

Family backgrounds and adolescents' drug use and abuse in France
Insights from the 2017 ESCAPAD Survey

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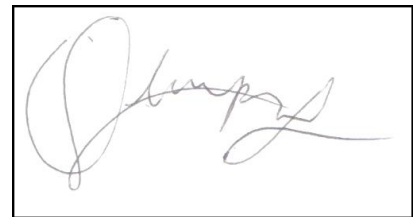
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A handwritten signature, possibly reading "J. Dupont", is enclosed within a thin black rectangular border.

Preface

Je tiens à remercier toutes les personnes qui ont contribué de près ou de loin à la réalisation de ce mémoire.

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Introduction

Despite improvements in drug use prevention in France since the early 2000s, uses of both legal and illegal substances remain at relatively high levels, especially among adolescents. In 2014, 7 in 10 adolescents had smoked a cigarette or any other tobacco product, 9 out of 10 had already tried alcohol. Drunkenness and cannabis use were also widely spread among 17-year-olds as 5 in 10 adolescents had already tried cannabis and 6 out of 10 reported having being drunk at least once (Spilka, Le Nézet, Ngantcha & Beck, 2015). Between 2000 and 2010, the rates of both introduction to psychoactive substances and regular tobacco, alcohol, cannabis and illicit drugs use decreased among 17-year-olds. However, this decline may have reversed in recent years. Results from the 2014 Health Barometer and the 2014 ESCAPAD survey provide evidence that use of tobacco, cannabis and illegal substance slightly rose between 2011 and 2014. Only the percentage of adolescents reporting a single episode of heavy drinking (that is consuming five alcoholic beverages on a single occasion during the month preceding the survey) decreased between 2011 and 2014, but it still concerned one in two teenagers (from 53 in 2011 to 49 per cent in 2014). In comparison, the proportion of adults aged 18-75 years who reported experiencing an episode of heavy drinking was only 17 per cent in the 2014 Health Barometer (Beck, Richard, Guignard, Spilka & Le Nézet, 2015; Observatoire Français des Drogues et des Toxicomanies [OFDT], 2017b). The adolescent's use and abuse of psychoactive substance therefore remain a serious public health concern. Since early consumption increases the risks of future addiction, it is particularly justified to focus on those who will eventually form the core of regular users : adolescents (Chen, Storr & Anthony, 2009).

Prevention of psychoactive substance use is central to the public health strategies as this abuse often causes social harm and health issues (OFDT, 2017a). Numerous studies of the factors involved in the adolescents' risky behaviours and in their substance use — be it occasional or regular — have been conducted in Europe, the UK and Northern America. Three main categories of factors are generally identified: (1) the physicochemical properties of the drug and its distribution, (2) individual factors (genetic characteristics, stress tolerance), and (3) socio-cultural factors that impact the individual's environment (Varescon, 2010).

This research focuses on the socio-cultural factors involved in the initiation and abuse of psychoactive substances such as tobacco, alcohol and cannabis. Despite the important evolution and diversification of family types observed in Europe since the 70's and the proven importance of family networks in the adolescent's identity, the association between family background and psychoactive drug has received little attention. Still, the diversification of family configurations observed in Europe is also apparent in France (Le Pape, Lhommeau & Raynaud, 2015; Sobotka & Toulemon, 2008). The proportion of traditional families decreased in mainland France, while blended and single-parent families have become widespread (Bodier, Buisson, Lapinte & Robert-Bobée, 2015). Our study aims to determine whether the family background is an essential determinant of adolescents' health behaviours in the French cultural context and whether its effect varies with the psychoactive substance studied, with the frequency of consumption, and with certain socio-cultural characteristics.

Family environment is a key determinant of health as it plays a moderating and protective role. Adolescence is a time of vulnerability and, during this period, a strong family cohesion can protect the subject from stress and risky behaviours by helping him or her to adapt and to understand painful experiences (Hawkins, Catalano & Miller, 1992; Varescon, 2010). However, the parental habits and perception of psy-

choactive substance use, the emotional bonds between family members or childhood adversities can become a source of stress and of low self-esteem. It can cause the adolescents behavioural disorder that may have an impact on their adult life (Béraud, Marcelli, Venisse & Reynaud, 2002; Du Roscoät, Léon & Godeau, 2016). Consequently, the repeated use or abuse of psychoactive substances may be a response to stress and trust issues or a "self-medication" against anxiety and traumatic experiences (Assailly, 2006; Favez, 2009; Jeammet, 2007).

The data used for this research come from the latest ESCAPAD survey¹ conducted in 2017 by the *Observatoire Français des Drogues et des Toxicomanies* (OFDT)². This national survey explores the numerous factors that can be involved in the consumption of psychoactive substances of adolescents in mainland France. The ESCAPAD survey collects a lot of valuable information from adolescents, including data about their family environment and their parenting relationship. It is the first time this information on family background will be explored as part of a separate analysis. The decision of using the ESCAPAD survey was also motivated by the quality of the sample and its recency.

The benefits of this survey are further discussed after an introduction to the parental modeling and moderating effects on adolescent substance use. After explaining the characteristics of the studied data and the employed methods, the results of the bivariate and multivariate analysis are discussed. The master's thesis concludes with a review of the main strengths and weaknesses of this research.

¹The Survey on Health and Use on National Defence and Citizenship Day

²The French Monitoring Centre for Drugs and Drug Addiction (OFDT) is a public interest grouping (GIP) founded in 1993 to help construct, improve and disseminate knowledge about drugs (licit and illicit) and drug addiction. The OFDT serves as the national node of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Research projects and surveys conducted by the OFDT — such as the ESCAPAD survey, the Health Barometer and the ESPAD project — aim to provide regular and comparable information on French health behaviours and to describe the dynamic evolution of drug abuse.

Chapter 1

Literature Review

"Psychoactive substances" refer to "substances that, when taken in or administered into one's system, affect mental processes, for example cognition or affect" (World Health Organization [WHO], 2018). Side effects of psychoactive substances cover a wide array of both physical or psychological health consequences. Recent research has shown a unique vulnerability to these effects during adolescence, especially for nicotine neurochemical and behavioural stimuli (Ribassin-Majed & Hill, 2015). Moreover, adolescence is a critical period of growth and development of the brain (Strawbridge et al., 2018). Short and long-term effects on health of psychoactive substances may vary according to the mode of use, the specific effects of the drug itself, and the weaning process. The short-term effects are, for example, heart palpitations, hallucinations, nausea, slow reflexes, movement difficulties and coordination problems. Different substances such as hallucinogens, inhalants or opiates can affect the user's mood and affect their thoughts or decision-making process and might eventually lead to death by external causes such as accidents, homicides or injuries (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2018). Concerning long-term effects, addiction and deep-rooted use can cause cancer, psychological dysfunction or cardiovascular disease (WHO, 2018). The way the substance is absorbed, especially drug injections, can favour the transmission of infectious diseases such as HIV or hepatitis. Withdrawal symptoms following the abrupt cessation of drug-taking are also to highlight as they can cause depression,

mood swing, suicidal behaviour and other psychotic symptoms (Hughes, Higgins & Bickel, 1994; Stewart & Brown, 1995). In addition, consumers of alcohol and illegal substances are more likely to be associated with acts of incivility, delinquency or even with violent crimes (Haggard-Grann, Hallqvist, Langström & Möller, 2006). Many surveys also highlighted that the users of psychoactive substances are characterized by difficult socio-economic conditions and social exclusion that may be worsened by their consumption (Galea & Vlahov, 2002; Janicijevic, Kocic, Radevic, Jovanovic & Radovanovic, 2017; OFDT, 2017a). Consequently, psychotropic substance use also has multiple consequences on economy due to the necessity of overcoming social and productivity losses and of developing public expenditure related to treatment and prevention projects. The social cost of drugs for public finances in France was estimated to about 250 thousand million euros for 2010 (Kopp, 2015).

Risk and Protective Factors Involved in Risky Behaviour and Psychoactive Substance Use

Given these health, social and economic issues, many studies from various disciplinary fields have discussed the main risk and protective factors involved in the use of psychoactive substances. The literature on the subject highlights various closely related factors, which may be summarized in three distinct levels: (1) factors related to the substance use itself, (2) individual factors and (3) socio-cultural factors that impact the individual's environment. This review aims to summarize the important risk and protective factors involved in risky behaviour and psychoactive substance use, with emphasis placed on family and social factors.

First, risk factors can be related to the substance use itself. For example, legal dispositions regarding the substance or its availability on the market and its toxicological profile will intervene in the frequency and intensity of use. Some drugs are in that sense more addictive than others. This is the case of nicotine, heroine and barbiturates (Nutt, King, Saulsbury & Blakemore, 2007).

At individual level, the specific needs of adolescents and their development changes should be emphasized (Michel, Purper-Ouakil & Mouren-Siméoni, 2002). Adolescence, in addition to physical change and rapid cognitive development, is characterized by a specific psychological development mainly focused on the tension between the adolescent's need to assert his autonomy and his need for support from the relatives in this period in which physical changes can trigger insecurity and loss of self-confidence (Assailly, 2006; Jeammet, 2007). The concern and the stress induced by this tension can favour risky behaviour among adolescents who rely on these substances for their pleasant effects and to suppress negative feelings (Assailly, 2006). Adolescence, however, should not be considered only as a problematic and upsetting period, as it is also filled with many positive challenges (Buelga & Musitu, 2006). Sensation-seeking and novelty-seeking are two personality traits intensified at the end of adolescence that lead to non-conformism and to transgressions of the rules (Cloninger, 1987; Michel, Le Heuzey, Purper-Ouakil & Mouren-Siméoni, 2001b; Zuckerman & Link, 1968). Many studies have linked the initiation and repeated use of risky behaviour to the need for experiences, new sensations and discovery (Charles, Mathias, Acheson & Dougherty, 2017; Roussel & Mottay, 2001). The consumption of tobacco, alcohol or, more rarely, illicit substances happens in the process of identity construction and life experimentation, being used to experience new sensations, to find new means of expression and to cope with stressful situations (Buelga & Musitu, 2006; Obradovic, 2017; Rhodes & Jason, 1990). Researches in genetics, psychology and psychiatry also highlight genetic dispositions, personality disorders, stress, anxiety and internal tension as individual factors involved in risky psychoactive substance use (Guerrini, Quadri & Thomson, 2014; Strawbridge et al., 2018; Verheul, 2001). In order to interpret and to overcome stressful situations, adolescents can rely on psychosocial resources that regulate stress or protect them from stress (Baer, Garnezy, McLaughlin, Pokorny & Wernick, 1987; Buelga & Musitu, 2006; Dorard, Bungener & Berthoz, 2013). These resources, called "coping strategies", were initially theorized by Lazarus & Folkman (1984, as cited in Institut National de la Santé Et de la

Recherche Médicale [INSERM], 2011). According to these authors, a state of stress is not a reaction determined by the events themselves, but by the individual.

While psychological characteristics of the subjects define the way they cope with stressful events, the environment of the adolescent may also hold protective or harmful resources (INSERM, 2011). Precarious social and financial situations, marginalization or immigration status are all socio-cultural factors that impact the individual's environment and can pile up with these identity construction mechanisms and help developing coping strategies. An adverse socio-cultural environment will favour the consumption of psychoactive substances and risky behaviour. Béraud et al. (2002) have highlighted unemployment, the socio-demographic characteristics of the place of residence, school dropout or marginalization as characteristics strongly correlated with the use of psychoactive substances. However, while an increase in consumption may be observed as conditions worsen, this relation is even more complex during adolescence (Béraud et al., 2002; INSERM, 2014a). The association between social environment and use of psychoactive substances evolves throughout adolescence depending on the intensity of consumption. Adolescents from privileged backgrounds will be more likely to report non-problematic experimentation or use of psychoactive substances. On the contrary, the transition to problematic drinking behaviour will mainly concern adolescents from modest or disadvantaged backgrounds (INSERM, 2014b; Legleye, Janssen, Beck, Chau & Khlat, 2011a; Legleye, Khlat, Beck & Peretti-Watel, 2011b). Differences of the effects of social environment and educational level on the transition from initiation to repeated consumption may also be explained by the greater availability of economic resources for adolescents from advantaged families to buy and try psychoactive substances. This group could also be more aware of the long-term health issues created by regular substance use. The theory stating that poor people care less about long-term planning could apply here (Hoggart, 1981). Adolescents from disadvantaged environments would find fewer barriers to a transition to daily use.

While these socio-demographic factors cannot be ignored and are considered in this research, it seems that, during adolescence, the main socio-cultural factors that intervene in these consumption behaviours are psychosocial and psychoemotional. In Europe, the United Kingdom and Northern America, large body of research has underlined the decisive contribution of family and peers on the adjustment of adolescents and the development of high-risk behaviours and health disorder. Family background is therefore considered as a determinant of health, a source of inequalities and eventually of marginalization. The impact of childhood adversities on self-perceived health, anxiety and depression has also been confirmed by many studies (Björkenstam, Pebley, Burström & Kosidou, 2017; Elstad, 2005; Mossakowski, 2015). In Sweden, a study by Weitoft, Hjern, Haglund & Rosén (2003) on children and adolescents (6-18) showed the negative impact of growing up in a single-parent family, with higher risk of developing mental diseases and destructive behaviours such as addictions, especially for boys. The children also had an increased mortality and were more likely to commit suicide. Surkan, Fielding-Miller & Melchior (2012) found higher risks of alcohol abuse among adolescents who indicated poor maternal or paternal relationships. By analysing the surveys "Santé 1991-92" and "Étude des conditions de vie 1986-1987" conducted at the national level by the Institut National de la Statistique et des Études Économiques (INSEE), Menahem demonstrated the importance of family climate during youth on health behaviours and hygiene in adulthood (Menahem, 1992; Institut de Recherche et Documentation en Économie de la Santé [IRDES] & Menahem, 1994a, 1994b, 1995). The experience, before the age of 18, of lasting emotional problems such as parental conflict, emotional deprivation or serious illness of a close relative was strongly related to the risk of ill health in adulthood even after controlling for the major socio-demographic characteristics. According to this research, lack of emotional support during childhood is the event most strongly related to invalidity and deterioration in health, followed by family conflicts and the disability, serious or protracted illness of one of the parents (IRDES & Menahem, 1994a). Adults who reported experiencing family disorders during childhood also consumed a greater number of cigarettes and glasses of alcoholic beverages per

day and reported higher numbers of pathologic diagnoses than those who did not experience emotional shock (IRDES & Menahem, 1994a; 1994b). For the IRDES & Menahem (1995), health inequalities observed according to family history can be explained by a lower perception of risk of individuals who have experienced lasting emotional problems. The number of reported diseases held constant, they noted that lasting emotional problems were associated with fewer medical consultations and dental appointment. The authors also noted that greater risk-taking was associated with a lower tendency to pre-emptively consult the healthcare services (IRDES & Menahem, 1995). These results reinforce the idea of a less far-sighted attitude of individuals who have experienced family troubles in their youth. The family environment, however, does not only affect health in adulthood, it also has long-term effects on education, work and family. Many studies found that lower academic achievement and, indirectly, labour market marginalization were associated with childhood adversities (Blanpain, 2008; Lund, Andersen, Winding, Biering & Labriola, 2013a, 2013b).

Family Structures and Dynamics

Can the absence of a biological parent be the key to interpret the observed excess risk of adolescents in non-traditional families or should we consider the experience of changing family configurations? The complex connection between family disruptions and how the family structure affects the health outcomes of children is usually considered from a static point of view. However, according to the "instability theory", the family type should not be considered without controlling for types, duration and number of previous transitions experienced by the adolescent (Thomson, Hanson & McLanahan, 1994). The instabilities due to "repeated movements of parents and their partners" inside the household could jeopardize the child's emotional development and socialization process by developing trust issues, stress and fears (Fomby & Cherlin, 2007, p.2). Two dimensions must therefore be distinguished when studying the health effects of the family environment: the family structure itself and the family instability. However, if the information gathered about parental situation in

the ESCAPAD survey will give us some insight about the family background and the events experienced by the adolescent, it is impossible in our research to guess when they happened and the stress they caused. Consequently, the concept of "interpersonal loss in childhood", defined by Klass et al. (2009) as a "severe disruption of the relationship with a significant other, as through divorce or death", cannot be measured here as the timing, duration and emotional impact of the event are unspecified in the survey (Klass et al., 2009, p.1).

Certain family structure can be associated with differences in parenting behaviours (Thomson & McLanahan, 2012; Ziol-Guest & Dunifon, 2014). In a one-parent household, one adult assumes various roles, such as the caregiver and the breadwinner. Consequently, the quality and effective attention given to the child could be constrained (Weitoft et al., 2003). The time and money allocated to the child are closely interconnected factors, because the only breadwinner position and the financial disadvantages of being in a one-parent household both affect the supervision of the child. Limited parental resources in terms of social and economic capital could therefore affect the child's emotional development and level of stress. A lack of supervision could also contribute to higher risks of injuries or accidents and, as parents have less time to invest in the education of their children, the rules of conduct may be more permissive and therefore encourage risky behaviour (Beck et al., 2016; Varescon, 2010). The link between socio-economic position and family composition is therefore interrelated. For example, Weitoft et al. (2003) highlighted the economic deprivation faced by lone parenthood, especially for mother-only families: in their study in Sweden, "more single parents than couples were unskilled manual workers, low-grade non-manual workers, and people without occupation, whereas couples were more likely than single parents to be high-grade or medium grade non-manual workers" (Weitoft et al., 2003, p.291). Thomson & McLanahan (2012) went further and concluded that the adverse effect of family structure on child well-being was more a result of differences in economic resources than a consequence of parenting itself. However, even though gender and socio-economic groups are the most sig-

nificant dimensions, Ostberg (2008) concluded that family structure is a factor that cannot be ignored. Blakely, Atkinson, Kiro, Blaiklock & D'Souza (2003) reached the same conclusion in New Zealand (1991-1994), especially regarding infant mortality.

The family structure and its cohesion can, however, be damaged by family disruptions or other life events. Tensions, family conflicts, intra-family violence, divorce, abandonment or the death of a close relative, can all be sources of stress, as they change the child's emotional, social and cultural references and can potentially deprive him of parental and economic support (Béraud et al., 2002; Ziol-Guest & Dunifon, 2014). For example, transitions out of a two-parent family could result in economic deprivation and upset the time and money given by both parents to the child (Assailly, 2006). A recent article by Leturcq & Panico (2016) stressed that parental separation impacts the child's day-to-day life. There is a risk of poverty from this separation, especially in the short term and for the most precarious groups which are less likely to get a partial monetary recovery after the divorce or separation (Leturcq & Panico, 2016). Changes and uncertainties can cause the adolescent to shy away from emotional connections, a mechanism of "defensive exclusion" mobilized to prevent further suffering, but it can jeopardize the family cohesion and support in response. The consumption of psychoactive substances or the development of other risky behaviours would then be perceived as a refuge, a way to leave aside new social and psychological challenges or as "self-medication" against anxiety (Assailly, 2006; Favez, 2009; Jeammet, 2007; Sarvet, Wall, Keyes, Olfson, Cerdá & Hasin, 2018). The absence of the father is specifically unfavourable to the social and emotional development of the child. Ziol-Guest & Dunifon (2014) conducted a longitudinal survey among American children up to 17 years of age in order to evaluate the association between adolescents' self-reported health and their family structure. They concluded that children living with their father alone had better health outcomes than those living with a single mother. However, the most surprising results were observed among adolescents living with a stepfather because they faced negative outcomes that were not observed in households where a stepmother was present

(Ziol-Guest & Dunifon, 2014). These results support the discernible effects of the presence or absence of the biological father on the child's health outcomes. However, other surveys have found that single-parent families with only the father faced worse health outcomes and risky behaviours (Hemovich & Crano, 2009). A detailed analysis reveals gender matches in the parent-child relationships: unsatisfactory maternal relationships would have more effects on the girls' health and risky behaviour, while unsatisfactory paternal relationships would result in more adverse effects for boys (Surkan et al., 2012). It would be interesting to investigate further the role of the single parent's gender but, since the gender of the absent or deceased parent was not asked to the adolescents in the ESCAPAD forms, it is not possible to include this characteristic in the analyses.

For the above, it is clear that the family environment should not be considered in social science and public health as a stable characteristic but as a complex determinant: the psychosocial issues that play a role in the adolescent's perception and responses to stress are mainly caused by family disruption. In this sense, many studies have shown better outcomes for adolescents living in stable single-parent families compared to those growing up in nuclear or blended families with high levels of unresolved family conflict (Härkönen, Bernardi & Boertien, 2017). Fomby, Mollborn & Sennott (2010) arrived at similar results: children with multiple transitions had worse development outcomes compared to stable families, whether they were stable two-parent families or stable single-parent families. However, other studies find that adolescents who live in non-traditional but stable families face worse outcomes than other stable family structures (Härkönen et al., 2017).

Parenting and Adolescent Well-Being

These findings mostly demonstrate differences in parenting, which are in return responsible for the observed inequalities in health and stress (Härkönen et al., 2017). Weak social cohesion may increase the vulnerability of adolescents to psychoactive substance use. On the contrary, a strong family unity can moderate and protect

the subject by helping him to adapt and to understand painful personal experiences (Hawkins et al., 1992; Varescon, 2010). Schwartz et al. (2009), studying a sample of 1,728 American collegians demonstrated the protective effect of good perceived parent-child relationships — especially with the biological father — on health-risk behaviours such as binge drinking, unsafe sexual behaviour or risky driving behaviour. A balanced level of cohesion will allow the adolescent to evolve in a family whose relationships are not suffocating or otherwise insufficient (Varescon, 2010). The family relational implications will therefore remain positive as long as they maintain an equilibrium adapted to the adolescent's oscillation between a need for autonomy and a need for support (Béraud et al., 2002; Jeammet, 2007). Consequently, a lenient parenting style would only exacerbate the anxiety of the adolescent left without models (Modak, Gex-Collet & Clémence, 2009). The transition in recent decades from a model of parental authority based on generational hierarchy to a more egalitarian model of authority makes it more difficult to find a balance. Regular exchanges and communications within the home will allow the development of mutual trust, the diffusion of prevention messages and help to remind the household rules. Thus, the regularity and the quality of these interactions allow heads of the household to maintain their supervisory position by enquiring about the companies and activities of the adolescent (Varescon, 2010).

Apart from family cohesion, the parental influence on psychoactive substance use and risky behaviours will also depend on their own consumption and perception of these substances, or their mental health (Beck et al., 2016). This is often referred to as the "social learning of danger" (Assailly, 2006; Ministère délégué à la famille & Joyeux, 2004). The vulnerability will be all the more important as exposure will be early and accessibility to these substances will be easy (Varescon, 2010). For instance, a study of 193 Californian adolescents showed that those who reported living with an adult who regularly uses cannabis were at greater risk of consuming the product themselves (Ewing et al., 2015). The impact of parental psychological distress, especially with regard to alcoholism, has also been demonstrated (Michel,

Purper-Ouakil & Mouren-Siméoni, 2001a). The contribution of the group of peers in the regulation of stress and in the initiation of psychoactive substance use should also be mentioned, especially since it increases with age (Michel et al., 2001b). Peer pressure can increase the adolescent's consumption, but the opposite is also true depending on the group's degree of acceptance of these substances (Béraud et al., 2002). Thus, the use of a substance may vary in purpose with the circumstances. Two key drivers of consumption are to present: the festive and self-therapeutic uses (Beck et al., 2016). Alcohol is the substance most often associated by adolescents to a festive setting and the motivations for its use are socialization, sharing and loss of control. According to the adolescents' motivation towards psychoactive substance use, the use of tobacco and more specifically of cannabis — while also part of a search for conviviality — are more strongly associated with self-medication, in order to relax, to sleep better or to overcome difficulties (Beck et al., 2016; Obradovic, 2017).

Effects of Family Environment, Gender, Ethnic Minorities and Deprived Contexts

It should be noted that the negative effect of the family environment does not affect adolescents in the same way. Recent surveys showed that girls experiment tobacco earlier than boys and that they cease to use it later in their life (Legleye et al., 2011b). For other psychoactive substances the vulnerability of male subjects is deemed greater although the literature on the subject does not clearly establish the magnitude of gender differences in the effect of family environment on consumption. The literature agrees that girls and boys do not respond to stress in the same way. Girls are more likely to repress their emotions which can lead to depressive symptoms and to higher prevalence of psychotropic medication, while boys' response to stress is more often expressed through risky behaviour (Beck et al., 2016). Female subjects have a lower stress tolerance and are more vulnerable to the accumulation of adverse effects of family disorders (Gerard & Buehler, 2004). However, the obser-

vation of a gender-matching could complicate the identification of a unique pattern and, since the loss of the father is by far the most commonly studied parent loss, the effects may be exaggerated. Differences between ethnicities were also found and have been extensively studied in the United States, where the study of ethnic and racial groups is common in public health. Results tend to converge and illustrate that the impact of family environment on the adolescent well-being is higher for Caucasians than Black Americans (Fomby & Cherlin, 2007; Fomby et al., 2010; Gerard & Buehler, 2004). Youssef et al. (2017), following 413 American adolescents aged 19, found that subjects who experienced childhood adversities were more likely to suffer from depressive symptoms. Lower levels of depression were observed among African Americans compared to European Americans in the case of moderate levels of adverse experiences. However, the differences between the two ethnicities disappeared when looking at extreme childhood adversities (Youssef et al., 2017). These ethnic differences could be explained by different exposure to stress and trauma. With minority ethnic groups being more frequently exposed to stressful situations, they could more easily cope with stress. As Black Americans in the United States are at a greater disadvantage in their socio-economic situation, they could be less responsive to stress and their deprivation would be less of a disadvantage in the case of parental separation (Gerard & Buehler, 2004; Härkönen et al., 2017). Similarly, adolescents in an unfavourable social situation would suffer less from family separation and a reduction in family income while children from affluent families would be more affected because they are in a part of the distribution of family income where a fall in income would have more consequences in the parental resources allocated to the child (Härkönen et al., 2017).

Summing up

To sum up, adolescents are subject to many physical and identity changes that are potentially stressful. Several factors act as regulators and provide protection against the stress induced by these situations. At the individual level, adolescents, through their own personalities and psychosocial resources, will develop their own percep-

tions and responses to events and doubts they face. If they consider these situations as problematic, they will decide on the adequate answer and develop "coping strategies" (Buelga & Musitu, 2006). Socio-cultural factors will impact their reaction to stressful events and will play a role in the understanding of the perceived danger. Among these are social and family supports that provide well-being and comfort (Buelga & Musitu, 2006; Dorard et al., 2013; Fomby & Cherlin, 2007; Hemovich & Crano, 2009; Remes, Martikainen & Valkonen, 2011; Du Roscoät et al., 2016; Surkan et al., 2012). However, if the family environment assumes a role of moderator, it also has a negative impact on the adolescent's experience (Varescon, 2010). The family network's consumption habit, its level of cohesion or experience of stressful events can also become a source of stress and of low self-esteem, and lead the individual to deviant behaviours or emotional and behavioural disorders that may have long-term repercussions (Béraud et al., 2002). More importantly, while family disorders may be responsible for these risky behaviours, substance use itself can cause stress, loss of communication and can deteriorate family relationships.

The objective of this research will be to explore the main determinants of initiation, repeated use and polyuse of psychoactive substances (tobacco, alcohol and cannabis products) among the French aged 17, with a specific focus on the family background. Our study aims to evaluate whether, in France, the family background can also be considered as an important determinant of adolescent health behaviours and whether its effect varies with the psychoactive substance studied and with the frequency of consumption. Although the presence of questions pertaining to parental situation in the ESCAPAD survey is not entirely new, this information has never been used in a specific analysis. This survey also contains a wealth of information concerning the frequency and intensity of use of many psychoactive substances which will allow an exclusive analysis of the impact of family environment and a comparison between each studied substance. This study will also focus on the varying effects of the family structure according to several socio-demographic characteristics. Studying the difference in the effects of family structure on the consumption of psychoactive substances

is particularly relevant given the variation of the stress resistance according to the adolescent's gender. In addition, the effect of ethnicity on the adolescent's health has been little studied in France. Thanks to the last revision of the ESCAPAD forms which now include a question about the language spoken at home, this study can shed new light on this topic.

Based on our literature review, the following hypotheses will be tested in this study:

- H1) adolescents in non-traditional family structures, especially adolescents from lone-parent families or who have at least one unknown parent, should be more subject to the initiation and repeated consumption of alcohol, tobacco and cannabis products;
- H2) the effects of family environment on adolescents' drug use are expected to be greater in the case of regular and multiple consumption;
- H3) they should also be larger in the case of the psychoactive substances mostly associated with self-medication (tobacco and especially cannabis);
- H4) gender, ethnic minorities and precarious socio-economic conditions should moderate the effects of family environment on psychoactive substance use.

Chapter 2

Data and Method

The survey "*Enquête sur la Santé et les Consommations lors de l'Appel de Préparation À la Défense*" (ESCAPAD) is a national survey administered since 2000 by the *Observatoire Français des Drogues et des Toxicomanies* (OFDT). Its primary purpose is to provide a better understanding of the latest trends and individual factors associated with young people's psychoactive substance use (OFDT, 2014). Renewed every three years, the ESCAPAD survey is conducted over a two-week period during the *Journée défense et citoyenneté* (JDC)¹, an annual one-day session held by the French Ministry of Defence that aims to raise citizens' awareness not only on their rights and responsibilities and the concept of national identity but also on military, security and defence issues (Jeantheau, 2016). On that day, surveys such as the ESCAPAD project and French reading and writing tests are organized. At the age of 16, all French nationals, boys and girls, living in mainland France or in overseas departments, must register in order to take the national census. Then, they receive a notification from the National and Regional Service Office inviting them to a JDC session. At the end of the day, participants obtain an official certificate without which they cannot take the baccalaureate examination test, or apply for a driving test or enter a public university. Consequently, attendance to the programme is virtually mandatory and the mean age of respondents who take part in the survey is about 17 (17.4 on average in the final sample after weighting).

¹National Defence and Citizenship Day

The ESCAPAD survey was conducted between the 13th and 25th March of 2017. Only Corsica, Mayotte, Guyana and New Caledonia were not included in the sample. JDC centres organized over a thousand sessions and a total of 43,892 respondents and 42,751 questionnaires were filled in (Spilka et al., 2018). For further information about the survey, the participants could turn to OFDT investigators, who administered the questionnaires. For the first time since the creation of the ESCAPAD survey, adolescents were invited, before reading the questionnaire, to watch a short introductory video putting an emphasis on the confidentiality of the answers and the importance of an honest, complete participation to the study. The average duration of the self-administered questionnaire was estimated to twenty minutes. After reading a note reminding them of the aims and conditions of the survey, the respondents were first invited to state their personal situation (living conditions, education, family environment, employment status of their parents, etc.). The second part was dedicated to suicidal thought, use of substances and the respondent's health. It also included a complementary module enquiring into the different ways adolescents used to obtain those substances. This edition of the ESCAPAD survey was the first to integrate a question about the language used by the respondents to communicate with their family and the rest of their relatives. Finally, the questionnaire ended with an invitation to give some feedback. Despite the survey's accent on confidentiality, the adolescents' remarks show they still harbour a general mistrust of authority concerning the possible release of their answers to schools and parents. However the respondents seem to feel satisfied by their involvement in the study: 85.0 per cent of participants gave feedback, of which only 3.8 per cent indicated dissatisfaction regarding the substance and the form of the questionnaire.

The compulsory aspect of the JDC session and its low nonresponse rate (2.6 per cent) provide assurance on the exhaustiveness of the data collected during the survey. The extensive coverage and age homogeneity of the sample were both decisive factors in the selection of the ESCAPAD survey for the current research because

the "Baromètres santé"² do not provide such complete and reliable statistics on a small age-group level for the current research. Precise indicators and methodological guidelines provided by the OFDT were also a determining factor in choosing the current research as it facilitates the construction of new variables and comparisons with precedent surveys.

Dependent Variables

A total of nine variables of interest are used in order to understand the intensity and frequency of tobacco, alcohol and cannabis consumption.

The indicators connected to the experimentation of the studied substance, whose definition is the one used by the OFDT for its ESCAPAD survey, were first observed (OFDT, 2017a). Follow-up questions on the experimentation of a substance are included as soon as the individual states to have used it at least once in his life. It is important to notice that the experimentation of any tobacco-based product is enough to classify the respondent in the group of experimenters of this substance. First of all, four variables can be summarized, each studying:

- Tobacco experimentation, defined as having tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos)³;
- Alcohol experimentation, defined as having ever drunk alcoholic beverages (beer, wine, liquor, mixed alcoholic drinks)⁴;
- Drunkenness experimentation, defined as ever have been intoxicated with alcohol⁵;

²The Health Barometers

³"Have you *EVER* ..." ("Avez-vous déjà...") "*Smoked packed cigarettes* ?" ("Fumé des cigarettes en paquet ?"); "*Smoked hand-rolled cigarettes* ?" ("Fumé des cigarettes roulées ?"); "*Smoked cigars or cigarillos* ?" ("Fumé des cigares ou des cigarillos ?"); "*Smoked hookah tobacco (shisha, water pipe...)* ?" ("Fumé du tabac avec un narguilé (chicha, pipe à eau...) ?"); "*Used an electronic cigarette (vaped)* ?" ("Utilisé une cigarette électronique (vapoter) ?").

⁴"Have you *EVER* drunk alcoholic beverages (such as beer, wine, liquor, or mixed alcoholic drinks) ?" ("Avez-vous déjà bu une boisson alcoolisée (bière, cidre, vin, apéritif, alcool fort...) ?")

⁵"Have you *EVER* been drunk ?" ("Avez-vous déjà été ivre (saoul, "bourré") en buvant des boissons alcoolisées ?")

- Cannabis experimentation, defined as having tried cannabis products⁶.

A second group of dependent variables, reflecting a behaviour of regular consumption of the studied substance, was also considered. A regular consumption is defined by the OFDT as "as soon as use exceeds ten instances over the last thirty days before the survey" (Spilka et al., 2018, p.8). Thus, indicating having drunk ten times or more an alcoholic beverage the last thirty days will include the respondent in the group of regular alcohol consumers. However the case of daily smoking does not fit this definition since it is enough to consume one cigarette a day to be included in this group of regular users and only hand-rolled cigarettes and packages were studied in that case. Repeated occasional alcohol intoxication, defined as "experiencing three risky single-occasion drinking during the month before the survey", was also taken into account (Spilka et al., 2018, p.8).

There are four variables concerning the repeated consumption:

- Daily smoking, defined as smoking at least one cigarette (packed or hand-rolled) per a day⁷;
- Regular alcohol use, defined as drinking at least 10 drinks per month (beer, wine, liquor, mixed alcoholic drinks)⁸;
- Repeated alcohol intoxication, defined as experiencing at least 3 risky single-occasion drinking (drunken episodes) per month. The risky single-occasion drinking is defined as consuming 5 or more drinks on one single occasion.⁹;
- Regular cannabis use, defined as smoking cannabis at least 10 times per month¹⁰.

⁶ *"Have you EVER smoked cannabis ?"* ("Avez-vous déjà fumé du cannabis (haschich, bedo, joint, berge, shit) ?").

⁷ *"During the PAST 30 DAYS, how many cigarettes (packed or hand-rolled) did you smoke ?"* ("Au cours des 30 DERNIERS JOURS, avez-vous fumé des cigarettes (en paquet ou roulées) ?")

⁸ *"During the PAST 30 DAYS, did you drink any kind of drink containing alcohol (such as beer, wine, liquor, or mixed alcoholic drinks) ?"* ("Au cours des 30 DERNIERS JOURS, combien de fois avez-vous bu une boisson alcoolisée (bière, cidre, vin, apéritif, alcool fort...) ?")

⁹ *"During the PAST 30 DAYS, how many times did you have 5 or more drinks in one sitting ?"* ("Au cours des 30 DERNIERS JOURS, combien de fois avez-vous bu 5 verres ou plus de boissons alcoolisées en une seule occasion ?").

¹⁰ *"During the PAST 30 DAYS, did you smoke cannabis ?"* ("Au cours des 30 DERNIERS JOURS, avez-vous fumé du cannabis (haschich, bedo, joint, herbe, shift) ?").

Finally, a variable about multiple psychoactive substance use was constructed and defined as "consuming on a regular basis some combination of alcohol, tobacco and cannabis" (Spilka et al., 2015, p.6).

For this study, all the aforementioned variables are converted into binary values (1 indicating the realization of the experimentation, 0 meaning the opposite) to allow the application of logistic regressions. During the descriptive analysis, the non-answers were taken into account but were removed during the multivariate analysis to avoid more than two categories and therefore non-binary values. The variable relative to regular cannabis use is the one with the highest number of non-answers (892 individuals or 2.3 per cent of the sample). Based on the reference points of the frequency scale proposed for each question, the OFDT also uses other indicators in their comprehension of consumption, such as the use during the year and the month (OFDT, 2017a).

Only the information relevant to the experimentation and repeated use was kept in the following analyses. The experimentation and the daily use are two indicators allowing us to differentiate two types of behaviour, going from the simple curiosity and distribution of the product to actual addiction. Data concerning the age of first use is available for tobacco, alcohol, drunken episode and cannabis. The age of first daily consumption of tobacco is also available. This information about age and other indicators of frequency and intensity of consumption used by the OFDT was studied in the bivariate analyses in order to describe the consumption behaviour of respondents and understand their evolutions with time.

Independent Variables

Parental Situation

Two questions allowed the study of parental situation. One asked which family members lived with the respondent, and three categories of family type were derived from

the answers: nuclear family, defined by the OFDT as a "family composed of an adult couple, married or otherwise, plus one or more of their own biological (or adopted) children, living together"; recomposed family, with two parents where at least one is not a blood relative; and single-parent family with a single biological parent (Spilka et al., 2015, p.7). This last modality also includes other types of parental situations, such as adolescents living in children's home. A second question asked the respondents to mark in a list a series of situations which described their parental situation best¹¹. Details and clarifications in the questionnaire concerning specific contexts helped direct respondents to the most appropriate modality. Unfortunately it was not possible to create a variable aggregating the family events of the adolescents, since the modalities of this question were exclusive and the respondent was only allowed one answer.

The combinations obtained by crossing family types with parental situations lived by the child give some insight about the actual situation of the respondent. There are some noticeably peculiar cases like adolescents claiming that their parents are deceased but also state that they currently live with them, or checking the nuclear family despite reporting that their parents are divorced or separated. These specific cases may suggest a confusion between biological and stepparents as no distinction was made in the questionnaire. For example, an adolescent whose father has died prematurely might refer to their stepfather as their father. Additionally, it is difficult when studying the effects of family situation to isolate the effects of structures and dynamics.

Based on the existing data, the following parental situations are distinguished for this research:

- Parents living together: Respondents who specified that their parents are living to-

¹¹ *About your parents ... ? They are living together; They are separated or divorced; You never met them; Both or one of them are/is dead; Other parental situation (please specify).* (À propos de vos parents ... ? Ils vivent ensemble; Ils sont séparés ou divorcés; Vous ne les avez jamais connus; Ils sont décédés ou l'un d'eux est décédé; Autre situation (précisez).)

gether. However, it does not imply that they are living with both parents. For instance, if the adolescent answered "living with a parent and their partner" but still mentioned that both parents live together, this last perception of the parental situation will be retained.

- Blended family: Adolescents who live with one biological parent and their partner, with additional data specifying whether there was a proper divorce or a separation between the two original parents.
- Joint custody: Respondents who live with both parents, but whose parents are separated or divorced. Supposedly includes those who live in alternative custody, but who could not pick a main home.
- One-parent family following divorce/separation: Adolescents whose parents are separated or divorced and who also mentioned living with only their father or mother. However, it is uncertain whether single parenthood results from divorce, estrangement or another cause.
- One-parent family following death: Adolescents who specified living with only one biological parent and who also lost one parent. Again, it is not possible to conclude with certainty that lone parenthood was caused by the death of one of the parents. However, it provides more information on the adolescent's family background.
- Unknown parent(s)/adopted: Respondents mentioned not knowing one or both of their parents or being adopted, whatever the family type.
- Other parental situation: Individuals with special background that does not fit previous categories or who gave unclear information impeding their classification based on family history. For example, adolescents with father recognition problems, who live in foster care or indicated a complex situation without details.
- No answer: Respondents who did not specify their family situation.

The association between parental situation and psychoactive substances consumption being at the heart of this study, a series of control variables were used to isolate the effects. They are detailed below.

Language Spoken at Home

The addition of questions about the languages spoken at home in large-scale surveys is quite recent in France. In the 20th century, the first major surveys which did so were the "Efforts d'éducation des familles" surveys by the *Institut National de la Statistique et des Études Économiques* (INSEE) in 1992 and 1999. By asking the parents about the languages they teach their children, this new question aims to study the cultural diversity and national integration of these families. François Clanché (2005) qualifies immigration as "a vector for the transmission of foreign languages" (Clanché, 2005, p.516). Speaking another language than French at home is an appropriate indicator of migration status, the majority of foreign-born parents who responded the 1999 survey having indicated that they speak at least occasionally one foreign language with their children raised in France (Clanché, 2005). However the intensity of this transmission varies depending on the linguistic group — the Arabic and Berber being the most prominent ones — and the age of the migratory movement (Filion, 2005). The language transmitted at home is also used as an indicator of national integration, the assimilation of the language of the host country being a relevant indicator of the migrants' integration rate. Speaking a foreign language may also take the form of symbolic and functional roles to keep the cultural link and contact with members of the country of origin (Condon & Régnard, 2016). The variable relative to the language in this research project therefore allows to study the original social background and to some extent the migratory status as well as the level of integration of the respondent's family, mainly for the first and second-generation migrants.

For the first time since the creation of the ESCAPAD program, a question exploring the language spoken with family and relatives was added to the survey form in 2017¹². If the respondents mentioned that they spoke fluently any language other than French with their family or relatives, they were invited to specify which one.

¹²*Do you speak a different language than French with your family/parents ? If yes, please specify.* ("Parlez-vous couramment une autre langue que le français avec votre famille/vos parents ? Si oui, laquelle.")

This open-ended question, while allowing more precision, took quite a long time to process as the variety of languages, dialects and spelling forms was considerable. For this study, specific programs helping to harmonize sequences of characters, whitespaces and other specific characters were then used to reduce the number of expressions to condense. Remaining open answers were then coded manually in the appropriate linguistic group.

As a first step, each language group was dichotomized to constitute specific variables and to distinguish adolescents who do (1) from those who do not (0) speak the language in question. For example, adolescents who mentioned that they speak both Mandarin and Portuguese were attributed a value of 1 both in the "Other foreign language" and "South European language" variables. However, because of the low number of respondents speaking more than one additional language and in order to reduce the number of control variables, a single variable with mutually exclusive modalities was eventually favoured. All non-answers (0.6 per cent) were tagged as speaking only French. In the situations with multiple linguistic groups, it was decided — based on geographic and statistic criteria — that the least used language with the furthest origin would be chosen. In the example mentioned above, it would therefore be the Mandarin and the "Other foreign language" linguistic group that would be associated with the respondent. The exclusivity of modalities may sound reductive but only 674 observations (1.7 per cent of the sample) had more than two languages in addition to French, and they were mainly languages classified as "Other European languages". If the main logistic regression models retained in the analysis integrated this unique variable, other models were built using all the specifics dichotomized variables in order to ensure there is no loss of information. It turns out the results of both models are almost identical (table 4.8 in the appendix).

The aggregation of all the mentioned languages is not an easy task as the linguistic families can be classified in different typologies depending on which reference criteria (statistical or legal criteria, geographical areas) are considered (Calvet, 2016). The

chosen typology is based on categorizations done during the analysis of the results obtained with the "Famille" survey in 1999 (Lefèvre & Filhon, 2005). The following linguistic categories were used:

- Speak only French: this modality covers children who speak only French. It also includes regional languages like Corsican, Alsatian, Breton, Flemish... and no answers (Clanché, 2005).
- Overseas languages: Creole of Martinique or Guadeloupe, Réunionese Creole, etc.
- South European languages: Italian, Spanish, Portuguese, etc.
- Other European languages: German, English, Polish, etc.
- North African languages: Arabic, Berber, Kabyle language, etc.
- Sub-Saharan African languages: Lingala, Swahili, Wolof, etc.
- Other foreign languages: Tamil, Vietnamese, Mandarin, etc.

Parental Activity Status

Respondents were asked about their parental activity status through the following question: "Which of the following statements about occupational status apply to each of your parents?"¹³. In the case of absent or deceased parents, they were asked to provide information regarding the adults who live with them. The adolescents could choose between a variety of status: working, unemployed, seeking work, at home or without professional activity, incapacity, retired, unconcerned¹⁴. The adolescents whose father and mother are both working were classified in the modality "both parents work". If only one parent is active, the category will be "one parent works" and in the case where both parents fit the modalities "no activity", "seeking work", "no professional activity", "incapacity" or "retired", then the adolescent was tagged

¹³Quelle est la situation actuelle de vos parents ?

¹⁴travaille; chômeur, recherche un emploi; au foyer ou sans activité professionnelle; en invalidité ou en longue maladie; retraité; non-concerné (parent(s) décédé(s), inconnu(s), perdu(s) de vue, etc.)

as "neither of the parents works". Undecided respondents were given a separate category (4421 cases or 11.3 per cent).

Parental Socio-economic Status

Adolescents were also asked to provide information about the present job or (if no longer working or dead) the last position of each of their parents¹⁵. Multiple choices among several socio-economic categories based on the "Profession et Catégorie Sociale indicateur" (PCS) were proposed: small employer and self-employed occupations (agriculture, etc.); independent with up to 9 employees (except agriculture, etc.); independent with 10 or more employees; executive, professor, researcher, engineer or liberal profession; intermediate occupations; employee; worker; not presently working; and unconcerned (parents that are deceased, unknown, etc.)¹⁶. "Upper socio-economic class" refers to children who indicated that both their parents are executives, CEO, craftsmen or merchants. Children who have at least one parent working as an executive, a CEO, a craftsman, a merchant or an intermediate profession can be found in the "intermediate socio-economic class". The lower socio-economic group gathers the most underprivileged class with children with parents that are both unemployed, employees or workers and who do not fit other categories. Finally, children who did not answer were assigned a separate category. At the end, there were 5894 cases of non-answers which is a substantial number (15.1 per cent of the studied sample) that we can partially explain by the children's lack of knowledge or the difficulty for them to classify the parental occupation in one of the pre-made categories (Legleye, Beck, Spilka & Le Nézet, 2007).

Educational Status

In recent editions, the OFDT reports presenting the results of the ESCAPAD survey have paid special attention to the educational status of the respondents. Indeed it

¹⁵Quelle est la profession actuelle de vos parents ?

¹⁶agriculteur exploitant; artisan, commerçant, chef d'entreprise de moins de dix salariés; chef d'entreprise de dix salariés ou plus; cadre, professeur, chercheur, ingénieur, profession libérale; profession intermédiaire, technicien (instituteur, infirmier, etc.); employé; ouvrier; sans profession; et non-concerné en cas de parents inconnus par exemple

seems like an important discriminant factor for high-risk consumption. The young adolescents in apprenticeship or out of the educational system seem to be particularly at risk (Spilka et al., 2018). To give due consideration to those with NEET status (Not in Employment, Education or Training) — status which is known to be a relevant measure of social exclusion — a separation was made between the following educational situations: adolescents in education; in training; adolescents that are not in employment, seeking employment or in integration workshops; and adolescents in employment (Organisation for Economic Co-operation and Development [OECD], 2018). Two questions in the ESCAPAD survey allowed to explore details of the educational situation by first asking the respondents whether they are currently in studentship and then specifying their activity¹⁷. People who did not answer the questions have been assigned to a separate "no answer" modality.

Self-perceived health

The self-perceived health status is one of the most commonly used indicators in the evaluation of health. It was evaluated using the following question, which introduces comparison with referents in the group of age of the respondents: "Compared to other people your age, would you say that your health is...?" The possible answers ranged from "very good", "good", "fair", to "poor"¹⁸. About 287 nonresponses (0.7 per cent) were counted for this information.

Depressive Symptoms

The Adolescent Depression Rating Scale (ADRS) was used to evaluate depression among adolescents. It is a scale widely used by experts in public health that allows the evaluation of psychiatric disorders in populations of adolescents (Revah-levy, Birmaher, Gasquet & Falissard, 2007). For each situation listed, the adolescents were invited to indicate whether the information could be applied to their personal

¹⁷ *What is your current school situation ?* Quelle est votre situation scolaire actuelle ?

¹⁸ Par rapport aux personnes de votre âge, diriez-vous que votre état de santé est...? Les réponses possibles étant: pas du tout satisfaisant, peu satisfaisant, plutôt satisfaisant, ou très satisfaisant.

life or not¹⁹. By observing the number of positive answers and the corresponding score, the respondents were separated in three groups based on categories defined by the ADRS: no psychological problems (0-3), intermediate group or psychologically distressed (4-6), and depressive state (7-10). Children who did not answer any sub-question were assigned to the "no depressive symptoms" category (the modal class). For the final analyses, the variable was dichotomized, distinguishing those with no psychological problems from those with psychological distress or depressive state.

Method

All data analyses for this research project were conducted using the R statistical software. To test the association between parental situation and specific substance use outcomes, but also between gender and psychoactive substance uses, chi-square tests were first produced. Other bivariate analyses such as t-tests and ANOVA tests were also performed to examine whether the difference between two or more groups means was significant or not. Normality and heteroscedasticity tests were produced. As the observed value in each cell was sometimes lower than 5 due to non-answers, missing values were not taken into account in these bivariate analyses. These analyses served to explore possible factors associated with experimentation or repeated consumption of psychoactive substances.

As a second step, logistic regression was used to adjust for control variables and to test our hypotheses. The use of the logit model was motivated by its ability to estimate the association between the probability of the occurrence or non-occurrence of the studied event and the selected explanatory variables. In the present study, the outcome variables concerned the intensity and frequency of tobacco, alcohol and cannabis consumption, and were coded as binary.

¹⁹ *"Here are sentences collected among adolescents. Regarding your present situation, specify for each item if the information is "True" or "False". ("Voici des phrases recueillies auprès d'adolescents, lisez chacune d'entre elles et cochez "vrai" si elle correspond à ce que vous vivez, ou "faux" si elle ne correspond pas")*

The main benefit of the logistic regression is its ability to isolate the effects of different factors and therefore to assess the association between the explanatory and dependent variables. The odds ratios estimated by the logit method measure the strength and direction of the association between two variables. A coefficient equal to 1 means both variables are independent while a greater or smaller odds ratio indicates a dependency whose intensity grow/decrease with the distance to 1. In order to facilitate the comparisons, reference modality are identical for each model. They are easy to recognize as they have an odds ratio of exactly 1. The p-value measures the significance of the results. The threshold chosen here is 0.05, which indicates the risk of being mistaken by concluding to an association is 5.0 per cent. Significance levels are indicated with asterisks (*) in the tables presenting the regression outputs²⁰. Although logistic models are appropriate to describe the relationship between a binary dependent variable and multiple independent variables, it gives no information about causality.

Analyses were stratified by gender as the first bivariate analysis highlighted different patterns of psychoactive substance uses according to gender. Stepwise regressions were produced to provide valuable information on relevant predictor variables. Single indicator models, highlighting the effects of each control variable in a separate model, and adjusted models for all the independent variables, were obtained with the help of the Generalized Linear Models (GLMs) package and are both shown in summary tables.

Lastly, interaction terms were added in regression models. Classical regression models assume that control variables are independent which is not always the case. For instance, the effect of socio-economic status on psychoactive substance use could not be the same for both genders. Taking the possible interactions effects into account for logistic regression models is necessary. A study of the different possible interactions was done in an iterative way through the `glmulti` R function. This function

²⁰*p<0.05; **p<0.01; ***p<0.001.

helps select the most fitting model by testing whether the introduction or omission of a variable or argument introduce significant variations in the variance estimates. Finally, analyses of variance (ANOVA) were used to estimate the positive impact on the model when some specific interaction is added to it by computing analyses of variance.

Chapter 3

Bivariate Analysis

3.1 Sample Characteristics

Demographic characteristics of the survey sample are shown in table 3.1.

Summary percentages — reported for each gender — are weighted while counts of observations are not. A total of 39,049 responses were kept for the final analyses after removing incomplete and inconsistent forms: 66 survey forms with missing information about the gender of the respondent were excluded from the analyses.

The majority of respondents (63.0 per cent) report that their parents are living together. The one-parent family formed through divorce or separation represents the second most represented group, ranging from 17.2 per cent for boys to 18.1 per cent for girls. These results are in line with the last estimates of the distribution of family structures in France produced by the *Institut National de la Statistique et des Études Économiques* (INSEE). In 2015, the institute observed that lone-parent families represented about 20.3 per cent, while traditional nuclear families were still the most prevalent structure (70.4 per cent). Blended families took the last position with a proportion of 9.3 per cent (Bodier et al., 2015). Concerning the dominant language spoken with family and relatives, a majority of adolescents report speaking only French (82.4 per cent). The most represented additional heritage languages are "other European languages", especially German and English. Both people speaking

a "South European language" or a "North African language" compose 4.3 per cent of the observed population, followed by "other foreign languages" (2.1 per cent), "overseas languages" (1.1 per cent) and "Sub-Saharan African languages" (0.9 per cent). About 65.3 per cent of the respondents report that both of their parents were currently working at the time of the survey, while 20.1 per cent have only one parent carrying out a professional activity. A minority of respondents (3.3 per cent) report no parental professional activity at all. A high nonresponse rate exceeding 20.0 per cent is to be highlighted. The intermediate socio-economic class is the largest socio-economic group, constituting over 40.0 per cent of the survey sample. The lowest socio-economic class comes second with 31.7 per cent, followed by the wealthiest class (10.1 per cent). A distinct lack of response is also observed regarding the parental socio-economic status. A majority of the respondents, especially girls, was still attending part-time or full-time education at the time of the survey (88.7 per cent). Apprenticeship contracts and educational activities of very short duration come next with 6.9 per cent. Here boys are also overrepresented: only 3.9 per cent of girls are in training against 9.9 for boys. The NEET status concern on average 3.1 per cent of the surveyed sample, and only a minority of adolescents, mostly males, are already in employment. Finally, observing the self-perceived health and depressive status of the sample, the majority of respondents report good or very good states of physical and mental health. Girls tend to be more pessimistic about their health. They also report higher rates of depressive symptoms: 6.0 per cent against 2.6 per cent for boys.

The analysis of our sample also reveals characteristics that are specific to nonrespondents. Crosstabulations confirm that their socio-economic situation is often precarious. Adolescents from non-traditional families, and particularly from single-parent families, are less likely to provide information on economic, educational or social topics. More generally, adolescents who omitted some questions are more likely to belong to disadvantaged social strata and to experience complex family trajectories. Keeping nonresponses in the analyses helps to highlight their specific situation.

Table 3.1 – Descriptive characteristics of the sample ($N = 39049$)

	Boys		Girls		Total	
	N/Mean	%	N/Mean	%	N/Mean	%
	19572	50.1%	19477	49.9%	39049	100%
Age	17.42		17.41		17.41	
Parental situation						
Parents are living together	12428	63.5	12163	62.4	24591	63.0
Parents are not living together						
- Blended family	1776	9.0	1904	9.7	3680	9.4
- Joint custody	1177	6.0	1058	5.5	2235	5.7
- One-parent family following divorce/separation	3351	17.2	3496	18.1	6847	17.6
- One-parent family following death of one or both parents	518	2.6	520	2.7	1038	2.6
- Unknown parent(s), adopted	98	0.5	116	0.6	214	0.5
- Other parental situation	55	0.3	92	0.5	147	0.4
No answer	169	0.9	128	0.7	297	0.8
Language spoken with family/relatives						
Speak only French	16321	83.0	16002	81.7	32323	82.4
Speak an additional heritage language						
- Overseas language	195	1.0	216	1.1	411	1.1
- South European language	754	3.9	891	4.6	1645	4.3
- Other European language	1020	5.3	870	4.6	1890	4.9
- North African language	726	3.8	904	4.8	1630	4.3
- Sub-Saharan African language	154	0.9	181	1.0	335	0.9
- Other foreign language	402	2.1	413	2.2	815	2.1
No answer	0	0.0	0	0.0	0	0.0
Parental activity status						
Both parents work	12919	66.1	12532	64.4	25451	65.3
One parent works	3774	19.3	4103	21.0	7877	20.1
Neither works	634	3.2	666	3.4	1300	3.3
No answer	2245	11.4	2176	11.2	4421	11.3
Parental socio-economic status						
Upper socio-economic class	1918	10.1	1888	10.1	3806	10.1
Intermediate socio-economic class	8334	42.5	8495	43.6	16829	43.0
Lower socio-economic class	6257	31.8	6263	31.7	12520	31.7
No answer	3063	15.7	2831	14.6	5894	15.1
Educational situation						
In education	16541	84.8	18039	92.8	34580	88.7
In training	1972	9.9	777	3.9	2749	6.9
No activity, seeking employment or in integration workshops	753	3.8	471	2.3	1224	3.1
In employment	193	1.0	93	0.5	286	0.7
No answer	113	0.6	97	0.5	210	0.5
Self-perceived health status						
Poor	129	0.6	157	0.8	286	0.7
Fair	951	4.8	1381	7.1	2332	5.9
Good	8500	43.3	8968	46.0	17468	44.6
Very good	9813	50.4	8863	45.6	18676	48.0
No answer	179	0.9	108	0.6	287	0.7
Depressive experience						
No psychological problems	16712	85.3	14494	74.3	31206	79.9
Psychologically distressed or depressive state	2860	14.6	4983	25.7	7843	20.1
No answer	0	0.0	0	0.0	0	0.0

Note : All percentages are weighted but counts of observations are not. Source: ESCAPAD 2017, OFDT.

Calculations by the author.

3.2 Prevalence of Psychoactive Substances Consumption

The initial data analysis was conducted to assess the progress in consumption levels of the different psychoactive substances studied.

Between 2000 and 2010 the rates of both introduction to psychoactive substances and tobacco, alcohol, cannabis and other drugs regular use decreased among 17-year-olds. However, results from the 2014 Health Barometer and the 2014 ESCAPAD survey provided evidence that between 2011 and 2014, tobacco, cannabis and illegal substance uses slightly rose. The prevalence of lifetime cannabis use rate among 17-year-olds rose from 41 per cent to 48 per cent, while the repeated use increased from 6 per cent to 9 per cent, positioning the French above the European average (OFDT, 2017b). Among adolescents in the same age group, daily smoking level rose from 29 per cent to 32 per cent between 2008 and 2014 which was still significantly lower than the average obtained in 2000 (41 per cent) (OFDT, 2017b; Spilka et al., 2015). Only the number of single heavy episodic drinking occasions decreased between 2011 and 2014 but still concerned one in two adolescents (from 53 to 49 per cent) (OFDT, 2017b). In comparison, in the 2014 Health Barometer, the proportion of reported one case heavy episodic drinking was only 17 per cent in the population aged 18-75 years (Beck et al., 2015; OFDT, 2017b).

By contrast, estimations of the 2017 ESCAPAD survey highlight a downward trend in tobacco, cannabis and alcohol use. Some observed levels are even lower than those observed in 2010 (Spilka et al., 2018). Moreover, the mean age at which adolescents start using or consuming daily increased between 2014 and 2017. However, while the age of experimentation was pushed back, the transition to repeated consumption happened faster. In 2014 the mean age at first tobacco use was 14 years and the mean age of first daily tobacco use was 14.9 years. In 2017, these ages had respectively increased to 14.4 and 15.1 years, which means that the interval between experimen-

tation and repeated use of tobacco decreased from 10.8 months to 8.4 months. Girls are slightly more likely to experiment tobacco later (14.5 years for girls against 14.3 years for boys) but they start using tobacco on a daily basis at around the same age as boys. However, bivariate analysis do not confirm that these timing differences are significant and — except for these average age at first tobacco use or daily use — results show that male respondents start using psychoactive substances at a younger age than their female counterparts.

Focusing on each substance of interest separately (table 3.2), the results converge towards a generalized decline in the experimentation of each of the studied psychoactive substances and of their combinations between 2014 and 2017. Regular consumption levels are also declining, but to a lesser extent. The significance of these decreases, however, cannot be demonstrated, as we do not have the 2014 data set at our disposal. Alcohol is the only substance whose consumption has been steadily declining since the 2000s: according to the previous ESCAPAD survey, 89.3 per cent of adolescents reported having tried alcohol in 2014, against 85.5 per cent in 2017 (Spilka et al., 2015). Regarding heavy episodic drinking, all indicators show a sustained decline. About 43.6 per cent of adolescents report having at least one episode of binge drinking in the month preceding the 2017 ESCAPAD survey, compared with 48.8 per cent in 2014. The proportion of adolescents aged 17 who reported having at least once consumed a tobacco-derived product was estimated in 2014 to 68.4 per cent, against 58.9 per cent in 2017, which constitutes a decrease of almost 10 per cent. Levels of tobacco defined as occasional (less than one cigarette per day in the past month), daily (at least one cigarette per day in the past month) and intensive (more than ten cigarettes per day in the past month) also decreased, but to a lesser degree. In 2017, 38.8 per cent of the sample report having at least once consumed cannabis, which is lower than in 2014 when the proportion was estimated at 47.8 per cent. A reduction is also observable for all other indicators of cannabis use, although the magnitude of the decline decreases with intensity of consumption. Focusing on the repeated polyuse of psychoactive substances, the same pattern is

observed: polyuse rates dropped between 2014 and 2017, decreasing from 12.9 to 9.2 per cent. Going further and examining in detail the observable combinations of polyuse, results highlight a decrease everywhere. The tobacco - cannabis pairing remains the most widespread and deep-rooted combination: in 2014, it represented 5.0 per cent of respondents, compared to 4.4 per cent in 2017.

Alcohol consumption remains the most prevalent risky behaviour experimented among adolescents, while cannabis and tobacco remain the substances whose daily and intensive consumption are the most widespread: the prevalence of daily smoking reaches 25 per cent of the 2017 sample against 1.3 per cent for daily drinking. A plausible key of interpretation could be that the use of tobacco and more specifically of cannabis, while also part of a search for conviviality, are more strongly associated with self-medication, in order to relax or deal with anxiety (Beck et al., 2016). The festive nature traditionally attached to alcohol could explained that it is still the most experimented and occasionally consumed substance among adolescents (Beck et al., 2016). Likewise, a greater amount of cannabis or tobacco experimenters will eventually consume those substances on a regular basis: they are the two substances with the highest ratios between those who regularly consume and those who only experimented: 18 and 42 per cent for cannabis and tobacco respectively against ratios of 10 and 5 per cent for alcohol and heavy episodic drinking.

Table 3.2 – Prevalence of psychoactive substance consumption among adolescents aged 17 in 2017 (%)

Tobacco use							
	Boys	Girls	Sex ratio	Test (p-value)	Total	Total (2014)	Total 2014/2017
Experimentation of tobacco products	57.9	59.9	1.0	***	58.9	68.4	↓
Use in the past month	34.5	33.3	1.0	***	40.0	43.8	↓
< 1 cigarette per day in the past month	8.3	9.7	0.9	***	9.0	11.3	↓
>= 1 cigarette per day in the past month	26.2	23.7	1.1	***	25.0	32.4	↓
> 10 cigarettes per day in the past month	6.5	3.9	1.7	***	5.2	7.7	↓
Average age of users	14.3	14.5	-	***	14.4	14.0	↑
at their first tobacco use (years)							
Average age of daily users	15.1	15.1	-	ns	15.1	14.9	↑
at their first daily tobacco use (years)							
Alcohol use							
Experimentation of alcohol	86.5	84.5	1.0	***	85.5	89.3	↓
Use in the past year	79.8	74.9	1.1	***	77.4	82.4	↓
Use in the past month	69.3	62.5	1.1	***	66.0	72	↓
>= 10 uses in the past month	11.9	4.6	2.6	***	8.3	12.3	↓
Daily drinking	2.1	0.5	4.0	***	1.3	1.8	↓
Average age of users	14.1	14.5	-	***	14.3	-	-
at their first alcohol use (years)							
Repeated alcohol intoxication							
Experimentation of drunkenness	54.7	45.3	1.2	***	50.1	58.9	↓
At least one drinking episode in the past month	49.1	37.8	1.3	***	43.6	48.8	↓
>= 3 drinking episodes in the past month	21.4	10.8	2.0	***	16.2	21.8	↓
>= 10 drinking episodes in the past month	4.2	1.0	4.2	***	2.6	3.0	↓
Average age of users	15.3	15.6	-	***	15.4	-	-
at their first intoxication (years)							
Cannabis use							
Experimentation of cannabis	41.4	36.1	1.1	***	38.8	47.8	↓
Use in the past year	34.1	27.9	1.2	***	31.1	38.2	↓
Use in the past month	23.9	17.4	1.4	***	20.8	25.5	↓
>= 10 uses in the past month	9.5	4.4	2.1	***	7.0	9.2	↓
Daily cannabis smoking	4.5	2.1	2.1	***	3.3	4.0	↓
Average age of users	15.2	15.4	-	***	15.3	15.2	↑
at their first cannabis use (years)							
Multiple psychoactive substance use							
Regular polydrug use	12.3	5.9	2.1	***	9.2	12.9	↓

Note : All percentages are weighted.

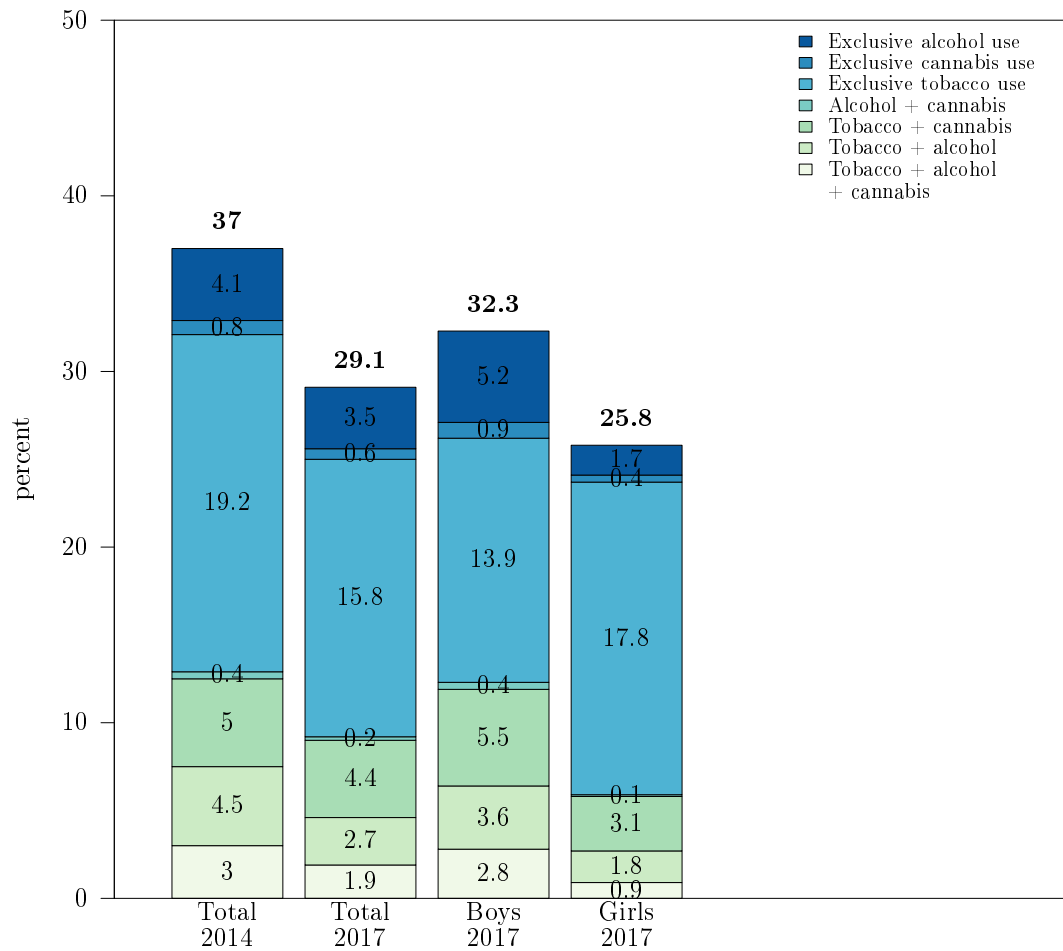
Chi-square tests (percentages), T-tests or ANOVA (average age at first use) do not take into account missing values.

ns for non-significant result; *p<0.05; **p<0.01; ***p<0.001.

Calculations by the author, except for 2014 rates.

Sources: ESCAPAD 2014-2017, OFDT.

Significant gender differences are observed in the prevalence of tobacco, alcohol and cannabis consumption and the difference is widening with the frequency and intensity of use: except for the tobacco experimentation, boys are more likely to report initiation or repeated consumption. Interestingly, girls are slightly more likely to report experimenting tobacco, which makes sense if the tobacco epidemic afflicts girls at an earlier stage than boys, as suggested by recent surveys (Legleye et al., 2011b; Thun, Peto, Boreham & Lopez, 2012). Daily smoking is still somewhat more prevalent among boys than girls (26.2 per cent, against 23.7 per cent for girls) and results from the chi-square and t-tests confirm that the rates of tobacco smoking and other psychoactive substance use are significantly higher among boys. The greatest gender difference is observed in the case of alcohol use. Boys are more likely than girls to report having tested alcoholic beverages at least once. The regular and daily consumption of alcohol also mainly concern male subjects: they are almost three times more likely than girls (11.9 per cent - 4.6 per cent) to report consuming alcohol on a regular basis. Boys are significantly more at risk than girls regarding drinking behaviour: 21.4 per cent of boys report regular excessive alcohol consumption (three heavy episodic drinking episodes or more in the past month), which is about twice as much as their female counterparts (10.8 per cent). The intensive binge drinking indicator has the most striking gender differences with a sex ratio of 4.2. Significant differences between both genders are also observed with regard to cannabis use. The prevalence is higher for boys, even though the gap is less important than for alcohol consumption. Polyuse mostly concerns male respondents (12.3 per cent of boys versus 5.9 per cent of girls). Coupling alcohol with cannabis remains the rarest combination for both genders. A larger percentage of girls pair tobacco with cannabis (52.5 per cent of polyuse cases for girls against 44.7 for boys), while more boys pair alcohol with cannabis or combine regular use of the three substances of interest (22.7 per cent of polyuse cases for boys versus 15.3 for girls).

Multiple psychoactive substance use (alcohol, tobacco and cannabis)

3.3 Substance Use According to Family Background

Simple bivariate analyses such as chi-square tests were conducted to explore associations between parental situation and specific substance use outcomes and to highlight possible factors associated with experimentation or repeated consumption. Chi-square tests confirm that the proportions of use differ significantly between parental situations, and results suggest that adolescents in family environment where the parents are not living together are significantly more likely to report tobacco, alcohol and cannabis experimentation or regular use and polyuse (table 3.3).

Whatever the substance of interest, adolescent from non-traditional families are at higher proportions of use. The most concerned non-traditional parenting situations varies from one substance to another, even though adolescents from blended families or with unknown parent(s) are in general more likely to report an initiation and regular consumption. For example, 68.9 per cent of adolescents living within a blended family report that they tested at least once a product containing tobacco, and 34.5 per cent consumed tobacco daily. Adopted or orphaned adolescents are also around 68 per cent to have started tobacco product, but they are slightly more likely to smoke tobacco every day (39.5 per cent). In comparison, only 54.8 per cent of adolescents whose parents are living together report the experimentation of a tobacco product and 20.4 per cent report smoking every day. Regarding alcohol consumption, blended families, joint custody arrangements and unknown parents stand out as particularly impacted. The same pattern is observed in the case of cannabis use and alcohol intoxication.

The slightest differences of proportions between family backgrounds are observed in the case of alcohol consumption and drunkenness. Conversely, the differences between family backgrounds are larger in the case of substances that are generally associated with self-medication, namely tobacco and cannabis products. In the case of cannabis use, 16.6 per cent of the adolescents who have at least one unknown parent consume cannabis on regular basis. In other words, they were more than thrice as likely to do so as those whose parent are still living together (5.1 per cent). 39.5 per cent of adopted adolescents or teens who have at least one unknown parent report smoking daily, which is twice as likely than adolescents whose parents are still living together (20.4 per cent). By contrast, alcohol experimentation and regular use rates are 9.5 and 7.9 per cent respectively.

ANOVA tests confirm that a significant difference concerning the mean age at first use exists between family backgrounds. While the mean age at first tobacco use of

adolescents whose parents live together is estimated at 14.5 years, it slightly falls to 14.2 years in the case of single-parent families and to 14.0 years when at least one parent is unknown ($p < 0.05$). Similarly, the mean age at first use of any cannabis products is estimated at 15.4 years for adolescents whose parents live together while this age decreases to 15.0 years in the case of unknown parent(s) ($p < 0.05$). The mean age at first use of alcoholic beverages, however, is an exception and the results do not show earlier initiation of adolescents whose parents do not live together. Apart from nonresponses, family backgrounds that favour earlier initiation of psychoactive substances are situations where at least one biological parent is unknown, adoption and other unclassifiable parenting situations.

Table 3.3 – Substance use outcomes according to parental situation (%) : univariate analysis

Tobacco use (%)												
	Tobacco experimentation (a)				Daily smoking (b)				Average age of users at their first tobacco use (years)		Average age of daily users at their first daily tobacco use (years)	
	Yes	No	No answer	Chi-square (p-value)	Yes	No	No answer	Chi-square (p-value)	ANOVA (p-value)		ANOVA (p-value)	
Total	58.9	41.0	0.2		25.0	74.4	0.6		14.4		15.1	
Parental situation												
Parents are living together : Yes (63.0%)	54.8	45.0	0.2		20.4	79.0	0.6		14.5		15.2	
Parents are living together : No												
- Blended family (9.4%)	68.9	31.0	0.1		34.5	64.9	0.6		14.2		15.0	
- Joint custody (5.7%)	67.6	32.0	0.4		29.1	70.3	0.7		14.4		15.0	
- One-parent family following divorce/separation (17.6%)	63.9	35.9	0.2		32.1	67.3	0.6		14.2		15.0	
- One-parent family following death (2.6%)	62.6	37.1	0.3	***	33.4	66.1	0.5	***	14.2	***	15.0	***
- Unknown parent(s)/adopted (0.5%)	68.6	30.5	0.9		39.5	59.2	1.3		14.0		14.7	
- Other parental situation (0.4%)	63.8	36.2	0.0		33.0	67.0	0.0		14.1		15.0	
No answer (0.8%)	58.9	40.9	0.2		39.6	57.4	3.0		13.9		14.6	
Alcohol use (%)												
	Alcohol experimentation (c)				Regular alcohol use (d)				Average age of users at their first alcohol use			
	Yes	No	No answer	Chi-square p-value	Yes	No	No answer	Chi-square p-value	ANOVA (p-value)			
Total	85.5	14.3	0.2		8.3	90.9	0.7		14.3			
Parental situation												
Parents are living together : Yes (63.0%)	84.1	15.7	0.2		7.9	91.4	0.7		14.3			
Parents are living together : No												
- Blended family (9.4%)	91.1	8.7	0.2		8.9	90.3	0.8		14.4			
- Joint custody (5.7%)	92.3	7.5	0.2		9.8	89.3	0.9		14.2			
- One-parent family following divorce/separation (17.6%)	85.6	14.2	0.2		8.7	90.7	0.7		14.3			
- One-parent family following death (2.6%)	81.9	17.9	0.2	***	11.0	88.0	1.0	***	14.4		*	
- Unknown parent(s)/adopted (0.5%)	90.0	10.0	0.0		9.5	88.3	2.2		14.6			
- Other parental situation (0.4%)	86.5	13.2	0.3		9.1	90.3	0.6		14.1			
No answer (0.8%)	85.5	14.3	0.2		11.7	84.9	3.4		14.2			
Heavy episodic drinking practices (binge drinking) (%)												
	Drunkenness experimentation (e)				Repeated alcohol intoxication (f)				Average age of users at their first intoxication			
	Yes	No	No answer	Chi-square p-value	Yes	No	No answer	Chi-square p-value	ANOVA (p-value)			
Total	50.1	49.3	0.6		16.2	82.7	1.1		15.4			
Parental situation												
Parents are living together : Yes (63.0%)	47.2	52.3	0.5		15.2	83.9	1.0		15.5			
Parents are living together : No												
- Blended family (9.4%)	57.1	42.1	0.8		18.1	80.7	1.2		15.4			
- Joint custody (5.7%)	60.9	38.3	0.8		19.7	79.4	0.9		15.4			
- One-parent family following divorce/separation (17.6%)	52.9	46.5	0.6		16.8	81.8	1.4		15.4			
- One-parent family following death (2.6%)	50.2	49.2	0.6	***	18.7	79.7	1.6	***	15.4		***	
- Unknown parent(s)/adopted (0.5%)	56.2	43.8	0.0		22.9	75.9	1.1		15.5			
- Other parental situation (0.4%)	58.1	41.9	0.0		21.1	76.3	2.6		15.5			
No answer (0.8%)	54.9	44.3	0.8		21.9	74.3	3.8		15.2			
Cannabis use (%)												
	Cannabis experimentation (g)				Regular cannabis use (h)				Average age of users at their first use of cannabis			
	Yes	No	No answer	Chi-square p-value	Yes	No	No answer	Chi-square p-value	ANOVA (p-value)			
Total	38.8	60.5	0.7		7.0	90.7	2.3		15.3			
Parental situation												
Parents are living together : Yes (63.0%)	34.1	65.3	0.6		5.1	92.7	2.2		15.4			
Parents are living together : No												
- Blended family (9.4%)	47.6	51.7	0.7		9.3	88.3	2.4		15.3			
- Joint custody (5.7%)	48.8	50.4	0.8		8.7	89.3	2.0		15.3			
- One-parent family following divorce/separation (17.6%)	46.0	53.2	0.8		10.8	86.8	2.5		15.2			
- One-parent family following death (2.6%)	44.9	54.1	0.9	***	10.8	86.1	3.0	***	15.2		***	
- Unknown parent(s)/adopted (0.5%)	52.7	46.7	0.6		16.6	80.3	3.1		15.0			
- Other parental situation (0.4%)	46.5	51.8	1.8		6.7	91.5	1.8		14.9			
No answer (0.8%)	48.1	51.2	0.7		17.3	77.1	5.6		14.8			
Multiple psychoactive substance use (%) (i)												
	Yes	No	No answer		Yes	No	No answer		Yes	No	No answer	
Parental situation												
Parents are living together : Yes (63.0%)	6.9	90.0	3.1									
Parents are living together : No												
- Blended family (9.4%)	11.6	85.1	3.3									
- Joint custody (5.7%)	11.0	86.0	3.0									
- One-parent family following divorce/separation (17.6%)	12.9	83.7	3.3									
- One-parent family following death (2.6%)	13.0	82.9	4.1	***								
- Unknown parent(s)/adopted (0.5%)	15.2	78.7	6.1									
- Other parental situation (0.4%)	18.6	72.6	8.8									
No answer (0.8%)	8.9	87.8	3.3									

Note :

(a) Tobacco experimentation defined as having ever tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos).

(b) Daily smoking defined as smoking one cigarette (packed or hand-rolled) or more per day.

(c) Alcohol experimentation defined as having ever drink alcoholic beverages (beer, wine, liquor, mixed alcoholic drinks).

(d) Regular alcohol use defined as drinking 10 drinks per month or more.

(e) Drunkenness experimentation is defined as ever have been intoxicated.

(f) Repeated alcohol intoxication defined as experiencing three risky-single occasions drinking (drinking episodes) per month or more. Risky-single occasion defined as consuming 5 or more drinks on one single occasion.

(g) Cannabis experimentation defined as having ever tried cannabis products.

(h) Regular cannabis use defined as smoking cannabis 10 times per month or more.

(i) Multiple psychoactive substance use defined as consuming on a regular basis some combination of alcohol, tobacco and cannabis. Chi-square tests (percentages), T-tests or ANOVA (average age at first use) do not take into account missing values.

ns for non-significant result; *p<0.05; **p<0.01; ***p<0.001.

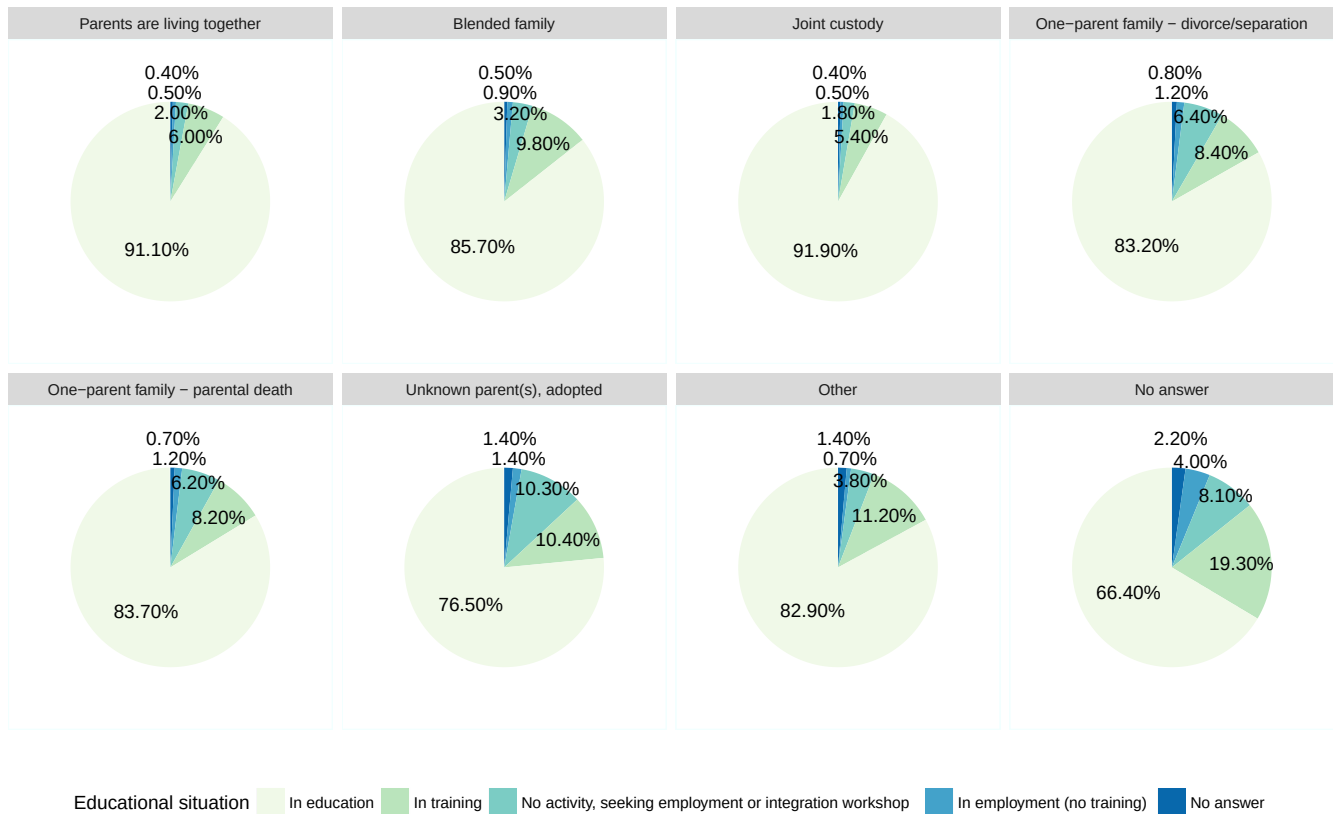
Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Preliminary results of the exploratory analyses confirm an existing association between consumption of psychoactive substances and family backgrounds. However, while we observed higher proportions of use for non-traditional families, the sample analysis also reveals that individuals from non-traditional families face a socio-economic disadvantage (tables 4.6 and 4.7 in the appendix). These adolescents are less likely to report the activity and the socio-economic situation of their parents. Nonresponses reach 98.4 per cent of the children coping with the death of one or both parents and who are living in single-parent families and 79.1 per cent for adolescents who do not know one or both of their parents. While it is obvious that in these contexts these adolescents cannot provide information about the occupation of their parents, it was nevertheless clearly specified in the questionnaire to indicate in these cases the occupational situation of the individuals with whom they were currently living. Despite these high nonresponse rates, a trend remains: a higher proportion of adolescents living with both biological parents is ranked in the upper socio-economic class, while adolescents living in blended or lone-parent families are more likely to be found in the lower socio-economic class. Chi-square tests confirm these differences are significant.

Interestingly, this sample descriptive analysis indicates that adolescents from non-traditional family structures are less likely to remain in the traditional educational system. Significant differences can be highlighted: adolescents whose parents are living together are only 6.0 per cent to report being in training and around 2.0 per cent have no activity, are in integration workshops or are seeking employment. In comparison, adolescents serving an apprenticeship account for 8.0 per cent of the one-parent families and above 10.0 per cent in the case of "unknown parent(s)" and "other parental situations". These differences are even greater in the most typical case of school dropouts that are adolescents already employed or neither in activity nor looking for a job.

Adolescent's educational status and parental situation



Fewer adolescents living in non-traditional families report experiencing good physical and mental health: about 51.2 per cent of the adolescents living with both their biological parents consider their health status as very good, while this proportion is only estimated to 42.3 per cent of adolescents in blended families and around 40 per cent in the case of one-parent families. Adolescents who are adopted or have at least one parent unknown have the higher proportion of poor health status. They are more to suffer from psychological distress (28.4 per cent), immediately preceding adolescents from single-parent families (24.9 per cent). In comparison, adolescents living with both parents are only 17.7 per cent to report being psychologically distressed. Again, chi-square tests confirm an existing significant difference between family backgrounds with regard to physical and mental health.

Even though descriptive analyses highlight that higher proportions of adolescents from non-traditional family backgrounds are involved in psychoactive substance use and abuse, the results show their higher social and economic disadvantages. In order to evaluate the specific involvement of the family environment in the consumption of psychoactive substances, a control is therefore necessary to exclude the effects of these other socio-demographic characteristics.

Chapter 4

Multivariate Analysis

Logit models were conducted in order to investigate the association between the parental situation and the adolescent's initiation and abuse of substances while controlling for other factors. The dependent variables are lifetime use and tobacco, alcohol and cannabis repeated consumption. The outcome variables concerning the intensity and frequency of tobacco, alcohol and cannabis use are converted to binary code. Overall, these analyses reveal that the adolescents' parental background — and the main control variables — have statistically significant effects on the adolescents' substance use and abuse. Results are shown in the tables 4.1 to 4.5.

Gender-stratified models are available in the appendix (tables 4.9 to 4.17).

4.1 Main Effects

Gender

Results from the logit models indicate that boys are significantly more likely to experiment or report regular use or polyuse of psychoactive substances than girls. Girls are more than twice less likely than boys (0.43, 95% CI: 0.39-0.46) to use multiple substances regularly. Only one exception, already highlighted by the exploratory analyses in the previous chapter, must be noted: girls face a slightly higher risk (1.07, 95% CI: 1.03-1.12) of experimenting cigarettes or other tobacco products when compared to boys. Differences between boys and girls grow with the frequency of use:

they are 25 per cent less likely than boys (0.75, 95% CI: 0.72-0.79) to report having tried cannabis while they are 59 per cent less likely (0.41, 95% CI: 0.37-0.45) to use this substance regularly.

Language Spoken with Family and Relatives

Regarding the main language spoken with family and relatives, adolescents identified as speaking either French, a South-European language or another European language face higher risk than those who speak a language from overseas or an African language (especially those speaking a North-African language). Adolescents speaking a North African language are 59 per cent (0.41, 95% CI: 0.37-0.46) and 40 per cent less likely (0.60, 95% CI: 0.52-0.69) to experiment and use on daily basis tobacco products, relative to the reference category (those who speak only French). The differences between linguistic groups are the most remarkable in the case of alcohol use and drinking experience: adolescents who speak a North African language or a Sub-Saharan African language are 95 per cent (0.05, 95% CI: 0.04-0.05) and 90 per cent less likely (0.10, 95% CI: 0.08-0.12) to experiment alcoholic substances, compared to French speakers. If the effect persists, the differences of some languages tend to reduce with the intensity of consumption and with substances associated with self-medication. Controlling for interactions, the variations in the use of psychoactive substances according to the spoken language are particularly important for girls (figures 4.1 to 4.4 in the appendix).

Parental Activity Status

Regarding the association between parental activity status and the behaviours towards psychoactive drugs, binary logistic regressions reveal a lower prevalence of risky behaviours of adolescents whose parents are not both working, especially regarding drinking behaviours. Compared to the reference category (those whose parents are both working), adolescents are 37 per cent less likely (0.63, 95% CI: 0.58-0.68) to have experimented alcohol if only one of their parents works and, adolescents with no parent currently working are 57 per cent less likely (0.43, 95% CI: 0.37-0.50) to

have tried an alcoholic beverage. The excess risk of the adolescents with both parents working persists in the context of regular consumption but is slightly reduced. Accordingly, compared with adolescents with both parents working, adolescents with one parent working face a risk of having experimented alcohol reduced by 37 per cent (0.63, 95% CI: 0.58-0.68) while their risk of consuming alcohol regularly is reduced by 25 per cent (0.85, 95% CI: 0.77-0.94).

Parental Socio-economic Status

There are large and significant differences in the effects of the parental socio-economic status. Higher socio-economic conditions generally increase the risk of initiation and of regular use of psychoactive substances. Compared to the upper socio-economic class, adolescents of intermediate socio-economic status are 15 per cent less likely (0.85, 95% CI: 0.79-0.91) to have experimented at least once one tobacco product, and adolescents of the lowest socio-economic group are 33 per cent less likely (0.67, 95% CI: 0.62-0.72) to have done so. Results also highlight a lower frequency of use in nonrespondents. Alcohol experimentation presents the greatest gap between groups: the risk of experimenting alcoholic beverages is reduced by 66 per cent (0.34, 95% CI: 0.29-0.40) in the lowest class compared to the risk encountered by adolescents of the upper socio-economic group. In comparison, the difference in the risk of cannabis experimenting between adolescents from the upper and the lower socio-economic groups is reduced to 44 per cent (0.56, 95% CI: 0.52-0.60). The lower frequency of consumption of psychoactive substances in adolescents from the upper socio-economic class is also observed in the case of regular use and polyuse: compared to the upper class, adolescents of the lowest strata are 46 per cent less likely (0.54, 95% CI: 0.50-0.59) to report at least one episode of alcohol intoxication and are 28 per cent less likely (0.72, 95% CI: 0.65-0.80) to report situations of repeated alcohol intoxication during the month preceding the survey.

Educational Situation

Higher prevalence of drug use is also associated with school dropouts. The positive association between school dropouts and adolescents' substance use is significant for all substances. Adolescents who are in employment are the most at risk: compared to adolescents staying in a traditional school environment, they are 3.21 times more likely (3.21, 95% CI: 2.37-4.30) to report multiple regular psychoactive substance use and 5.17 times more likely (5.17, 95% CI: 4.02-6.68) to smoke daily. Following adolescents in employment, apprenticeship is the second educational situation associated with higher risk of alcohol use or heavy drinking behaviours. However, the picture is slightly different with smoking products, because adolescents who are Not in Education, in Employment, or in Training (NEET) are the second leading group to report high levels of tobacco or cannabis use and polyuse. They are 71 per cent more likely (1.71, 95% CI: 1.51-1.93) than adolescents who are still in education to report experimenting cannabis, while this risk increases by 41 per cent (1.41, 95% CI: 1.29-1.53) for adolescents in training. In addition, compared to the reference category, adolescents who are in apprenticeship are twice as likely (2.31, 95% CI: 2.06-2.58) to report regular uses of alcohol, while this risk falls to 62 per cent (1.62, 95% CI: 1.33-1.95) for adolescents who are neither seeking employment, in activity or integration workshops.

Self-perceived Health Status

Analyses also reveal significant variations in the psychoactive substance use according to the respondents' self-perceived health. Results suggest that substance abuse increases accordingly with the deterioration of the adolescent's self-perceived health. Compared to the adolescents who assessed their health as "very good", those who reported a "fair" or "poor" health are 1.45 (1.45, 95% CI: 1.29-1.64) and 1.59 times (1.59, 95% CI: 1.17-2.13) more likely to have experienced repeated alcohol intoxication in the month preceding the survey. The greatest differences are observed in the case of substances (tobacco and cannabis) and behaviours (regular use and polyuse) associated with self-medication or abuse, while alcohol consumption and

intoxication show the lowest inequalities. Adolescents who consider their health as "poor" are 3.64 times more likely (3.64, 95% CI: 2.54-5.10) to use cannabis regularly than adolescents whose health is considered as "very good", while their risks of polyuse are 3.45 times higher (3.45, 95% CI: 2.48-4.75). To identify a pattern for substance initiation is way more difficult. An inverted U-shaped relationship might be considered between the reported health status and the initiation of psychoactive substances: adolescents whose health is either "good" or "poor" might want to protect their health and therefore reduce their consumption. Consequently, compared to very healthy adolescents, respondents who report their health as "good" or "poor" are 1.47 (1.47, 95% CI: 1.40-1.54) and 1.31 times more likely (1.31, 95% CI: 1.02-1.68) to have experimented at least once cannabis products, against an odds ratio of 1.75 (1.75, 95% CI: 1.59-1.92) for adolescents with a self-perceived fair health. Once again, inequalities in psychoactive substance initiation according to self-perceived health status are the smallest in the case of alcohol use, and the greatest in the case of polyuse, cannabis and tobacco.

Depressive State

Some statistically significant differences are associated with the effects of depression on psychoactive substance use and polyuse. Adolescents suffering from depressive episodes are more likely to report initiation or repeated use, especially of substances commonly associated with anxiety management. In this regard — other things being equal — adolescents suffering from psychological distress or depression are 52 per cent more likely to have experimented cannabis use (1.52, 95% CI: 1.44-1.61) or to report a regular combination of multiple substances (1.52, 95% CI: 1.39-1.65) than adolescents who do not report mental health problems. They also face a markedly higher risk of having tried tobacco products (1.54, 95% CI: 1.45-1.62) or of smoking daily (1.45, 95% CI: 1.36-1.53). Even though differences are still significant, inequalities in periods of intoxication and consumption of alcohol are reduced.

Parental Situation

Logit models confirm results obtained in the preceding bivariate analysis: non-traditional family situations are all significantly associated with higher probabilities of experimentation and repeated use, regardless of the substance. For example, the results show that adolescents from blended families are 1.75 times more at risk (1.75, 95% CI: 1.62-1.89) of having experimented tobacco than adolescents whose parents were living together at the time of the survey, even after controlling for all other covariates in the model. In one-parent families formed through the death of one parent, the odds ratio is 1.65 (1.65, 95% CI: 1.41-1.93), and with adolescents with at least one unknown parent the odds ratio reaches 1.92 (1.92, 95% CI: 1.41-2.63) which makes this parental situation the most impacted family background. While adolescents from all non-traditional families have a significant excess risk, adolescents with at least one unknown parent face the highest risk regardless of the substance and frequency of use. They are twice as likely to smoke tobacco daily (2.05, 95% CI: 1.51-2.77), 2.67 times more likely to try alcohol (2.67, 95% CI: 1.67-4.49) and 2.46 times more likely to experiment cannabis (2.46, 95% CI: 1.85-3.29) compared to adolescents whose parents are living together. The parental situation with the second-highest odds ratios, immediately following the "unknown parent(s)" category, varies, depending on the substance and the intensity: blended families and joint custody have the second-highest odds ratio for experimentation and regular use of tobacco and alcohol, while one-parent families become the second most affected family category for drunkenness, cannabis and polyuse.

Results also confirm the conclusion from bivariate analyses which states that the effects of family environment on adolescents' drug use are greater in the case of abuse and use of substances associated with anxiety management and dangerous risk behaviours. Results are particularly noticeable regarding regular cannabis use and polyuse: adolescents whose at least one parent is unknown are 3.15 times more likely (3.15, 95% CI: 2.07-4.67) to report consuming cannabis on a regular basis in comparison with adolescents whose parents are living together, and they also are at

very high risk of polyuse (2.18, 95% CI: 1.42-3.26). Conversely, the smallest impact of a non-traditional family environment is observed in the case of drinking behaviours. Adolescents with at least one unknown parent are 74 per cent more likely (1.74, 95% CI: 1.22-2.44) than those brought up in traditional family background to experience habitual alcohol intoxication.

Globally, excess risks of non-traditional families tend to grow with the frequency and the intensity of use. The gap widens as tobacco and cannabis use intensifies: for instance, concerning cannabis the odds ratio associated with one-parent families following death increases from 1.96 for experimentation (1.96, 95% CI: 1.68-2.28) to 2.15 for repeated use (2.15, 95% CI: 1.67-2.75), although the difference here is not significant. It declines with drinking behaviours, though: concerning drunkenness, the higher risk of blended families goes from 53 per cent in the case of a first intoxication (1.53, 95% CI: 1.42-1.65) down to 18 per cent (1.18, 95% CI: 1.07-1.30) for "repeated heavy episodic drinking". As for one-parent families following death, the odds are reduced from 1.56 (1.56, 95% CI: 1.34-1.82) to 1.48 (1.48, 95% CI: 1.21-1.79), but again it is a non-significant difference.

Gender-stratified models reveal similarities and differences in the impact of family environment on substance use. Overall, all non-traditional family backgrounds are associated with higher rates of smoking and drinking behaviours. Moreover, the unknown parent(s) situation remains the most impacted family background regardless of sex, the consumption frequency or the substance studied. The odds ratios for polyuse and cannabis consumption are the highest for both sexes, in relation to family structure. It is to note that girls are particularly affected and this for all substances: compared with girls from traditional families, girls with unknown parent(s) are 2.67 times more likely (2.67, 95% CI: 1.80-3.95) to try cannabis products and are 3.7 times more likely (3.7, 95% CI: 1.87-6.80) to report regular cannabis use, while — for boys — those odds ratios are respectively 2.25 (2.25, 95% CI: 1.48-3.46) and 2.87 (2.87, 95% CI: 1.66-4.79), although the differences are not significant.

These results may indicate an interaction effect, the impact of the family structure on the consumption of psychoactive substances being more important for girls. Nevertheless, adding interaction terms to the logit models is necessary to test whether non-traditional parental backgrounds affect girls more than boys in their consumption and whether the differences between strata are significant.

One rather unusual result is to be noted and deserves further elaboration. The introduction of control variables leads to an increase in odds ratios and therefore of the excess risk of non-traditional families. These variations could be explained by co-factors. Bivariate analyses revealed that higher proportions of adolescents living in non-traditional parental situations were reported in the lowest socio-economic group, meanwhile regression models highlighted the protective effect of lower occupational and socio-economic situations. It is therefore possible that without adding control variables in the model, the positive effect of living in non-traditional families on the substance use is underestimated and slightly offset by the lower frequency of use in the lowest socio-economic groups.

Table 4.1 – Regression models of tobacco use outcomes

	<i>Dependent variable:</i>			
	Tobacco experimentation (a)		Daily smoking (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Gender				
Boys	1	1	1	1
Girls	1.08*** (1.04 – 1.12)	1.07*** (1.03 – 1.12)	0.87*** (0.83 – 0.91)	0.88*** (0.84 – 0.92)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.82*** (1.69 – 1.97)	1.75*** (1.62 – 1.89)	2.05*** (1.90 – 2.21)	1.83*** (1.69 – 1.99)
- Joint custody	1.73*** (1.58 – 1.90)	1.61*** (1.47 – 1.77)	1.60*** (1.45 – 1.76)	1.58*** (1.43 – 1.74)
- One-parent family following divorce/separation	1.46*** (1.38 – 1.54)	1.41*** (1.33 – 1.50)	1.85*** (1.74 – 1.96)	1.57*** (1.47 – 1.68)
- One-parent family following death	1.39*** (1.22 – 1.58)	1.65*** (1.41 – 1.93)	1.95*** (1.71 – 2.23)	1.80*** (1.52 – 2.11)
- Unknown parents/adopted	1.84*** (1.38 – 2.49)	1.92*** (1.41 – 2.63)	2.57*** (1.94 – 3.40)	2.05*** (1.51 – 2.77)
- Other parental situation	1.45* (1.04 – 2.03)	1.44* (1.03 – 2.05)	1.90*** (1.34 – 2.66)	1.68** (1.16 – 2.40)
No answer	1.43** (1.13 – 1.81)	1.47** (1.15 – 1.89)	2.67*** (2.11 – 3.37)	2.06*** (1.60 – 2.65)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.62*** (0.51 – 0.75)	0.61*** (0.50 – 0.74)	0.62*** (0.48 – 0.80)	0.52*** (0.40 – 0.67)
- South European language	1.33*** (1.20 – 1.48)	1.28*** (1.15 – 1.43)	1.60*** (1.44 – 1.77)	1.54*** (1.38 – 1.72)
- Other European language	1.14** (1.03 – 1.25)	1.11* (1.01 – 1.23)	1.12* (1.01 – 1.24)	1.13* (1.01 – 1.26)
- North African language	0.36*** (0.33 – 0.40)	0.41*** (0.37 – 0.46)	0.56*** (0.49 – 0.64)	0.60*** (0.52 – 0.69)
- Sub-Saharan African language	0.31*** (0.25 – 0.39)	0.34*** (0.27 – 0.42)	0.35*** (0.25 – 0.49)	0.35*** (0.25 – 0.49)
- Other foreign language	0.44*** (0.39 – 0.51)	0.48*** (0.41 – 0.55)	0.57*** (0.47 – 0.69)	0.58*** (0.48 – 0.70)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.82*** (0.78 – 0.87)	0.88*** (0.83 – 0.93)	1.02 (0.96 – 1.08)	0.93* (0.87 – 1.00)
Neither works	0.72*** (0.65 – 0.81)	0.81*** (0.71 – 0.91)	1.10 (0.96 – 1.25)	0.90 (0.78 – 1.04)
No answer	0.99 (0.93 – 1.06)	0.80*** (0.74 – 0.87)	1.53*** (1.42 – 1.64)	0.93 (0.84 – 1.02)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.89** (0.83 – 0.96)	0.85*** (0.79 – 0.91)	1.08 (0.99 – 1.17)	0.94 (0.86 – 1.02)
Lower socio-economic class	0.75*** (0.70 – 0.81)	0.67*** (0.62 – 0.72)	1.23*** (1.13 – 1.34)	0.87** (0.80 – 0.96)
No answer	0.71*** (0.65 – 0.77)	0.65*** (0.59 – 0.71)	1.37*** (1.25 – 1.51)	0.95 (0.85 – 1.05)
Educational situation				
In education	1	1	1	1
In training	1.93*** (1.77 – 2.10)	1.94*** (1.77 – 2.12)	3.20*** (2.95 – 3.46)	2.87*** (2.64 – 3.12)
No activity, seeking employment or in integration workshops	2.30*** (2.01 – 2.63)	2.43*** (2.12 – 2.80)	4.48*** (3.98 – 5.04)	3.77*** (3.33 – 4.28)
In employment	2.79*** (2.11 – 3.76)	3.09*** (2.31 – 4.19)	5.67*** (4.45 – 7.24)	5.17*** (4.02 – 6.68)
No answer	1.05 (0.79 – 1.38)	1.12 (0.84 – 1.50)	2.10*** (1.57 – 2.79)	1.90*** (1.40 – 2.56)
Self-perceived health status				
Very good	1	1	1	1
Good	1.52*** (1.46 – 1.59)	1.45*** (1.39 – 1.52)	2.33*** (2.22 – 2.45)	2.15*** (2.04 – 2.26)
Fair	1.90*** (1.73 – 2.08)	1.63*** (1.48 – 1.79)	3.10*** (2.82 – 3.39)	2.49*** (2.26 – 2.75)
Poor	1.34* (1.06 – 1.71)	1.06 (0.83 – 1.37)	3.08*** (2.41 – 3.92)	2.17*** (1.67 – 2.81)
No answer	0.93 (0.73 – 1.19)	0.93 (0.73 – 1.20)	2.21*** (1.68 – 2.87)	1.69*** (1.27 – 2.24)
Depressive state				
No	1	1	1	1
Yes	1.65*** (1.57 – 1.74)	1.54*** (1.45 – 1.62)	1.68*** (1.59 – 1.78)	1.45*** (1.36 – 1.53)
Observations		38,970		38,810
Log Likelihood		-25,425.660		-20,357.840
Akaike Inf. Crit.		50,911.310		40,775.680

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Tobacco experimentation defined as having ever tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos).

(b) Daily smoking defined as smoking one cigarette (packed or hand-rolled) or more per day.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.2 – Regression models of alcohol use outcomes

	<i>Dependent variable:</i>			
	Alcohol experimentation (a)		Regular alcohol use (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Gender				
Boys	1	1	1	1
Girls	0.85*** (0.80 – 0.90)	0.87*** (0.81 – 0.93)	0.35*** (0.33 – 0.38)	0.36*** (0.33 – 0.39)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.94*** (1.72 – 2.19)	1.97*** (1.73 – 2.25)	1.15* (1.01 – 1.30)	1.11 (0.97 – 1.26)
- Joint custody	2.30*** (1.97 – 2.72)	1.74*** (1.47 – 2.08)	1.27** (1.10 – 1.47)	1.16* (1.00 – 1.35)
- One-parent family following divorce/separation	1.12** (1.04 – 1.21)	1.30*** (1.19 – 1.43)	1.11* (1.01 – 1.22)	1.08 (0.98 – 1.20)
- One-parent family following death	0.85 (0.73 – 1.01)	1.55*** (1.26 – 1.91)	1.45*** (1.18 – 1.77)	1.86*** (1.44 – 2.39)
- Unknown parents/adopted	1.68* (1.10 – 2.73)	2.67*** (1.67 – 4.49)	1.25 (0.76 – 1.93)	1.43 (0.85 – 2.28)
- Other parental situation	1.23 (0.78 – 2.04)	1.68 (1.01 – 2.96)	1.17 (0.64 – 1.96)	1.25 (0.67 – 2.15)
No answer	1.22 (0.88 – 1.72)	2.04*** (1.41 – 3.01)	1.59** (1.10 – 2.24)	1.58* (1.07 – 2.26)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.27*** (0.22 – 0.33)	0.36*** (0.29 – 0.45)	0.50** (0.30 – 0.77)	0.56* (0.34 – 0.87)
- South European language	1.00 (0.86 – 1.19)	1.02 (0.86 – 1.20)	1.23* (1.04 – 1.44)	1.26** (1.06 – 1.48)
- Other European language	0.99 (0.86 – 1.16)	0.95 (0.82 – 1.11)	1.40*** (1.21 – 1.62)	1.36*** (1.17 – 1.58)
- North African language	0.04*** (0.03 – 0.04)	0.05*** (0.04 – 0.05)	0.12*** (0.07 – 0.18)	0.15*** (0.09 – 0.22)
- Sub-Saharan African language	0.08*** (0.06 – 0.09)	0.10*** (0.08 – 0.12)	0.21*** (0.09 – 0.41)	0.25*** (0.11 – 0.49)
- Other foreign language	0.13*** (0.11 – 0.15)	0.15*** (0.13 – 0.18)	0.32*** (0.21 – 0.47)	0.35*** (0.22 – 0.51)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.43*** (0.40 – 0.46)	0.63*** (0.58 – 0.68)	0.78*** (0.70 – 0.85)	0.85** (0.77 – 0.94)
Neither works	0.23*** (0.20 – 0.26)	0.43*** (0.37 – 0.50)	0.60*** (0.47 – 0.76)	0.69** (0.53 – 0.88)
No answer	0.44*** (0.41 – 0.48)	0.54*** (0.48 – 0.60)	0.89* (0.79 – 0.99)	0.74*** (0.63 – 0.87)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.55*** (0.48 – 0.64)	0.61*** (0.52 – 0.71)	0.95 (0.84 – 1.07)	0.92 (0.81 – 1.04)
Lower socio-economic class	0.26*** (0.23 – 0.30)	0.34*** (0.29 – 0.40)	0.81** (0.72 – 0.92)	0.74*** (0.64 – 0.84)
No answer	0.19*** (0.16 – 0.22)	0.27*** (0.23 – 0.32)	0.72*** (0.62 – 0.83)	0.68*** (0.58 – 0.80)
Educational situation				
In education	1	1	1	1
In training	1.90*** (1.65 – 2.19)	1.80*** (1.55 – 2.10)	2.78*** (2.50 – 3.09)	2.31*** (2.06 – 2.58)
No activity, seeking employment or in integration workshops	1.00 (0.86 – 1.19)	1.53*** (1.28 – 1.85)	1.68*** (1.40 – 2.00)	1.62*** (1.33 – 1.95)
In employment	1.43 (1.00 – 2.14)	2.29*** (1.51 – 3.58)	2.51*** (1.80 – 3.42)	2.28*** (1.62 – 3.14)
No answer	0.47*** (0.35 – 0.65)	0.58** (0.41 – 0.82)	1.10 (0.63 – 1.78)	1.19 (0.68 – 1.95)
Self-perceived health status				
Very good	1	1	1	1
Good	1.11*** (1.05 – 1.18)	1.19*** (1.11 – 1.27)	1.36*** (1.26 – 1.47)	1.36*** (1.26 – 1.47)
Fair	1.04 (0.92 – 1.17)	1.19* (1.03 – 1.38)	1.58*** (1.37 – 1.82)	1.61*** (1.38 – 1.87)
Poor	0.66** (0.50 – 0.89)	0.68* (0.49 – 0.96)	2.48*** (1.77 – 3.40)	2.46*** (1.73 – 3.42)
No answer	0.50*** (0.38 – 0.66)	0.64** (0.47 – 0.87)	0.50* (0.24 – 0.91)	0.46* (0.22 – 0.84)
Depressive state				
No	1	1	1	1
Yes	1.13** (1.05 – 1.21)	1.34*** (1.23 – 1.46)	1.17*** (1.07 – 1.27)	1.32*** (1.20 – 1.45)
Observations		38,981		38,757
Log Likelihood		-13,110.170		-10,537.980
Akaike Inf. Crit.		26,280.350		21,135.960

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Alcohol experimentation defined as having ever drink alcoholic beverages (beer, wine, liquor, mixed alcoholic drinks). (b) Regular alcohol use defined as drinking 10 drinks per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.3 – Regression models of repeated alcohol intoxication

	<i>Dependent variable:</i>			
	Drunkenness experimentation (a)		Repeated alcohol intoxication (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Gender				
Boys	1	1	1	1
Girls	0.68*** (0.65 – 0.71)	0.67*** (0.64 – 0.70)	0.44*** (0.42 – 0.47)	0.45*** (0.43 – 0.48)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.50*** (1.40 – 1.61)	1.53*** (1.42 – 1.65)	1.24*** (1.13 – 1.35)	1.18*** (1.07 – 1.30)
- Joint custody	1.77*** (1.62 – 1.93)	1.58*** (1.44 – 1.73)	1.37*** (1.23 – 1.53)	1.27*** (1.13 – 1.42)
- One-parent family following divorce/separation	1.26*** (1.19 – 1.33)	1.34*** (1.26 – 1.42)	1.14*** (1.06 – 1.22)	1.09* (1.01 – 1.18)
- One-parent family following death	1.13 (1.00 – 1.28)	1.56*** (1.34 – 1.82)	1.29** (1.10 – 1.51)	1.48*** (1.21 – 1.79)
- Unknown parents/adopted	1.42* (1.08 – 1.87)	1.83*** (1.37 – 2.45)	1.67** (1.19 – 2.29)	1.74** (1.22 – 2.44)
- Other parental situation	1.54** (1.11 – 2.13)	1.80*** (1.28 – 2.55)	1.52* (1.01 – 2.23)	1.60* (1.05 – 2.39)
No answer	1.37** (1.09 – 1.73)	1.66*** (1.30 – 2.12)	1.63*** (1.23 – 2.13)	1.48** (1.10 – 1.97)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.40*** (0.32 – 0.49)	0.46*** (0.37 – 0.56)	0.52*** (0.36 – 0.71)	0.57*** (0.40 – 0.78)
- South European language	1.09 (0.99 – 1.20)	1.09 (0.99 – 1.21)	1.32*** (1.17 – 1.49)	1.35*** (1.19 – 1.52)
- Other European language	1.23*** (1.12 – 1.35)	1.17** (1.07 – 1.29)	1.22*** (1.09 – 1.37)	1.20** (1.06 – 1.35)
- North African language	0.13*** (0.11 – 0.15)	0.16*** (0.14 – 0.19)	0.21*** (0.16 – 0.26)	0.25*** (0.19 – 0.32)
- Sub-Saharan African language	0.17*** (0.13 – 0.23)	0.21*** (0.16 – 0.28)	0.19*** (0.10 – 0.31)	0.21*** (0.12 – 0.36)
- Other foreign language	0.26*** (0.22 – 0.30)	0.29*** (0.24 – 0.34)	0.34*** (0.26 – 0.45)	0.37*** (0.28 – 0.48)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.66*** (0.63 – 0.70)	0.80*** (0.75 – 0.84)	0.75*** (0.69 – 0.80)	0.80*** (0.74 – 0.86)
Neither works	0.45*** (0.40 – 0.51)	0.61*** (0.54 – 0.70)	0.65*** (0.55 – 0.77)	0.72*** (0.60 – 0.86)
No answer	0.75*** (0.71 – 0.80)	0.75*** (0.69 – 0.82)	0.95 (0.87 – 1.04)	0.82*** (0.73 – 0.92)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.81*** (0.75 – 0.86)	0.80*** (0.75 – 0.87)	0.90* (0.83 – 0.99)	0.87** (0.80 – 0.96)
Lower socio-economic class	0.54*** (0.50 – 0.58)	0.54*** (0.50 – 0.59)	0.79*** (0.72 – 0.87)	0.72*** (0.65 – 0.80)
No answer	0.44*** (0.40 – 0.48)	0.46*** (0.42 – 0.50)	0.78*** (0.70 – 0.87)	0.72*** (0.64 – 0.82)
Educational situation				
In education	1	1	1	1
In training	1.80*** (1.66 – 1.96)	1.74*** (1.60 – 1.90)	2.79*** (2.55 – 3.04)	2.37*** (2.17 – 2.60)
No activity, seeking employment or in integration workshops	1.47*** (1.30 – 1.65)	1.78*** (1.57 – 2.02)	1.96*** (1.71 – 2.24)	1.92*** (1.66 – 2.21)
In employment	1.89*** (1.48 – 2.43)	2.22*** (1.71 – 2.90)	1.95*** (1.47 – 2.56)	1.81*** (1.35 – 2.40)
No answer	1.00 (0.76 – 1.32)	1.22 (0.91 – 1.63)	1.28 (0.87 – 1.82)	1.29 (0.88 – 1.86)
Self-perceived health status				
Very good	1	1	1	1
Good	1.16*** (1.11 – 1.21)	1.17*** (1.12 – 1.23)	1.34*** (1.27 – 1.42)	1.35*** (1.27 – 1.43)
Fair	1.22*** (1.12 – 1.33)	1.22*** (1.11 – 1.34)	1.44*** (1.29 – 1.61)	1.45*** (1.29 – 1.64)
Poor	1.05 (0.83 – 1.33)	1.00 (0.78 – 1.29)	1.68*** (1.25 – 2.22)	1.59** (1.17 – 2.13)
No answer	0.67** (0.52 – 0.85)	0.73* (0.56 – 0.94)	1.51** (1.11 – 2.03)	1.37* (0.99 – 1.86)
Depressive state				
No	1	1	1	1
Yes	1.26*** (1.19 – 1.32)	1.38*** (1.31 – 1.46)	1.12*** (1.05 – 1.20)	1.24*** (1.16 – 1.33)
Observations		38,836		38,624
Log Likelihood		-25,488.520		-16,417.750
Akaike Inf. Crit.		51,037.040		32,895.500

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Drunkenness experimentation is defined as ever have been intoxicated.

(b) Repeated alcohol intoxication defined as experiencing three risky-single occasions drinking per month or more. Risky-single occasion (drinking episode) defined as consuming 5 or more drinks on one single occasion.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.4 – Regression models of Cannabis use outcomes

	<i>Dependent variable:</i>			
	Cannabis experimentation (a)		Regular cannabis use (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Gender				
Boys	1	1	1	1
Girls	0.79*** (0.76 – 0.83)	0.75*** (0.72 – 0.79)	0.44*** (0.40 – 0.47)	0.41*** (0.37 – 0.45)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.77*** (1.65 – 1.89)	1.76*** (1.63 – 1.89)	1.91*** (1.68 – 2.17)	1.71*** (1.49 – 1.95)
- Joint custody	1.86*** (1.70 – 2.02)	1.72*** (1.58 – 1.89)	1.77*** (1.51 – 2.07)	1.69*** (1.43 – 1.98)
- One-parent family following divorce/separation	1.66*** (1.57 – 1.75)	1.67*** (1.58 – 1.77)	2.26*** (2.06 – 2.49)	1.93*** (1.74 – 2.14)
- One-parent family following death	1.59*** (1.40 – 1.80)	1.96*** (1.68 – 2.28)	2.29*** (1.86 – 2.80)	2.15*** (1.67 – 2.75)
- Unknown parents/adopted	2.17*** (1.65 – 2.85)	2.46*** (1.85 – 3.29)	3.77*** (2.56 – 5.38)	3.15*** (2.07 – 4.67)
- Other parental situation	1.72** (1.24 – 2.38)	1.79*** (1.28 – 2.50)	1.34 (0.66 – 2.42)	1.17 (0.57 – 2.16)
No answer	1.80*** (1.44 – 2.26)	1.99*** (1.57 – 2.53)	4.09*** (2.99 – 5.49)	3.32*** (2.37 – 4.58)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.53*** (0.43 – 0.66)	0.52*** (0.41 – 0.65)	0.92 (0.61 – 1.34)	0.81 (0.52 – 1.19)
- South European language	1.24*** (1.12 – 1.37)	1.22*** (1.10 – 1.35)	1.19 (0.99 – 1.42)	1.16 (0.96 – 1.39)
- Other European language	1.23*** (1.12 – 1.35)	1.16** (1.06 – 1.28)	1.44*** (1.23 – 1.68)	1.38*** (1.17 – 1.62)
- North African language	0.38*** (0.34 – 0.43)	0.45*** (0.40 – 0.51)	0.51*** (0.39 – 0.66)	0.62*** (0.47 – 0.80)
- Sub-Saharan African language	0.39*** (0.30 – 0.50)	0.43*** (0.33 – 0.56)	0.52* (0.29 – 0.87)	0.60 (0.33 – 1.01)
- Other foreign language	0.39*** (0.33 – 0.46)	0.42*** (0.35 – 0.50)	0.60** (0.42 – 0.82)	0.63** (0.44 – 0.87)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.79*** (0.75 – 0.84)	0.87*** (0.82 – 0.92)	1.06 (0.96 – 1.17)	1.01 (0.91 – 1.12)
Neither works	0.64*** (0.56 – 0.72)	0.72*** (0.64 – 0.83)	0.66** (0.50 – 0.86)	0.55*** (0.41 – 0.72)
No answer	1.04 (0.97 – 1.11)	0.82*** (0.75 – 0.90)	1.63*** (1.45 – 1.81)	0.96 (0.83 – 1.11)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.84*** (0.79 – 0.90)	0.79*** (0.73 – 0.85)	0.98 (0.86 – 1.12)	0.83** (0.72 – 0.95)
Lower socio-economic class	0.64*** (0.60 – 0.69)	0.56*** (0.52 – 0.60)	0.93 (0.81 – 1.07)	0.62*** (0.53 – 0.72)
No answer	0.62*** (0.57 – 0.67)	0.54*** (0.49 – 0.59)	1.15 (0.99 – 1.34)	0.71*** (0.60 – 0.85)
Educational situation				
In education	1	1	1	1
In training	1.49*** (1.38 – 1.61)	1.41*** (1.29 – 1.53)	2.60*** (2.31 – 2.93)	2.02*** (1.78 – 2.29)
No activity, seeking employment or in integration workshops	1.72*** (1.53 – 1.93)	1.71*** (1.51 – 1.93)	4.11*** (3.53 – 4.76)	3.04*** (2.58 – 3.58)
In employment	2.48*** (1.95 – 3.18)	2.52*** (1.96 – 3.26)	4.35*** (3.21 – 5.82)	3.23*** (2.34 – 4.39)
No answer	1.10 (0.83 – 1.46)	1.16 (0.86 – 1.55)	1.75* (1.06 – 2.74)	1.49 (0.89 – 2.37)
Self-perceived health status				
Very good	1	1	1	1
Good	1.50*** (1.43 – 1.56)	1.47*** (1.40 – 1.54)	2.54*** (2.33 – 2.79)	2.39*** (2.18 – 2.63)
Fair	1.92*** (1.76 – 2.10)	1.75*** (1.59 – 1.92)	4.13*** (3.59 – 4.74)	3.50*** (3.01 – 4.06)
Poor	1.54*** (1.21 – 1.95)	1.31* (1.02 – 1.68)	4.89*** (3.48 – 6.72)	3.64*** (2.54 – 5.10)
No answer	0.93 (0.72 – 1.19)	0.94 (0.72 – 1.22)	2.28*** (1.44 – 3.45)	1.71* (1.06 – 2.63)
Depressive state				
No	1	1	1	1
Yes	1.57*** (1.49 – 1.65)	1.52*** (1.44 – 1.61)	1.73*** (1.58 – 1.88)	1.57*** (1.43 – 1.73)
Observations		38,784		38,159
Log Likelihood		-24,963.180		-8,981.620
Akaike Inf. Crit.		49,986.360		18,023.240

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Cannabis experimentation defined as having ever tried cannabis products.

(b) Regular cannabis use defined as smoking cannabis 10 times per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.5 – Regression models of multiple psychoactive substance use outcomes

<i>Dependent variable:</i>		
Regular polydrug use (a)		
	Single indicator model	Adjusted model
	(OR)	(OR)
Gender		
Boys	1	1
Girls	0.45*** (0.41 – 0.48)	0.43*** (0.39 – 0.46)
Parental situation		
Parents are living together : Yes	1	1
Parents are living together : No		
- Blended family	1.79*** (1.59 – 2.00)	1.59*** (1.41 – 1.79)
- Joint custody	1.67*** (1.44 – 1.92)	1.57*** (1.36 – 1.82)
- One-parent family following divorce/separation	2.01*** (1.84 – 2.19)	1.75*** (1.59 – 1.92)
- One-parent family following death	2.06*** (1.70 – 2.48)	2.02*** (1.60 – 2.54)
- Unknown parents/adopted	2.53*** (1.70 – 3.66)	2.18*** (1.42 – 3.26)
- Other parental situation	2.02** (1.21 – 3.17)	1.81* (1.07 – 2.93)
No answer	3.35*** (2.47 – 4.46)	2.79*** (2.01 – 3.81)
Language spoken with family/ relatives		
Speak only French	1	1
Speak an additional heritage language		
- Overseas language	0.54** (0.34 – 0.82)	0.49** (0.30 – 0.75)
- South European language	1.33*** (1.14 – 1.55)	1.31** (1.11 – 1.53)
- Other European language	1.42*** (1.23 – 1.63)	1.38*** (1.19 – 1.60)
- North African language	0.37*** (0.28 – 0.48)	0.45*** (0.34 – 0.58)
- Sub-Saharan African language	0.31*** (0.16 – 0.54)	0.36** (0.18 – 0.64)
- Other foreign language	0.45*** (0.31 – 0.62)	0.47*** (0.33 – 0.65)
Parental activity status		
Both parents work	1	1
One parent works	0.98 (0.90 – 1.07)	0.96 (0.87 – 1.06)
Neither works	0.70** (0.55 – 0.88)	0.61*** (0.48 – 0.78)
No answer	1.43*** (1.29 – 1.59)	0.92 (0.80 – 1.05)
Parental socio-economic status		
Upper socio-economic class	1	1
Intermediate socio-economic class	1.00 (0.89 – 1.13)	0.86* (0.76 – 0.98)
Lower socio-economic class	0.97 (0.86 – 1.10)	0.68*** (0.59 – 0.78)
No answer	1.05 (0.91 – 1.21)	0.70*** (0.60 – 0.82)
Educational situation		
In education	1	1
In training	3.16*** (2.85 – 3.50)	2.50*** (2.24 – 2.79)
No activity, seeking employment or in integration workshops	3.56*** (3.07 – 4.10)	2.78*** (2.37 – 3.25)
In employment	4.11*** (3.08 – 5.42)	3.21*** (2.37 – 4.30)
No answer	1.94** (1.24 – 2.90)	1.79** (1.13 – 2.73)
Self-perceived health status		
Very good	1	1
Good	2.39*** (2.21 – 2.59)	2.26*** (2.09 – 2.46)
Fair	3.66*** (3.22 – 4.15)	3.20*** (2.79 – 3.66)
Poor	4.34*** (3.16 – 5.85)	3.45*** (2.48 – 4.75)
No answer	1.78* (1.10 – 2.73)	1.42 (0.87 – 2.21)
Depressive state		
No	1	1
Yes	1.62*** (1.50 – 1.75)	1.52*** (1.39 – 1.65)
Observations		37,787
Log Likelihood		-10,675.170
Akaike Inf. Crit.		21,410.350

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Multiple psychoactive substance use defined as consuming on a regular basis some combination of alcohol, tobacco and cannabis.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

4.2 Interaction Effects

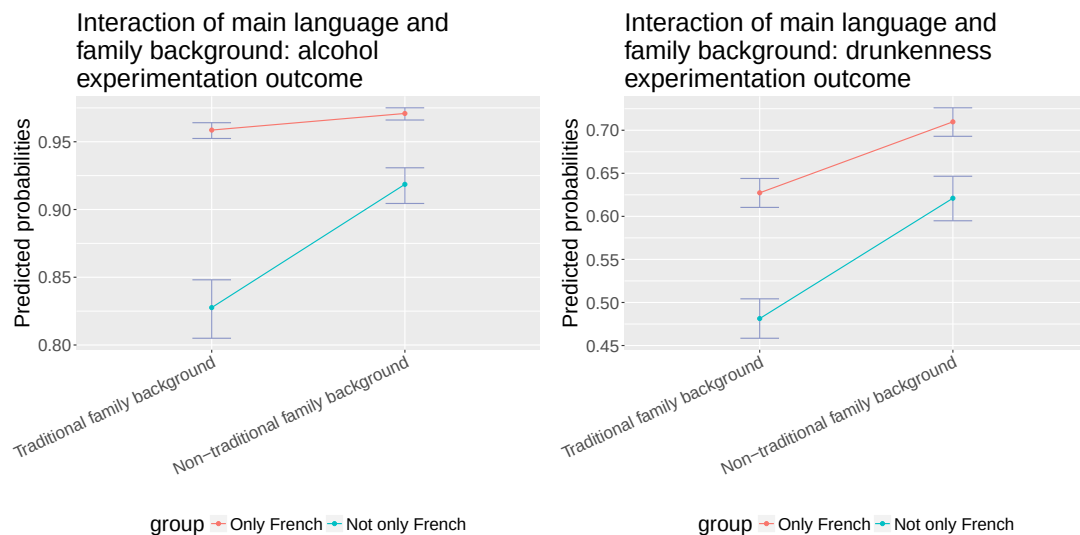
Interactions terms were added in regression models to explore whether the effect of the parental situation on the use of psychoactive substances could vary according to gender, the main language spoken with family and relatives, the parental activity and socio-economic statuses or other characteristics of the respondents. Analyses of variance (ANOVA) were performed to evaluate whether the introduction of the interaction term in the logit model significantly improved the overall model.

Since the initial results found no interactions between the variables of interest (as their large number of modalities results in the creation of many small combinations), it was therefore decided that the categorical variables will be converted into binary in order to inflate the number of respondents in each cell. Accordingly, only two modalities were kept in the analyses concerning the parental situation: "Adolescents from traditional family backgrounds" and "Adolescents from non-traditional family backgrounds". Nonrespondents were included in the "non-traditional parental situations" category as results from previous analyses highlighted their higher risks of psychoactive substance use compared to traditional families.

According to our precedent analyses, boys are at higher risk than girls to experience psychoactive substance use and abuse. Adolescents from a non-traditional family are also greatly impacted, but results of the stratified regression models showed the importance of checking the relationship between these two variables. When exploring the interaction between these two characteristics, no significant interactions were found, except for cannabis experimentation and regular use. Introduction of interaction terms highlighted that the effect of the parental background on the cannabis use slightly differs according to the gender of the respondents: girls are significantly more sensitive to non-traditional parental situations than boys.

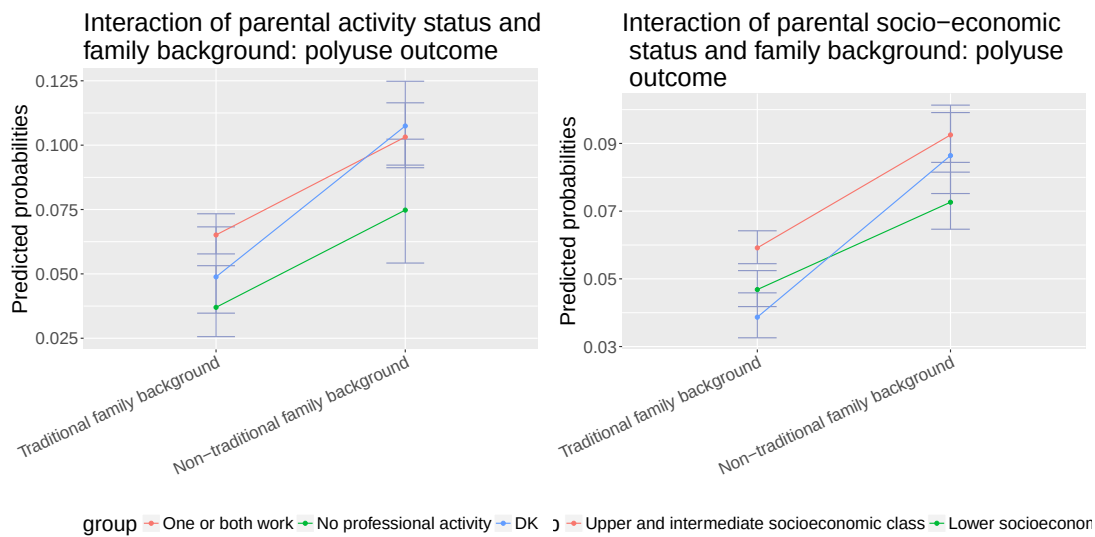
Interaction analyses already examined the effect of the language spoken at home

in conjunction with gender on the use of psychoactive behaviours and highlighted that the spoken language was a factor of importance for both genders, but especially for girls' use of substances (figures 4.1 to 4.4 in the appendix). In-depth analyses reveal some interactions between the family background and the main language spoken with family and relatives. While speaking only French and non-traditional family situations are proven as two at-risk situations in the use and abuse of psychoactive substances, further analyses find interesting results: the excess consumption associated with non-traditional family background is even higher among adolescents who speak another language than French. The interactions between these two characteristics are, however, only significant in the case of drunkenness, experimentation and regular use of alcohol.



No significant interactions are found between the parental situation and the self-perceived health status but, control for interactions reveal some strong associations between depressive symptoms and family background. The varying effects of the parental background according to the mental health are, however, only statistically significant in the case of daily tobacco smoking, alcohol and cannabis experimentations. The impact of non-traditional parental situation on adolescents' alcohol and tobacco uses is especially marked in adolescents suffering from psychological distress or depression.

When preparing the introduction of interaction terms, it was decided cases with nonresponses on the educational situation, the parental socio-economic and occupational statuses would be first retrieved from the data set during the creation of binary variables. This decision proved to be reasonable: in the absence of non-answers, no interactions emerge from the analyses, while the addition of nonresponses disrupts the results and brings significant results. The excess risk of living in a non-traditional parental situation on the use of psychoactive substances is heavily marked in adolescents who gave no information about their parental activity and economic statuses.



In contrast, the addition of nonresponses to the schooling situation do not modify the results regarding the interaction between parental background and educational situation. The interaction is only significant for regular episodes of drunkenness and the experimentation of cannabis-containing products. The effect of a non-traditional family background on these consumption behaviours varies with the adolescents' educational trajectories, to the disadvantage of adolescents in non-traditional education.

Discussion

Bivariate analyses suggest an excess risk of non-traditional family backgrounds in substance use behaviours. However, as cross tabulations showed that adolescents in such families have higher social and economic disadvantages, logit models were conducted in order to estimate the specific effects of the family background and of other socio-cultural variables. Multivariate analyses first show that the gender, the parental activity and socio-economic statuses, the educational situation, the main language spoken at home, self-perceived health and depressive symptoms are all factors associated with differences in psychoactive substance use outcomes among adolescents aged 17.

Boys are More Likely than Girls to Initiate and Regularly Use Psychoactive Substances

Both bivariate and multivariate analyses find significant gender differences in the prevalence of tobacco, alcohol and cannabis consumption behaviours: except for the tobacco experimentation, boys are more likely to initiate other substances and to report repeated consumption and polyuse. The greatest gender difference is observed in the case of alcohol use and binge drinking. The differences are widening with the frequency and intensity of use.

Higher Risks of Use and Abuse are Observed among Privileged Socio-Economic Groups

Regarding the effects of parental activity and socio-economic status, the results are surprising, although in agreement with the scientific literature (Beck & Richard, 2013;

Béraud et al., 2002; INSERM, 2014a, 2014b). The highest levels of use are observed among the most advantaged social groups — especially with regard to drinking behaviours —, and this could be explained by their greater availability of economic resources to buy and try psychoactive substances (INSERM, 2014a; Legleye et al., 2011a, 2011b). Another possible interpretation is that the constant presence of non-working parent(s) at home may result in greater parental control and could discourage adolescents from consuming (Han, Miller & Waldfogel, 2010). This pattern, however, should reverse as adolescents get older, because evidence on adults suggests that the vulnerable groups will become the core of consumers (Beck, Legleye, Maillachon & De Peretti, 2008).

School Dropouts are Associated with Higher Levels of Drug Use and Abuse

Schooling proves to be a major discriminant factor in the consumption of psychoactive substances. School dropouts are associated with higher levels of use, and adolescents in employment constitute the group most at risk. Apprentices are the second discriminated group for drinking behaviour while when considering cannabis and tobacco, the second group most at risk is made of adolescents who are not in education, employment or training (NEET). The behaviour of employed and in-training adolescents is characterized by a faster transition to adulthood which influences their consumption. They have more lenient attitudes towards alcohol drinking, and their wages also mean it is easier for them to afford alcoholic beverages (Haug, Ulbricht, Hanke, Meyer & John, 2011). On the other hand, the problematic consumption of the NEET group and its vulnerability to mental health or substance abuse seems rather due to anxiety, unemployment stress and exclusion from major social institutions. Instead of social acceptance, they seek to find comfort and end up consuming substances associated with self-medication (Baggio et al., 2015; Goldman-Mellor et al., 2016).

African Languages are Associated with Lower Risks of Substance Use

The introduction of linguistic groups used as a proxy for the social background and the migratory status, as a control variable is innovative. It turns out that African languages are associated with a lower risk of substance use. Once again, the differences increase in the case of drinking behaviours, and the protective effect of these linguistic groups — which can be connected with social life and cultural or religious references — decreases in the case of regular use and with substances associated with self-medication against anxiety (tobacco and cannabis). Little research is available to help understand how communities of origin and religious factors intervene in the perceptions and control of drug use, but a recent study of Obradovic (2017) — exploring perceptions and strategies associated with psychoactive use among French adolescents — highlighted the specific contexts and motives of adolescents of the Muslim faith. Due to religious beliefs, their consumption of alcohol, tobacco and cannabis is strongly discouraged.

Strong Associations are Observed Between Health and Substance Use, but the Direction of Causation is Complex to Determine

Our results also highlight a strong relationship between self-perceived health and risky behaviours: a deterioration of health is highly associated with an increased risk of substance use and abuse. However, the causality is complex because previous studies found a significant bidirectional relationship: a deterioration of health increases the risk of developing risky behaviours and inversely (Sommet et al., 2012). A large body of literature also confirms the negative association between depressive symptoms and psychoactive substance use (Dierker, Rose, Selya, Piasecki, Hedeker & Mermelstein, 2015; Edlund et al., 2015; Yamasaki et al., 2018). However, the direction of causation is again difficult to demonstrate. Drug use and abuse can be a response to psychological distress as a way to cope with anxiety, but depressive symptoms may also be a consequence of the use (Kranzler & Liebowitz, 1988).

Adolescents from non-traditional families face relatively greater risks of both experimenting and regularly using any psychoactive substance

As hypothesized (H1), results from the bivariate and regression models confirm that adolescents from non-traditional family backgrounds are more subject to alcohol, tobacco and cannabis initiation or repeated use compared to adolescents from traditional nuclear families. Once covariates are introduced in the logit models, these excess risks are even increased due to the control of the protective effect of precarious socio-economic conditions. Regardless of the substance and frequency of use, adolescents with at least one parent unknown face the highest risk of use (up to two or three times higher than the reference category (adolescents whose parents are living together)). The “blended family” and “joint custody” categories have the second-highest odds ratio for experimentation and regular use of tobacco and alcohol, while “one-parent families formed through divorce/separation or death” become the second most affected family category for drunkenness, cannabis and polyuse. Considering this association with the three most common psychoactive substances and with multiple intensities of use, however, brings a new perspective on the matter.

As predicted (H2), our results suggest that the excess risk of drug use of adolescents from non-traditional family environments grows with regular and multiple consumption, but it is only significant for daily tobacco and cannabis uses. We also find that the excess risk of use and abuse of psychoactive substance of adolescents from non-traditional family backgrounds is higher in the case of products often associated by adolescents themselves with dangerous use, risk of addiction or self-medication against anxiety (H3). The protective effect for adolescents of having both parents living together appears to be stronger for cannabis, tobacco and polyuse compared to alcohol and binge drinking. These results confirm that adolescents from non-traditional families are particularly vulnerable to drug use and risk behaviours.

Results do not Support Strong Interaction Effects Between Gender, Ethnic Minorities or Precarious Socio-Economic Conditions and Family Background

The introduction of interaction terms in the logit models was intended to identify particularly vulnerable profiles. We hypothesized that minority ethnic groups and adolescents in precarious socio-economic situations would suffer less from family instability as previous studies showed that their more frequent exposure to stressful situations strengthen their stress tolerance (Fomby & Cherlin, 2007; Fomby et al., 2010; Gerard & Buehler, 2004; Härkönen et al., 2017). Even though some profiles face significant differences in the effect of family background on psychoactive substance use, no general pattern can be highlighted. The excess alcohol consumption associated with non-traditional family background is greater if adolescents are speaking another language than French at home, and adolescents suffering from mental distress also are more affected by an unstable family background with regard to their experimentation of alcohol and cannabis and their daily use of tobacco. However, most interaction terms do not reach statistical significance, supposedly because of the small number of respondents in some categories. No interactions are significant when considering the adolescents' self-perceived health and their parental occupational and socio-economic statuses, except for nonrespondents who appear clearly at higher risk. Small and nonsignificant interactions cannot prove that adolescents' responses to living in non-traditional households with regard to drug use differ according to their gender, education, social origin, or mental and physical health statuses (H4).

Interpretations of the Findings

The inclusion of multiple substances and frequencies of use adds a novel dimension to the study of drug involvement of adolescents from non-traditional families. Not only do they face higher risks of consumption — regardless of the substance — but these excess risks increase with the frequency of use and in relation to the substances or combinations that adolescents consider as problematic. Adolescents' opinions of psychoactive substance consumption vary depending on the intensity of use: while

experimentation and occasional uses are perceived with regard to the motives and meaning associated with the substance, regular use is mostly associated by adolescents to addiction and harmful behaviours. In that sense, the transition from an occasional (and social) to a repeated (and addictive) use of psychoactive substance corresponds to a “symbolic boundary between what is "social" in nature, considered as legitimate and able to be regulated, and what constitutes a marginal and less acceptable practice: this symbolic boundary between "controlled" and "uncontrolled”” (Obradovic, 2017, p.5). Exploring perceptions, motives and social representations that adolescents associate with drug use, it appears that, while alcohol and binge drinking are associated with more normative behaviours and with festive contexts and conviviality, cannabis and tobacco are considered as being more hazardous and noxious. Tobacco smokers are especially stigmatized as smoking, for the past decades, has been linked with harmful health effects, illness and addiction, which triggered a series of restrictions such as a minimum age requirement and prohibition in public areas. In addition to the negative perception associated with smoking, adolescents’ motives for cigarette and cannabis uses extend beyond a recreational use: they are greatly associated with self-medication, in order to relax or to overcome difficulties (Beck et al., 2016; Obradovic, 2017).

These results are consistent with a large body of literature that already highlighted that adolescents from non-traditional families are more prone to report risk behaviours, to experiment and to regularly use psychoactive substances, likely due to their lack of supervision, their more permissive rules or their experiences of stressful or unstable situations (Beck et al., 2016; Béraud et al., 2002; Hemovich & Crano, 2009; IRDES & Menahem, 1995; Ostberg, 2008; Surkan et al., 2012; Schwartz et al., 2009; Varescon, 2010; Weitoft et al., 2003). Their consumption of psychoactive substances would therefore be part of their need to comfort or cure their anxiety. This assumption is supported by their heightened excess risk of consuming one or multiple substances regularly and of consuming tobacco and cannabis, both substances commonly associated by adolescents with more problematic use (Assailly,

2006; Favez, 2009; Jeammet, 2007; Sarvet et al., 2018). A second possibility could be that, due to limited parental resources, a lack of supervision or the presence of more permissive rules, adolescents from non-traditional families have lower perception of risk and therefore are more likely to engage in consumption behaviours perceived as problematic (IRDES & Menahem, 1995).

Conclusion

We used data from the latest 2017 ESCAPAD survey, a large national sample conducted among 17-year-olds in mainland France, to study the evolution of the adolescents' initiation and repeated use of tobacco, alcohol and cannabis and the main socio-cultural factors that are associated with consumption. A specific emphasis was put on a better understanding of the association between family background and psychoactive substance use, to investigate whether the family background is an essential determinant of adolescents' health behaviours in France and whether its effect varies with the psychoactive substance studied, with the frequency of consumption, or with certain socio-cultural characteristics. Bivariate (chi-square tests) and multivariate analyses (logit models) were produced to test the hypothesis according to which adolescents from non-traditional family backgrounds face a higher risk of drug use and abuse (H1). This hypothesis is supported by the literature, according to which a stable and strong family cohesion helps adolescents overcome stressful events and intervenes in the understanding of the perceived danger, while unstable and stressful situations inside the household can become a source of stress, of low self-esteem and can push the individual to deviant behaviours. Adolescents from non-traditional families may face a lack of supervision and more permissive rules, resulting in a lower perception of risk and higher risk-taking behaviours. The parental use and behaviours towards psychoactive substances also influence the adolescents' perception of these substances. Particularly strong associations were expected in the case of regular and multiple consumption (H2), and in the case of tobacco and cannabis use (H3), substances and consumption behaviours greatly associated by adolescents with self-medication against anxiety and considered as problematic. We also asked

whether gender, cultural and socio-economic factors moderate the observed effects of the family background on the use of psychoactive substances (H4).

Initial findings from the bivariate analyses highlight that alcohol remains the most prevalent substance experimented among adolescents, while cannabis and tobacco remain the substances with the most widespread daily and intensive consumption. As expected, findings from this master thesis confirm that family background is an important factor to consider when exploring risk-taking and consumption behaviours: adolescents living outside a traditional nuclear family structure appear to be extremely vulnerable to drug use and abuse (H1). Logit models also reveal that adolescents from all non-traditional families face relatively greater risks of experimenting, regularly using or combining alcohol, tobacco and cannabis. For two cases, these excess risks are even greater: regular or multiple consumption of any substance (H2), and any kind of tobacco or cannabis consumption (H3), two substances associated by adolescents with both danger and self-medication against anxiety. Interactions terms do not confirm that adolescents' responses to living in non-traditional households are significantly different in regards to drug use, whatever their gender, health or socio-cultural characteristics (H4).

Even though previous findings already supported the essential educational role of parents, as they help adolescents in developing their physical, moral and intellectual skills, we hope that this master thesis — by comparing multiple substances and drug measures — brings new insights on adolescent drug use. Another strength of this study is that the ESCAPAD survey, given its magnitude and large sample, supplied exhaustive, innovative and powerful measures potentially exploitable at different types and sub-types of families. Yet, it was the first time this survey was used in a research dedicated to drug use in relation with parental and family situations. The variety of the topics covered by the 2017 edition of the survey proved to be helpful to offset potential cofounders and to identify determinant factors. Information about the dominant language spoken at home was newly introduced in the questionnaire,

and this characteristic, as well as the adolescent's educational path, appeared to be a major — though understudied — determinant of health. Results confirm the significant role of other characteristics such as the physical and mental states of health or the parental occupational and socio-economic statuses. By including nonrespondents in the analyses, this study reaffirms their specific profile: adolescents who did not provide information about their family type and parental situation appear to be at higher risk of use, and more generally, adolescents who omitted some questions belong to disadvantaged social strata and face complex family trajectories.

Turning to limitations, it should be emphasized that regression models do not inform on causal relationships. The identification of an association between a dependent variable (measures of drug use) and some explanatory variables (family background) help identify situations of correlation and collinearity but do not indicate the direction of causality. As such, caution is needed when interpreting the results. This master thesis is based on an existing data set which was not initially designed for the purpose of the current research project. Therefore, some important aspects essential to consider when turning to family situations — such as family cohesion, types, duration and number of previous transitions experienced by the adolescent — were not available. By cross-tabulating parental situation and family structure, this study provides some insights about family events experienced by the adolescent, but it cannot inform on the stress they may have caused. It was therefore difficult to isolate the effects of structures and dynamics. Further research should include this information to provide a full comprehensive picture of family instability. A confusion between biological and stepparents also appeared when interpreting specific parental situations, likely because no distinction was made in the questionnaire. We suggest this nuance should be added in the next editions of the ESCAPAD project.

Overall, the present master thesis provides evidence that family background plays a determining role in the protection and the moderation of adolescents' psychoactive substance use. We hope this research adds a novel dimension to the study of adolescents' drug involvement and that future research will help clarify the underlying processes leading to disparities in health-risk behaviours in adolescence.

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Appendix

Table 4.6 – Characteristics of the survey sample according to parental situation (part 1) ($n = 39049$)

	Parents are living together	Blended family	Joint custody	One-parent family following divorce/separation	One-parent family following death of one or both parents	Unknown parent(s), adopted	Other parental situation	No answer	Total
	24591 (63.0%)	3680 (9.4%)	2235 (5.7%)	6847 (17.6%)	1038 (2.6%)	214 (0.5%)	147 (0.4%)	297 (0.8%)	39049 (100%)
Gender									
Boys	12428 (51.7%)	1776 (49.4%)	1177 (53.5%)	3351 (49.9%)	518 (51.0%)	98 (46.3%)	55 (39.0%)	169 (58.1%)	19572 (50.1%)
Girls	12163 (48.3%)	1904 (50.6%)	1058 (46.5%)	3496 (50.1%)	520 (49.0%)	116 (53.7%)	92 (61.0%)	128 (41.9%)	19477 (49.9%)
Language spoken with family									
Speak only French	20245 (81.9%)	3136 (84.9%)	1939 (86.7%)	5638 (81.9%)	833 (80.1%)	183 (85.5%)	109 (73.6%)	240 (80.6%)	32323 (82.4%)
Overseas language	172 (0.7%)	49 (1.3%)	11 (0.5%)	146 (2.2%)	23 (2.2%)	3 (1.4%)	1 (0.6%)	6 (1.8%)	411 (1.1%)
South European language	1004 (4.1%)	176 (4.9%)	106 (4.7%)	275 (4.2%)	48 (4.6%)	14 (6.5%)	8 (5.6%)	14 (4.7%)	1645 (4.3%)
Other European language	1134 (4.8%)	192 (5.2%)	110 (4.9%)	363 (5.4%)	51 (4.9%)	6 (2.5%)	18 (11.7%)	16 (5.3%)	1890 (4.9%)
North African language	1203 (5.0%)	69 (1.9%)	36 (1.7%)	250 (3.7%)	49 (4.8%)	5 (2.4%)	4 (3.8%)	14 (4.9%)	1630 (4.3%)
Sub-Saharan African language	194 (0.8%)	24 (0.8%)	9 (0.4%)	75 (1.2%)	23 (2.4%)	1 (0.5%)	5 (3.5%)	4 (1.6%)	335 (0.9%)
Other foreign language	639 (2.7%)	34 (1.0%)	24 (1.1%)	100 (1.5%)	11 (1.0%)	2 (1.1%)	2 (1.2%)	3 (1.1%)	815 (2.1%)
Parental activity status									
Both parents work	17820 (72.4%)	2062 (56.2%)	1793 (80.5%)	3605 (53.2%)	4 (0.4%)	28 (13.4%)	60 (41.2%)	79 (26.3%)	25451 (65.3%)
One parent works	5277 (21.5%)	696 (18.9%)	344 (15.2%)	1459 (20.9%)	9 (0.9%)	12 (5.7%)	32 (21.6%)	48 (16.7%)	7877 (20.1%)
Neither works	828 (3.3%)	85 (2.3%)	48 (2.1%)	314 (4.5%)	3 (0.3%)	5 (1.8%)	3 (1.8%)	14 (4.6%)	1300 (3.3%)
No answer	666 (2.7%)	837 (22.6%)	50 (2.1%)	1469 (21.4%)	1022 (98.4%)	169 (79.1%)	52 (35.4%)	156 (52.5%)	4421 (11.3%)
Parental socio-economic status									
Upper socio-economic class	2764 (11.6%)	253 (7.2%)	295 (13.9%)	462 (7.0%)	10 (1.0%)	1 (0.5%)	13 (9.2%)	8 (2.8%)	3806 (10.1%)
Intermediate socio-economic class	11271 (45.7%)	1436 (39.2%)	1147 (51.4%)	2539 (37.0%)	263 (25.8%)	50 (23.3%)	54 (36.6%)	69 (24.1%)	16829 (43.0%)
Lower socio-economic class	7426 (29.9%)	1375 (37.0%)	548 (23.8%)	2426 (35.3%)	528 (50.3%)	70 (33.9%)	44 (29.9%)	103 (33.0%)	12520 (31.7%)
No answer	3130 (12.8%)	616 (16.7%)	245 (11.0%)	1420 (20.7%)	237 (22.8%)	93 (42.4%)	36 (24.2%)	117 (40.1%)	5894 (15.1%)

Note : All percentages are weighted but counts of observations are not.
Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.7 – Characteristics of the survey sample according to parental situation (part 2) ($n = 39049$)

	Parents are living together	Blended family	Joint custody	One-parent family following divorce/separation	One-parent family following death of one or both parents	Unknown parent(s), adopted	Other parental situation	No answer	Total
	24591 (63.0%)	3680 (9.4%)	2235 (5.7%)	6847 (17.6%)	1038 (2.6%)	214 (0.5%)	147 (0.4%)	297 (0.8%)	39049 (100%)
Educational situation									
In education	22358 (91.1%)	3146 (85.7%)	2048 (91.9%)	5679 (83.2%)	866 (83.7%)	165 (76.5%)	122 (82.9%)	196 (66.4%)	34580 (88.7%)
In training	1493 (6.0%)	367 (9.8%)	123 (5.4%)	585 (8.4%)	87 (8.2%)	21 (10.4%)	16 (11.2%)	57 (19.3%)	2749 (6.9%)
No activity, seeking employment or integration workshops	500 (2.0%)	118 (3.2%)	42 (1.8%)	445 (6.4%)	66 (6.2%)	22 (10.3%)	6 (3.8%)	25 (8.1%)	1224 (3.1%)
In employment (no training)	134 (0.5%)	31 (0.9%)	13 (0.5%)	81 (1.2%)	11 (1.2%)	3 (1.4%)	1 (0.7%)	12 (4.0%)	286 (0.7%)
No answer	106 (0.4%)	18 (0.5%)	9 (0.4%)	57 (0.8%)	8 (0.7%)	3 (1.4%)	2 (1.4%)	7 (2.2%)	210 (0.5%)
Self-perceived health status									
Very good	12546 (51.2%)	1545 (42.3%)	1134 (51.3%)	2780 (40.6%)	407 (39.9%)	80 (38.5%)	60 (43.0%)	124 (42.7%)	18676 (48.0%)
Good	10486 (42.5%)	1822 (49.4%)	958 (42.4%)	3385 (49.5%)	533 (50.7%)	89 (41.1%)	71 (45.7%)	124 (41.4%)	17458 (44.6%)
Fair	1243 (5.0%)	268 (7.1%)	117 (5.1%)	555 (8.1%)	73 (7.1%)	33 (14.8%)	14 (10.0%)	29 (9.2%)	2332 (5.9%)
Poor	146 (0.6%)	24 (0.6%)	17 (0.7%)	73 (1.1%)	14 (1.3%)	9 (4.2%)	1 (0.7%)	2 (0.6%)	286 (0.7%)
No answer	170 (0.7%)	21 (0.6%)	9 (0.4%)	54 (0.8%)	11 (1.1%)	3 (1.3%)	1 (0.6%)	18 (6.2%)	287 (0.7%)
Depressive state									
No psychological problems	20226 (82.3%)	2780 (75.8%)	1765 (79.3%)	5162 (75.4%)	775 (75.1%)	155 (71.6%)	111 (75.5%)	232 (78.6%)	31206 (79.9%)
Psychologically distressed or depressive state	4365 (17.7%)	900 (24.2%)	470 (20.7%)	1685 (24.6%)	263 (24.9%)	59 (28.4%)	36 (24.5%)	65 (21.4%)	7843 (20.1%)
No answer	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Note : All percentages are weighted but counts of observations are not.
Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.8 – Regression models of tobacco use outcomes : exclusive versus non-exclusive language categories

		<i>Dependent variable:</i>			
	Tobacco experimentation (a)	Daily smoking (b)			
			Tobacco experimentation	Daily smoking	
Non-exclusive language categories			Exclusive language categories		
	(OR)	(OR)	(OR)	(OR)	
Gender			Gender		
Boys	1	1	Boys	1	
Girls	1.07*** (1.03 – 1.12)	0.88*** (0.84 – 0.92)	Girls	1.07*** (1.03 – 1.12)	0.88*** (0.84 – 0.92)
Parental situation			Parental situation		
Parents are living together : Yes	1	1	Parents are living together : Yes	1	1
Parents are living together : No			Parents are living together : No		
- Blended family	1.75*** (1.62 – 1.89)	1.83*** (1.69 – 1.99)	- Blended family	1.75*** (1.62 – 1.89)	1.83*** (1.69 – 1.98)
- Joint custody	1.61*** (1.47 – 1.77)	1.58*** (1.43 – 1.74)	- Joint custody	1.61*** (1.47 – 1.77)	1.58*** (1.42 – 1.74)
- One-parent family following divorce/separation	1.41*** (1.33 – 1.50)	1.57*** (1.47 – 1.68)	- One-parent family following divorce/separation	1.41*** (1.33 – 1.50)	1.57*** (1.47 – 1.68)
- One-parent family following death	1.65*** (1.41 – 1.93)	1.80*** (1.52 – 2.11)	- One-parent family following death	1.65*** (1.41 – 1.92)	1.80*** (1.52 – 2.11)
- Unknown parents/adopted	1.92*** (1.41 – 2.63)	2.05*** (1.51 – 2.77)	- Unknown parents/adopted	1.91*** (1.41 – 2.62)	2.04*** (1.50 – 2.77)
- Other parental situation	1.44* (1.03 – 2.05)	1.68** (1.16 – 2.40)	- Other parental situation	1.45* (1.03 – 2.06)	1.68** (1.16 – 2.40)
No answer	1.47** (1.15 – 1.89)	2.06*** (1.60 – 2.65)	No answer	1.47** (1.15 – 1.88)	2.06*** (1.59 – 2.65)
Language spoken with family/ relatives			Language spoken with family/ relatives		
Speak only French	1	1	Speak only French	0.97 (0.80 – 1.16)	1.04 (0.84 – 1.28)
Speak an additional heritage language :			Speak an additional heritage language :		
- Overseas language	0.61*** (0.50 – 0.74)	0.52*** (0.40 – 0.67)	Do not speak an overseas language	1	1
			Speak an overseas language	0.60*** (0.46 – 0.77)	0.53*** (0.39 – 0.73)
- South European language	1.28*** (1.15 – 1.43)	1.54*** (1.38 – 1.72)	Do not speak a South European language	1	1
			Speak a South European language	1.29** (1.08 – 1.54)	1.62*** (1.33 – 1.98)
- Other European language	1.11* (1.01 – 1.23)	1.13* (1.01 – 1.26)	Do not speak another European language	1	1
			Speak another European language	1.04 (0.88 – 1.23)	1.15 (0.94 – 1.39)
- North African language	0.41*** (0.37 – 0.46)	0.60*** (0.52 – 0.69)	Do not speak a North African language	1	1
			Speak a North African language	0.39*** (0.33 – 0.48)	0.60*** (0.48 – 0.76)
- Sub-Saharan African language	0.34*** (0.27 – 0.42)	0.35*** (0.25 – 0.49)	Do not speak a Sub-Saharan African language	1	1
			Speak a Sub-Saharan African language	0.33*** (0.25 – 0.43)	0.35*** (0.23 – 0.51)
- Other foreign language	0.48** (0.41 – 0.55)	0.58*** (0.48 – 0.70)	Do not speak another foreign language	1	1
			Speak another foreign language	0.48*** (0.39 – 0.59)	0.59*** (0.46 – 0.77)
Parental activity status			Parental activity status		
Both parents work	1	1	Both parents work	1	1
One parent works	0.88*** (0.83 – 0.93)	0.93* (0.87 – 1.00)	One parent works	0.88*** (0.83 – 0.93)	0.93* (0.88 – 1.00)
Neither works	0.81*** (0.71 – 0.91)	0.90 (0.78 – 1.04)	Neither works	0.81*** (0.72 – 0.91)	0.90 (0.78 – 1.04)
No answer	0.80*** (0.74 – 0.87)	0.93 (0.84 – 1.02)	No answer	0.80*** (0.74 – 0.88)	0.93 (0.84 – 1.02)
Parental socio-economic status			Parental socio-economic status		
Upper socio-economic class	1	1	Upper socio-economic class	1	1
Intermediate socio-economic class	0.85*** (0.79 – 0.91)	0.94 (0.86 – 1.02)	Intermediate socio-economic class	0.85*** (0.79 – 0.91)	0.94 (0.86 – 1.02)
Lower socio-economic class	0.67*** (0.62 – 0.72)	0.87** (0.80 – 0.96)	Lower socio-economic class	0.67*** (0.62 – 0.72)	0.87** (0.80 – 0.96)
No answer	0.65*** (0.59 – 0.71)	0.95 (0.85 – 1.05)	No answer	0.65*** (0.59 – 0.71)	0.95 (0.86 – 1.05)
Educational situation			Educational situation		
In education	1	1	In education	1	1
In training	1.94*** (1.77 – 2.12)	2.87*** (2.64 – 3.12)	In training	1.94*** (1.77 – 2.12)	2.87*** (2.63 – 3.12)
No activity, seeking employment or in integration workshops	2.43*** (2.12 – 2.80)	3.77*** (3.33 – 4.28)	No activity, seeking employment or in integration workshops	2.43*** (2.12 – 2.80)	3.77*** (3.33 – 4.27)
In employment	3.09*** (2.31 – 4.19)	5.17*** (4.02 – 6.68)	In employment	3.08*** (2.30 – 4.18)	5.17*** (4.02 – 6.69)
No answer	1.12 (0.84 – 1.50)	1.90*** (1.40 – 2.56)	No answer	1.12 (0.84 – 1.50)	1.90*** (1.40 – 2.56)
Self-perceived health status			Self-perceived health status		
Very good	1	1	Very good	1	1
Good	1.45*** (1.39 – 1.52)	2.15*** (2.04 – 2.26)	Good	1.45*** (1.39 – 1.52)	2.15*** (2.04 – 2.26)
Fair	1.63*** (1.48 – 1.79)	2.49*** (2.26 – 2.75)	Fair	1.63*** (1.48 – 1.79)	2.49*** (2.26 – 2.75)
Poor	1.06 (0.83 – 1.37)	2.17*** (1.67 – 2.81)	Poor	1.06 (0.83 – 1.37)	2.15*** (1.66 – 2.78)
No answer	0.93 (0.73 – 1.20)	1.69*** (1.27 – 2.24)	No answer	0.93 (0.73 – 1.20)	1.70*** (1.27 – 2.25)
Depressive state			Depressive state		
No	1	1	No	1	1
Yes	1.54*** (1.45 – 1.62)	1.45*** (1.36 – 1.53)	Yes	1.53*** (1.45 – 1.62)	1.45*** (1.36 – 1.53)
Observations	38,970	38,810	Observations	38,970	38,810
Log Likelihood	-25,425.660	-20,357.840	Log Likelihood	-25,424.000	-20,347.940
Akaike Inf. Crit.	50,911.310	40,775.680	Akaike Inf. Crit.	50,910.000	40,757.870

Note : Regression models are adjusted for each of the listed variables.

(a) Tobacco experimentation defined as having ever tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos).

(b) Daily smoking defined as smoking one cigarette (packed or hand-rolled) or more per day.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.9 – Regression models of tobacco use outcomes : results for boys

	<i>Dependent variable:</i>			
	Tobacco experimentation (a)		Daily smoking (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.74*** (1.57 – 1.94)	1.67*** (1.50 – 1.87)	2.09*** (1.88 – 2.32)	1.85*** (1.65 – 2.07)
- Joint custody	1.64*** (1.44 – 1.85)	1.56*** (1.38 – 1.78)	1.52*** (1.33 – 1.73)	1.56*** (1.36 – 1.79)
- One-parent family following divorce/separation	1.45*** (1.34 – 1.56)	1.37*** (1.26 – 1.49)	1.83*** (1.69 – 1.99)	1.51*** (1.38 – 1.65)
- One-parent family following death	1.45*** (1.21 – 1.74)	1.73*** (1.40 – 2.15)	2.04*** (1.70 – 2.45)	1.88*** (1.50 – 2.36)
- Unknown parents/adopted	1.89** (1.24 – 2.97)	1.91** (1.22 – 3.06)	2.15*** (1.41 – 3.24)	1.62* (1.02 – 2.54)
- Other parental situation	1.15 (0.69 – 1.96)	1.09 (0.64 – 1.88)	2.04** (1.18 – 3.45)	1.70 (0.95 – 2.98)
No answer	1.31 (0.97 – 1.79)	1.29 (0.93 – 1.78)	2.46*** (1.80 – 3.35)	1.79*** (1.27 – 2.50)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.70* (0.53 – 0.93)	0.74* (0.55 – 0.99)	0.66* (0.46 – 0.93)	0.61** (0.41 – 0.87)
- South European language	1.26** (1.09 – 1.47)	1.24** (1.06 – 1.44)	1.58*** (1.36 – 1.84)	1.56*** (1.32 – 1.83)
- Other European language	1.19** (1.04 – 1.35)	1.18* (1.04 – 1.35)	1.07 (0.93 – 1.23)	1.13 (0.98 – 1.31)
- North African language	0.45*** (0.39 – 0.52)	0.54*** (0.46 – 0.63)	0.73*** (0.61 – 0.87)	0.84 (0.69 – 1.02)
- Sub-Saharan African language	0.37*** (0.27 – 0.50)	0.40*** (0.29 – 0.56)	0.42*** (0.26 – 0.65)	0.44*** (0.27 – 0.69)
- Other foreign language	0.63*** (0.52 – 0.77)	0.68*** (0.55 – 0.83)	0.79* (0.62 – 0.99)	0.79 (0.61 – 1.01)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.83*** (0.78 – 0.90)	0.85*** (0.78 – 0.91)	1.05 (0.97 – 1.14)	0.91* (0.83 – 0.99)
Neither works	0.71*** (0.61 – 0.84)	0.74*** (0.63 – 0.88)	1.11 (0.92 – 1.32)	0.86 (0.70 – 1.04)
No answer	1.03 (0.94 – 1.12)	0.80*** (0.71 – 0.90)	1.58*** (1.44 – 1.74)	0.91 (0.80 – 1.04)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.92 (0.83 – 1.02)	0.87** (0.79 – 0.97)	1.13* (1.00 – 1.27)	0.97 (0.86 – 1.09)
Lower socio-economic class	0.81*** (0.73 – 0.90)	0.70*** (0.63 – 0.78)	1.36*** (1.20 – 1.53)	0.92 (0.81 – 1.05)
No answer	0.78*** (0.70 – 0.88)	0.69*** (0.61 – 0.78)	1.55*** (1.36 – 1.77)	1.02 (0.88 – 1.18)
Educational situation				
In education	1	1	1	1
In training	2.05*** (1.85 – 2.28)	2.02*** (1.82 – 2.25)	3.36*** (3.05 – 3.70)	3.06*** (2.77 – 3.39)
No activity, seeking employment or in integration workshops	2.70*** (2.28 – 3.22)	2.79*** (2.33 – 3.35)	5.30*** (4.56 – 6.18)	4.48*** (3.81 – 5.26)
In employment	2.77*** (1.99 – 3.95)	2.97*** (2.11 – 4.26)	6.09*** (4.54 – 8.24)	5.78*** (4.25 – 7.92)
No answer	1.17 (0.80 – 1.71)	1.26 (0.86 – 1.86)	1.99*** (1.33 – 2.93)	1.81** (1.19 – 2.71)
Self-perceived health status				
Very good	1	1	1	1
Good	1.61*** (1.52 – 1.71)	1.53*** (1.44 – 1.63)	2.48*** (2.32 – 2.66)	2.26*** (2.11 – 2.43)
Fair	1.83*** (1.59 – 2.11)	1.54*** (1.33 – 1.79)	3.13*** (2.73 – 3.60)	2.45*** (2.11 – 2.84)
Poor	1.62** (1.13 – 2.35)	1.24 (0.85 – 1.83)	3.17*** (2.21 – 4.52)	2.09*** (1.42 – 3.06)
No answer	1.11 (0.81 – 1.51)	1.02 (0.74 – 1.41)	2.57*** (1.84 – 3.55)	1.83*** (1.28 – 2.59)
Depressive state				
No	1	1	1	1
Yes	1.64*** (1.51 – 1.78)	1.50*** (1.38 – 1.64)	1.71*** (1.57 – 1.85)	1.41*** (1.29 – 1.54)
Observations		19,518		19,432
Log Likelihood		-13,004.320		-10,444.120
Akaike Inf. Crit.		26,066.640		20,946.230

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Tobacco experimentation defined as having ever tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos).

(b) Daily smoking defined as smoking one cigarette (packed or hand-rolled) or more per day.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.10 – Regression models of tobacco use outcomes : results for girls

	<i>Dependent variable:</i>			
	Tobacco experimentation (a)		Daily smoking (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.91*** (1.71 – 2.12)	1.84*** (1.64 – 2.06)	2.03*** (1.82 – 2.26)	1.82*** (1.62 – 2.04)
- Joint custody	1.85*** (1.61 – 2.12)	1.69*** (1.47 – 1.94)	1.69*** (1.46 – 1.94)	1.61*** (1.39 – 1.86)
- One-parent family following divorce/separation	1.47*** (1.36 – 1.59)	1.47*** (1.35 – 1.60)	1.87*** (1.72 – 2.04)	1.65*** (1.51 – 1.81)
- One-parent family following death	1.32*** (1.10 – 1.59)	1.59*** (1.27 – 1.98)	1.87*** (1.54 – 2.27)	1.71*** (1.35 – 2.17)
- Unknown parents/adopted	1.79** (1.21 – 2.71)	1.93** (1.28 – 2.98)	3.06*** (2.08 – 4.46)	2.48*** (1.64 – 3.72)
- Other parental situation	1.67* (1.08 – 2.62)	1.76* (1.12 – 2.81)	1.88** (1.18 – 2.90)	1.68* (1.04 – 2.67)
No answer	1.62* (1.12 – 2.36)	1.79** (1.22 – 2.66)	2.92*** (2.03 – 4.16)	2.52*** (1.71 – 3.69)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.54*** (0.41 – 0.71)	0.50*** (0.38 – 0.66)	0.59** (0.40 – 0.84)	0.44*** (0.30 – 0.64)
- South European language	1.38*** (1.20 – 1.61)	1.33*** (1.14 – 1.55)	1.63*** (1.41 – 1.88)	1.51*** (1.30 – 1.76)
- Other European language	1.09 (0.94 – 1.25)	1.04 (0.90 – 1.20)	1.18* (1.01 – 1.37)	1.13 (0.96 – 1.32)
- North African language	0.29*** (0.26 – 0.34)	0.32*** (0.28 – 0.37)	0.42*** (0.34 – 0.52)	0.43*** (0.34 – 0.52)
- Sub-Saharan African language	0.26*** (0.19 – 0.36)	0.28*** (0.20 – 0.38)	0.29*** (0.16 – 0.47)	0.27*** (0.15 – 0.45)
- Other foreign language	0.30*** (0.24 – 0.37)	0.32*** (0.26 – 0.40)	0.37*** (0.26 – 0.50)	0.38*** (0.27 – 0.52)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.81*** (0.75 – 0.87)	0.92* (0.85 – 1.00)	1.00 (0.92 – 1.09)	0.97 (0.88 – 1.06)
Neither works	0.73*** (0.62 – 0.86)	0.88 (0.74 – 1.05)	1.10 (0.91 – 1.32)	0.96 (0.79 – 1.18)
No answer	0.96 (0.87 – 1.05)	0.80*** (0.70 – 0.90)	1.47*** (1.33 – 1.62)	0.94 (0.82 – 1.07)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.87** (0.78 – 0.96)	0.82*** (0.73 – 0.91)	1.03 (0.92 – 1.16)	0.90 (0.80 – 1.02)
Lower socio-economic class	0.70*** (0.63 – 0.78)	0.64*** (0.57 – 0.71)	1.11 (0.98 – 1.25)	0.82** (0.72 – 0.94)
No answer	0.64*** (0.57 – 0.72)	0.60*** (0.53 – 0.69)	1.19* (1.03 – 1.36)	0.87 (0.75 – 1.01)
Educational situation				
In education	1	1	1	1
In training	1.84*** (1.57 – 2.18)	1.77*** (1.50 – 2.10)	2.83*** (2.43 – 3.28)	2.49*** (2.13 – 2.92)
No activity, seeking employment or in integration workshops	1.86*** (1.51 – 2.30)	1.91*** (1.53 – 2.39)	3.41*** (2.82 – 4.13)	2.86*** (2.34 – 3.50)
In employment	3.13*** (1.88 – 5.54)	3.24*** (1.90 – 5.85)	4.90*** (3.22 – 7.52)	4.08*** (2.62 – 6.41)
No answer	0.93 (0.62 – 1.42)	0.99 (0.64 – 1.53)	2.24*** (1.46 – 3.41)	2.01** (1.28 – 3.11)
Self-perceived health status				
Very good	1	1	1	1
Good	1.42*** (1.34 – 1.51)	1.37*** (1.29 – 1.46)	2.21*** (2.06 – 2.38)	2.03*** (1.88 – 2.19)
Fair	1.91*** (1.69 – 2.16)	1.69*** (1.48 – 1.93)	3.15*** (2.78 – 3.57)	2.52*** (2.20 – 2.88)
Poor	1.13 (0.82 – 1.57)	0.93 (0.66 – 1.31)	3.07*** (2.18 – 4.27)	2.24*** (1.57 – 3.16)
No answer	0.72 (0.49 – 1.06)	0.79 (0.52 – 1.18)	1.63* (1.00 – 2.55)	1.43 (0.86 – 2.29)
Depressive state				
No	1	1	1	1
Yes	1.65*** (1.54 – 1.76)	1.57*** (1.46 – 1.69)	1.78*** (1.65 – 1.91)	1.48*** (1.37 – 1.60)
Observations		19,452		19,378
Log Likelihood		-12,381.370		-9,880.471
Akaike Inf. Crit.		24,820.740		19,818.940

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Tobacco experimentation defined as having ever tried tobacco products (packed cigarettes, hand-rolled cigarettes, cigars or cigarillos).

(b) Daily smoking defined as smoking one cigarette (packed or hand-rolled) or more per day.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.11 – Regression models of alcohol use outcomes : results for boys

<i>Dependent variable:</i>				
	Alcohol experimentation (a)		Regular alcohol use (b)	
	Single indicator model	Adjusted model	Single indicator model	Adjusted model
	(OR)	(OR)	(OR)	(OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.85*** (1.56 – 2.21)	1.82*** (1.51 – 2.21)	1.16* (1.00 – 1.35)	1.09 (0.93 – 1.27)
- Joint custody	2.22*** (1.78 – 2.80)	1.71*** (1.35 – 2.18)	1.26** (1.06 – 1.49)	1.18 (0.99 – 1.40)
- One-parent family following divorce/separation	1.12 (1.00 – 1.25)	1.19** (1.05 – 1.35)	1.09 (0.97 – 1.22)	1.05 (0.93 – 1.18)
- One-parent family following death	0.86 (0.68 – 1.09)	1.53** (1.14 – 2.07)	1.43** (1.11 – 1.81)	1.83*** (1.35 – 2.46)
- Unknown parents/adopted	2.01 (1.02 – 4.62)	2.97** (1.42 – 7.19)	1.39 (0.76 – 2.37)	1.49 (0.79 – 2.62)
- Other parental situation	0.91 (0.47 – 1.99)	1.14 (0.54 – 2.74)	0.67 (0.23 – 1.56)	0.63 (0.21 – 1.49)
No answer	1.25 (0.81 – 2.02)	1.87* (1.15 – 3.17)	1.53* (0.99 – 2.27)	1.56* (1.00 – 2.37)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.23*** (0.17 – 0.32)	0.32*** (0.23 – 0.44)	0.57* (0.32 – 0.93)	0.65 (0.36 – 1.06)
- South European language	0.91 (0.72 – 1.16)	0.92 (0.73 – 1.17)	1.18 (0.96 – 1.44)	1.15 (0.93 – 1.41)
- Other European language	0.93 (0.76 – 1.14)	0.87 (0.71 – 1.08)	1.19 (0.99 – 1.42)	1.22* (1.01 – 1.45)
- North African language	0.05*** (0.04 – 0.05)	0.06*** (0.05 – 0.07)	0.14*** (0.08 – 0.22)	0.17*** (0.09 – 0.27)
- Sub-Saharan African language	0.08*** (0.06 – 0.11)	0.10*** (0.08 – 0.14)	0.14*** (0.04 – 0.34)	0.16** (0.04 – 0.41)
- Other foreign language	0.15*** (0.12 – 0.18)	0.17*** (0.14 – 0.21)	0.26*** (0.15 – 0.42)	0.29*** (0.16 – 0.46)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.44*** (0.40 – 0.48)	0.62*** (0.55 – 0.69)	0.71*** (0.63 – 0.80)	0.75*** (0.67 – 0.85)
Neither works	0.22*** (0.19 – 0.27)	0.41*** (0.33 – 0.50)	0.59*** (0.44 – 0.78)	0.67** (0.49 – 0.90)
No answer	0.46*** (0.41 – 0.52)	0.59*** (0.50 – 0.70)	0.86* (0.75 – 0.99)	0.74** (0.61 – 0.88)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.56*** (0.45 – 0.69)	0.61*** (0.49 – 0.76)	1.08 (0.93 – 1.25)	1.05 (0.90 – 1.22)
Lower socio-economic class	0.27*** (0.22 – 0.33)	0.32*** (0.26 – 0.40)	0.91 (0.78 – 1.07)	0.84* (0.72 – 0.99)
No answer	0.19*** (0.15 – 0.23)	0.26*** (0.21 – 0.33)	0.78** (0.65 – 0.93)	0.77** (0.64 – 0.94)
Educational situation				
In education	1	1	1	1
In training	2.09*** (1.76 – 2.51)	2.05*** (1.71 – 2.47)	2.34*** (2.08 – 2.64)	2.34*** (2.07 – 2.65)
No activity, seeking employment or in integration workshops	1.21 (0.97 – 1.53)	1.94*** (1.52 – 2.51)	1.42*** (1.15 – 1.75)	1.59*** (1.27 – 1.97)
In employment	1.39 (0.90 – 2.29)	2.14** (1.31 – 3.68)	1.95*** (1.32 – 2.78)	2.15*** (1.45 – 3.11)
No answer	0.48*** (0.31 – 0.74)	0.63 (0.40 – 1.04)	0.96 (0.49 – 1.72)	1.12 (0.56 – 2.03)
Self-perceived health status				
Very good	1	1	1	1
Good	1.21*** (1.11 – 1.32)	1.26*** (1.15 – 1.39)	1.37*** (1.26 – 1.50)	1.31*** (1.20 – 1.44)
Fair	1.03 (0.85 – 1.25)	1.05 (0.85 – 1.31)	1.56*** (1.29 – 1.88)	1.41*** (1.15 – 1.71)
Poor	0.91 (0.57 – 1.52)	0.94 (0.56 – 1.66)	2.53*** (1.63 – 3.82)	2.31*** (1.47 – 3.53)
No answer	0.59** (0.42 – 0.87)	0.78 (0.52 – 1.19)	0.50 (0.23 – 0.95)	0.50 (0.23 – 0.94)
Depressive state				
No	1	1	1	1
Yes	1.23** (1.09 – 1.39)	1.38*** (1.20 – 1.59)	1.30*** (1.16 – 1.45)	1.25*** (1.11 – 1.41)
Observations		19,527		19,403
Log Likelihood		-6,483.344		-7,064.400
Akaike Inf. Crit.		13,024.690		14,186.800

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Alcohol experimentation defined as having ever drink alcoholic beverages (beer, wine, liquor, mixed alcoholic drinks). (b) Regular alcohol use defined as drinking 10 drinks per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.12 – Regression models of alcohol use outcomes : results for girls

<i>Dependent variable:</i>				
	Alcohol experimentation (a)		Regular alcohol use (b)	
	Single indicator model	Adjusted model	Single indicator model	Adjusted model
	(OR)	(OR)	(OR)	(OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	2.04*** (1.73 – 2.41)	2.13*** (1.77 – 2.58)	1.22 (0.97 – 1.53)	1.16 (0.91 – 1.46)
- Joint custody	2.38*** (1.90 – 3.01)	1.80*** (1.41 – 2.33)	1.25 (0.92 – 1.65)	1.14 (0.84 – 1.51)
- One-parent family following divorce/separation	1.14* (1.02 – 1.26)	1.44*** (1.26 – 1.63)	1.24* (1.03 – 1.47)	1.19 (0.98 – 1.43)
- One-parent family following death	0.85 (0.68 – 1.07)	1.62** (1.21 – 2.19)	1.59* (1.08 – 2.25)	1.99** (1.24 – 3.14)
- Unknown parents/adopted	1.52 (0.89 – 2.83)	2.48** (1.38 – 4.85)	1.21 (0.45 – 2.59)	1.33 (0.49 – 2.98)
- Other parental situation	1.56 (0.86 – 3.16)	2.28* (1.16 – 4.99)	2.50* (1.16 – 4.74)	2.46* (1.12 – 4.77)
No answer	1.16 (0.73 – 1.94)	2.32** (1.34 – 4.25)	1.53 (0.68 – 2.95)	1.55 (0.68 – 3.08)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.31*** (0.23 – 0.42)	0.39*** (0.29 – 0.54)	0.36 (0.11 – 0.88)	0.36 (0.11 – 0.88)
- South European language	1.11 (0.88 – 1.40)	1.11 (0.89 – 1.41)	1.55** (1.17 – 2.01)	1.46** (1.10 – 1.91)
- Other European language	1.07 (0.86 – 1.36)	1.06 (0.84 – 1.34)	1.90*** (1.47 – 2.42)	1.77*** (1.36 – 2.27)
- North African language	0.03*** (0.03 – 0.04)	0.04*** (0.03 – 0.04)	0.09*** (0.03 – 0.21)	0.10*** (0.03 – 0.23)
- Sub-Saharan African language	0.07*** (0.05 – 0.09)	0.09*** (0.06 – 0.12)	0.42 (0.12 – 1.03)	0.46 (0.13 – 1.14)
- Other foreign language	0.11*** (0.09 – 0.13)	0.14*** (0.11 – 0.17)	0.49* (0.24 – 0.88)	0.51* (0.25 – 0.93)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.42*** (0.38 – 0.46)	0.64*** (0.57 – 0.71)	1.00 (0.85 – 1.19)	1.11 (0.93 – 1.32)
Neither works	0.23*** (0.20 – 0.28)	0.46*** (0.37 – 0.56)	0.67 (0.41 – 1.01)	0.73 (0.45 – 1.14)
No answer	0.42*** (0.38 – 0.48)	0.48*** (0.40 – 0.56)	0.95 (0.76 – 1.18)	0.76 (0.56 – 1.02)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.55*** (0.45 – 0.67)	0.60*** (0.48 – 0.74)	0.72** (0.59 – 0.89)	0.67*** (0.54 – 0.83)
Lower socio-economic class	0.26*** (0.21 – 0.31)	0.36*** (0.29 – 0.44)	0.62*** (0.50 – 0.77)	0.53*** (0.42 – 0.68)
No answer	0.19*** (0.15 – 0.23)	0.28*** (0.22 – 0.35)	0.57*** (0.44 – 0.74)	0.51*** (0.38 – 0.67)
Educational situation				
In education	1	1	1	1
In training	1.43** (1.14 – 1.81)	1.41** (1.10 – 1.83)	2.09*** (1.58 – 2.71)	2.07*** (1.56 – 2.70)
No activity, seeking employment or in integration workshops	0.76* (0.60 – 0.97)	1.08 (0.82 – 1.43)	1.76** (1.20 – 2.49)	1.74** (1.17 – 2.50)
In employment	1.43 (0.77 – 2.95)	2.47* (1.19 – 5.69)	3.10*** (1.55 – 5.63)	2.74** (1.34 – 5.09)
No answer	0.46*** (0.29 – 0.73)	0.53* (0.33 – 0.88)	1.27 (0.44 – 2.88)	1.39 (0.47 – 3.18)
Self-perceived health status				
Very good	1	1	1	1
Good	1.04 (0.96 – 1.13)	1.12* (1.02 – 1.24)	1.59*** (1.37 – 1.84)	1.52*** (1.31 – 1.78)
Fair	1.06 (0.90 – 1.25)	1.30** (1.07 – 1.57)	2.32*** (1.83 – 2.93)	2.02*** (1.57 – 2.57)
Poor	0.54** (0.38 – 0.79)	0.55** (0.36 – 0.84)	3.35*** (1.90 – 5.51)	2.74*** (1.54 – 4.58)
No answer	0.37*** (0.25 – 0.57)	0.46*** (0.29 – 0.74)	0.27 (0.01 – 1.27)	0.28 (0.01 – 1.32)
Depressive state				
No	1	1	1	1
Yes	1.13* (1.03 – 1.24)	1.32*** (1.18 – 1.48)	1.60*** (1.39 – 1.85)	1.44*** (1.24 – 1.67)
Observations		19,454		19,354
Log Likelihood		-6,600.879		-3,443.470
Akaike Inf. Crit.		13,259.760		6,944.940

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Alcohol experimentation defined as having ever drink alcoholic beverages (beer, wine, liquor, mixed alcoholic drinks). (b) Regular alcohol use defined as drinking 10 drinks per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.13 – Regression models of repeated alcohol intoxication : results for boys

	<i>Dependent variable:</i>			
	Drunkenness experimentation (a)		Repeated alcohol intoxication (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.45*** (1.31 – 1.61)	1.45*** (1.30 – 1.62)	1.29*** (1.14 – 1.45)	1.20** (1.06 – 1.36)
- Joint custody	1.74*** (1.54 – 1.97)	1.58*** (1.39 – 1.79)	1.37*** (1.20 – 1.57)	1.30*** (1.13 – 1.49)
- One-parent family following divorce/separation	1.25*** (1.16 – 1.35)	1.28*** (1.18 – 1.39)	1.16** (1.06 – 1.27)	1.10 (1.00 – 1.21)
- One-parent family following death	1.19 (0.99 – 1.41)	1.69*** (1.36 – 2.09)	1.27* (1.03 – 1.55)	1.52*** (1.18 – 1.94)
- Unknown parents/adopted	1.52* (1.01 – 2.31)	1.86** (1.21 – 2.90)	1.92** (1.23 – 2.93)	1.91** (1.20 – 2.99)
- Other parental situation	1.76* (1.04 – 3.08)	1.97* (1.13 – 3.55)	1.79* (0.99 – 3.11)	1.66 (0.91 – 2.94)
No answer	1.24 (0.92 – 1.68)	1.47* (1.07 – 2.03)	1.47* (1.03 – 2.06)	1.38 (0.96 – 1.97)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.44*** (0.33 – 0.59)	0.52*** (0.39 – 0.70)	0.58** (0.38 – 0.85)	0.65* (0.42 – 0.97)
- South European language	1.02 (0.88 – 1.18)	1.01 (0.87 – 1.18)	1.35*** (1.15 – 1.59)	1.33*** (1.12 – 1.56)
- Other European language	1.16* (1.02 – 1.32)	1.13 (0.99 – 1.28)	1.12 (0.97 – 1.29)	1.14 (0.98 – 1.32)
- North African language	0.14*** (0.12 – 0.17)	0.18*** (0.15 – 0.22)	0.19*** (0.14 – 0.26)	0.23*** (0.17 – 0.32)
- Sub-Saharan African language	0.22*** (0.15 – 0.31)	0.27*** (0.18 – 0.38)	0.19*** (0.09 – 0.35)	0.22*** (0.11 – 0.42)
- Other foreign language	0.27*** (0.22 – 0.34)	0.30*** (0.24 – 0.38)	0.33*** (0.23 – 0.46)	0.36*** (0.25 – 0.51)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.65*** (0.60 – 0.69)	0.75*** (0.69 – 0.81)	0.70*** (0.64 – 0.77)	0.73*** (0.66 – 0.81)
Neither works	0.43*** (0.36 – 0.50)	0.56*** (0.47 – 0.67)	0.57*** (0.45 – 0.70)	0.63*** (0.49 – 0.79)
No answer	0.75*** (0.68 – 0.81)	0.73*** (0.65 – 0.82)	0.92 (0.83 – 1.03)	0.79*** (0.68 – 0.90)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.83*** (0.75 – 0.92)	0.83*** (0.75 – 0.92)	0.96 (0.85 – 1.07)	0.93 (0.82 – 1.04)
Lower socio-economic class	0.57*** (0.51 – 0.63)	0.56*** (0.50 – 0.63)	0.81*** (0.72 – 0.91)	0.74*** (0.65 – 0.84)
No answer	0.46*** (0.41 – 0.52)	0.48*** (0.43 – 0.55)	0.80** (0.70 – 0.92)	0.77*** (0.66 – 0.89)
Educational situation				
In education	1	1	1	1
In training	1.83*** (1.66 – 2.02)	1.91*** (1.72 – 2.12)	2.54*** (2.30 – 2.81)	2.53*** (2.28 – 2.80)
No activity, seeking employment or in integration workshops	1.45*** (1.24 – 1.68)	1.87*** (1.59 – 2.20)	1.76*** (1.49 – 2.06)	1.95*** (1.64 – 2.32)
In employment	1.88*** (1.38 – 2.57)	2.40*** (1.74 – 3.35)	1.64** (1.17 – 2.25)	1.80*** (1.28 – 2.50)
No answer	1.07 (0.73 – 1.57)	1.35 (0.91 – 2.03)	1.13 (0.69 – 1.77)	1.22 (0.74 – 1.93)
Self-perceived health status				
Very good	1	1	1	1
Good	1.27*** (1.20 – 1.34)	1.26*** (1.19 – 1.34)	1.37*** (1.28 – 1.47)	1.32*** (1.23 – 1.42)
Fair	1.18* (1.04 – 1.35)	1.11 (0.96 – 1.28)	1.46*** (1.25 – 1.71)	1.34*** (1.14 – 1.57)
Poor	1.10 (0.78 – 1.57)	1.02 (0.70 – 1.48)	1.86** (1.26 – 2.71)	1.66* (1.11 – 2.45)
No answer	0.77 (0.57 – 1.04)	0.85 (0.61 – 1.16)	1.31 (0.90 – 1.86)	1.25 (0.85 – 1.80)
Depressive state				
No	1	1	1	1
Yes	1.28*** (1.18 – 1.39)	1.30*** (1.20 – 1.42)	1.20*** (1.09 – 1.32)	1.16** (1.05 – 1.27)
Observations		19,441		19,308
Log Likelihood		-12,914.070		-9,947.686
Akaike Inf. Crit.		25,886.140		19,953.370

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Drunkenness experimentation is defined as ever have been intoxicated.

(b) Repeated alcohol intoxication defined as experiencing three risky-single occasions drinking per month or more. Risky single occasion (drinking episode) defined as consuming 5 or more drinks on one single occasion.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.14 – Regression models of repeated alcohol intoxication : results for girls

	<i>Dependent variable:</i>			
	Drunkenness experimentation (a)		Repeated alcohol intoxication (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.59*** (1.44 – 1.76)	1.62*** (1.46 – 1.80)	1.23** (1.06 – 1.43)	1.14 (0.97 – 1.34)
- Joint custody	1.78*** (1.57 – 2.03)	1.58*** (1.39 – 1.81)	1.33** (1.10 – 1.61)	1.24* (1.02 – 1.50)
- One-parent family following divorce/separation	1.29*** (1.20 – 1.40)	1.40*** (1.29 – 1.53)	1.15* (1.02 – 1.29)	1.09 (0.96 – 1.23)
- One-parent family following death	1.09 (0.91 – 1.30)	1.46*** (1.17 – 1.82)	1.37* (1.04 – 1.77)	1.41* (1.02 – 1.94)
- Unknown parents/adopted	1.41 (0.97 – 2.05)	1.83** (1.23 – 2.71)	1.59 (0.91 – 2.59)	1.50 (0.84 – 2.52)
- Other parental situation	1.55* (1.03 – 2.34)	1.74* (1.13 – 2.70)	1.65 (0.89 – 2.83)	1.57 (0.84 – 2.74)
No answer	1.49* (1.05 – 2.12)	1.95*** (1.34 – 2.85)	1.81* (1.10 – 2.83)	1.69* (1.02 – 2.70)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.37*** (0.27 – 0.49)	0.39*** (0.28 – 0.53)	0.44** (0.22 – 0.76)	0.43** (0.22 – 0.75)
- South European language	1.19* (1.04 – 1.37)	1.17* (1.02 – 1.34)	1.44*** (1.19 – 1.74)	1.37** (1.13 – 1.66)
- Other European language	1.29*** (1.12 – 1.48)	1.23** (1.07 – 1.42)	1.36** (1.11 – 1.65)	1.31** (1.07 – 1.59)
- North African language	0.12*** (0.10 – 0.15)	0.14*** (0.11 – 0.18)	0.25*** (0.17 – 0.36)	0.27*** (0.18 – 0.39)
- Sub-Saharan African language	0.12*** (0.07 – 0.19)	0.15*** (0.09 – 0.23)	0.17*** (0.05 – 0.41)	0.18** (0.05 – 0.44)
- Other foreign language	0.23*** (0.18 – 0.30)	0.27*** (0.20 – 0.34)	0.36*** (0.22 – 0.57)	0.38*** (0.23 – 0.60)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.69*** (0.64 – 0.74)	0.85*** (0.78 – 0.92)	0.87* (0.77 – 0.98)	0.94 (0.83 – 1.06)
Neither works	0.49*** (0.41 – 0.58)	0.68*** (0.57 – 0.82)	0.85 (0.64 – 1.10)	0.91 (0.68 – 1.20)
No answer	0.76*** (0.69 – 0.83)	0.77*** (0.68 – 0.87)	1.02 (0.88 – 1.18)	0.90 (0.74 – 1.09)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.78*** (0.71 – 0.87)	0.78*** (0.70 – 0.86)	0.83* (0.71 – 0.96)	0.79** (0.68 – 0.92)
Lower socio-economic class	0.51*** (0.46 – 0.56)	0.52*** (0.47 – 0.58)	0.75*** (0.65 – 0.88)	0.68*** (0.58 – 0.81)
No answer	0.41*** (0.36 – 0.46)	0.43*** (0.38 – 0.49)	0.70*** (0.59 – 0.85)	0.65*** (0.53 – 0.79)
Educational situation				
In education	1	1	1	1
In training	1.34*** (1.16 – 1.56)	1.41*** (1.20 – 1.64)	1.96*** (1.61 – 2.37)	1.88*** (1.54 – 2.29)
No activity, seeking employment or in integration workshops	1.35** (1.12 – 1.63)	1.66*** (1.35 – 2.03)	1.90*** (1.47 – 2.43)	1.87*** (1.44 – 2.41)
In employment	1.61* (1.06 – 2.48)	1.91** (1.22 – 3.03)	2.03* (1.14 – 3.41)	1.88* (1.04 – 3.21)
No answer	0.89 (0.59 – 1.35)	1.10 (0.71 – 1.69)	1.45 (0.76 – 2.54)	1.45 (0.76 – 2.56)
Self-perceived health status				
Very good	1	1	1	1
Good	1.09** (1.03 – 1.16)	1.09** (1.02 – 1.16)	1.45*** (1.32 – 1.60)	1.40*** (1.27 – 1.55)
Fair	1.33*** (1.19 – 1.50)	1.29*** (1.14 – 1.46)	1.80*** (1.52 – 2.13)	1.61*** (1.35 – 1.92)
Poor	1.06 (0.77 – 1.47)	0.99 (0.70 – 1.39)	1.79* (1.11 – 2.76)	1.51 (0.93 – 2.35)
No answer	0.47*** (0.30 – 0.71)	0.57* (0.36 – 0.88)	1.75* (0.96 – 2.97)	1.76 (0.96 – 3.03)
Depressive state				
No	1	1	1	1
Yes	1.40*** (1.31 – 1.50)	1.45*** (1.35 – 1.55)	1.44*** (1.31 – 1.59)	1.35*** (1.21 – 1.49)
Observations		19,395		19,316
Log Likelihood		-12,546.120		-6,450.679
Akaike Inf. Crit.		25,150.250		12,959.360

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Drunkenness experimentation is defined as ever have been intoxicated.

(b) Repeated alcohol intoxication defined as experiencing three risky-single occasions drinking per month or more. Risky single occasion (drinking episode) defined as consuming 5 or more drinks on one single occasion.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.15 – Regression models of Cannabis use outcomes : results for boys

	<i>Dependent variable:</i>			
	Cannabis experimentation (a)		Regular cannabis use (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.58*** (1.43 – 1.75)	1.57*** (1.42 – 1.75)	1.82*** (1.55 – 2.12)	1.57*** (1.33 – 1.85)
- Joint custody	1.72*** (1.53 – 1.94)	1.63*** (1.44 – 1.84)	1.63*** (1.34 – 1.96)	1.58*** (1.29 – 1.91)
- One-parent family following divorce/separation	1.66*** (1.53 – 1.79)	1.64*** (1.51 – 1.78)	2.16*** (1.92 – 2.43)	1.79*** (1.57 – 2.02)
- One-parent family following death	1.57*** (1.31 – 1.87)	2.00*** (1.62 – 2.46)	2.00*** (1.52 – 2.58)	1.78*** (1.29 – 2.42)
- Unknown parents/adopted	2.05*** (1.37 – 3.09)	2.25*** (1.48 – 3.46)	3.87*** (2.34 – 6.17)	2.87*** (1.66 – 4.79)
- Other parental situation	1.93* (1.14 – 3.29)	1.84* (1.08 – 3.17)	1.38 (0.51 – 3.05)	1.03 (0.37 – 2.32)
No answer	1.73*** (1.29 – 2.34)	1.91*** (1.40 – 2.62)	3.59*** (2.44 – 5.15)	2.98*** (1.97 – 4.41)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.62** (0.45 – 0.84)	0.65** (0.47 – 0.88)	1.11 (0.67 – 1.72)	1.03 (0.62 – 1.64)
- South European language	1.21** (1.05 – 1.40)	1.21* (1.05 – 1.41)	1.28* (1.02 – 1.60)	1.25 (0.98 – 1.57)
- Other European language	1.17* (1.03 – 1.33)	1.12 (0.99 – 1.28)	1.40*** (1.15 – 1.68)	1.42*** (1.16 – 1.72)
- North African language	0.48*** (0.41 – 0.57)	0.60*** (0.50 – 0.71)	0.64** (0.47 – 0.86)	0.78 (0.56 – 1.05)
- Sub-Saharan African language	0.48*** (0.34 – 0.67)	0.55*** (0.38 – 0.78)	0.55 (0.26 – 1.01)	0.65 (0.31 – 1.22)
- Other foreign language	0.47*** (0.37 – 0.58)	0.50*** (0.39 – 0.62)	0.59* (0.38 – 0.87)	0.59* (0.38 – 0.88)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.75*** (0.70 – 0.81)	0.79*** (0.73 – 0.85)	1.05 (0.92 – 1.18)	0.98 (0.86 – 1.11)
Neither works	0.60*** (0.51 – 0.71)	0.65*** (0.54 – 0.78)	0.59** (0.41 – 0.82)	0.49*** (0.33 – 0.69)
No answer	1.00 (0.92 – 1.10)	0.78*** (0.69 – 0.88)	1.60*** (1.39 – 1.82)	1.00 (0.84 – 1.20)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.82*** (0.74 – 0.90)	0.77*** (0.70 – 0.86)	0.95 (0.81 – 1.12)	0.80* (0.68 – 0.95)
Lower socio-economic class	0.63*** (0.57 – 0.69)	0.55*** (0.49 – 0.61)	0.90 (0.76 – 1.07)	0.62*** (0.51 – 0.74)
No answer	0.63*** (0.56 – 0.70)	0.55*** (0.49 – 0.63)	1.09 (0.91 – 1.31)	0.69*** (0.56 – 0.85)
Educational situation				
In education	1	1	1	1
In training	1.43*** (1.30 – 1.57)	1.42*** (1.29 – 1.57)	2.16*** (1.88 – 2.47)	1.97*** (1.71 – 2.27)
No activity, seeking employment or in integration workshops	1.91*** (1.65 – 2.22)	1.98*** (1.69 – 2.31)	3.64*** (3.04 – 4.35)	2.96*** (2.43 – 3.59)
In employment	2.10*** (1.57 – 2.82)	2.25*** (1.66 – 3.07)	3.41*** (2.37 – 4.80)	2.95*** (2.02 – 4.24)
No answer	1.06 (0.72 – 1.55)	1.12 (0.75 – 1.65)	0.96 (0.43 – 1.84)	0.84 (0.37 – 1.65)
Self-perceived health status				
Very good	1	1	1	1
Good	1.62*** (1.52 – 1.71)	1.58*** (1.49 – 1.68)	2.70*** (2.42 – 3.01)	2.46*** (2.20 – 2.75)
Fair	1.99*** (1.74 – 2.27)	1.75*** (1.52 – 2.01)	4.45*** (3.71 – 5.33)	3.46*** (2.85 – 4.18)
Poor	1.70** (1.20 – 2.43)	1.42 (0.98 – 2.05)	5.93*** (3.85 – 8.88)	4.00*** (2.54 – 6.13)
No answer	1.16 (0.85 – 1.57)	1.14 (0.82 – 1.56)	2.70*** (1.66 – 4.18)	2.15** (1.30 – 3.39)
Depressive state				
No	1	1	1	1
Yes	1.62*** (1.50 – 1.75)	1.47*** (1.35 – 1.60)	1.93*** (1.72 – 2.17)	1.49*** (1.32 – 1.69)
Observations		19,401		19,018
Log Likelihood		-12,925.510		-5,751.314
Akaike Inf. Crit.		25,909.030		11,560.630

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Cannabis experimentation defined as having ever tried cannabis products.

(b) Regular cannabis use defined as smoking cannabis 10 times per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.16 – Regression models of Cannabis use outcomes : results for girls

	<i>Dependent variable:</i>			
	Cannabis experimentation (a)		Regular cannabis use (b)	
	Single indicator model (OR)	Adjusted model (OR)	Single indicator model (OR)	Adjusted model (OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	2.00*** (1.81 – 2.21)	1.96*** (1.76 – 2.18)	2.33*** (1.87 – 2.88)	2.05*** (1.63 – 2.56)
- Joint custody	2.01*** (1.77 – 2.28)	1.86*** (1.63 – 2.12)	2.11*** (1.58 – 2.78)	1.96*** (1.46 – 2.59)
- One-parent family following divorce/separation	1.69*** (1.56 – 1.82)	1.72*** (1.58 – 1.87)	2.70*** (2.28 – 3.19)	2.31*** (1.93 – 2.76)
- One-parent family following death	1.63*** (1.36 – 1.95)	1.92*** (1.54 – 2.40)	3.17*** (2.25 – 4.37)	3.05*** (2.01 – 4.58)
- Unknown parents/adopted	2.35*** (1.62 – 3.41)	2.67*** (1.80 – 3.95)	4.43*** (2.33 – 7.72)	3.70*** (1.87 – 6.80)
- Other parental situation	1.71* (1.13 – 2.59)	1.78** (1.16 – 2.74)	1.77 (0.59 – 4.08)	1.53 (0.50 – 3.63)
No answer	1.84*** (1.29 – 2.61)	2.11*** (1.45 – 3.05)	5.06*** (2.86 – 8.38)	4.21*** (2.30 – 7.26)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.46*** (0.33 – 0.63)	0.41*** (0.29 – 0.56)	0.70 (0.29 – 1.38)	0.49 (0.21 – 0.99)
- South European language	1.28*** (1.12 – 1.47)	1.22** (1.06 – 1.41)	1.16 (0.85 – 1.56)	1.02 (0.73 – 1.38)
- Other European language	1.29*** (1.12 – 1.48)	1.22** (1.06 – 1.40)	1.44* (1.07 – 1.89)	1.29 (0.96 – 1.72)
- North African language	0.30*** (0.25 – 0.36)	0.34*** (0.28 – 0.41)	0.36*** (0.21 – 0.58)	0.38*** (0.22 – 0.62)
- Sub-Saharan African language	0.30*** (0.19 – 0.44)	0.32*** (0.21 – 0.47)	0.50 (0.16 – 1.17)	0.51 (0.16 – 1.21)
- Other foreign language	0.31*** (0.23 – 0.40)	0.34*** (0.26 – 0.44)	0.63 (0.33 – 1.07)	0.70 (0.37 – 1.21)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.85*** (0.79 – 0.91)	0.97 (0.89 – 1.05)	1.15 (0.97 – 1.37)	1.08 (0.89 – 1.29)
Neither works	0.68*** (0.57 – 0.81)	0.82* (0.68 – 0.99)	0.85 (0.54 – 1.28)	0.66 (0.41 – 1.02)
No answer	1.08 (0.98 – 1.19)	0.86* (0.76 – 0.98)	1.74*** (1.43 – 2.11)	0.88 (0.68 – 1.13)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	0.87** (0.79 – 0.96)	0.80*** (0.72 – 0.89)	1.08 (0.85 – 1.39)	0.88 (0.69 – 1.14)
Lower socio-economic class	0.66*** (0.59 – 0.73)	0.57*** (0.51 – 0.64)	1.00 (0.78 – 1.30)	0.63** (0.48 – 0.84)
No answer	0.60*** (0.53 – 0.67)	0.52*** (0.45 – 0.59)	1.26 (0.96 – 1.68)	0.78 (0.57 – 1.06)
Educational situation				
In education	1	1	1	1
In training	1.43*** (1.23 – 1.66)	1.38*** (1.18 – 1.62)	2.52*** (1.93 – 3.26)	2.17*** (1.64 – 2.83)
No activity, seeking employment or in integration workshops	1.34** (1.11 – 1.62)	1.33** (1.08 – 1.62)	4.17*** (3.13 – 5.47)	3.22*** (2.37 – 4.32)
In employment	3.19*** (2.07 – 5.02)	3.27*** (2.07 – 5.25)	5.56*** (3.08 – 9.42)	4.11*** (2.21 – 7.20)
No answer	1.12 (0.72 – 1.72)	1.22 (0.77 – 1.90)	3.54*** (1.79 – 6.37)	3.09*** (1.52 – 5.76)
Self-perceived health status				
Very good	1	1	1	1
Good	1.41*** (1.32 – 1.50)	1.35*** (1.27 – 1.44)	2.58*** (2.19 – 3.06)	2.24*** (1.89 – 2.67)
Fair	1.95*** (1.74 – 2.19)	1.71*** (1.51 – 1.94)	4.93*** (3.92 – 6.18)	3.45*** (2.71 – 4.39)
Poor	1.45* (1.04 – 2.01)	1.20 (0.85 – 1.69)	4.53*** (2.47 – 7.70)	3.01*** (1.62 – 5.23)
No answer	0.56* (0.34 – 0.88)	0.65 (0.39 – 1.04)	0.40 (0.02 – 1.87)	0.36 (0.02 – 1.68)
Depressive state				
No	1	1	1	1
Yes	1.67*** (1.57 – 1.79)	1.57*** (1.47 – 1.69)	2.22*** (1.93 – 2.55)	1.70*** (1.47 – 1.97)
Observations		19,383		19,141
Log Likelihood		-11,997.720		-3,212.620
Akaike Inf. Crit.		24,053.430		6,483.239

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Cannabis experimentation defined as having ever tried cannabis products.

(b) Regular cannabis use defined as smoking cannabis 10 times per month or more.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Table 4.17 – Regression models of multiple psychoactive substance use outcomes : results for boys and girls

<i>Dependent variable: Regular polydrug use</i>				
	Statistical results for boys (a)		Statistical results for girls (b)	
	Single indicator model	Adjusted model	Single indicator model	Adjusted model
	(OR)	(OR)	(OR)	(OR)
Parental situation				
Parents are living together : Yes	1	1	1	1
Parents are living together : No				
- Blended family	1.78*** (1.55 – 2.05)	1.53*** (1.32 – 1.78)	1.95*** (1.60 – 2.36)	1.72*** (1.40 – 2.10)
- Joint custody	1.60*** (1.34 – 1.89)	1.54*** (1.29 – 1.84)	1.79*** (1.39 – 2.29)	1.65*** (1.27 – 2.12)
- One-parent family following divorce/separation	1.97*** (1.77 – 2.19)	1.65*** (1.47 – 1.85)	2.25*** (1.94 – 2.61)	1.98*** (1.69 – 2.31)
- One-parent family following death	2.01*** (1.57 – 2.53)	1.94*** (1.45 – 2.59)	2.31*** (1.66 – 3.13)	2.19*** (1.48 – 3.21)
- Unknown parents/adopted	2.27*** (1.31 – 3.74)	1.78* (0.98 – 3.06)	3.44*** (1.87 – 5.86)	2.94*** (1.54 – 5.26)
- Other parental situation	1.83 (0.84 – 3.53)	1.38 (0.63 – 2.75)	2.90** (1.42 – 5.31)	2.58** (1.24 – 4.87)
No answer	3.01*** (2.06 – 4.31)	2.53*** (1.68 – 3.72)	3.94*** (2.30 – 6.38)	3.48*** (1.97 – 5.84)
Language spoken with family/ relatives				
Speak only French	1	1	1	1
Speak an additional heritage language				
- Overseas language	0.73 (0.43 – 1.16)	0.70 (0.40 – 1.13)	0.27* (0.08 – 0.65)	0.20** (0.06 – 0.49)
- South European language	1.44*** (1.18 – 1.74)	1.40** (1.14 – 1.71)	1.30* (0.99 – 1.67)	1.15 (0.88 – 1.49)
- Other European language	1.31** (1.10 – 1.56)	1.36*** (1.13 – 1.62)	1.56*** (1.22 – 1.97)	1.43** (1.11 – 1.83)
- North African language	0.48*** (0.35 – 0.64)	0.59*** (0.42 – 0.79)	0.23*** (0.13 – 0.38)	0.25*** (0.13 – 0.41)
- Sub-Saharan African language	0.28** (0.11 – 0.57)	0.34** (0.13 – 0.70)	0.38 (0.12 – 0.88)	0.39 (0.12 – 0.91)
- Other foreign language	0.38*** (0.24 – 0.58)	0.39*** (0.24 – 0.60)	0.58* (0.33 – 0.95)	0.64 (0.36 – 1.05)
Parental activity status				
Both parents work	1	1	1	1
One parent works	0.96 (0.86 – 1.08)	0.91 (0.81 – 1.03)	1.08 (0.93 – 1.26)	1.05 (0.89 – 1.24)
Neither works	0.67** (0.50 – 0.89)	0.58*** (0.42 – 0.78)	0.80 (0.53 – 1.15)	0.68 (0.44 – 1.00)
No answer	1.41*** (1.25 – 1.60)	0.92 (0.78 – 1.09)	1.52*** (1.27 – 1.80)	0.91 (0.72 – 1.14)
Parental socio-economic status				
Upper socio-economic class	1	1	1	1
Intermediate socio-economic class	1.01 (0.87 – 1.18)	0.87 (0.74 – 1.01)	1.01 (0.82 – 1.25)	0.85 (0.69 – 1.06)
Lower socio-economic class	1.00 (0.85 – 1.16)	0.69*** (0.58 – 0.82)	0.94 (0.75 – 1.17)	0.65*** (0.52 – 0.83)
No answer	1.05 (0.88 – 1.25)	0.70*** (0.58 – 0.85)	1.02 (0.80 – 1.32)	0.69** (0.53 – 0.91)
Educational situation				
In education	1	1	1	1
In training	2.83*** (2.51 – 3.18)	2.61*** (2.31 – 2.96)	2.43*** (1.91 – 3.05)	2.10*** (1.63 – 2.66)
No activity, seeking employment or in integration workshops	3.41*** (2.86 – 4.04)	2.95*** (2.44 – 3.55)	3.03*** (2.27 – 3.97)	2.41*** (1.78 – 3.22)
In employment	3.35*** (2.37 – 4.65)	3.07*** (2.14 – 4.34)	4.81*** (2.76 – 7.98)	3.74*** (2.08 – 6.40)
No answer	1.17 (0.60 – 2.09)	1.13 (0.57 – 2.04)	3.48*** (1.88 – 5.99)	3.21*** (1.69 – 5.71)
Self-perceived health status				
Very good	1	1	1	1
Good	2.53*** (2.30 – 2.79)	2.31*** (2.09 – 2.54)	2.44*** (2.11 – 2.82)	2.19*** (1.89 – 2.54)
Fair	3.84*** (3.23 – 4.54)	3.02*** (2.52 – 3.61)	4.49*** (3.66 – 5.49)	3.39*** (2.73 – 4.20)
Poor	4.73*** (3.11 – 7.04)	3.43*** (2.21 – 5.22)	4.83*** (2.89 – 7.66)	3.47*** (2.05 – 5.59)
No answer	2.05** (1.22 – 3.24)	1.73* (1.02 – 2.79)	0.63 (0.10 – 2.08)	0.55 (0.08 – 1.85)
Depressive state				
No	1	1	1	1
Yes	1.81*** (1.62 – 2.01)	1.45*** (1.30 – 1.63)	2.05*** (1.81 – 2.32)	1.61*** (1.41 – 1.84)
Observations		18,819		18,968
Log Likelihood		-6,710.340		-3,946.147
Akaike Inf. Crit.		13,478.680		7,950.294

Note : Single indicator model : separate regression models are produced for each control variable. Adjusted model : regression model adjusted for each of the listed variables.

(a) Multiple psychoactive substance use defined as consuming on a regular basis some combination of alcohol, tobacco and cannabis.

*p<0.05; **p<0.01; ***p<0.001. OR Odds ratio.

Calculations by the author.

Source: ESCAPAD 2017, OFDT.

Figure 4.1 – Interaction of gender and main spoken language: alcohol experimentation outcomes

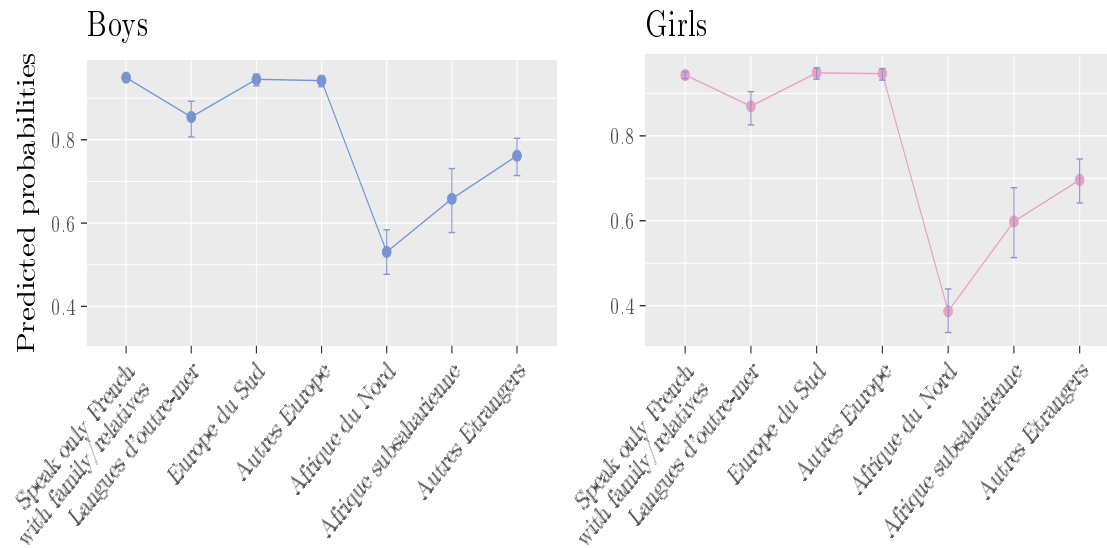


Figure 4.2 – Interaction of gender and main spoken language: regular alcohol use outcomes

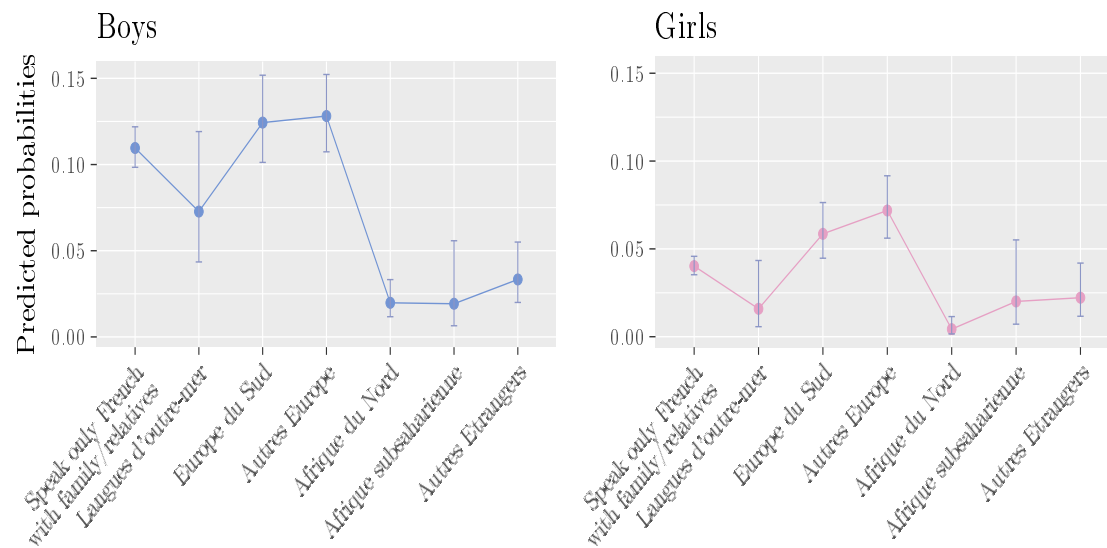


Figure 4.3 – Interaction of gender and main spoken language: cannabis experimentation outcomes

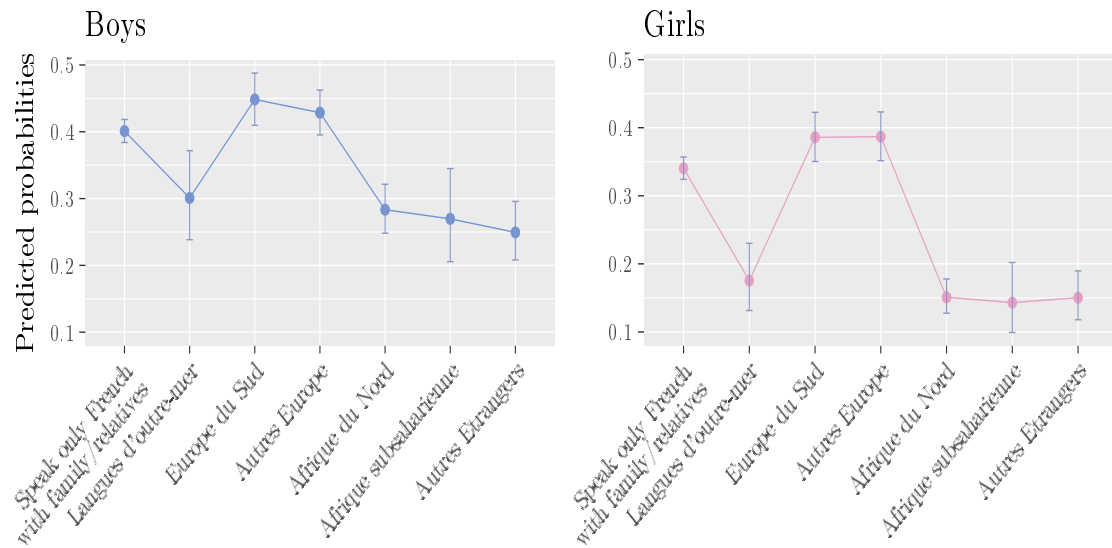
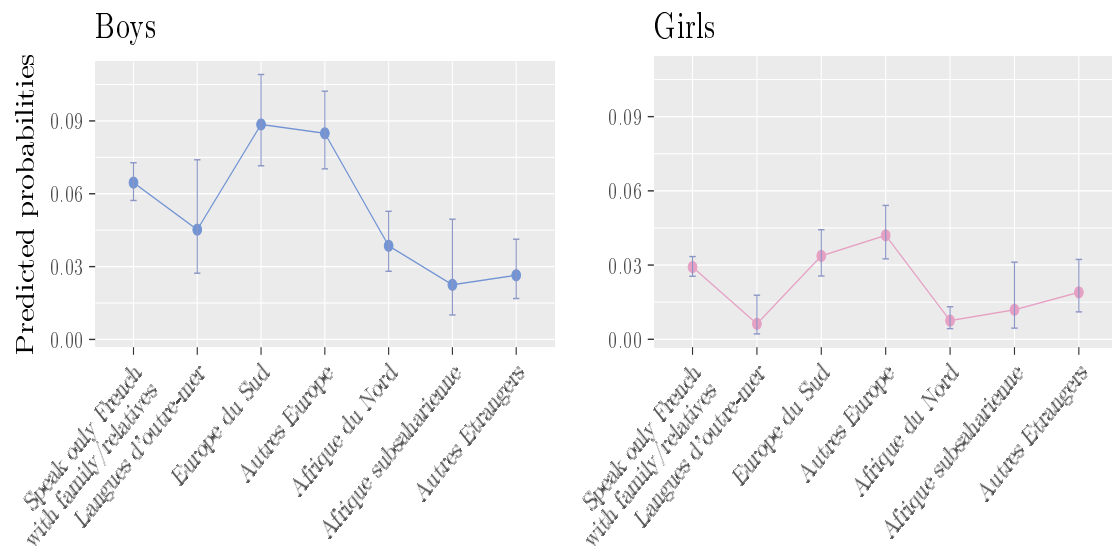


Figure 4.4 – Interaction of gender and main spoken language: multiple psychoactive substance outcomes



Abstract

Using the 2017 ESCAPAD survey, a large national sample conducted among 17-year-olds in mainland France, this master thesis investigates whether the family background is a significant determinant of adolescent health behaviours in the French context and whether its effect varies with the psychoactive substance studied, with the frequency of consumption, or with certain socio-cultural characteristics. Logit models reveal that all non-traditional families faced relatively greater risks of both experimenting, regularly using or combining alcohol, tobacco and cannabis. Excess risks were higher in the cases of regular or multiple consumption and with tobacco and cannabis, both substances associated by adolescents with dangerous use, risk of addiction or self-medication against anxiety. Other socio-cultural characteristics such as the dominant language spoken at home and the educational situation appears to be major — though understudied — determinants of health. Interactions terms did not confirm that adolescents' response to living in non-traditional households were significantly different with regard to drug use, regardless of gender, health or socio-cultural characteristics. We believe the inclusion of multiple substances and frequencies of use add a novel dimension to the study of drug involvement of adolescents from non-traditional families. Future research should help clarify the underlying processes leading to disparities in health-risk behaviours in adolescence.

Keywords: adolescence, psychoactive substance, risk behaviours, family background, single-parent families