x Relationship                 | .267*(.127) | 1.306 | (1.017–1.676) |
| MOTIVATION                                    |         |     |          |
| Amotivation                                   | .168(.122)  | 1.183 | (.932–1.502) |
| External                                      | −.255*(.120) | .775  | (.61–1.081) |
| Identified                                    | .062(.118)  | 1.064 | (.844–1.342) |
| Introjected                                   | −.174(.112) | .840  | (.675–1.047) |
| Intrinsic                                     | .110(.102)  | 1.117 | (.914–1.364) |
| EXPERIENCE                                    |         |     |          |
| Developmental experiences                     |         |     |          |
| Identity experiences                          | .087(.176)  | 1.091 | (.772–1.540) |
| Initiative experiences                        | .347(.213)  | 1.415 | (.931–2.149) |
| Emotion regulation experiences               | .002(.155)  | .998  | (.736–1.352) |
| Teamwork and social skills experiences        | .228(.149)  | 1.256 | (.939–1.681) |
| Positive relationship experiences             | −.432**(.149) | .649  | (.485–.869) |
| Adult networks and social capital experiences | −.035(.137) | .966  | (.738–1.263) |
| Negative experiences                          | −.132(.105) | .876  | (.713–1.077) |

Note: Reference category is high risk; CI = 95% confidence interval; R2 = 0.105 (Nagelkerke); Model χ2(30) = 97.233, p < .000; *p < .05, **p < .01; boldface odds ratios (OR) are significant at p< .05; FREQUENCY OF ADOLESCENTS’ PARTICIPATION due to the pandemic restrictions COVID 19–2020 and early 2021 = FAP DURING COVID 19

(b = −0.34, p < .05) predicted monthly prevalence of alcohol use. Adolescents who estimate that their SLA participation contributed more to the development of initiative experiences were 2.40 times more likely to belong to the low-risk group than to the group of adolescents with high alcohol consumption per month. Adolescents who estimate that their SLA participation contributed more to the development of identity experiences (0.67 times) and to the development of positive relationship experiences (0.70 times) are less likely to be in the low-risk group than in the high alcohol use per month group.

Medium vs. high risk

Regarding motivational factors, results show that external motivation predicts monthly prevalence of alcohol consumption (b = −0.255, p < 0.05). Adolescents who perceive themselves as more extrinsically motivated are 0.77 times less likely to belong to the medium-risk group, i.e. those who consume alcohol moderately per month, than the group of adolescents with high alcohol consumption per month (who belong to the high-risk group). By perceptions of context, safety predicted monthly prevalence of alcohol use (b = 0.267, p < .05). Adolescents...
who perceived the context of participating in SLA as safer were 1.30 times more likely to be in the medium-risk group than the high alcohol consumption per month group. In addition, results on the SLA experience show that positive relationship experiences (b = −0.43, p < .05) predicted monthly prevalence of alcohol use. Adolescents who estimate that their SLA participation contributed more to the development of positive relationship experiences were 0.64 times less likely to be in the medium-risk group than the high alcohol use per month group.

**Adolescents’ binge drinking (BD) behaviour**

Poisson regression was used to examine the relationship between predictors and adolescent BD as a criterion. The predictors explained a significant proportion of the variance in the outcome (N = 1431; \( \chi^2(15) = 56.651; p < .000 \)) (Table 4). The results of the count model showed that external motivation (\( \chi^2(1) = 4.21 \)), identified motivation (\( \chi^2(1) = 5.47 \)), initiative experiences (\( \chi^2(1) = 4.35 \)), positive relationship experiences (\( \chi^2(1) = 9.59 \)), and negative experiences (\( \chi^2(1) = 6.60 \)) had a significant main effect on adolescents’ BD behaviour. From the Wald statistics, positive relationship experiences and negative experiences made the largest independent contribution to the model.

Looking at motivational factors, the predictor that decreases the likelihood of BD behaviour is identified motivation. Identified motivation is negatively associated with adolescents BD, such that those who rated themselves as more likely to be identified motivated were 0.91 less likely to have more frequent BD experiences. External motivation had a significant positive association with adolescent BD behaviour BD. Significant effect size data are also indicated by the OR (odds ratio). However, when the OR is 1, the result is not statistically significant because it indicates that the same probability of achieving a given outcome is increased or decreased by increasing the predictors (Field, 2018).

Therefore, with respect to adolescents who are extrinsically motivated to participate in SLA, we cannot say with certainty that the above factors contribute to a higher likelihood of participating in BD.

Among the factors of the SLA experience the initiative experiences decreased the likelihood of BD behaviour. Adolescents who reported that their SLA participation contributed more to the development of initiative experiences were 0.87 times less likely to participate more often in BD. However,

| Table 4. Poisson regression analyses with adolescents’ frequency of SLA participation, perceptions of the context, factors of motivation and SLA experience as predictors, and adolescents’ BD behaviour as a criterion. | Adolescents binge drinking (BD) |
|---|---|---|
| Predictors | B (S.E.) | OR | CI |
| **FAP DURING COVID 19** | | | |
| CONTEXT | | | |
| Safety | −0.001(0.003) | .999 | (.993–1.006) |
| Opportunities X Relationship | .023(0.039) | 1.023 | (.948–1.105) |
| MOTIVATION | | | |
| External | .072(0.028) | **1.074** | (1.003–1.150) |
| Identified | −.086(0.036) | **.918** | (.854–.986) |
| Introjected | .029(0.032) | 1.030 | (.965–1.098) |
| Intrinsic | .044(0.038) | 1.045 | (.969–1.127) |
| EXPERIENCE | Developmental experiences | | |
| Identity experiences | .047(0.052) | 1.048 | (.946–1.162) |
| Initiative experiences | −1.131(0.062) | **.377** | (.276–.992) |
| Emotion regulation experiences | −.020(0.045) | .980 | (.897–1.071) |
| Teamwork and social skills experiences | −.062(0.054) | .940 | (.844–1.047) |
| Positive relationship experiences | .180(0.058) | **1.197** | (1.068–1.341) |
| Adult networks and social capital experiences | .019(0.052) | 1.019 | (.920–1.128) |
| Negative experiences | .076(0.029) | 1.179 | (1.018–1.143) |

Note: CI = 95% confidence interval; Model \( \chi^2(15) = 56.651; p < .000 \); *p < .05, **p < .01; boldface odds ratios (OR) are significant at \( p < .05 \); FREQUENCY OF ADOLESCENTS’ PARTICIPATION due to the pandemic restrictions COVID 19–2020 and early 2021 = FAP DURING COVID 19.
positive relationship experiences and negative experiences increased the likelihood of BD behaviour. Adolescents who reported that their SLA participation contributed more to positive relationship experiences were 1.19 times more likely, and negative experiences were 1.17 times more likely, to participate more often in BD behavioural experiences.

Discussion

The results of the study showed that the frequency of adolescent SLA participation did not contribute to adolescent alcohol consumption (monthly and lifetime prevalence and BD). This finding is consistent with the findings of Darling (2005). Nevertheless, the evidence on the association between frequency of SLA participation and adolescent alcohol use is conflicting. According to the Vermont Department of Health (2015), students who participate in weekly extracurricular activities are significantly less likely to use alcohol, tobacco, or marijuana than students who do not participate in any activities. However, alcohol use is significantly higher among students who participate in activities for 20 hours or more compared to all other levels of activity participation, including no activity.

This cross-sectional study showed that perceptions of context, motivational factors, and the SLA experience contribute to adolescents’ alcohol use. Regarding motivational factors, adolescents who are more extrinsically motivated to participate in SLA are more likely to belong to the group of adolescents with high lifetime and monthly alcohol consumption. More strongly identified motivated adolescents are more likely to be in the group with low-risk lifetime alcohol use and are less likely to have BD experiences. Understanding motivational factors for participation in leisure activities is important in the field of leisure studies, as motivation has been found to influence participation (Belošević & Ferić, 2022; Caldwell et al., 2010; Kim et al., 2019). Adolescents who participate in leisure activities without being truly motivated or having an interest in participating are more likely to engage in risk behaviours, and therefore, participation in activities does not lead to positive developmental outcomes (Belošević & Ferić, 2022; Caldwell, 2017; Caldwell & Witt, 2018). The study results are consistent with previous findings showing that adolescents who participate in self-directed activities have better health-related outcomes, while externally driven activities and amotivated behaviours are associated with negative outcomes (Motamedi et al., 2020). They are also consistent with findings that healthy leisure participation is associated with intrinsic or identified motivation (Weybright et al., 2019).

Caldwell and Witt (2018) note that many researchers indicate that the environment in which leisure activities take place should provide adolescents with a sense of physical and psychological safety. The safety-related context includes health and well-being as well as physical safety from hazards and threats (Duran, 2017). Thus, the results of the study results are consistent with this reasoning. Regarding perceptions of context, the data suggest that adolescents who perceived the SLA context as safer were less likely to be in the high-risk group for monthly alcohol use.

Results related to the SLA experience suggest that adolescents who felt that their SLA participation contributed more to the development of teamwork and social skills were less likely to be in the group with high lifetime alcohol use. Adolescents who felt that their SLA participation contributed more to the development of initiative experiences were less likely to be in the high alcohol use per month group and less likely to be in the more frequent BD group. Participation in SLA helps adolescents develop initiative, acquire important life skills such as identity formation, and build social and teamwork skills (Hansen et al., 2003). This is consistent with the findings of this study.

The results also showed that adolescents who estimated that their SLA participation contributed more to the development of positive relationship experiences were more likely to be in the group with high lifetime and monthly alcohol use and more likely to have BD experiences. These findings are supported by the results of other studies that have shown that adolescents who are sociable and have more friends are at higher risk for alcohol use (Engels et al., 2006) and that increased peer importance and vulnerability to peer pressure during adolescence may be associated with risk behaviours.
(Inguglia et al., 2019; Laghi et al., 2018; McCoy et al., 2019). Similarly, adolescents who assess that their SLA participation contributed more to the development of adult networks and social capital experiences are more likely to be in the high-risk group for lifetime alcohol use. Adolescents who estimate that their SLA participation contributed more to the development of identity experiences are more likely to be in the high alcohol use per month group. These findings are partially inconsistent with previous research. The positive identity-related experiences that result from SLA participation are thought to be protective against risk behaviours (Badura, 2018). One could argue that SLA and guidance from adult leaders reduce the likelihood that adolescents will engage in risk behaviours.

Social connections and networks provide adolescents with new opportunities, experiences, and resources in the community. The resources that result from these social networks are referred to as social capital and are characterized by social support, social participation, reciprocity, and trust (Caldwell & Faulk, 2013; Nieminen et al., 2010). Unlu (2009) also examined the relationship between adolescent substance use and social capital (peer influence, family attachments, and youth activities) and found that peer influence was positively correlated with substance use, while family attachment and youth activities had a negative relationship with substance use.

Adolescents who assess that their SLA participation contributed more to the development of negative experiences are more likely to be in the high-risk group for lifetime alcohol use and more likely to participate in BD. Negative experiences (boredom, stress, and conflict) are associated with negative outcomes such as substance use and delinquency (Caldwell & Faulk, 2013; Caldwell & Smith, 2006). Findings across studies suggest that leisure boredom and substance use are linked (Wegner et al., 2006) and that healthy leisure behaviours are protective against substance use (Weybright et al., 2014, 2019).

Conclusion

The study findings suggest that motivational factors, perceptions of context, and the SLA experience should be central when considering leisure as a context for substance use prevention. More specifically, fostering identified motivation, creating a safe environment for participation, and developing experiences of teamwork and social skills, as well as experiences of initiative, could help prevent alcohol use among adolescents. There is a need to develop preventive interventions based on proven theories and rigorous study evidence within SLA. In this way, the important context of adolescent development can be used efficiently to promote their positive development.

Acknowledgments

The authors would like to thank school management for partnership in this study. The authors also thank the adolescents for their sincere participation and collaboration.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Matea Belošević is a Research and Teaching Assistant at the Department of Behavioural Disorders, Faculty of Education and Rehabilitation Sciences, University of Zagreb. She teaches at BA and MS level – Academic skills practicum; Development and implementation of prevention programmes; Prevention programmes in family and school environment; Strategic approaches to prevention interventions in the community. She is enrolled at the postgraduate doctoral study Prevention Science and Disability Study (Module: Prevention Science), Faculty of Education and Rehabilitation Sciences, University of Zagreb. Her research interests include positive development of children and adolescents, prevention of behavioural problems in children and adolescents, adolescent leisure time, and development,
implementation and evaluation of evidence-based prevention programmes. She is a member of International Society of Substance Use Professionals (ISSUP), European Society for Prevention Research (EUSPR), European Public Health Association (EUPHA), and Croatian Association of Social Pedagogues.

**Martina Ferić**, Ph.D., Full Professor at the Department of Behavioural Disorders, Faculty of Education and Rehabilitation Sciences, University of Zagreb. She received her PhD in 2006. From the Faculty of Education and Rehabilitation Sciences at the University of Zagreb in the field of social sciences. She teaches at BA, MS and PhD level and conducts research projects in the field of prevention science – currently positive youth development, quality standards in substance use prevention, youth leisure. Since 2015, she has been the Head of the Ph.D. study module Prevention Science at the Ph.D. Study Prevention Science and Disability Study, Faculty of Education and Rehabilitation Sciences, University of Zagreb. Since 2018, she is the Head of the Laboratory for Prevention Research (PrevLab), at the same Faculty. She is a member of International Society of Substance Use Professionals (ISSUP), European Society for Prevention Research (EUSPR), European Public Health Association (EUPHA), Croatian Association of Social Pedagogues and Croatian Association of Early Intervention in Childhood. In 2018, she, as a member of the PrevLab, received the ‘Sloboda Medal’ award from the European Society for Prevention Research (EUSPR) for continuous contribution to the development of prevention science in Europe and internationally.

**ORCID**

Matea Belošević [http://orcid.org/0000-0001-7283-6585](http://orcid.org/0000-0001-7283-6585)

Martina Ferić [http://orcid.org/0000-0002-4807-5701](http://orcid.org/0000-0002-4807-5701)

**Ethics statement**

Ethical approval for the study was obtained from the Ministry of Science and Education and Ethical Committee at the Faculty of Education and Rehabilitation Sciences, University of Zagreb.

Written informed consent for participation was not provided by the participants’ legal guardians/next of kin because: According to the Ethical Codex for Research with Children (Ajduković & Kolesarić, 2003), adolescents that are 14 years old can give their consent autonomously. Their consent was obtained online after the study objectives were explained to them and before the survey was taken.

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