

Enhancing Quality of Life and mental health in substance using adolescents

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Enhancing Quality of Life and Mental Health in Substance Using Adolescents

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Utopia lies at the horizon.
When I draw nearer by two steps,
it retreats two steps.
If I proceed ten steps forward,
It swiftly slips ten steps ahead.
No matter how far I go, I can never reach it.
What, then, is the purpose of utopia?
It is to cause us to advance.

Eduardo Galeano

Poem Window about utopia. Palabras andantes, 2003

La utopía está en el horizonte.
Yo me acerco dos pasos y ella se aleja dos pasos.
Camino diez pasos y el horizonte se corre diez pasos más allá.
Por mucho que yo camine, nunca la alcanzaré.
¿Para qué sirve la utopía?
Para eso, sirve para caminar.

Eduardo Galeano

Poema ventana sobre la utopia. Palabras andantes, 2003

To the memory of my grandparents, Nelson, Agueda and Ariel, who taught me how to pursue goals with perseverance and modesty. They have been models of values and strength. Even though two of them did not complete primary school, from early age on they taught me that education was a great value and strongly encouraged my interest in reading.

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PREFACE

This dissertation results from seven years of (part-time) research that have been a great challenge, but have also inspired me greatly. I started the programme in Psychology in 2010 at the Universidad Católica del Uruguay (UCU). Later, on in 2014, following a doctoral mobility research grant of 10 months funded by Erasmus Mundus (Babel Project) at Ghent University, I started a joint PhD programme. I had a second mobility stay at Ghent University at the Department of Special Needs Education from May to June 2017.

This dissertation commenced in the framework of the research line on 'Children and Adolescents', at the Department of Clinical Psychology and Health of the Faculty of Psychology at UCUDAL, led by prof. dr. Daset. Since the beginning of my PhD at UCUDAL, I started working as a research assistant in this line of research.

The main motivation for choosing this topic arose from my previous studies and work experiences. I have a degree in Psychology (Universidad De la República, UDELAR), a degree in Group Psychotherapy for Therapeutic Community practitioners (Middlesex University, UK) and a Master in Psychoanalytic studies (University of Essex, UK). Since 2006, I have been working, in the UK and Uruguay, with adolescents, young people and their families, with mental health and substance use problems in therapeutic communities, crisis centres, the Uruguayan national rehabilitation centre, and later in private practice.

This thesis explores the relationship between subjective well-being (SWB), empirical psychological syndromes and the use of alcohol and marijuana in school-going adolescents in Uruguay. The dissertation consists of four studies:

The first study focuses on the development of an instrument for the screening of psychopathology and resilience among adolescents in Uruguay, the Adolescent Self-Report (ADA).

The second study addresses the risk and protective factors for alcohol consumption in a sample of school-going adolescents from six secondary schools in Montevideo, Uruguay.

The third study focuses on SWB in relation to psychopathology and consumption of alcohol and marihuana. First, we look at gender and age differences in a sample of adolescents from a school located in the metropolitan area of Montevideo, Uruguay. A second subchapter focuses on domain-specific indicators of SWB in relation to psychopathology and substance use in the same sample of school-going adolescents.

At the end of the dissertation, we present the overall conclusions of the four studies, as well as its implications and limitations. Also, recommendations for future research are given.

LIST OF ACRONYMS

ADA	"Autoinforme de Adolescentes"; Adolescent Self-report
APA	American Psychiatric Association
ASEBA	Achenbach System for Empirical Based Assessment
CAST	Cannabis screening test
DP	Developmental Psychopathology
DSM	Diagnostic and Statistical Manual of Mental Disorders
EFA	Exploratory factor analysis
INSE	"Índice de nivel socioeconómico"; Socioeconomic status index
IRCCA	"Instituto de regulación y control del cannabis"; Institute of regulation and control of cannabis
ITC	International Test Commission
JND	"Junta Nacional de Drogas"; National Drug Board (Uruguay)
PWI	Personal Well-being Index
QoL	Quality of Life
SWB	Subjective well-being
SPSS	Software package statistical analysis
UCUDAL	"Universidad Católica del Uruguay Dámaso Antonio Larrañaga"
UGent	Ghent University
WHO	World Health Organization
YSR	Youth Self-Report

1.1 Introduction

For a classical artist like the Dutch painter Johannes Vermeer who painted “Het meisje met de parel” (“*The girl with a Pearl Earring*”), adolescence appears to have been a motive for a palette of spring colours and freshness. However, present-day representations of adolescence are closer to images of the underworld that populate graffiti art works in almost every city. Indeed, the stage of adolescence is a complex and vital period. It is with this complexity we have to deal in research and practice, with on the one hand attention for well-being and healthy development and on the other hand for psychopathological aspects of adolescent development.

In this section, we introduce the main concepts used in the thesis and briefly develop the theoretical framework. First, the period of adolescence is described in a few words. We also discuss the prevalence and importance of psychopathology and substance use, in this particular period of life. We focus on (non-problematic) use of alcohol and marihuana in adolescents. Subsequently, we introduce the construct of ‘developmental psychopathology’, as theoretical framework that will be used to frame this dissertation and its outcomes. Second, we focus on the concepts of Quality of Life (QoL) and subjective well-being (SWB) in adolescence. We present prevailing conceptualisations of both constructs, as well as an overview of studies on SWB in adolescence and the main determinants of SWB. Also, we draw attention to strengths-based approaches and resilience in youth. Third, we describe the Uruguay context in general terms and focus in particular on the current context of alcohol and marihuana use in Uruguay, within the framework of the new legislation that has recently become effective. Subsequently, we present the context of the school system in Uruguay, which is important background information for understanding the sample selection in this dissertation. Finally, we address the assessment of aspects of psychopathology and well-being. We briefly describe the theoretical background of the Adolescent Self-Report (ADA) (Daset, Costa-Ball & Fernández-Pintos, 2015) and the process of

developing this instrument. In addition, we present the background of the instrument used to assess well-being, the Personal Well-being Index (PWI) (Cummins & Lau, 2003).

As this thesis is structured based on published and unpublished articles, some information presented in this introduction might overlap with information embedded in some of the following chapters.

1.2 Adolescent development, psychopathology and substance use

Adolescence is a key period in human development, characterized by various transitions and transformations. The starts of biological changes in adolescence leads also have an impact on social, sexual and emotional life (Costello, Copeland & Angold, 2011). During this period of life, friends and peers have a lot of influence on shaping adolescents' life and leisure time, while family and other important adults in turn have a greater impact on academic choices and future options (Cairano, Rabaglietti, Roggero, Bonino & Beyers, 2007). The life stage of adolescence is often referred to as a stormy period associated with stress (Steinberg, 2001), in which experimenting behaviour and mental health problems are relatively normal phenomena.

When we refer to psychological and mental health problems in adolescence in this thesis, we refer to the construct of developmental psychopathology. Within this theoretical framework, evolutionary aspects are taken into account, considering normal and atypical behaviour as dynamic and dimensional constructs. This theoretical perspective is not only important for research in adolescent psychopathology, but also for treatment, rehabilitation and prevention (Covas, 2004).

Stroufe and Rutter (1984), Cicchetti and Cohen, (1995a, 1995b), Cicchetti and Rogosch (2002), and Achenbach (1990) are the most prominent authors that have consolidated the theoretical background of "developmental psychopathology" (DP). DP is considered the most relevant paradigm in psychopathology research (Cova Solar, 2004). This theoretical framework involves biological and genetic aspects, taking into account interactions with the environment. It starts from the concept of 'vulnerability', which can be biological, psychological or social and is based on early childhood experiences (Hinshaw, 2015). The main objective of DP is to make sense of the complex interactions between biological, psychological and social factors, and explain

maladjusted behaviour (Lemos, 2003). One important issue in DP theory is the interaction between risks factors and compensatory processes, in order to keep an optimal equilibrium during the developmental period of adolescence (Lemos, 2003). DP also considers the culture, values and norms of a specific society, since this influence the interaction between risks and protective factors and the way in which behaviours are expressed (Lemos, 2003). Ultimately, DP aims to identify children and adolescents in complex and vulnerable living circumstances who do not present psychopathological problems in an early stage, but also youngsters that do develop such problems. Also, it is important to identify adolescents at risk of developing some kind of psychopathology later on, in order to understand the processes and characteristics of this evolution (Lemos, 2003).

Frequently, the onset of psychopathological problems occurs in early adolescence. Moreover, the lifetime prevalence of psychopathology increases substantially during this period (Costello et al., 2011). Also, puberty is considered a risk factor for the development of mental health problems, especially depression and behaviour problems (Costello, 2016). The prevalence of psychopathology during adolescence is relatively high. According to the World Health Organization (WHO, 2013), 20% of all children and adolescents have mental health problems, with half of these cases occurring before the age of 14 years. In Uruguay, studies on this subject have indicated a high prevalence of mental health problems in adolescence (22%) (Cajigas de Segredo, Kahan, Luzardo, Najson, Ugo & Zamalvide, 2006; Daset, 2002; Daset, López-Soler & Hidalgo, 2009; Viola, Garrido & Varela, 2008). The most common mental health problems in Uruguay in children and adolescents are; depression-anxiety, behavioural and social problems and attention problems (Daset et al., 2009; Viola et al., 2008). The study of Costello, Copeland and Angold (2011) claims that one in five adolescents have some kind of mental health problem, for this reason it is essential to have epidemiological information about psychopathology during this period of life .

Alcohol is one of the most frequently consumed substances by adolescents worldwide. In Latin America, the highest lifetime prevalence of alcohol consumption among 15- to 65-year-olds and the lowest related risk perception is found in Uruguay (OEA, 2015; ONUDD, 2009). Age of onset of alcohol use has decreased, which was accompanied by an increased incidence of binge drinking

(JND, 2011, 2012). In Uruguay, the lifetime prevalence of alcohol consumption among adolescents between 12 to 18 years old is 75%, with a 60% prevalence rate during the last 12 months (JND, 2014). In Uruguay, the legal age restriction for buying alcohol is 18 years. However, alcohol is widely available and the enforcement of legal restrictions is weak (Fernández et al., 2017a).

Marihuana is the most frequently consumed substance among students in Uruguay after alcohol. Lifetime prevalence is estimated around 20%, while last year and last month prevalence are around 17% and 10%, respectively (JND, 2014). In comparison with Peru, Ecuador, Bolivia, Argentina and Chile, Uruguay has, after Chile, the highest prevalence of marihuana use in the last month, and the second highest rate regarding lifetime and last year use (ONUDD, 2009). Negative effects of marihuana use on school performance, mental health, cognitive performance, social behaviour, and future problematic substance use of adolescents have been pointed out in numerous studies (Butterworth, Slade & Degenhardt, 2014; Hopfer, 2014; Popovici, French, Antonaccio, Pacula & Maclean, 2014; Tait, Mackinnon & Christensen, 2011). Despite the extensive literature on this topic, the direction of the association between alcohol and marihuana use and psychopathological symptoms in adolescents remains largely unclear (Van Gastel et al., 2011). It is yet unclear whether adolescent substance use is a predictor of future psychiatric disorders or rather a result of externalizing and internalizing problems in childhood (Miettunen et al., 2014; Van Gastel et al., 2011). Unfortunately, we will not be able to answer the causal question in this dissertation, as we did not apply a longitudinal design.

One of the most prevalent disorders among youth are substance use disorders. Several studies have focused on the negative impact of early and frequent alcohol use on adolescents' mental health, social situation and academic performance (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). Early onset of alcohol use has been identified as a predictor for future development of problematic substance use (Liang & Chikritzhs, 2015), as well as for other mental health problems. In addition, it appears to impact youngsters' social situation negatively (e.g., family relationships, school performance, leisure activities). Moreover, early adolescent alcohol use, frequent use of alcohol and binge drinking have been shown to have negative effects on youngsters' school performance (e.g., drop-out, truancy, school suspension, low commitment, academic failure) (Hemphill et al., 2014).

1.3 Quality of Life and subjective well-being

The concept of Quality of Life (QoL) has been extensively used across various disciplines, such as medicine, disability studies, psychiatry, economy, criminology and sociology (Broekaert et al., 2017). Despite different conceptualizations by each discipline, there is agreement about the multidimensional and holistic nature of the construct of QoL. In social sciences, especially in the field of mental health, the focus is on the self-reported global level of functioning and QoL, including attention for different domains. The person is regarded as a whole and QoL is perceived as much more than just the absence of disorders or problems (Cummins, 2005). The WHOQOL Group (1998) has defined QoL as *“the individuals’ perceptions of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns”* (p. 551). In recent years, more attention is given to the perception of QoL or life satisfaction, especially in adolescence (Huebner, Suldo, Smit & McKnight, 2004). QoL refers to the quality of various aspects of life that goes beyond basic survival. The QoL-concept includes both objective aspects (such as economic growth, development and welfare) and subjective/psychosocial ones.

The strengths-based approach in various disciplines is closely related to the concept of QoL and this approach is widely used in clinical and educational contexts within the framework of QoL. Strengths-based theories usually involve three core dimensions: characteristics in relation to the individual, interpersonal and interrelation competencies and community capital and resources (Vandavelde et al., 2017). In the field of mental health, this framework provides a positive and integral approach to practice and interventions, characterized by a shift from focusing on deficits towards an approach that focuses on capabilities, empowerment and personal growth.

Previous work on QoL has mainly focussed on global and objective measures of QoL, such as income, health indicators, employment, education, and other resources. Recently, the focus has shifted towards subjective indicators and micro aspects of QoL such as SWB (Casas, 2011; Casas et al., 2007, Huebner et al., 2004). Two conceptualisations of SWB can be distinguished: on the one hand, the hedonic perspective, which emphasizes satisfaction in relation to happiness and pleasure, and on the other hand, the eudemonic perspective, which emphasises the development of the personal potential and achieving a meaningful life (Broekaert et al., 2017). The concept of

well-being is based on a subjective assessment of QoL, health and living conditions (Ben-Arieh & Frones, 2011). A dearth of research is observed regarding children and adolescents' indicators of well-being, in particular regarding the integration of biological, psychological, material and cultural aspects (Ben-Arieh, & Frones, 2011). In order to explore the well-being of adolescents, there is a need to assess personal preferences and desires as well as individuals' opportunities and abilities to achieve these (Ben-Arieh & Frones, 2011). Prior research showed that depending on the culture, different constructs exist about what well-being implies (Garcia, Sagone, De Caroli & Nima, 2017), which goes hand in hand with the dissimilar emphasis given to interventions to promote it (Ryff et al., 2014).

SWB is defined as the people's own evaluation of satisfaction in different domains of life (The International Well-being Group, 2013). The PWI is one of the instruments that measure the global level of life satisfaction and satisfaction in seven specific life domains (standard of living, health, achievements, relationships with others (peers and family), safety, community-connectedness, and future security) (Cummins & Lau, 2003). Diener, Lucas and Scollon (2006) define SWB as a personal general evaluation of life. This construct implies three domains: positive affect (e.g., enthusiasm, joy, excitement, curiosity), negative affect (e.g., anger, distress, sadness, lethargy) that should be reduced in order to have a high level of SWB, and lastly a global positive judgment of one's life. Life satisfaction is part of the third domain, global self-judgment, and refers to the cognitive aspect of SWB (Park, 2004).

The homeostasis theory of SWB states that there is a neurological inherent tendency in each person to maintain the level of SWB around a set point. This set point, which ranges from 70 to 90, reflects the adequate range of SWB (Tomy, Weinberg & Cummins, 2015). This theory of SWB states that, under unchanging life circumstances, the person's sense of global well-being is maintained by this homeostatic system. However, the system could collapse due to challenges in life (Tomy, Weinberg & Cummins, 2015). Cummins' homeostatic theory implies that SWB is sensitive to modifications. The SWB homeostatic system might vary by life disturbances or regulatory adjustment processes, which may occur in particular during the turbulent developmental phase of adolescence (Cummins, Li, Wooden & Stokes, 2014).

In comparison with studies on SWB in adults, studies on adolescents' SWB are less extensive (González-Carrasco, Casas, Malo, Viñas & Dinisman, 2017a; González-Carrasco et al., 2017b). However, given the diverse developmental transitions and changes during adolescence, studying SWB in this period of life is highly relevant (Garcia et al., 2017). Previous work has focused on the effects of critical changes in life and gender (González-Carrasco et al., 2017a; Montserrat, Dinisman, Baltatescu, Grigoras & Casas, 2015), as well as on the effects of age (Brann et al., 2017; González-Carrasco et al., 2017b), culture (Casas et al., 2012; Castella-Sarriera et al., 2012; Garcia et al., 2017) and substance use (Arria, Caldeira, Bugbee, Vincent & Grady, 2016; Bogart, Collins, Ellickson & Klein, 2007; Zullig, Valois, Huebner, Oeltmann & Drane, 2001) on adolescents' SWB.

Positive development in adolescence has been associated with key factors in relation to high levels of SWB in teenagers; social support (from family, friends, school) and emotional state (e.g., feeling happy) (González-Carrasco et al., 2017a). Other research also included personality factors, like self-perception of control, self-esteem, and optimism (Cummins, 2010). Studies on adolescent SWB have provided evidence regarding the most relevant variables, related to high levels of SWB: in youth, good physical and mental health, positive interpersonal relationships, and academic performance are related to high levels of SWB (Park, 2004). Negative adolescent development, on the other hand, is related to low levels of SWB. Park (2004) considers SWB a key factor for healthy development in adolescents. Low levels of SWB in adolescents have been found to be related to risk behaviour such as drug or alcohol abuse, aggression towards others and sexual harassment (Proctor, Linley & Maltby, 2009). While we assume an effect of psychopathology and substance use on SWB, other studies have suggested an inverse impact (Alfaro et al., 2016; Huebner et al., 2004). Although the design of our study will allow to study the association between these concepts, a longitudinal approach is required to gain more insight in the bi-directionality and causal association of these relations.

Research on adolescents' SWB in Latin-America is still limited (Alfaro et al., 2016; Castellá Sarriera et al., 2012), and hardly focused on the role of substance use and psychopathology. One Colombian study focused on general well-being of adolescents and its main predictors, such as high self-esteem, religiosity and a healthy family background (Gomez & Cogollo, 2010). Another study from Mexico suggested SWB as a protective factor against the use of alcohol and tobacco,

but evidence was not confirmed for other substances (Palacios & Cañas, 2010). The study of Contini, Coronel, Levin and Estévez (2003) in Argentina showed that positive coping strategies (e.g., looking for social support, focus on positive aspects) in adolescents are associated with high levels of SWB. The work of Casullo and Castro-Solano (2000) in Argentina with adolescents from 13 to 18 years old (N = 1270), assessed their psychological well-being in relation to age, gender and different cultural aspects. In this study, they used the well-being scale (Bieps-J) with a cronbachs' alpha ranging from 0.50 to 0.74, and some scales on life satisfaction (SWLS and DT). Also, information on psychopathology symptoms was collected using the SCL-90. The results showed that the variables used in the study (age, gender and cultural differences) did not impact significantly on the level of well-being of adolescents. The study by Paramo and colleagues (2012) assessed psychological well-being in relation to personality styles and life objectives in a sample of university students in Argentina. They found positive correlations between psychological well-being and personality traits. One Uruguayan study looked at strategies to avoid and confront stress (Scafarelli & García, 2010), but another instrument was used for measuring well-being and the sample was collected among older age groups (university students).

1.4 The Uruguayan context

Uruguay is located in the south of South America and borders with Argentina and Brazil and has a territory of 176.215 squared kilometres. It is divided in 19 counties and the capital city of Montevideo is the largest city with 1,380,000 inhabitants. The total Uruguayan population consists of 3,427,000 inhabitants and the GDP per capita is estimated around USD 15.220 (World Bank, 2016). The official language in Uruguay is Spanish and the government system is legislative with a president. Uruguay has a low rate of native people; the majority of the population is descendants from Europeans who migrated, especially from Spain and Italy. The average life expectancy is 76 years old; 73 years for men and 80 years for women.

1.4.1 The Uruguayan school system

As all the data collected for this dissertation focus on school-going adolescents, it is necessary to include a brief description of the context of the educational system. In Uruguay, school is compulsory until the age of 18 years old. Before 2008, it was compulsory until 15 years old. The

government has to provide free access to education at all levels (up to post-graduate level) and parents have the obligation to send their children to school and to monitor their educational process. Education in Uruguay is secular, and should thus not be based on any specific religious perspective. Uruguay has a high rate of literacy compared to neighbouring countries (98%).

The school system is organized as follows: kindergarten from 4 to 5 years old, primary school from 6 to 11 years old, and secondary school from 12 to 18 years old. Secondary school is organized in a first level (12 to 15 years old) and second level (from 16 to 18 years). In the last level, students can choose to deepen the studies in certain categories (human studies, sciences and biology). Students also have the option to attend a technical high school, where they follow technical job-oriented courses. At all levels, there are educational institutions that are public and free of charge, while others are private schools. Private institutions offer some grants for students with good academic performance and low socioeconomic resources.

In the last 10 years, the percentage of students from 15 to 17 years attending school has increased considerably (INEED, 2017). However, there are serious problems in Uruguay regarding school drop-out, repetition, school engagement and academic performance. The proportion of successful graduations from secondary school is low (31%) (INEED, 2017). Socioeconomic status has a great impact on the percentage of school graduations; students with a low SES have reduced chances to finish school successfully compared with students from higher social classes (INEED, 2017). The public budget designated to education has risen considerably since 2005 (INEED, 2017). Still, the big challenge in Uruguay is to secure the quality level of education to all students, independently from their SES, place of residence and abilities.

All research data were collected from private schools that are governed by a catholic board. In the compulsory part of the curriculum, these schools cannot refer to religion or religious aspects. In Uruguay, several non-religious reasons explain why children are sent to these types of schools (e.g., location, advantages over public schools such as extracurricular activities, more days of classes, stability of teaching staff, etc.). These religious educational institutions are located in urban and sub-urban areas and students from different socioeconomic levels attend school there. A large majority of these educational institutions also provide a strong social role in socially deprived areas. For example, they coordinate groups for parenting support, food provision,

among others. In the last chapter of this dissertation, we discuss the implications and limitations of this role.

1.4.2 Alcohol and marihuana in Uruguay

In December 2013, Uruguay became the first country in the world to legalize the production, sale and possession of cannabis (Boidi, Cruz, Queirolo & Bello-Pardo, 2014). There are three ways in which a person can legally obtain marihuana (law number 19,172): self-cultivation (up to six cannabis plants per household are allowed); cannabis clubs (groups of 15 to 45 members can grow up to 99 cannabis plants), and distribution through pharmacies (up to 40 mg per month per person registered) (Walsh & Ramsey, 2016). The possibility to buy in pharmacies was only implemented in July 2017. At that moment (August, 2017), there were 6,975 people registered for self-cultivation, 63 cannabis clubs, and 11,900 people registered to buy marihuana in 16 pharmacies over the whole country (IRCCA, 2017).

In May 2017, TV spots were launched in order to highlight the risks of marihuana consumption. However, these spots are not very specific, especially not with regard to mental health consequences of marihuana consumption. In addition, these advertisements do not focus on the risks of marihuana use for adolescents' health, academic performance and well-being.

The data of our first two studies were collected before the introduction of the cannabis law and its implementation. When we collected data for our last two studies, the cannabis law was already signed, but was not yet fully implemented. To be able to evaluate if the new cannabis law had any kind of influence on the prevalence of cannabis use, we need to await the last national statistics, which have not been made public yet. Additionally, we will need further studies and more time to explore these issues and to gain insight in its impact on risk perception. Hence, the prevalence and comparison of marihuana use reported in both of our samples is still based on the last reported national statistics, which date back to 2014 (JND, 2014).

A new legislation on the regulation of the sale and use and of alcohol was launched in Uruguay on September 4, 2017. The new rules have emerged due to the high prevalence of alcohol use as mentioned above, and the high prevalence of binge drinking especially in adolescents. The three main action points of the new legislation are: education, prevention and information about

alcohol use. However, the new legislation was not yet approved by the congress and has consequently not yet been implemented.

The main aspects of the new legislation include: first, the prohibition of alcohol sales during the night and early morning (midnight to 6 am). Second, all selling agencies should register and have permission for selling alcohol. The registration will be issued and regulated by the national Ministry of Health. Third, all venues that sell alcohol should clearly display a note in their premises, indicating that it is forbidden to sell alcohol to people under 18 years old and between the forbidden set of hours. Additionally, the legislation regarding labeling of all alcohol products and advertisements will be changed. Advertisements should include information about prevention of alcohol use. The new labels will be similar to those used on cigarettes boxes. Moreover, all types of public entertainment events that might stimulate the use of alcohol are forbidden. Finally, the new legislation stipulates that the money collected from fines and registration should be allocated to prevention and early interventions among persons with problematic alcohol use.

1.5 Assessment of psychopathology and well-being

The central instruments used in this dissertation to assess psychopathology and well-being are the Adolescent Self-Report (ASA) and the Personal Well-being Index (PWI). Here, we present detailed information about the theoretical background of both instruments to measure psychopathology and SWB, respectively. A project on the development of an instrument for psychological assessment should be based on thorough analysis of psychometric aspects and the methodological approach, as well as statistical analyses and an evaluation of elements that refer to the instrument itself and its usefulness and scope. Taxonomy is the science that deals with the principles, methods and purposes of classification. Classification refers to the grouping of phenomena or cases according to the characteristics or features that distinguish them and their unique grouping. Taxonomy is the structure that is obtained from the study of the form of variability of the items with each other. It is based on data collection procedures and is analysed in the light of two criteria: statistical criteria – with the robustness of the products obtained as point of reference – and psychopathological aspects, which refer to the consistency of the findings in relation with the scientific literature (Daset et al., 2009).

The project concerning the ADA was done by the research group 'Child and Adolescent' at the Faculty of Psychology at the 'Universidad Católica del Uruguay', supervised by prof. Lilian Daset. This research line was started in 1998 and consists of two main perspectives: psychopathology, and on the other hand, resilience and well-being. The ADA-project is conceptually based on the research, methodology and instrument development of the empirically based evaluation system (ASEBA) by Thomas Achenbach and colleagues. Also, the work by the Spanish research groups led by Lemos, Fidalgo, Calvo and Menéndez (1992) and López-Soler and colleagues (1996) formed the basis for this research project. In Uruguay, a previous study with the Youth Self-Report (YSR) was carried out by prof. Daset in 2009. This study highlighted the need for a screening instrument for psychopathology which takes into account the local culture and language-specific characteristics. Recently, a study regarding the adaptation and validation of a screening test for adolescents in contexts of violence was developed at UCUDAL to assess internalizing and externalizing problems among youth (Mels & Trias, 2014). This study emphasized the need for additional validity studies of instruments that take into account cultural and linguistic characteristics of the country. Therefore, the development of the ADA (Daset, Fernández, Costa-Ball, López-Soler, & Vanderplasschen, 2015) has the aim to investigate the developmental stage of adolescence from three angles: psychopathology, socio-demographic characteristics and positive development including prosociality and resilience.

To assess the well-being of adolescents in study 3 and 4, we used the Spanish version of the Personal Well-Being Index (PWI) (Cummins, Eckersley, Pallant, Van Vugt & Misajon, 2003), validated for Chile (Alfaro et al., 2016). Cummins and Lau (2003) developed the PWI to measure SWB across countries, age groups (12 to 65 years old) and cultures. One of the reasons for choosing the PWI is that across all studies good psychometric properties and cultural stability was found (The International Well-being Group, 2013). SWB can be assessed by asking the person to rate his/her life satisfaction. The PWI focuses on the subjective aspects of QoL, leaving out the objective and affective features of the construct (e.g., happiness) (The International Well-being Group, 2013). The scale is unidimensional and consists of 7 items that evaluate following domains: 'standard of living', 'health', 'achievements', 'relationships with others' (peers and family), 'safety', 'community-connectedness', and 'future security'. The PWI also includes an optional

item “How satisfied are you with your spirituality or religion?”, which was not included in our study as the consulted studies showed mixed results regarding the contribution of this item. The 7 items of the PWI are theoretically derived from the global question: “How satisfied are you with your life as a whole?”. The instrument is measured using a Likert scale, ranging from 0 (completely dissatisfied) to 10 (completely satisfied). The index is calculated by summing up all the items and transforming the scores into a 0-100 scale).

1.6 Aims and research questions

1.6.1 Rationale for the study

As stated above, the prevalence of mental health problems and substance use in adolescents in Uruguay is high. Based on available research, SWB appears to be a key factor for healthy and positive development among adolescents (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). However, studies in Latin America about SWB in adolescents are still in an early stage. Especially in Uruguay, there are no previous studies that assessed the SWB of adolescents in relation to psychopathology and substance use. Yet, the developmental, biological, cognitive and social changes and challenges that adolescents face during adolescence influence their SWB (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). As mentioned before, substance use in adolescence is an important concern for public health, educators, health professionals, parents, etc., in particular in the specific and changing Uruguayan context. Moreover, the prevalence of mental health problems in adolescents in Uruguay is high, and mental health problems are likely to impact the SWB of adolescents (Huebner et al., 2004).

Despite abundant instruments that assess psychopathology among youth, studies are needed on the development of instruments that measure psychopathology and well-being and that are adapted to specific contexts and cultures. Consequently, this study seeks to fill this gap in research, which might also provide evidence to work on prevention strategies for adolescents at different levels (e.g., public policy, in educational and clinical settings). Identification of characteristics of SWB in adolescents on a global and multidimensional level and assessment of predictors of SWB in adolescents may provide insights about specific areas that can be targeted using preventive strategies.

1.6.2 Overall research objectives

The overall objective of this doctoral dissertation is to further extend our knowledge about the relationship between SWB, psychopathological syndromes and alcohol and marihuana use among school-going adolescents (boys and girls from 12 to 18 years old) in Montevideo, Uruguay.

In order to accomplish this overall aim, we used the following structure and research plan: First, we aim to develop and validate a screening instrument to assess psychopathological syndromes and resilience in adolescents in Uruguay. This first step was important, as in Uruguay no validated instruments are available to assess psychopathology as well as positive aspects, taking into account the language and culture characteristics.

Second, we seek to explore the prevalence and nature of alcohol use in relation to psychopathology and to assess other risk and protective factors. As described in this introduction, alcohol and marihuana are the main substances consumed by adolescents in Uruguay, including high prevalence rates and low risk perception.

Third, we wanted to explore the self-perceived subjective global well-being of adolescents, as well as associated characteristics and determinants in relation to substance use and psychopathology. In Uruguay, no information is available about the self-perceived satisfaction with life among adolescents, nor about how psychopathological symptoms and substance use affect SWB in this age group.

Finally, we wanted to explore the SWB of adolescents based on a multidimensional approach. We use the PWI to assess SWB regarding various life domains (standard of living, health, achievements, relationships, safety, community-connectedness, and future security) in relation to the use of alcohol and marihuana and psychopathological syndromes.

1.7 Methods

To accomplish the proposed aims and objectives, the dissertation was organized around three work packages:

Work package 1 (WP1): Validation of the Adolescent Self-Report (ADA)

The aim of this study was to assess the psychometric features of the items and the dimensionality of the ADA. The data were collected in six secondary schools in Montevideo, Uruguay, with adolescents from 12 to 18 years old (N = 362). The study design involved a statistical analysis of the items and the dimensionality of the instrument. In addition, a qualitative study of the items was carried out (original version 118 items). In this first study, the best available items were selected. Factor analysis was used to analyze if the data matrix applied to the factorization and to obtain an initial estimate of the number of factors to retain. We used the ADA (original version of 118 items) and a socio-demographic survey in this first study. Data collection took place in October/November 2013.

The ADA-project was organized in different phases. First, we reviewed the literature on mental health problems in adolescents, taking into account the instruments used and its outcomes among youth. In the following phase, a review of the protocol was carried out by five experts (experienced in instrument development, psychological assessment and test validation). In phase three, two focus groups were carried out with adolescents with similar characteristics as the target sample. The aims of the focus groups were to analyse the comprehensibility, quality and relevance of the items, the time to fill in the protocol and the format. The first version of the ADA-instrument consisted of 118 items, and the best model of factor analysis included 8 dimensions. Further studies were carried out to improve the instrument and a later version of 98 items was retained, consisting of 6 factors. A final version with 82 items and 6 dimensions was identified. The items that were removed from the original version were the ones that did not contribute significantly to the construct of the study.

Work Package 2 (WP2): Study about risk and protective factors for alcohol use among school-going adolescents in Montevideo

This study explores the prevalence and nature of past year alcohol use in a sample of school-going adolescents in Montevideo, Uruguay. The aim was to identify significant risk and protective factors for alcohol use during the past year. Data were collected from six secondary schools in Montevideo, Uruguay and analyses are based on 331 respondents between 12 and 18 years old. The instruments used in this study were the ADA to measure psychopathology and resilience, a socio-demographic survey to obtain information about the socioeconomic status and family characteristics, and the Alcohol Survey (JND, 2014) to assess alcohol use. Data collection took place in October/November 2013.

In this work package, we used the original version of the ADA (117 items and 8 dimensions) for the data collection. Originally, we also included the Cannabis Screening Test (CAST) to assess marihuana use and possible associated problems. However, following the feedback of the reviewers of the paper we wrote about this study, we exclusively focussed on alcohol use and did not include any analyses on marihuana use, as we had very few cases that declared to have used marihuana in the past year/lifetime. Since we did not have a good balance between the number of younger and older students, we selected a subsample from our data only including students between 12 and 15 years old (N = 331).

Work package 3 (WP3): Subjective well-being, psychopathology and substance use in Uruguayan adolescents**3.1 The moderating role of age and gender differences in the relation between subjective well-being and psychopathology and substance use in Uruguayan adolescents**

This WP includes two empirical studies, which are based on the same sample and instruments. However, each of the studies presents a different focus and analysis of aspects of SWB in relation to psychopathology and substance use.

The main aim of the first study in this WP is to explore the global self-perceived SWB in relation to psychopathology and alcohol and marihuana use in a second sample of school-going adolescents in Uruguay. We investigate age- and gender-specific relationships between

psychopathology and substance use on the one hand, and SWB on the other hand. We collected data from one secondary school in the metropolitan area of Montevideo (N = 325). This is another sample of students, with a better balance between younger and older adolescents, which will be used for the analyses in this WP. Data were collected in June 2016. The instruments used were: the Adolescent Self-Report (ADA) and socio-demographic survey, the Alcohol Survey, the Cannabis Screening Test (CAST), and the Personal Well-being Index (PWI). In WP 3, we used the last version of the ADA (82 items and 6 factors) and the protocols were administered electronically. The electronic protocol was developed to facilitate the data collection as the results go directly into an excel sheet. For the data-collection, an internet connection was needed and the link to complete the questionnaires could be accessed either through the students' laptop or mobile phone. Sample data were collected in the school computer labs. Based on the results of WP2, where the focus was on alcohol use and psychopathological symptoms, we decided to add an additional instrument to evaluate positive aspects and healthy development, i.e., the PWI. We choose the PWI, as it is used worldwide and is validated for Latin America and had very good reliability scores. Moreover, it is a short instrument that is easy to apply. We requested and obtained the written permission to apply this instrument in our study by the original author R. Cummins.

3.2 Domain-specific determinants of subjective well-being among school-going adolescents in Uruguay

As the literature indicates, the majority of studies on SWB have focused on global SWB. For this reason, we decided to introduce a multidimensional approach of the construct of SWB in our final study, resulting in more detailed findings. The aim of this final study is to assess the relationship between each specific dimension of the PWI (standard of living, health, achievements, relationships with others (peers and family), safety, community-connectedness, and future security) and age, psychopathology and alcohol and marihuana use in a sample of students between 12 and 18 years in Uruguay. We identified the most important PWI-domains for these adolescents and significant predictors per domain. Data were collected from one secondary school in the metropolitan area of Montevideo (N = 325) in June 2016. The instruments applied

were: the Adolescent Self-Report (ADA) 82 items version, JND Alcohol Survey, Cannabis Screening Test (CAST), a socio-demographic survey, and the Personal Well-Being Index (PWI).

In the following table 1.1, a summary of each WP is presented, including demographic characteristics and the instruments used. Some studies were structured in parallel or consecutive moments, in relation with the specific objective.

Table 1.1. *Summary of WPs*

	WP 1	WP 2	WP 3
Date	Oct-Nov 2013	Oct-Nov 2013	May-June 2016
N	362	331	325
Ages	12 to 18	12 to 15	12 to 18
Instruments	ADA 118 items Socioeconomic survey Alcohol survey CAST (marihuana)	ADA 118 items 8 factors Socioeconomic survey Alcohol survey CAST (marihuana)	ADA 82 items 6 factors Socioeconomic survey Alcohol survey CAST (marihuana) PWI
Schools	6	6	1

Abstract

The Adolescent Self-Report (ADA) assesses psychopathological and resilient-prosocial aspects, integrating a sociodemographic survey, habits and addictive behaviours, internet and video game use and some health-related variables. It was administered among 362 adolescent boys and girls (12 to 18 years old) based on non-probability sampling in 6 private secondary education institutions in Montevideo, Uruguay. Oblique rotation using EFA (MPlus) for categorical indicators resulted in a six factor structure of narrowband syndromes: ‘depression-anxiety’; ‘dissocial with addictive behaviour’; ‘dysregulation and disruptive behaviour’; ‘social anxiety’; ‘resilience-prosociality’ and ‘obsession-compulsion’. Two broadband syndromes are distinguished: one made up of psychopathological syndromes and the other being resilience-prosociality. The assessment of the validity and reliability indicates good reliability, adequate goodness of fit indices and appropriate standardized coefficients in the six dimensions. The conclusion of this exploratory study is that the ADA is a reliable and valid instrument for assessing psychopathology and resilience-prosociality in adolescents.

Keywords: *instrument development; psychological assessment; adolescents; psychopathology; empirical syndromes*

¹ This chapter is a translation of an article published in Spanish; Daset, L. R., Fernández-Pintos, M. E., Costa-Ball, D., López-Soler, C., & Vanderplasschen, W. (2015). Desarrollo y Validación del autoinforme de adolescentes: ADA. *Ciencias Psicológicas* 9 (1), 85-104. This translation was made by Maria Fernández, Nina Peirano, Leandro Castelluccio, Anne Dekkers, and Carolina Hughes.

2.1 Introduction

This paper addresses the different steps of the construction of a psychological assessment tool and presents the preliminary results of the ADA pilot study with the aim of developing a self-report instrument that will allow drawing up a profile of adolescents, taking into account cultural characteristics and aspects of daily life in Latin America. The rationale for this study can be summarized as follows: the need for psychosocial support strategies and for developing instruments to capture psychosocial strengths and difficulties among the youth population. The implications of the contributions of the evidence-based psychology movement begin to be incorporated in assessment procedures (Daset & Cracco, 2013; Holmbeck et al., 2008; Hunsley & Mash, 2005; Youngstrom, 2013). The emphasis is on methods that improve validity, quality and evidence and enable replication in other populations. Another argument is the increasing importance of screening and evaluation techniques, which allow identification of at-risk individuals and populations. An additional argument refers to the accumulation of studies on children and adolescents and the efforts by multiple research groups, which have led to two types of input when thinking of the development of an instrument. On the one hand, a study methodology that makes it possible to "recreate" population profiles in an efficient manner (Daset et al., 2009; Rescorla et al., 2011; Veerman & De Meyer, 2012). On the other hand, products translated into robust syndromic structures, which tend to be confirmed across various cultures and make it possible to recognize some commonalities and particularities, from where new developments can be started (Achenbach, Dumenci & Rescorla, 2002; Meehl, 2001; van der Ende, Verhulst & Tiemeier, 2012).

The "gold standard" in the process of psychological assessment states that there should be observations, interviews, questionnaires and inventories (an approach including multiple study methods). Also, paying attention to different levels of analysis and various dimensions, including the perspectives of the subject and family, peers, teachers and professionals, is recommended as part of the diagnostic process. However, this is a complicated, costly and slow system and only allows reaching a small number of young people. In addition, limited evidence is available about its efficiency (Johnston & Murray, 2003). The International Test Commission (ITC) and organizations that foster standards for the development, translation, adaptation and use of

instruments (AERA, APA and NCME)², have highlighted repeatedly the importance of the construction of tests for psychological assessment that are adapted to the culture, linguistic characteristics and idiosyncratic aspects of the targeted population (Evers, 2012; Evers et al., 2013; Muñiz, Elosua & Hambleton, 2013). As Carretero-Dios and Pérez (2005) pointed out, the development of instruments increases the predictive power and ability of generalization. The ADA (Daset et al., 2015) seeks to delimit the commonalities inherent in psychopathological structures, so that it is applicable in the reality in which it will be evaluated, in order to enable two types of comparative studies (with adapted non-originating instruments and with measures developed locally). It seeks to contribute with a sensitive evaluation instrument, which offers an individual or group profile, including quality resources accessible to professionals and brief administration and analysis times. This paper first discusses the psychometric characteristics and preliminary exploratory results of the ADA, followed by a description of the further development of the instrument.

2.1.1 Prevalence of mental health problems in adolescents

In adolescence, an increase in the prevalence of psychopathology is demonstrated. According to WHO data (2013), the prevalence of mental health problems in children and adolescents is around 20%. The onset of half of these cases is situated before the age of 14 years. Clearly, this is a subject of concern and psychological screening and assessment can identify such problems.

In Uruguay, studies on this topic have shown a high prevalence of psychopathological disorders in adolescence, both in general population and more specific samples (Cajigas de Segredo, Kahan, Luzardo, Najson, Ugo & Zamalvide, 2004; Daset, 1998, 2002, 2005; Daset et al., 2009; Mels & Trias, 2014; Pérez-Algorta, 2001; Viola, Garrido & Varela, 2007). In the study by Daset and colleagues (2009) with the Youth Self-Report (YSR) (Achenbach, 1991; Daset, 2005; López-Soler, García-Montalvo, Pérez López, Brito, Tejerína & Fernández Ros, 1998), similar syndrome groups were obtained among a sample of 344 adolescents from a secondary school in Montevideo, replicating the findings of previous studies (Achenbach & Edelbrock, 1987; Costello, Mustillo, Erkanli, Keeler & Angold, 2003; Goodman, Renfrew & Mullick, 2000). Moreover, the study

² American Educational Research Association (AERA); American Psychological Association (APA); National Council on Measurement in Education (NCME).

demonstrated a higher prevalence of the syndromes 'depression-anxiety' among females and of the 'dissocial syndromic structure' among males, as well as increased rates of anxiety, oppositional, impulsivity and dissocial syndromes with age. The ten syndromes that were extracted from this study were: depression-anxiety, prosocial, dissocial, oppositional-impulsive, thought alteration, somatic complaints, withdrawn-avoidant, social problems, fear and an immaturity/inadequacy syndrome (Daset, 2005; Daset et al., 2009). The study by Viola, Garrido and Varela (2007) including 1374 children between 6 and 11 years old based on the Child Behaviour Checklist (CBCL) (Achenbach, 1991a) indicated a prevalence of psychopathological syndromes of 22%, emphasizing anxiety and depression as internalizing syndromes and ADHD and conduct disorders as externalizing syndromes. Similar results were obtained in the study by Goodman (2010) and the WHO report (2009).

From an international perspective, the classic epidemiological study by Rutter, Tizard and Whitmore on the Isle of Wight in 1970 (as cited in Rutter, Giller & Hagell, 2000) including 2303 participants between 10 and 15 years old needs to be mentioned. Parents and teachers completed questionnaires about these youngsters' behaviour. Two groups were assessed: one with signs of psychological or psychiatric deviation, the other is a random sample from the general population. The study investigated alienation of children from their parents, communication difficulties, self-referential ideas, suicidal ideation, anxiety, sadness, feeling demoralized and depressed and self-dejection. At the age of 10 years, the prevalence of these symptoms was 10%. At 14 years, it had increased to 21% (Rutter, 1997) and primarily depression and anxiety had increased.

One of the most widespread assessment instruments is the CBCL, developed by Thomas M. Achenbach at the beginning of the 1970s. Among his predecessors were Ackerson (1942), Hewit and Jenkins (1946), Jenkins and Glickman (1946) (as cited in Achenbach, 1995; Achenbach & Edelbrock, 1987, 1991), who began with calculating correlations between pairs of items, looking for the distinction between syndromes by clinical reading and statistical criteria (Achenbach et al., 2002, 2011). In recent years, a study was performed in 25 countries (Rescorla et al., 2013) with a sample of 27,861 adolescents between 11 and 18 years old and their parents, addressing the coincidence and balance between responses of adolescents and their parents on the CBCL and

YSR-scales. The findings indicated that, on average, the adolescents reported more problems than their parents. When there is agreement between scores of parents and adolescents, the prediction of effectiveness of treatment is greater. Goodman (2010) carried out a longitudinal study in Great Britain where he examined a sample of 3607 adolescents – 11 to 16 years old – regarding the association between mental health and substance use. The parent-report Strengths and Difficulties Questionnaire and interviews were administered (Goodman, 2001), as well as clinical diagnoses of mental health disorders. Substance abuse was measured using the YSR (Achenbach, 1991), by adding a measure of regular consumption of tobacco, alcohol and cannabis. The results indicated that the presence of externalizing syndromes predicted, independently, all types of substance abuse, tobacco use in particular. Internalizing syndromes were only associated with tobacco consumption, but this association disappeared when comorbidity with externalizing problems was included. Goodman's work has been replicated in several other studies (Janssens & Deboutte, 2009; Richter, Sagatun, Heyerdahl, Oppedal & Roysamb, 2011).

Navarro-Pardo, Moral, Galan and Beitia (2012) studied the incidence of different psychopathological disorders among children (1 to 18 years old) recruited in paediatric settings (N = 588) and its relationship with age and gender. Psychopathology was evaluated by means of a clinical interview, insight in the clinical history and questionnaires. The results for ages between 12 and 15 years pointed out high prevalence of conduct disorders (CD) and anxiety disorders (AD), while (CD) prevailed among those 16 to 18 years old. It appeared that in males CD prevailed, while in women AD prevailed. Moreover, regarding gender differences, this study found an increase in externalizing disorders in males and internalizing in female. Costello, Mustill, Erkanli, Keeler and Angold (2003) conducted a longitudinal study with the objective of assessing the prevalence and development of mental health problems among youngsters between 9 and 16 years. They analysed a sample of 1420 subjects who were assessed annually based on DSM-IV criteria until the age of 16. Results indicated that 36.7% (31% girls and 42% males) met criteria for at least one mental disorder over the study period. The prevalence of following mental health problems increased with age: social anxiety, panic, depression and substance abuse.

This overview of studies on mental health in youth populations shows the need for assessment instruments, which allow to cover multiple variables and domains and to address behavioural changes over time. Furthermore, the use of such measures contributes to an old discussion about the quality of statistical criteria for understanding psychopathological structures. Belloch, Sandín and Ramos (2009) have pointed at some of the conceptual controversy regarding frequency and continuity and the unavoidable discussion about 'normality' and 'abnormality'.

In this chapter, we present the process of the development of the ADA instrument. First, we report the preliminary results of a study among adolescents. Second, we assess the reliability of the scale and its internal validity. Finally, the scope and limitations of the instrument are evaluated. The objective of the paper was to develop an assessment instrument for adolescents, which allows obtaining a global profile in relation to sociodemographic characteristics, psychopathology and features of resilience and prosocial behaviour.

2.2 Methods

2.2.1 Participants

The ADA (Daset et al., 2015) was administered in October and November 2013 with 362 adolescents (218 female and 144 male), aged between 12 and 18 years ($M_{age} = 14.61$, $SD = 1.23$). These were selected from 6 secondary schools based on intentional sampling in all private secondary education institutions in the city of Montevideo, Uruguay. 90.4% were students in basic secondary education (first year = 132, second year = 100 and third year = 79) and 9.3% were in upper secondary education (fourth, fifth and sixth year). According to the Socioeconomic Level Index (INSE) (Llambí & Piñeiro, 2012) used to classify households according to their consumption capacity, the socioeconomic status of the sample was as follows: 59% middle class, 38% lower class and 2.4% high class. 62.1% of the adolescents lived with both of their parents, while 32.9% lived with one of the two. Regarding the educational level of the parents, 1.5% did not complete primary education, 9.5% completed primary school, 26% did not finish secondary or technical-professional education (secondary school), 39% completed upper secondary or technical-professional secondary education and 24% finished university or higher education.

2.2.2 Instruments

General characteristics of the Adolescent Self-Report (ADA)

The ADA (Daset et al., 2015) consists of 118 items (117 clinical items + 1 global item "I need psychological help") and a sociodemographic survey. Evaluation is based on the self-perception of adolescents and the reference group are peers. The questionnaire examines psychopathology and aspects related to prosociality and resilience, as well as strengths, coping abilities and social desirability. The answers are scored using a 5-point Likert scale, in which 1 indicates "nothing" or "never" and 5 "always" (Lozano, García-Cueto & Muñiz, 2008).

Information on general and background data is collected by means of a sociodemographic questionnaire, using the survey of the Socioeconomic Level Index (INSE) (Llambi & Piñeiro, 2012). The first part of the ADA is formed by the sociodemographic survey. The second part includes the section that refers to the ADA items itself. The third part comprises the questions on substance use (alcohol and marihuana). At the beginning of the ADA, there are some brief explanations about the whole questionnaire and then in each section the respective items are presented.

The differential aspects provided by the ADA are in addition to the items on psychopathology, the inclusion of sociodemographic variables, containing household conditions and habits. It also contains items about addictive behaviours, self-harm, use of internet and games, health-related aspects, family relationships and problem solving. It considers risky behaviour, harassment, resilience, strengths, and prosociality. In this chapter, we present analyses based on the ADA self-report and only the variables age, gender, grade and the INSE variables to determine socioeconomic status are taken from the sociodemographic survey.

2.2.3 Development of the Adolescent Self-Report (ADA)

The development of the ADA (Daset et al., 2015) is part of the research done by the research group "Childhood and Adolescence" of the Uruguayan Catholic University, which aims at investigating developmental stages from three angles: a psychopathological one, a sociodemographic one and a strength-based one referring to aspects that encompass prosociality and resilience. Recently, studies on addictive behaviours (Fernández, Daset, Costa & Vanderplasschen, 2015) and habits in the use of internet and video games were added

(Echeburúa & De Corral, 2010). Research has been carried out following the methodology proposed by Achenbach (1987, 1991) and Goodman and colleagues (2001). Based on these approaches, it is possible to develop a population profile that is useful for educational, health and social services (Costa-Ball, González-Tornaría, del Arca, Masjuan & Olson, 2013). The whole process has lower costs compared to traditional monitoring systems, in particular for at risk samples where short- and medium-term actions are required.

The ADA-project was organized in different phases. First, a literature review focused on mental health problems in adolescents, considering assessment instruments and their characteristics and its results in youth populations. Inclusion criteria for the systematic review (SR) were: focus on adolescents, use of psychological or psychopathological assessment instrument, report about validity and reliability of the scale, published between 2000 and 2013, among general and clinical population samples, languages: English, Spanish, and Portuguese. Exclusion criteria were: adults and persons older than 21 and younger than 9, use of qualitative assessment instruments, and studies without psychometric validation. Keywords that were combined were: 1) adolescents or young people; 2) psychopathology, taxonomy, empirical syndrome, risk factors, vulnerability; 3) resilience, psychological well-being, QoL, protective factors, and 4) consumption of alcohol and marihuana, use of substances, drugs. Following databases were consulted: APA, SCIELO, ISI, SCOPUS, EBSCO, Medline, Pub Med, Web of Science, Portal Timbó. Table 2.1 summarizes the main instruments that were identified based on this search.

Table 2.1. *Main instruments studied in the development of the ADA*

Instrument	Author	Year
Youth Self-Report (YSR-UY)	Achenbach, & Rescorla	1991
Child Behavior Checklist (CBCL)	Achenbach	1991
Strengths and Difficulties Questionnaire (SDQ)	Goodman	1997
Fear Survey Schedule for Children (FSSC-R)	Scherer & Nakamura	1968
Barkley Deficits in Executive Functioning Scale Children and Adolescents	Barkley	2012
PTSD Symptom Scale for Children and Adolescents (CPSS)	Foa, Johnson, Feeny & Treadwell	2001
Questionnaire on bullying and intimidation among peers in classrooms	Ortega, Mora-Merchán & Mora	1995
Teen Resilience Scale	Oshio et al.	2002
Depression Inventory (BDI)	Beck, Steer & Brown	1996
Anxiety Inventory (BAI)	Beck	1993
Personality Inventory (EPQ)	Barret & Eysenck	1984
Personality Questionnaire for Children (CPQ)	Porter & Cattell	1981
Alcohol use Disorder Identification (AUDIT)	(WHO) Saunders, Aasland, De la Fuente & Grant	1993
Severity of Dependence Scale (SDS)	Gossop	1995
Alcohol Consumption Survey	Junta Nacional de Drogas	2011
Cannabis Abuse Screening Test (CAST)	Beck & Legleye	2003
Symptom Checklist 90 Revised (SCL-90-R)	Derogatis	1994
Depression Questionnaire for Children (CDS)	Lang & Tisher	1990
Factorial Personality Questionnaire (16-PF)	Cattell, Cattell & Cattell	1993
Youth Psychological Well-Being Scale (BIEPS-J)	Casullo & Castro	2002
Child and Adolescent Self-Control Questionnaire (CACIA)	Capafóns Bonet & Moreno	2001
Inventory of Anxiety Situations and Responses (ISRA)	Miguel Tobal & Cano-Vindel	1988
Millon Clinical Inventory for Teens (MACI)	Millon	1992
Psychological Well-Being Scale (EBP)	Sánchez-Cánovas	1998
Obsessive-Compulsive Scale (Y-BOCS)	Yale-Brown	1994
Resilience Scale (RESIL W&Y)	Wagnild & Young	1993
Spence Children's Anxiety Scale (SCAS)	Spence	2010
Inventory of state-trait anger expression in children and adolescents (STAXI-NA)	Spielberg	2009

The conclusions of this systematic review allowed, along with previous studies carried out at UCUDAL, to identify some of the central themes to be included in the ADA: anxiety, depression, self-harm, self-injury, somatic complaints, ADHD, thinking problems, anti-sociality, eating problems, sleep problems, addictive behaviour, abusebullying, self-regulation/self-control, psychological well-being, prosociality and resilience.

An item bank was built consisting of 958 behavioural descriptions, grouped by topics. The first analysis was made against the background of available classification systems: the Diagnostic and Statistical Manual of Mental Disorders in its 4th revised version (DSM-IV-TR) (APA, 2002) and 5th version (DSM-5) (APA, 2013), and the International Classification of Diseases by the World Health Organization (WHO) in its 10th version (ICD-10) (WHO, 1992). Items were eliminated according to following criteria: clinical judgment, redundancy and non-relevance of the items. 145 items were retained, which were included in the first ADA protocol.

In the next phase, a critical review of this protocol was made by 5 experts with experience in psychological assessment and in the development/adaptation of instruments. They reached a 92% inter-rater agreement. Subsequently, the protocol was revised and focus groups were organised. 11 young people between 12 and 17 years old sat together, with the aim of analysing and discussing the comprehensibility, quality of the items, pertinence of times and formats, and what they thought each description wanted to investigate (2 protocols were used for this). At the end of the focus group, a group discussion was started about items that generated comprehension problems, items that were relevant and items that were not. The assessment was positive. Given the suggestions, some items were reformulated, especially replacing some terms by more appropriate ones. Also removing repetitive items and items that generated discomfort.

After completing this phase, an analysis of all obtained input was made, resulting in a protocol with 117 items and a sociodemographic survey and additional questions about health-related aspects, relations, problem-solving at home and use of internet and video games was elaborated. Also, two brief surveys on alcohol and cannabis use were included, the Alcohol Consumption Scale (National Drug Board, 2012) and the Cannabis Abuse Screening Test (CAST) (Beck & Legleye, 2003). During the development of the ADA, EFPA directives were followed (Muñiz, Elosua & Hambleton, 2013), paying particular attention to:

- linguistic corrections according to the idiom of young people, with due attention for slang and proper use of language, and ambiguous terms;- practical adequacy, which involved investigating the format of the instrument, duration, and aspects of administration and their practical adequacy;
- recognition of the reactions caused by the ADA protocol;
- estimation of the explanatory capacity of the slogans and adaptation of their extension;
- inclusion of new items;
- obtaining a first idea of the answers to the items as offered by the group;
- inquiry about rejected items or items that were incomprehensible or annoying.

This phase also allowed the elaboration of an instruction manual for administrators of the ADA protocol. We trained those who administer the instrument during 3 extensive theoretical and practical sessions prior to the pilot study and compiled a database including protocols, required materials and registration systems.

2.2.4 Procedure

For the construction of the ADA self-report questionnaire (Daset et al., 2015) and the study of its psychometric properties, we followed the norms for the development and revision of instruments (Carretero-Dios & Pérez, 2007). The first six out of seven phases of this model were completed, namely: justification of the study, conceptual delimitation of the construct to be evaluated, construction and qualitative evaluation of items, analysis of the items, study of the dimensionality of the instrument or internal structure, estimation of reliability and obtaining external evidence of validity (Carretero-Dios & Pérez, 2005; Muñiz, Elosua & Hambleton, 2013). This project received ethical approval from the Uruguayan Catholic University and used informed consents from parents, institutions and young people themselves.

Participants in the study were students from elementary and middle schools. Secondary education in Uruguay is structured in a basic (3 years) and a higher cycle (3 years). The ADA was administered in regular course groups at the educational institution by a graduate master in psychology and advanced undergraduate psychology students. The anonymity of the participants was assured. The mean time for administration of the questionnaire was 65 minutes and responses were collected in an individual printed protocol.

2.2.5 Data-analysis

According to the study objectives, the ADA items (Daset et al., 2015) were analysed to identify the underlying factor structure through an exploratory factor analysis (EFA) model (Lloret-Segura, Ferreres-Traver & Tomás-Marco, 2014; Matsunaga, 2010). Next, the sample size was defined as suitable for items of an ordinal nature and a data matrix of polychory type, which is simultaneously consistent with the use of software appropriate to the nature of Likert-shaped items (Lloret-Segura et al., 2014). The extreme asymmetry criterion was used for values ≥ 3 and above 21 for kurtosis (Kline, 2005; Livacic-Rojas, Vallejo & Fernández, 2006). An analysis of all items was performed (see table 2.2), in which it was observed that 20.4% of the items had a severe asymmetry and 9.2% had a severe kurtosis. In addition, 9.2% of the items showed severity in both measures.

The above-mentioned values of asymmetry and kurtosis show that the items do not present a normal distribution. According to Muthén and Kaplan (1985), the values of asymmetry and kurtosis coefficients need to be in the range of -1 to +1 (Ferrando & Anguiano-Carrasco, 2010, 1992). Less stringent authors consider the range -2 to +2 acceptable (Lloret-Segura et al., 2014). When asymmetry values exceed the range ± 3 and kurtosis is located at ± 21 , we are faced with extreme coefficients. For this reason, we chose to use the polychoric correlation matrix (Lloret-Segura et al., 2014) to determine the data matrix to be used with Likert type and ordinal response items with abnormal distributions (see tables 2.2 and 2.3). Since the analysis of items highlighted the absence of normality and the factor program used the non-weighted least squares (ULS) factorial extraction method (which does not require the assumption of multivariate normality), some authors point out that extreme values of asymmetry can affect the estimation of the parameters (Muthén, du Toit & Spisic, 1997).

Table 2.2. *Asymmetry and kurtosis values*

<i>Asymmetry</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Kurtosis</i>	<i>Frequency</i>	<i>Percentage</i>
<-3	0	0	<-21	0	0
-3 a -2	0	0	-21 a -3	0	0
-2 a -1	5	5.1	-3 a -0.75	13	13.3
-1 a 1	33	33.7	-0.75 a 0.75	29	29.6
1 a 2	27	27.6	0.75 a 3	23	23.5
2 a 3	13	13.3	3 a 21	24	24.5
>3	20	20.4	>21	9	9.2

The matrix of polychoric correlations was analysed and bivariate distributions of each pair of items were studied to identify patterns of non-linear relations between the items (Pérez & Medrano, 2010). These patterns would violate the EFA linearity assumption and again add bias to the matrix and factor structure that was identified (Lloret-Segura et al., 2014). Once the matrix to be factorized was selected, its degree of adequacy to the EFA was verified. The Kaiser-Meyer-Olkin (KMO) measure was the most usual one (Lloret-Segura et al., 2014).

The method of factor estimation was adapted to the characteristics of the items (ordinal and without distribution of normality), in which case it is recommended to apply the method of weighted least squares estimation, adjusted by the mean and variance (Flora & Curran, 2004; Muthén & Muthén, 2007). When data are ordinal and with two to five categories of responses, it is recommended to use robust parameter estimation methods (LS, weighted least square (WLS) or Bayesian), because these produce more precise parameter estimates than those based on continuous maximum likelihood estimation (ML) estimation (Schmitt, 2011).

Once the correlation matrix and factorization method were determined, the appropriate number of factors to be retained was selected and the parallel analysis of Horn (1965) was performed. These statistical procedures are analysed in light of the theoretical power that factors acquire (Carretero-Dios & Pérez, 2005). Only factors with a minimum of 3 items were taken into account. Dimensionality adjustment indexes were evaluated and the most plausible and parsimonious solution was determined (Lloret-Segura et al., 2014). The adjustment of the model to the pattern of the data was analysed. We used the χ^2 -test, χ^2/df ratio, RMSEA index, Tucker-Lewis index (TLI),

Comparative Adjustment Index (CFI) and Mean Squared weighted residue (MSWR). Normally a χ^2/df ratio with values lower than 2 is considered to be a good fit. The CFI and TLI indices vary between 0 and 1, where 0 indicates no adjustment and 1 is optimal. Values of .95 or higher are considered excellent, while the RMSEA index is optimal with values ≤ 0.06 and values ≤ 0.09 for MSWR (Schreiber, Nora, Stage, Barlow & King, 2006).

As for the method of rotation and assignment of items to factors, oblique rotation and oblique geometry (Llorente-Segura et al., 2014; Schmitt, 2011) was used. An aspect that can influence the interpretation of the obtained solution is the criterion of allocation of items to the factors, where the common practice is to retain saturation values that are above .30 or .40 as proposed by Bandalos and Finney (as cited in Lloret-Segura et al., 2014). It has been argued that .32 could be a good general rule in the minimum saturation to be considered, which is equal to approx. 10% of the explained variance. Other authors are stricter and recommend raising the cut-off point if the sample contains less than 300 cases (Williams, Brown & Onsman, 2010). It is also suggested that the discrepancy between saturation values in the first two factors should be .50/.20 or .60/.20 (e.g., a difference of .30 - .40). In this study including a sample of over 300 participants, we chose $\geq .30$. The items that did not exceed that value were subject to a substantial and methodological examination to decide on one of the following three options: to eliminate the item, to revise the item or to add new items that assess the characteristic related to it. Then, a new factorial analysis was performed with the reduced scale, after eliminating these items (Lloret-Segura et al., 2014).

Finally, reliability tests were analysed, using the ordinal alpha instead of the usual Cronbach alpha, which assumes that the data are continuous (Elosua & Zumbo, 2008). Microsoft Excel was used to estimate this. For the descriptive statistics, we used the statistical package SPSS Statistics 21 (IBM Corporation, 2012). For the factor analysis, Mplus 5 was used (Muthén & Muthén, 2007) to calculate the number of factors to retain the factor program (Lorenzo-Seva & Ferrando, 2006).

Table 2.3. ADA descriptive data: analysis of items

Item	Mean	SD	Asymmetry	Kurtosis	Item	Mean	SD	Asymmetry	Kurtosis
1	2.04	1.03	0.80	0.00	60	2.09	1.34	0.90	-0.54
2	3.80	1.01	-0.76	0.12	61	4.04	1.13	-1.30	1.04
3	3.89	1.06	-1.00	0.63	62	1.54	1.01	2.17	4.16
4	2.02	1.24	1.07	0.07	63	1.16	0.52	4.01	18.52
5	2.15	1.46	0.85	-0.82	64	1.14	0.47	3.86	15.58
6	2.35	1.28	0.59	-0.85	65	1.59	1.04	1.95	3.04
7	1.75	1.15	1.42	0.94	66	2.15	1.32	0.92	-0.41
8	1.08	0.34	5.10	3.02	67	1.72	1.09	1.46	1.20
9	1.39	0.94	2.58	6.00	68	1.16	0.65	4.51	20.03
10	3.26	1.23	-0.27	-1.03	69	1.29	0.82	3.16	9.52
11	3.83	1.25	-0.84	-0.38	70	3.47	1.40	-0.53	-1.00
12	1.61	0.95	1.83	3.12	71	1.59	0.87	1.50	1.99
13	1.95	1.61	1.22	-0.38	72	1.76	1.13	1.48	1.22
14	1.17	0.53	4.07	18.98	73	1.15	0.56	4.78	25.23
15	1.30	0.70	2.87	8.87	74	3.75	1.32	-0.88	-0.39
16	3.60	1.23	-0.55	-0.69	75	2.08	1.31	0.92	-0.40
17	1.94	1.22	1.19	0.38	76	1.23	0.72	3.75	14.24
18	1.75	1.09	1.55	1.62	77	1.34	0.73	2.63	7.41
19	1.16	0.66	4.64	21.39	78	1.10	0.47	5.77	35.80
20	2.99	1.55	0.01	-1.51	79	1.77	1.14	1.41	0.99
21	1.07	0.31	5.99	42.65	80	1.47	0.93	2.08	3.60
22	1.80	1.23	1.44	0.87	81	1.38	0.84	2.61	6.56
23	1.77	0.98	1.26	1.00	82	1.56	1.08	2.03	3.21
24	2.95	1.30	0.07	-1.08	83	1.66	1.04	1.70	2.23
25	1.99	1.15	0.99	-0.02	84	1.63	1.11	1.86	2.49
26	1.27	0.64	3.16	11.77	85	1.09	0.43	5.98	40.60
27	1.05	0.36	8.75	80.61	86	2.29	1.25	0.75	-0.44
28	2.22	1.18	0.71	-0.51	87	1.67	0.98	1.52	1.67
29	1.10	0.44	5.51	34.80	88	2.25	1.38	0.77	-0.73
30	2.04	1.10	1.03	0.45	89	3.68	1.29	-0.77	-0.49
31	1.02	0.17	8.88	84.86	90	1.77	1.11	1.36	0.73
32	1.67	1.00	1.58	1.81	91	3.39	1.30	-0.47	-0.86
33	1.47	0.88	2.18	4.46	92	1.94	1.24	1.19	0.28
34	4.24	1.04	-1.60	2.05	93	1.30	0.69	2.63	6.94
35	1.88	1.22	1.28	0.52	94	3.74	1.23	-0.81	-0.29
36	3.84	1.10	-0.93	0.30	95	2.67	1.29	0.44	-0.88
37	1.92	1.30	1.26	0.29	96	2.44	1.35	0.53	-0.92
38	1.18	0.76	4.32	17.54	97	1.80	1.19	1.33	0.57
39	3.87	1.37	-1.07	0.21	98	1.45	0.95	2.30	4.60
40	3.43	1.37	-0.42	-1.06	99	2.32	1.33	0.76	-0.58
41	1.27	0.79	3.24	10.05	100	2.70	1.41	0.25	-1.23
42	3.72	1.14	-0.61	-0.58	101	1.56	0.97	1.88	3.01
43	1.40	0.91	2.62	6.44	102	3.95	1.33	-1.13	0.00
44	2.05	1.35	1.09	-0.13	103	2.90	1.43	0.08	-1.29
45	1.97	1.28	1.11	-0.03	104	2.30	1.33	0.62	-0.86
46	1.52	0.99	2.17	4.13	105	2.73	1.45	0.29	-1.31
47	1.09	0.34	4.19	17.74	106	2.91	1.44	-0.02	-1.33
48	1.28	0.71	3.41	13.14	107	3.30	1.47	-0.41	-1.24
49	1.45	0.88	2.18	4.25	108	1.68	1.08	1.65	19.10
50	1.75	1.06	1.36	1.08	109	1.57	1.06	1.92	2.73
51	3.52	1.23	-0.66	-0.53	110	2.32	1.23	0.65	-0.50
52	1.27	0.78	3.32	10.97	111	1.61	1.01	1.77	2.52
53	1.31	0.81	2.80	7.29	112	1.80	1.25	1.44	0.81
54	1.21	0.61	3.36	11.98	113	2.41	1.40	0.58	-1.00
55	1.20	0.62	3.50	12.65	114	1.15	0.56	4.71	24.56
56	1.19	0.55	3.69	16.03	115	1.72	1.19	1.58	1.30
57	1.70	1.06	1.57	1.71	116	2.39	1.51	0.58	-1.18
58	3.71	1.10	-0.79	-0.06	117	2.42	1.43	0.58	-1.03
59	2.10	1.26	0.94	-0.21					

Note. Values in asymmetry and kurtosis greater than 2 and standard deviation less than 0.5 show that the items do not fit a normal distribution.

2.3 Results

The results of the development of the ADA (Daset et al., 2015) are presented below based on a pilot test among 362 boys and girls between 12 to 18 years old that were recruited in six private secondary educational institutions in the city of Montevideo. Study 1 concerns the analysis of stages four and five (statistical analysis of the items and study of the dimensionality of the instrument) in the process of developing instruments for psychological assessment (Carretero-Dios & Pérez, 2005). After a qualitative study of the items and after selecting the best available items, the first EFA is developed. The aim is to analyse if the data matrix is adapted to the factorization and to obtain an initial estimate of the number of factors to retain. Consequently, a number of items was deleted and we proceeded to carry out a second study. The result was a reduced instrument with better quality indexes in the items. Study 2 focuses on the dimensionality of the instrument (internal structure) in the 98 items that form the factorial structure, after elimination of 19 items from study 1. The respective psychometrical measurements are also presented (construct validity and reliability).

2.3.2 Phase 1

Statistical analysis of the items

The objective of this study was to select the set of items from the analysis of the psychometric properties of the ADA. All items were subjected to a descriptive analysis. Table 2.2 reports the mean, standard deviation, asymmetry and kurtosis. With the results obtained, a first selection of items was made, specifically studying those with a reduced standard deviation ($SD < 0.5$) and those with asymmetry or kurtosis values greater than ± 2 points. This was done to eliminate items that generate answers that are too unanimous and non-discriminatory. Decision-making was done in the light of the theoretical framework that was developed in the previous section. Regarding asymmetry values, 20.4% of the items presented asymmetry values above 3, while for kurtosis values, 9.2% presented values higher than 21 (table 2.3). 9.2% of the items present extreme values, both in asymmetry and in kurtosis, evidencing that the Pearson data matrix cannot be used to perform the factorial analysis. Therefore, it was decided to use factorization with a polychoric matrix.

Factor structure of the ADA scale with 117 items (original protocol)

First, an EFA was performed on the polychoric correlation matrix, in order to determine the factorial structure of the questionnaire. Since the multivariate coefficient of kurtosis showed absence of normality and since the probability associated with multivariate asymmetry was significant (Mardia, 1970), it was interpreted that the distribution distances differed from normality in a meaningful way, which is a critical drawback of the analyses (Rodríguez & Ruíz-Díaz, 2008). This is confirmed by an analysis of the items observed in tables 2.2 and 2.3, in which 33.4% of the items show high values of asymmetry and kurtosis. For this reason, it was decided to perform an EFA with the polyhedric matrix and with the unweighted least squares (ULS) factorial extraction method as the preferred choice in this type of situation due to its robustness. We used the Promin method for factorial rotation (Lorenzo-Seva, 1999b), together with Horn's (1965) parallel factor analysis (PA), based on the minimum rank factor analysis (Timmerman & Lorenzo-Seva, 2011). Barlett's sphericity test was significant ($\chi^2 = 13935.8$, $p = .001$) and the Kaiser-Meyer-Olkin (KMO) index of sample adequacy of .69 showed a poor fit of the data for the application of a factor analysis. The result of the parallel analysis (PA) shows the adequacy to a solution of seven factors.

Once the most appropriate factor solution was established, the Promin rotation method (Lorenzo-Seva, 1999a) was used to obtain a simple factorial solution. The saturation matrix of the obtained factorial solution allows the identification of six factors, explaining among them 33.34% of the variance. The obtained results, showed an index of goodness or bad adjustment (CFI = 0.43; GFI = 0.92). In order to evaluate the fit of this seven-factor solution, the root mean square root (RMSR) was calculated, obtaining a value of 0.052 indicating a good fit, as the upper limit to consider an acceptable fit according to the criterion of Kelly is 0.066. Given the lowered KMO index (0.69) and the low goodness values, the result of the factorization suggested by the parallel analysis (PA) was not analysed.

Based on the results described above, we returned to the content validity stage, specifically to the stages of conceptual delimitation of the construct to be evaluated, item analysis, dimensionality and reliability (Carretero-Dios & Pérez, 2005). Items with extreme values of asymmetry and kurtosis were identified and analysed from a clinical perspective. These items

were eliminated due to potential defects in the related statements, ambiguity and limited contribution to the construct. We also removed items that – from a validity perspective – did not contribute significantly to the constructs that were important for the study. In this way, the original item bank was purified. 19 items from the original ADA-protocol (Daset et al., 2015) were removed. From the 117 items in the initial version, 98 items were retained in the refined version. The item that refers to ‘need for help’ was retained.

2.3.3 Phase 2

In this phase, the revised 98-item version of the ADA was used. In order to study the number of factors to be extracted, an EFA for the polychoric matrix with the Factor Program was performed (Lorenzo-Seva & Ferrando, 2006), enabling the parallel analysis of Horn (1965). We applied an EFA with the polychoric data matrix of the 98 selected items from the original 117 ADA-items, using the method of estimating Unweighted Least Squares (ULS) factors with oblique rotation, applying the Promin-method of Lorenzo-Seva (1999a). Barlett's sphericity test was significant ($\chi^2 = 13935.8$, $p = .001$) and the KMO index was .81, showing a very good adaptation of the data for the application of a factor analysis.

As for the number of factors to be extracted, results from the Horn (1965) parallel analysis (PA) showed the possible extraction of six dimensions, so that the global scale could be considered multidimensional. The data matrix was analysed with an EFA (with Mplus 5) for categorical or ordinal indicators, using the weighted least squares extraction method (Schmitt, 2011), adjusted by mean and variance (WLSMV), with genomic oblique rotation. In table 2.4, the result of the EFA is visualized for each proposed model (from a one-dimensional model to a seven-dimensional model). Taking into account the adjustment indices of each model, models with a greater number of factors and better indexes of goodness of fit could be observed.

Based on the parallel analysis of Horn (1965), the extraction of up to 7 factors was recommended. However, following the principles of parsimony and plausibility, we opted for simplest structure, clear and with good values of goodness of fit.

Six clusters of items were then analysed. These 6 dimensions were analysed from a clinical perspective and in relation to its validity of content. This appeared to be the most adequate

solution. Then, items with a weight less than .30 and those with a difference less than .15 were eliminated in two factors.

Table 2.4. EFA: indexes of adjustment as a function of the number of factors in each extraction

Factors	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA	SRMR
1**	604.832	181	.0000	3.34	.74	.797	.081	.011
2**	460.645	181	.0000	2.54	.83	.866	.066	.099
3**	373.131	191	.0000	1.95	.889	.918	.052	.082
4**	319.013	192	.0000	1.66	.92	.94	.043	.074
5**	309.737	197	.0000	1.57	.93	.95	.040	.069
6**	297.767	197	.0000	1.51	.939	.956	.038	.067
7**	288.178	197	.0000	1.46	.94	.96	.036	.064
8**	283.486	198	.0000	1.43	.948	.96	.035	.06
9**	278.830	200	.0002	1.39	.95	.967	.033	.059
10**	275.304	202	.0005	1.36	.955	.969	.032	.057

Note: ** Number of factors counted with the 95th percentile (parallel analysis (PA));

** Number of factors counted with the 99th percentile (PA);

The adjustment values are: $\chi^2(246) = 297.76$; $\chi^2/df = 1.51$; CFI = 0.94; TLI = 0.95; RMSEA = 0.038; SRMR = 0.067

Factor structure of the ADA 98-items scale

Table 2.5 presents the factor structure of the ADA questionnaire for all categorical variables, using WLSMW estimation method and oblique genomic rotation. The results indicate very good indexes of goodness of fit (see also table 2.4). Table 2.6 shows the standardized coefficients of the six selected factors. In the output presented in table 2.5, items with residual loads (which did not contribute to the constructs measured in this study) are not shown. In addition, two items were repeated in more than one factor given their content. The decision to eliminate additional items referring to stereotypical or cliché behaviour that contribute little to the central constructs can only be taken once a population study has been carried out, while a greater number of subjects is necessary in some categories (e.g., age, grade) to take this decision.

Table 2.5. Factorial weights of the extracted items (ADA 98 items)

Extracted Items	F1	F2	F3	F4	F5	F6
<i>I feel so bad that I want to hurt myself</i>	0.939					
<i>I think about taking my life</i>	0.872					
<i>I injure my body on purpose (cuts, wounds, etc.)</i>	0.84					
<i>I force myself to vomit after eating</i>	0.827					
<i>I have wished I was dead</i>	0.637					
<i>I feel lonely</i>	0.573					
<i>I feel sad and unhappy most of the time</i>	0.547					
<i>I feel that nobody loves me</i>	0.535					
<i>I hate the way I look</i>	0.534					
<i>I think I'm a failure</i>	0.52					
<i>I think I need psychological help</i>	0.507					
<i>I cry more than people my age</i>	0.482					
<i>I feel ashamed of myself</i>	0.481					
<i>Although others think that I am thin I look fat</i>	0.477					
<i>At times I feel that I will have a stroke, or that something will happen to me</i>	0.474					
<i>I feel like vomiting (without the doctor finding the cause)</i>	0.39					
<i>I had panic attacks</i>	0.388					
<i>I find it hard to understand why I'm sad</i>	0.388					
<i>There are images and ideas I can't take out of my head</i>	0.362					
<i>I'm afraid to think or do something bad</i>	0.362					
<i>I feel guilty for the things I do</i>	0.354					
<i>I have headaches (without apparent medical cause)</i>	0.347					
<i>My classmates threaten me on the phone or internet</i>	0.33					
<i>I make animals suffer if I want to</i>		0.953				
<i>I've stolen things or money outside my home</i>		0.522				
<i>I need to consume more and more to feel the same effect</i>		0.468				
<i>I have set on fire things I should have not</i>		0.461				
<i>I destroy the things of others</i>		0.395				
<i>I must be perfect in everything I do</i>		0.391				
<i>I love to be the center of attention</i>		0.369				
<i>When I want to break something, it is hard to control myself</i>			0.723			
<i>When someone hits me first, I start hitting back, and I can't stop</i>			0.707			
<i>I threaten others</i>			0.682			
<i>I argue more violently than most people my age</i>			0.669			
<i>When I start insulting, I can't stop</i>			0.653			
<i>I fight more often than the others</i>			0.646			
<i>I hit others on purpose</i>			0.628			
<i>When I get angry, I lose control of what I say or do</i>			0.622			
<i>I feel like causing some kind of harm to others</i>			0.593			
<i>I behave as if I were from the opposite sex</i>			0.575			
<i>I have anger attacks I can't control</i>			0.535			
<i>I have the idea that something in my mind is not right</i>			0.527			
<i>I would like to be of the opposite sex</i>			0.506			
<i>I have a hard time staying in my seat for a long time</i>			0.432			
<i>The more they send me to do something, the longer I will take</i>			0.43			

	F1	F2	F3	F4	F5	F6
<i>I have friends who have problems with drug use</i>			0.411			
<i>I destroy the things of others</i>			0.378			
<i>I have set on fire things I should have not</i>			0.374			
<i>When I am among people, I'm afraid they will make fun of me</i>				0.678		
<i>I do not get close to people, because I fear they will mock me</i>				0.633		
<i>I am afraid to go to school</i>				0.58		
<i>My classmates leave me alone in everything</i>				0.515		
<i>I get more taunts and insults than I can handle</i>				0.506		
<i>I have a suspicion that other people look at me or talk about me in a negative way</i>				0.5		
<i>I think I'm clumsy, incapable or inferior than others</i>				0.498		
<i>I feel afraid in open spaces and in the street</i>				0.482		
<i>I think I'm a failure</i>				0.481		
<i>Most of my problems are because of others</i>				0.479		
<i>I'm afraid of being afraid</i>				0.455		
<i>It is hard to show how I feel</i>				0.4		
<i>I am more fearful than others my age</i>				0.399		
<i>I have the idea that others want to hurt me</i>				0.327		
<i>When I have a problem, I do what I can to solve it</i>					0.478	
<i>I like to help others</i>					0.474	
<i>I think good things will happen to me</i>					0.47	
<i>When I have a problem, I think there is a solution</i>					0.45	
<i>Even if difficult things happen, I find a reason to smile.</i>					0.437	
<i>Being with other people makes me feel good</i>					0.414	
<i>I have confidence in myself</i>					0.389	
<i>I feel proud of the things I do</i>					0.36	
<i>When I am sad, it helps me being with others (family, friends, etc.)</i>					0.356	
<i>I think I will achieve everything I dream of</i>					0.353	
<i>I feel better when I talk to others about my problems</i>					0.35	
<i>When I make a mistake I am willing to admit it</i>					0.348	
<i>I feel like people love me</i>					0.342	
<i>When I have a problem, it helps me to hear other points of view</i>					0.335	
<i>I check the things I do to check if they are ok</i>						0.543
<i>Before leaving home I have to check my things several times</i>						0.513
<i>I feel better when I talk to others about my problems</i>						0.359
<i>When I am sad, it helps me being with others (family, friends, etc.)</i>						0.358
<i>I repeat actions (touching something, washing hands) that reassures me</i>						0.353
<i>I avoid certain things, places or activities that frighten me</i>						0.345
<i>I am afraid that my family gets infected or sick</i>						0.345
<i>It is difficult for me to pay attention for a long time</i>						0.306

Reliability

After we found evidence for the dimensionality of the ADA-scale, we studied the reliability of each of the factors. The internal consistency of the final version of the ADA questionnaire was estimated based on the alpha ordinal coefficient; all values ranged from .60 to .90 as can be seen in table 2.6. Except two, all other dimensions coincide with the recommended values of .70 to .80 (Carter-Dios & Pérez, 2005). In a research context, reliability may be considered adequate around .70 (Nunnally & Bernstein, 1994).

Table 2.6. Matrix of intercorrelations between factors and reliability (ordinal)

	1	2	3	4	5	6
Factor	.90					
Factor	0.143	.70				
Factor	0.332	0.263	.90			
Factor	0.295	0.067	0.245	.76		
Factor	-0.133	-0.110	-0.011	-0.066	.67	
Factor	0.153	-0.016	0.148	0.115	0.137	.60

Note: The alpha ordinal coefficients are shown in bold along the diagonal line

Configuration of the empirical syndromes

Once the factor structures were analyzed using clinical and statistical criteria, a configuration of 6 factors or empirical syndromes was identified based on the sample. In table 2.7, the nomination of each factor is displayed, which will be discussed briefly in the next paragraphs.

Table 2.7. Empirical syndromes extracted from the ADA study in adolescents in Uruguay

Factor	Syndromes
1	'Depression-anxiety'
2	'Dissocial behaviour and substance use'
3	'Disrupted and dysregulated behaviour'
4	'Social anxiety'
5	'Resilience-prosociality'
6	'Obsession-compulsion'

Factor 1: 'Depression-anxiety'

With the greatest factorial load of the entire structure, the items that refer to 'depression and anxiety' stand out by far. Both from a clinical and statistical perspective, the high number of items opens the discussion whether the items are referring to the same construct. Moreover, it can be questioned whether the structure couldn't be better defined in two factors once a larger sample is available, including more subjects between 16 and 18 years, since several studies have report increases in the prevalence of depression and anxiety in that age category. Some indicators of anorexia nervosa for DSM-IV-TR (APA, 2002) may also be considered. Based on studies conducted according to the ICD-10 (1992) and advances in primary care, it appears that several indicators of depressive disorders in childhood coincide with components of anxiety (Costello et al., 2003; Goodman et al., 2010).

Factor 2: 'Dissocial behaviour and substance use'

This factor is formed by 7 items, with a predominance of dissocial behaviour (DSM-IV-TR, 2002; ICD-10, 1992), including significant indicators of psychological problems. In this factor, items with loads close to .30 were excluded to follow the statistical criterion (load <.29), but these items expressed or emphasized the underlying construct the clearest, namely: aggression to people and animals and destruction of property. This factor also contains references to the use of addictive substances, which is associated consistently in the literature with groups of young people who are involved in acts of violence (Birhanu, Bisetengn & Woldeyohannes, 2014; Wongtongkam, Ward, Day & Winefield, 2014).

Factor 3: 'Disruptive and dysregulated behaviour'

This factor comprises 18 items which can be grouped into: items that refer to the inability to control one's impulses and anger, items related to violence toward others, and items that refer to direct antisocial behaviour. It may be equivalent to some of the items in DSM-IV-TR and DSM-5 (2002, 2013) anti-social disorders, as well as ICD-10 (1992) anti-social disorder. A new category in the DSM-5 (2013), namely disruptive mood dysregulation disorder (DMDD), shares several of these indicators and represents a range of maladaptive behaviours (Roy, Lopes & Klein, 2014). According to DSM-5 (2013), DMDD refers to a permanent anger that is observed for an extended

period in more than one domain (for example at home, in school, etc.). In this factor, items relating to difficulties to control behaviour, dysregulation, anger and irritability are retrieved, which becomes apparent in more than one area. A measure of temporality is lacking, as this factor is assessed in general at this stage and the reference period for the disorder is one year. This is an aspect that needs to be considered in an updated protocol of the ADA. Some elements refer to a negative disorder, which is – according to the literature – regarded as a possible predictor of future anti-social disorders (DSM-IV-TR, 2002) or oppositional defiant disorder (ICD-10, 1992), but the expression of anger and inadequacy prevail rather than a trigger or challenge. Also, items that refer to attention-deficit hyperactivity disorder (DSM-IV-TR, 2002) are included in this factor.

Factor 4: 'Social anxiety'

This factor consists of 14 items that refer to symptoms that are related to social interactions, including items about self-devaluation and the consequent fear of social evaluation (Costello et al., 2003; Chavira, Stein, Bailey & Stein, 2004). This factor consists of some indicators that are also mentioned in the generalized anxiety disorder and social phobia as defined by the DSM IV-TR (2002). However, social anxiety is mostly defining the behaviour and illustrating some of its consequences for group interaction.

Factor 5: 'Resilience-prosociality'

Two types of items are grouped in this factor: those referring to self-confidence and problem-solving abilities, and those that are linked to a positive evaluation of social bonds and good practices of sociability. Prosociality is not only understood as social desirability, but also as the pleasure to be with others and to do things for others. It refers to several of the components that are studied by the Positive Psychology movement, although going beyond some of its conceptualizations (Achenbach, 1991; Crick, 1996). Certainly, there are elements of social desirability as many studies point out. Another feature of this factor is that several items of this factor loaded negatively on factors that refer to dysfunctional behaviours or thoughts.

This syndrome structure was composed almost identically in the structures of the taxonomies 5, 6, 7, 8 and 9 that were analysed with different EFA models. The division that takes place between prosociality and resilience does not seem to have very precise limits. Therefore, this cluster of

items could – in its totality – not be considered a measure of social desirability. The inclusion of items that investigate positive aspects such as resilience, prosociality, ..., is innovative, but clearly requires more research to be validated (Cutuli et al., 2013; Lyubomirsky, King & Diener, 2005). Also aspects of SWB (Diener, Oishi & Lucas, 2003) are included in this factor, especially those referring to young people's evaluation of their lives. In addition, this factor contains items that refer to the classic definition of resilience, as the capacity to cope with adversities and to come out stronger (Peirano, 2013; Wagnild & Young, 1993).

Factor 6: 'Obsession-compulsion'

This sixth ADA-factor is structured around eight items, three of which refer to obsessive-compulsive ritual behaviours: avoidance, verification, and self-ideation. These are accompanied by well-known indicators among clinical practitioners: the need to be reassured by others and attention deficit problems which affect other daily activities (e.g., concentration problems due to overwhelming dysfunctional thoughts). This factor clearly shares indicators with the obsessive-compulsive disorder in combination with ritual behaviours as defined by the ICD-10 (1992). Research on this syndrome with onset in early childhood has increased over the last decade, including several studies confirming the importance of early detection. Although its structure is often more confusing than in adults, symptoms of anxiety can clearly be identified in children adolescents present in avoidance and testing (Nelson et al., 2015).

The narrowband six syndrome structure obtained in this study shares some of the factor conformations that resulted from the first ADA-studies. It led to a syndrome structure around a factor where dissocial problems converge (factor 2), another factor where the common element is violent behaviour towards others (factor 3) and one where depression is the one with greatest weight of the whole structure (factor 1). In a more diffuse form, but also coinciding with several findings, a set of items was identified related to anxiety, expressed as social anxiety (factor 4) or obsessive-compulsive behaviour (factor 6). The prosocial and resilience syndrome (factor 5) suggests a differential element between traditional studies on this topic and the current study, indicating a domain that requires more in-depth investigation and that may ultimately contribute to the conceptualization of protective factors.

Once the 6 narrowband syndromes were extracted, we looked for the conformation of broadband syndromes. For this purpose, we used the Unweighted Least Squares method (ULS), forcing two dimensionality with oblimin rotation. The result was: a KMO measure of 0.70, Bartlett's sphericity test significant at the 0.001 level, and 61% of the variance explained. The factorial loads in the first dimension were: factor 1 ('depression-anxiety' 0.81), factor 4 ('social anxiety', 0.68), factor 3 ('disrupted and dysregulated behaviour', 0.60), factor 2 ('dissocial behaviour and substance use', 0.30) and factor 6 - loading in both dimensions - ('obsession-compulsion', 0.66). Factor 5 was located on the second dimension ('resilience-prosociality'). By eliminating Factor 5 ('resilience-prosociality') from the general structure, it was again analysed with the same method, using the Kaiser rule ($K > 1$). The sample adequacy measure KMO was 0.70 and Bartlett's sphericity test was significant for a single dimension that accounts for 49% of the total variance.

2.4 Discussion and conclusion

Mental health research is characterized by a constant multi-causality and interplay between personal and contextual variables, and the expression of all these aspects across space and time. Psychological assessment must assume challenges, against the background of advancing science and the transversal "era of evidence" which we have entered. It would be interesting to further inquire other potential factors, which refer to a large latent psychopathological dimension (Caspi et al., 2015). All these issues are questions to be considered in the next phase of ADA development, when implementing the instrument on a larger-scale and in population-based studies.

The instrument development that is dealt with in this article, takes this scenario into account and proposes a method for the construction of an ADA which aims to evaluate socio-demographic variables, psychopathological aspects, prosociality and resilience in adolescents. It appears to be an economic and prompt screening instrument to obtain an individual profile including risk and protective factors. Based on our literature review, the ADA (Daset et al., 2015) is the first screening instrument of psychopathological and positive aspects of adolescent development that was developed in and for Uruguay. Previously, there was not such an instrument available in Uruguay that assessed psychopathological syndromes and strengths and resilience in adolescents

and that is validated according to international regulations. The ADA-development was supported by the efforts of distinguished colleagues who have collaborated in accomplishing this enterprise through the adaptation and construction of specific domains.

Based on the psychometric assessment, some limitations were taken as input for the next phase. First, given the methodological design and a non-probabilistic sample, it is not possible to draw any causal conclusions or to generalise the results to the total population of young people in Uruguay. Second, the sample did not have the necessary diversity in terms of age and students from the upper grades. It would also be useful to extend the protocol for the inclusion of additional informants such as parents and teachers. With regard to the items, the outcomes of the first phase have generated a new protocol, including 98 items and an abbreviated socio-demographic survey accompanying it. This should be considered first and foremost to decide on the inclusion of additional instruments that investigate the syndrome clusters in the external validation phase and to assess other disorders that were not represented in the results.

We used the weighted least squares adjusted by mean and variance (WLSMV) as estimation method. For an exploratory factor analysis with ordinal categorical variables, a robust estimation method is needed which does not require multivariate normality. In this case, 9.2% of the items had values of severe asymmetry and extreme kurtosis ($As > 3$; $Cur > 21$). Additional research is needed to analyse the stability of the estimations of the parameters with robust methods and compared it to items with asymmetric indexes and very high kurtosis. Moreover, the sequential use of exploratory factorial analysis and confirmatory factor analysis is advisable. These limitations are intrinsic to studies in psychopathology and in clinical populations. Guidelines of psychology, evaluation and evidence provided by methodologists and statistical experts, who can together with clinicians, provide further advance to psychometric research. During this study, several questions emerged regarding the statistical and clinical criteria to be used. Sometimes the best statistical format does not reflect the syndrome structure acquired.

The factor structure that was obtained is consistent with many findings from the literature on clinical syndromes, resulting in following factors: 'depression-anxiety'; 'dissocial behaviour and substance use'; 'disruptive and dysregulated behaviour'; 'social anxiety'; 'resilience-prosociality' and a sixth factor that was labelled 'obsession-compulsion'. In the analysis of broadband

syndromes, we obtained one that concentrates all factors of the psychopathological substrate and a second factor loading around 'resilience-prosociality'. This opens the discussion whether to study a single dimension of psychopathology or to analyse various possible structures including internalizing and externalizing syndromes. A hybrid model may also be an alternative, as apparent from one of the solutions obtained, consisting of various psychopathological syndromes on the one hand, and the structure resilience and prosociality on the other. This is in our view, an important alternative that needs to be studied further and may require additional questions in the survey and a parallel scale.

The results regarding the validity and reliability of the instrument indicate very good rates of goodness of fit and adequate standardized coefficients in the six factors. The findings suggest that the six dimensions of the ADA-questionnaire with 98 items are reliable and suitable for research purposes. From the results of the psychometric study we conclude that the ADA offers a reliable and valid source for studying the phenomena described in this population, in particular in the Uruguayan context.

The findings allow developing effective and specific programs focused on protective factors and prevention of psychopathology in adolescents. The instrument is useful for educational, clinical, social and academic purposes. A larger sample of adolescents (approx. 2500 subjects) is required for definitive validation, stratified for age, grade and gender and including a general population and clinical sample. To study the external validity, further evaluation with specific instruments (focussing on depression, anxiety, substance use, etc.) and a general evaluation of the psychopathological approach is needed in order to finalize the development of the instrument and to establish a screening protocol that covers the basic needs of health professionals who work with these age groups in Uruguay.

During the course of the instrument development, verification and reformulation were intimately linked with the procedure used to obtain the characteristics that define the syndromes. The differential nuance of this classification system is due to the empirical process of collection and analysis of information on similarities and differences. Meehl (2001, 2004) has defined this as the confrontation with psychological science, including an infinite number of ways in which individuals differ and the acceptance of the challenge of limiting it to a finite latent structure.

Syndromes are empirically derived phenomena that tend to co-occur, since the assignment of an individual to a syndrome is a matter of degree or severity. An individual may also have high scores on other syndromes. This is what makes the clinical decision so flexible. As stated by Achenbach (1991b), any taxonomy should be seen as a transient means of organizing data. A conformation can be promising and even very attractive in the eyes of researchers. Yet, it is a method, a strategy and, therefore, only one of the possible ways to the understanding of psychological phenomena, which are always complex and which need to be reviewed carefully and permanently. This is a task that requires statistical analysis in the light of clinical understanding.

**RISK AND PROTECTIVE FACTORS FOR ALCOHOL USE
AMONG SCHOOL-GOING ADOLESCENTS
IN MONTEVIDEO (URUGUAY)³**

Abstract

Purpose – The purpose of this paper is to explore risk and protective factors for alcohol use among school-going adolescents in Montevideo (Uruguay).

Design/methodology/approach – A self-report survey was administered to 331 school-going adolescents in Montevideo (Uruguay) ($M_{age} = 13$; $SD = 0.05$), using the alcohol screening instrument of the Uruguayan National Drug Board to assess adolescents' alcohol use (yes/no), a screening instrument for psychopathology and resilience (Adolescent Self-Report, ADA, original version) and a socio-demographic questionnaire.

Findings – Logistic regression analyses identified antisocial behaviour, substance use and negative emotionality (F2), disruptive and dysregulated behaviour (F8), higher age and recent death of a close relative as risk factors, while the number of close friends was identified as a protective factor for past year alcohol use. No straightforward relationship was found between schools and the risk for the past year alcohol use. In addition, age, F2, F8 and recent death of a close relative appeared to be the most robust predictors.

Research limitations/implications – The study was the first in Uruguay to relate adolescents' alcohol use to risk and protective factors. Given the cross-sectional nature of the study, causal relationships could not be determined.

Originality/value – The study provides preliminary recommendations for policy makers and other stakeholders involved in youth affairs on core elements to focus on school-, community- and family-based alcohol prevention programmes for adolescents.

Keywords: *adolescents; risk factors; psychopathology; alcohol use; protective factors; Uruguay*

³ This chapter is based on the article by Fernández, M. E., Daset, L., Vanderplasschen, W., Costa-Ball, D., Van Damme, L., & Vindevogel, S. (2017). Risk and protective factors for alcohol use among school-going adolescents in Montevideo (Uruguay). *Drugs and Alcohol Today*, 17(1), 12-22. doi 10.1108/DAT01-2016-0002

3.1 Purpose

Alcohol is one of the most frequently consumed substances by adolescents worldwide. In Latin America, Uruguay is the country with the highest lifetime prevalence of alcohol consumption among 15- to 65-year-olds, and with the lowest risk perception (OEA, 2015; Naciones Unidas, Oficina contra la Droga y el Delito (ONUDD), 2009). Over the past years, the age of onset for alcohol use has decreased accompanied by an increased incidence in binge drinking (Junta Nacional de Drogas, 2012; Junta Nacional de Drogas, Observatorio Uruguayo de Drogas (JND, OUD), 2011). In Uruguay the legal age restriction for buying alcohol is 18 years old. As a first exploration of adolescent alcohol use in Uruguay, the current study focuses on alcohol use among school-going adolescents, including age of onset, lifetime, last year and last month prevalence (yes/no), but no indicators of problem use or addictive behaviour. Several studies have focussed on the negative impact of early and frequent alcohol use on adolescents' mental health, social situation and academic performance (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). Early onset of alcohol use has repeatedly been identified as a predictor for the development of future problematic substance use (Liang & Chikritzhs, 2015), as well as other mental health problems. In addition, it appeared to impact youngsters' social situation negatively (e.g., family relationships, school performance, giving up leisure activities). Moreover, early adolescent alcohol use, frequent use of alcohol and heavy episodic drinking have been shown to have negative effects on youngsters' school performance (e.g., dropout, truancy, school suspension, low commitment, academic failure; Hemphill et al., 2014). Peer-related variables (e.g., peer deviance, peer alcohol use, peer influence, (experienced) peer norms and peer popularity) appear to be prominent factors in explaining drinking intentions and occasions and alcohol use (Beullens & Schepers, 2013; Cooke et al., 2015; Jones & Magee, 2014; Lee, Ting, Chen, Tseng & Chen, 2015; Liu, Keyes & Li, 2014; Tomczyk, Isensee & Hanewinkel, 2015). For example, adolescents, who believe that a higher number of friends use alcohol and that alcohol use is socially acceptable (normative beliefs), demonstrate increased intentions to drink (Beullens & Schepers, 2013). The particular importance of peers is related with the developmental period of adolescence, when peers (compared to parents) become increasingly important and influential (Berk, 2006). Also, poor school performance, lack of commitment at school, low risk perception,

previous delinquent behaviour and family history of problem behaviour and substance use have been identified as important risk factors of problematic alcohol use among adolescents (Birhanu & Bisetengn, 2014; Wongtongkam et al., 2014). A 21-year follow-up study by Salom and colleagues (2014) showed that several aspects of early socioeconomic disadvantage (low family income, low maternal education, family unemployment) are associated with alcohol use and mental health disorders in young people.

Moreover, epidemiological studies indicate a high concurrent prevalence of externalizing and internalizing mental health problems in adolescence (Birhanu & Bisetengn, 2014; Liang & Chikritzhs, 2015; Miettunen et al., 2013). High comorbidity between substance use and other psychiatric disorders is reported in adults as well as adolescents (Goodman, 2010; Fergusson et al., 2013). Recently, the role of protective factors in preventing substance use has received increased attention (Nargiso, Ballard & Skeer, 2015; Wongtongkam et al., 2014). Protective factors can be defined as *“characteristics or conditions within the individual, family, school or community that increase the likelihood of positive health behaviours or outcomes, or moderate and discourage behaviours that might lead to negative health outcomes”* (Birhanu & Bisetengn, 2014, p. 3). Protective factors refer to adolescents’ subjective perception of well-being and Q, and resilience; the extent to which they perceive their life as favourable and satisfying (McPhee, Lunkenheimer & Riggs, 2015).

Protective factors that have been associated with alcohol use in adolescents are social and communication skills, positive self-concept, moral beliefs, positive peer and parenting role models, participation in religious activities, good school performance, social involvement and high educational level of parents (Birhanu & Bisetengn, 2014; Wongtongkam et al., 2014). Some of the abovementioned peer-related variables (e.g., peer norms and peer influence) appear to have a protective function towards drinking intentions and alcohol use (Liu et al., 2014; Lee et al., 2015).

In Latin American countries, particularly in developing countries like Uruguay, there are few studies on adolescent alcohol use in relation to mental health status and risk and protective factors (OEA, 2015; ONUDD, 2009). The few studies including data from developing countries in South America and the Caribbean highlight the relationship between child and adolescent maltreatment and increased risk of alcohol use (Longman, González, Meléndez, García & Gómez,

2011, 2013). Other studies in South Africa and a review including 11 developing countries stress the importance of research on personal and family factors related to alcohol use in adolescents in developing countries (Atilola et al., 2014), and on the association between psychopathology and alcohol use (Saban & Flisher, 2010).

The current study was designed to contribute to by exploring age of onset, lifetime, past year and past month prevalence (yes/no) of alcohol use; and risk and protective factors of past year alcohol use (yes/no) in a sample of school-going adolescents in Montevideo (Uruguay).

3.2 Methodology

3.2.1 Design

The sample (not probabilistic) was recruited in six private high schools, located at the outskirts of Montevideo (Uruguay) between September and October 2013, including boys and girls between 12 and 15 years old from different socioeconomic strata. In order to be eligible for this study, students had to meet the following criteria: good Spanish language skills; and basic reading comprehension to understand and complete the questionnaires. The sample consisted of 331 adolescents, 61.4% girls and 38.6% boys (see table 3.1); 80.8% belonged to the middle class, while 10.6% came from lower social classes and 8.6% from upper class families (according to the socioeconomic multi-criteria index, INSE; Llambí & Piñeiro, 2012). Uruguay has the largest proportion of middle class in the region. Since 2012, the middle class has grown and now comprises 80% of the population (Carbajal & Rovner, 2014). The proportion of sample participants from middle class background is proportionate to the last study of the United Nations Programme (PNUD) (80%) by Carbajal and Rovner (2014), which using data from the national household surveys, taking into account per capita and per household income, educational level and labour market and housing conditions. About two-thirds of the sample (64.3%) lived in households in which two persons receive an income, 14.8% came from a household where only one person has an income and 15.1% was from a household with three people receive an income.

Table 3.1. *Socio-demographic characteristics of the study (N = 331)*

Variables	N	%
<i>Gender</i>		
Male	128	38.6
Female	203	61.4
<i>Frequency of age</i>		
12	63	19.1
13	124	37.7
14	89	27.1
15	53	16.1
<i>Socioeconomic status</i>		
High	28	8.6
Medium	268	80.8
Low	35	10.6
<i>Household income</i>		
1 person	49	14.8
2 persons	213	64.3
3 persons	50	15.1

Mean age = 13

3.2.2 Procedure

Respondents completed the questionnaire using paper and pencil in one single session at the schools; teachers were not present during administration. The design of the study, as well as the informed consent forms and instruments, was approved by the Ethical Board of the Catholic University of Uruguay. All participants provided written informed consent, in addition to the formal consent given by the school and by parents. The questionnaires were anonymised and kept confidential in sealed envelopes in a locked cupboard. Neither the participants nor the schools received any kind of monetary compensation.

3.2.3 Instruments

Socio-demographic characteristics

A socio-demographic survey was used consisting of 41 items regarding individual, family, school and environmental characteristics.

Psychopathology and resilience

The ADA (Daset et al., 2015) consists of 118 items and is scored using a five-point Likert scale. Positive factors and resilience include strengths, life planning, coping skills and social desirability. Psychopathological symptoms include emotional and behavioural problems. The ADA is the first screening instrument that integrates psychopathological aspects and protective factors, designed for youngsters considering local expressions and culture. It is based on the empirical taxonomies and studies of Achenbach and Edelbrock (1978), Lemos and colleagues (1992) and López-Soler and colleagues (1998).

Factor analyses have indicated the following clusters of items, resulting from the ADA⁴:

- F1: problems to fit in (six items; e.g., *“I am a lonely person, and this does not affect me”*);
- F2: antisocial behaviour, substance use and negative emotionality (eight items; e.g., *“I’ve stolen things or money outside my home”*);
- F3: obsessive-compulsive symptoms (14 items; e.g., *“I repeat certain actions very often (touch my hair, wash my hands) because this makes me feel at ease”*);
- F4: resilience (18 items; e.g., *“I think that good things will happen to me”*);
- F5: depression, self-harm and somatic complaints (20 items; e.g., *“I think about taking my life”*);
- F6: social desirability (five items; e.g., *“If I commit a mistake I am willing to accept it”*);
- F7: fear and harassment (nine items; e.g., *“I receive insults and jokes from peers, and I cannot take more”*); and
- F8: disruptive and dysregulated behaviour (12 items; e.g., *“If I start insulting I cannot stop”*).

⁴ In this chapter the ADA original version of 118 items and 8 factors was used. The instrument continued to be improved with further studies. Implications of these variations are discussed in chapter 5.

Alcohol use

The survey (JND, OUD, 2011) assessed lifetime prevalence of alcohol use (yes/no), prevalence of alcohol use during the last 12 months (yes/no), prevalence of alcohol use during the last 30 days (yes/no) and the age of first alcohol use. We conceptualized alcohol use as the first use of alcohol in any context, not considering the number of drinks. A lower percentage of lifetime prevalence of alcohol use was observed compared to past year prevalence. This is explained because more students answered the question regarding substance use in the “last 12 months” than the question regarding “lifetime use”. In other words, many students who answered affirmative the question “last 12 months” did not answer the “lifetime” question. Based on the limited available information from the survey and as a first exploration, the present paper focuses on adolescents’ alcohol use, not on problematic use or addictive behaviour.

3.2.4 Statistical analysis

Descriptive statistics regarding demographic characteristics, risk and protective factors and the prevalence of alcohol use were calculated. We performed a binary logistic regression analysis to predict the probability of alcohol consumption in the last 12 months. The independent variables included: age (as dummies), sex, socioeconomic status (SES), school institution (as dummies), number of close friends, academic performance, loss of a close relative (due to death), and the ADA psychopathology and resilience factors. As a robustness check of the previous model, we performed a binary logistic regression analysis excluding the dummy variables representing school institutions and including age as a continuous variable. We wanted to check if the results were robust (same sign and significance as in the previous model) to these changes in the model. Again, the dependent variable was alcohol use in the last 12 months. As independent variables, we only included the two ADA factors that were the most robust in the first regression model (i.e., F2: antisocial behaviour, substance use and negative emotionality, and F8: disruptive and dysregulated behaviour), as well as gender, SES, age (as a continuous variable), number of close friends and loss of a close relative (due to death). In both logistic regression analyses, all independent variables were included simultaneously. To explore the direction and size of the significant effects, we considered the odds ratios. For the second model, the pseudo R^2 was stated, indicating the amount of variance in the dependent variable that could be explained by

the predictors in the model. Statistical analyses were performed using Statistical Package for the Social Sciences 20. A p-value of 0.05 was used in all analyses, as the standard for statistical significance.

3.3 Findings

Table 3.2 shows the prevalence of alcohol use in boys and girls from 12 to 15 years old. The prevalence of alcohol use in the last 12 months was 71%. The highest proportion of first use is observed in the age category of 12-13 years old (60%). The average age of first alcohol use is 12.8 years old.

Table 3.2. *Alcohol use prevalence among school-going adolescents in Montevideo*

Variable	N	%
<i>Alcohol use once in lifetime: yes (versus no)</i>	182	55
<i>Alcohol use last 12 months: yes (versus no)</i>	235	71
<i>Alcohol use last 30 days: yes (versus no)</i>	50	15
<i>Age of onset of alcohol use</i>		
<i>10 years old</i>	5	4.3
<i>11 years old</i>	13	11.1
<i>12 years old</i>	35	30
<i>13 years old</i>	35	30
<i>14 years old</i>	25	22
<i>15 years old</i>	4	2.6
Mean age of first alcohol use	12.8	

Table 3.3 describes the distribution of risk and protective factors, showing the percentage of cases that are located at the extreme ends of the distribution, meaning at least two standard deviations from the mean of each ADA factor. With regard to the ADA psychopathology factors (i.e., F1-3, F5 and F7-8), between 18 and 21% of the adolescents had higher scores (i.e., more than two standard deviations above the mean). Regarding protective ADA factors (i.e., F4 resilience and F6 social desirability), 6% the cases scored higher (i.e., more than two standard deviations above the mean).

Table 3.3. *Distribution of risk and protective factors. Percentage of cases with score higher than mean plus two standard deviations for each ADA factor*

ADA 8 factors		N	%
F1: Problems to fit in	F1 > mean + 2sd	70	21.1
F2: Antisocial behaviour, substance use and negative emotionality	F2 > mean + 2sd	68	20.5
F3: Obsessive-compulsive	F3 > mean + 2sd	61	18.4
F4: Resilience	F4 > mean + 2sd	21	6.3
F5: Depression, self-harm, somatic complaint	F5 > mean + 2sd	66	19.9
F6: Social desirability	F6 > mean + 2sd	19	5.7
F7: Fear and harassment	F7 > mean + 2sd	61	18.4
F8: Disrupted and dysregulated behaviour	F8 > mean + 2sd	63	19.0

Table 3.4 shows the resulting logistic regression model with alcohol consumption in the past 12 months as a dependent variable. ADA F2 (antisocial behaviour, substance use and negative emotionality) and F8 (disruptive and dysregulated behaviour) stand out as highly significant risk factors for alcohol use in the past year ($p < 0.01$). The recent death of a close relative also appears as a significant risk factor for alcohol use in the past year ($p < 0.01$), while having many close friends appears as an important protective factor ($p < 0.05$). Moreover, youngsters of 13-15 years old appear to be more at risk for alcohol use in comparison with 12-year-old pupils (reference category age 12) ($p < 0.01$). Also, in schools 2 and 5, pupils were more likely to have used alcohol in the past year, compared to the reference category (institution 6) ($p < 0.01$). In the institutions 4 ($p < 0.01$) and 3 ($p < 0.05$), the risk of past year alcohol use was significantly lower compared with institution 6.

Table 3.4. Logistic regression model predicting alcohol use (last 12 months)

Variables	Coef.	dy/dx
F2 antisocial behavior, substance use and negative emotionality	0.18*** (0,04)	0.030
F8 disruptive and dysregulated behavior	0.05*** (0.02)	0.009
SES	0.21 (0.15)	0.034
Sex	0.07 (0.15)	0.011
Number of close friends	-0.00** (0.00)	-0.000
Death close relative	1.08*** (0.33)	0.179
age13	0.96*** (0.34)	0.159
age14	1.70*** (0.29)	0.282
age15	2.68*** (0.86)	0.444
High school 1	0.35 (0.47)	0.059
High school 2	0.70*** (0.14)	0.115
High school 3	-0.41** (0.16)	-0.068
High school 4	-1.706*** (0.326)	-0.283
High school 5	0.729*** (0.0899)	0.1209045
Constant	-4.598*** (0.772)	
<i>Log Likelihood</i>	-109.6	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3.5 presents the results from the second logistic regression analysis. Symptoms of antisocial behaviour, substance use and negative emotionality (F2) and disruptive and deregulated behaviour (F8) were significantly associated with an increased risk of alcohol use in the past year.

Table 3.5. Logistic regression model predicting alcohol use (last 12 months). Robustness check

Variable	Odds Ratio	Robust Std. Err.	Z	P>z	[95% Conf. Interval]	
F2	1.158	0.035	4.89	0.000	1.092	1.228
F8	1.057	0.019	3.08	0.002	1.020	1.095
SES	1.042	0.165	0.26	0.793	0.764	1.422
Sex	0.841	0.255	-0.57	0.568	0.464	1.523
Number close friends	1.000	0.001	-0.28	0.779	0.999	1.001
Death close relative	3.348	0.951	4.25	0.000	1.918	5.844
Age	2.347	0.596	3.36	0.001	1.426	3.861

Pseudo R² = 0.2044

The odds that an adolescent consumed alcohol in the past year were 1.06 times higher for adolescents displaying disruptive and dysregulated behaviour (per increase of ADA score with 1 point) (p0.01). For every increase in antisocial behaviour, substance use and negative emotionality with one point, the odds of alcohol consumption were 1.16 times higher (p0.01). Also, every increase in having experienced a traumatic event or difficult circumstance with one point, such as the death of a close relative, increased the odds for alcohol use in the past year with 3.35 (p0.01). In addition, age was associated with an increased risk of alcohol use in the past year (p0.01).

3.4 Discussion

We explored the use of alcohol in a sample of school-going boys and girls in Montevideo, and its relationship with risk and protective factors. The relatively high prevalence rates of alcohol use in the last 12 months among 12-15 years old converge with the results of the most recent National Drug Survey in Uruguay (Junta Nacional de Drogas (JND), 2015). First alcohol use was likely to occur at the average age of 12.8 years. These results are in line with the findings of the national drug study, demonstrating the younger age of first alcohol use (12.8 years old) and warranting a national public health strategy on the use of this substance among adolescents from 12 to 17 years old (JND, 2015).

3.4.1 Risk factors associated with alcohol use in the last 12 months

Similar to previous research in Chile, Finland and South Africa (Mason-Jones & Cabieses, 2015; Miettunen et al., 2013; Saban & Flisher, 2010), a significant relationship between adolescents' mental health state and alcohol use was found. Last year alcohol use appears to be significantly associated with two psychopathological patterns: ADA factors 2 (antisocial behaviour, substance use and negative emotionality), and 8 (disruptive and dysregulated behaviour). Although our findings are based on cross-sectional and limited to alcohol use (not abuse), one recent longitudinal study indicated that externalizing behaviour and subsequent criminal behaviour are important predictors of later alcohol abuse among adolescents (Liang & Chikritzhs, 2015). In line with prior work (Longman et al., 2011, 2013), our findings show that adolescents who reported recent death of a close relative are at higher risk of using alcohol in the past 12 months. The longitudinal study by Arpawong and colleagues (2015) (which focussed on alcohol abuse) indicated that higher levels of post-traumatic growth (defined by the authors as "*a positive psychosocial adjustment to a particular life altering stressor*", p. 484) were associated with lower risks of last year alcohol abuse. Providing mental health support to adolescents, who experienced traumatic events, might serve as an important way to prevent them from seeking consolation or distraction in alcohol use (Liang & Chikritzhs, 2015). We found that 13-15 years old are at greater risk for alcohol consumption compared to 12 years old. This result converges with findings from other studies in Australia, the USA, South Africa, India and China (Arpawong et al., 2015; Freitas-Rosa, Goncalves & Antunes, 2015; Olumide et al., 2014). These findings

indicate the importance of early intervention and prevention of alcohol use from young age on.

Again, it should be noted that our findings are limited to alcohol use (not abuse). However, prior work indicated that early age of onset of alcohol use is associated with increased risk of problematic substance use and deviant behaviour at later age (Ryzin & Dishion, 2014). Also, other studies found that early age of onset of alcohol use was associated with later frequent substance use and problems with emotional regulation (Atilola et al., 2014).

Besides prevention and early intervention, legal restrictions are important means to control and reduce substance use (Babor & Caetano, 2005). The legal age for youngsters to purchase alcohol in Uruguay is 18 years, but enforcement of the legal drinking age is weak. Also, alcohol is cheap to purchase and widely available. Consequently, prevention and early intervention initiatives should be accompanied by initiatives to restrict the availability of alcohol for youngsters (e.g., ID controls, price increases, alcohol selling restrictions) and reduce its attraction (e.g., advertisement bans, warning signs, higher taxation).

A last risk factor in relation to last year alcohol was the location of the school. In institutions 2 and 5, adolescents showed significantly higher risk of past year alcohol use than their counterparts. The longitudinal study by Wang and colleagues (2014) identified some neighbourhood factors (e.g., high risk neighbourhoods, low adult monitoring and high risk peers) that predicted young adolescents' involvement in risk behaviours. Unfortunately, we had little detailed information about the context of the educational institutions that participated in the study to explain these between school differences. Further research should include school characteristics in order to clarify which contextual factors contribute/to or refrain from substance use.

3.4.2 Protective factors associated with alcohol use in the last 12 months

The number of close friends appeared as a protective factor for past year alcohol use. Given the direction of this association, it is likely that it concerns close relationships with prosocial peers, which is in line with prior findings that positive peer influence and prosocial peer norms buffer against

drinking intentions and alcohol use (Lee et al., 2015; Liu et al., 2014). In addition, the study of Birhanu and Bisetengn (2014) found that adolescents with good social skills were less likely to use alcohol.

These findings emphasize the importance of the development and maintenance of prosocial skills and of a stable, broad and prosocial network. Contrary to our findings, Freitas-Rosa and colleagues (2015) indicated that adolescents who were more satisfied about their intimate relationships were at increased risk of alcohol consumption. Here, it is likely that it concerned satisfaction with deviant peer relationships. Therefore, relationships with peers who display deviant behaviour may increase the pressure to follow the group norms and to be favourable towards substance use, which in turn raises the likelihood of early alcohol use (Birhanu & Bisetengn, 2014; Ryzin & Dishion, 2014; Wang et al., 2014). While stimulating the development and maintenance of prosocial skills and social networks, prevention and intervention programmes need to be aware of potential negative peer interactions or detrimental influences of social networks (Freitas-Rosa et al., 2015).

Adolescents in school institutions 3 and 4 were at lower risk of alcohol use. Further school characteristics should be explored to gain a better understanding of these identified differences. The academic programme, ethos of the school, neighbourhood characteristics and parental attitudes could provide evidence on how schools can influence the relationship between substance abuse and academic performance (Andrade, 2014).

3.4.3 Clinical and policy implications and value

The present study provides useful information about risk and protective factors for alcohol use in adolescents, contributing to the scarce amount of research on this topic in developing countries. The results might be helpful to parents and teachers, and to policy and programme developers and trainers in the fields of education, psychology, substance use and public health. Findings and insights resulting from this study can be useful when planning alcohol prevention and early intervention programmes. Our results suggest that it would be useful to develop specific prevention initiatives for specific at risk groups (Mason-Jones & Cabieses, 2015).

Given the association between mental health and alcohol use in our sample, we recommend an integrated approach when dealing with adolescents who use alcohol and display problems in emotional and/or behavioural regulation (Monahan, VanDerhei, Bechtold & Cauffman, 2014; Ryzin & Dishion, 2014). In line with prior work (Monahan et al., 2014), our findings suggest to develop community, school and family programmes that are not exclusively focussed on risk factors (such as mental health problems), but also address protective factors for alcohol use. For example, stimulating youngsters to build a stable and prosocial network of close friends and promote better communication and bonding between adolescents and families, as well as healthy social activities among adolescents (Jones & Magee, 2014; Tomczyk et al., 2015). Educational programmes that enhance academic performance and prosocial peer relationships have proven to be helpful to prevent adolescents' substance use/abuse (Andrade, 2014; Tomczyk et al., 2015; Wongtongkam et al., 2014).

3.4.4 Research limitations and recommendations

First, the generalizations of the study results are limited to the schools and levels examined here. Future studies should be based on probabilistic sampling methods and include schools nationwide. Second, given the cross-sectional nature of the study, we could not determine causal relationships between the variables of interest and we could not explore the evolution of risk and protective factors over time. Longitudinal research is needed to examine whether the identified risk and protective factors indeed influence youngsters' future alcohol use and how these factors change throughout adolescents' life. Third, information was obtained using self-report questionnaires. Future studies should also include information from significant others (i.e., teachers, parents). A multi-informant approach is likely to yield additional insights, as adolescents themselves may not be aware of some risks or tend to minimize specific problems. Fourth, the survey included only information about alcohol use. It is recommended for further studies to also addressing problem drinking/addiction and use of other substances. Furthermore, the ADA factor 2 (antisocial behaviour, substance use and negative emotionality) needs to be further revised, since we also used an item regarding problematic substance use which could overlap with the variable that we are trying to explain.

Fifth, the risk and protective factors included in the current study could only explain a relatively small part of the variance in adolescents' past year alcohol use (pseudo $R^2 = 0.2044$). Various other correlate than the ones included in this study may play an important role in adolescents' alcohol consumption. We suggest future studies to address other plausible risk and protective factors, including adolescents' religiosity (Birhanu & Bisetengn, 2014; Wongtongkam et al., 2014), QoL (Colpaert, De Maeyer, Broekaert & Vanderplasschen, 2013; De Maeyer et al., 2011), school-related variables and variables related to one's cultural, social and environmental context (The WHOQOL Group, 1998).

**SUBJECTIVE WELL-BEING, PSYCHOPATHOLOGY AND SUBSTANCE
USE IN URUGUAYAN ADOLESCENTS**

This chapter consists of two subchapters. One on the moderating role of age and gender in relation to subjective well-being (SWB), psychopathology and substance use (chapter 4.1), and one on determinants of domain-specific aspects of SWB in this population (chapter 4.2). Both subchapters are based on the same sample and instruments and are therefore brought together in one chapter. Yet, given the different scope and analytic approach, they are treated as two specific subchapters.

4.1

THE MODERATING ROLE OF AGE AND GENDER DIFFERENCES IN THE RELATION BETWEEN SUBJECTIVE WELL-BEING AND PSYCHOPATHOLOGY AND SUBSTANCE USE IN URUGUAYAN ADOLESCENTS⁵

Abstract

Research shows that subjective well-being SWB is central to adolescents' healthy development in a wide range of different domains (emotions, relationships, health, school performance and social behaviours). The aim of this study is to explore the SWB of school-going adolescents in Uruguay (N = 325; $M_{age} = 14.67$; $SD = 1.62$). We investigate age- and gender-specific relationships between psychopathology and substance use on the one hand, and SWB on the other hand.

Multivariate linear regression analyses, including psychopathology, substance use, age and gender, indicated five significant predictors of SWB: three psychopathology factors (depression-anxiety, social anxiety and dissocial behaviour), and age displayed a negative association, while one psychopathology factor (resilience) showed a positive association. When extending the multivariate linear regression analysis with interaction effects, significant interactions appeared regarding gender and resilience and age and substance use.

This is the first study in Uruguay that relates SWB in adolescents to psychopathology and substance use, thereby contributing to the scant research on the topic in Latin America. Our study focuses on the necessity to have evidence-based results in order to plan appropriate preventive interventions with adolescents.

Keywords: *subjective well-being; adolescence; alcohol; marihuana; psychopathology; Latin America*

⁵ This study is based on the article by Fernández, M. E., Van Damme, L., Costa, D., De Pauw, S., Daset, L., & Vanderplasschen, W. (2017). The mediating role of age and gender differences in the relation between subjective well-being and psychopathology and substance use in Uruguayan adolescents. *Submitted to the Journal of Community Psychology*.

4.1.1 Introduction

4.1.1.1 Adolescent development

Adolescence is a key period in human development, characterized by various transitions and changes. Biological changes during this period of transition impact adolescents' social, sexual, and emotional development (Costello, Copeland & Angold, 2011). This period is often referred to as a period of storm and stress (Steinberg, 2001), with both mental health problems and experimenting behaviour being relatively normal phenomena.

Often, the onset of mental health problems occurs in early adolescence. Moreover, incidence of psychopathology increases substantially during this period. Also, the timing of puberty has been considered a risk factor for the development of mental health problems (especially depression and behavioural problems) (Costello, 2016). The study by Costello, Copeland and Angold (2011) claims that one in five adolescents has some kind of psychiatric problems. The most prevalent mental health problems among youth are: depression, panic disorder, agoraphobia and substance use. Increased rates of antisocial behaviour have been observed in adolescence (Belloch & Alvarez, 2002). Mental health problems are likely to impact the SWB of adolescents (Huebner et al., 2004).

Due to the fact that experimenting behaviour is common among adolescents, they are at the peak developmental period for substance use (JND, 2014). In Uruguay, among students between 13 to 17 years old, the prevalence of last year use of alcohol is 60% and marihuana 17% (JND, 2014). Previous studies have highlighted the impact of substance misuse in adolescence, leading to problems in mental health, academic performance and social relations in later life (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). The longitudinal study by Bogart and colleagues (2007) demonstrated that the use of alcohol and marihuana had a lasting effect on the decrease in SWB.

4.1.1.2 Relevance of studying subjective well-being

Clearly, the above mentioned changes and challenges in adolescence are likely to influence adolescents' SWB, a concept which is of high relevance in this particular developmental period (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). Two contrasting constructs of well-being should be distinguished: the hedonic perspective, which emphasizes satisfaction in relation to happiness and pleasure, and the eudemonic perspective, which stresses the importance of the development of persons' potential and achieving a meaningful life (Broekaert et al., 2017). Diener (2006) defines SWB as a general evaluation by the person of his/her life. This construct implies three domains: positive affect (e.g., enthusiasm, joy, excitement, curiosity), negative affect (e.g., anger, distress, sadness, lethargy) that should be reduced in order to have a high level of SWB, and lastly a global positive judgment of one's life. Life satisfaction is part of this third domain, the global self-judgment, and refers to the cognitive aspect of SWB (Park, 2004).

The 'homeostasis theory' of SWB states that there is a neurological inherent tendency in each person that maintains the level of SWB around set points (Cummins, 2010). These set points range between 70 and 90, reflecting the adequate range of SWB (Tomyn, Weinberg & Cummins, 2015). This theory of SWB states that under unchanging life circumstances, the person's sense of global well-being is maintained by this homeostatic system. However, the system could collapse under life challenges (Tomyn, Weinberg & Cummins, 2015). Cummins' homeostatic theory implies that SWB is sensitive to modifications. The SWB homeostatic system may vary through life disturbances or regulatory adjustment processes, which may be particularly prevalent during the turbulent developmental phase of adolescence (Cummins, et al., 2014).

Positive development in adolescence has been shown to be related to high levels of SWB in teenagers. Park (2004) considers SWB as a key factor in the healthy development of adolescents. For example, the social support adolescents have (from family, friends, and school) and core affects they experience (e.g., feeling happy) are positively associated with SWB (González-Carrasco et al., 2017a). Also, prosocial factors, personality factors, high self-perception of control, high self-esteem, and optimism were identified as positive correlates of SWB (Cummins, 2010). Finally, good physical and mental

health, positive interpersonal relationships, and high academic performance are related to high levels of SWB (Park, 2004).

Negative adolescent development, on the other hand, has been associated with low levels of SWB in teenagers. Lower levels of SWB among youth have been associated with different social and psychological problems, such as depressive symptoms, dissocial behaviour, suicidal intent and suicidal ideation, low self-esteem, and family and peer relationship problems (Alfaro et al., 2016; Suldo & Huebner, 2004; Zullig et al., 2001). In addition, low levels of SWB in adolescents have been found to be related to risky behaviour such as drug or alcohol abuse and antisocial behaviour like aggression to others and sexual harassment (Proctor et al., 2009).

4.1.1.3 Age, gender and subjective well-being

Earlier studies have reported age and gender differences in SWB among adolescents (Casas et al., 2007; González-Carrasco et al., 2017b). Previous studies reported a progressive decline in the levels of SWB during adolescence (Casas et al., 2007; Castella-Sarriera et al., 2012; González-Carrasco et al., 2017a; Tomy & Cummins, 2011). A possible explanation given by these authors is that older adolescents might be challenged by developmental factors which result in a decrease in SWB. However, the majority of these studies are cross-sectional, which hampers a sound evaluation of causal and developmental effects.

Noteworthy, the above-mentioned age differences regarding SWB seemingly differ according to gender. The most pronounced decline in SWB levels during adolescence was reported among girls (Brann et al., 2017). The study by Brann and colleagues (2017) compared two birth cohorts in Sweden (N = 4362 and N = 5151) and found significant differences in the levels of SWB per gender. At the age of 18 years, girls reported much lower levels of well-being for all SWB dimensions. This study could not make firm conclusions on the cause of these gender differences, although it offered some plausible explanations. Girls' SWB levels could be affected by more social pressure, socialization aspects, gender identity and stereotypes, and hormonal changes (Brann et al., 2017).

4.1.1.4 Studies on adolescents' subjective well-being in Latin America

Research on adolescents' SWB in Latin America is limited (Alfaro et al., 2016; Castella et al., 2012), especially in relation to substance use and psychopathology. The limited Latin American research on this topic suggests the relevance of studying SWB in relation to adolescents' development. One Colombian study focused on the general well-being of adolescents and its main predictors, such as high self-esteem, religiosity and a healthy family background (Gomez & Cogollo, 2010). Another study from Mexico suggested SWB as a protective factor for the use of alcohol and tobacco, but not for other substances (Palacios & Cañas, 2010). The study of Contini, Coronel, Levin and Estévez (2003) in Argentina showed that positive coping strategies (e.g., looking for social support, focus on positive aspects) in adolescents are associated with high levels of SWB. To the best of our knowledge, SWB has not been studied previously in Uruguay in adolescents in relation to psychopathology and substance use.

The study by Noble and McGrath (2014) claims that in order to provide solid educational interventions; governments should base their programmes on evidence-based definitions of the construct of well-being in students. Casas (2011) claimed that research and systematic data-collection about subjective social indicators of child and adolescent well-being worldwide, is still very scarce, and that policy makers should consider these in order to make decisions and evaluate social interventions. Therefore, further studies on SBW in adolescents are important, in particular in the context of Latin American countries like Uruguay. Prior research showed that, depending on the culture, there are different constructs of what well-being implies (Garcia et al., 2017), which goes hand in hand with the dissimilar emphasis given to interventions to promote it (Ryff et al., 2014).

4.1.1.5 This study

Based on the evidence from the research exposed above, SWB has been shown to be a key factor for healthy and positive development among adolescents. Studies in Latin America about SWB in adolescents are still in an early stage. Especially in Uruguay, there are no previous studies that assessed the SWB of adolescents in relation to psychopathology and substance use. This study was

designed to fill this gap by studying SWB in school-going adolescents in Montevideo. More specifically, we investigate age- and gender-specific relationships between psychopathology and substance use on the one hand, and SWB on the other hand. We expect that high levels of psychopathology and substance use will be related to low levels of SWB (Huebner et al., 2004). In addition, we expect to find age and gender differences regarding SWB and its relationship with the other concepts of interest (Brann et al., 2017, González-Carrasco et al., 2017b). Our hypothesis, based on the available literature, is that the girls in our sample will present lower level of SWB in comparison with boys. Our second hypothesis in relation to age in SWB is that the levels of SWB will be lower in older students. This goes in line with previous cited literature which states that there are declines in the levels of SWB in relation to age.

4.1.2 Methods

4.1.2.1 Sample

A non-probabilistic sample was recruited between May and June 2016 in a school located in the metropolitan area of Montevideo, the capital city of Uruguay. The school is a private and traditional catholic school. We choose this school as it has a good gender and age balance. Many private schools have few pupils over 15 years old. In Uruguay since 2008, secondary school is compulsory until the age of 18 years, before this date, school was compulsory until 15 years old. The total sample consisted of 390 students. Since some students ($N = 65$) and/or their parents did not approve to participate or were not at school at the moment of data collection, this resulted in a final sample of 325 adolescents. The sample consisted of 172 girls (53.2%) and 153 boys (46.8%) from 12 to 18 years old ($M_{age} = 14.67$; $SD = 1.62$). The socioeconomic status of 8 (3%) adolescents' families was low, medium for 156 students (48%) and high for 49% ($N = 159$) of the sample.

4.1.2.2 Procedure

Before starting data collection, a verbal explanation was given to students about the content of the study and ethical issues regarding their participation. Active informed consent was signed by the head of the institution, parents or guardian, and the students. The self-report scales (all in electronic

version) were administered in Spanish in the school computer labs during the class period. On average, the administration of the questionnaires took around one hour to complete. An IT teacher was present during the administration for assistance on any problems with the computers or software used. Moreover, the first author as well as a research assistant were present during administration, in case students had any further questions. The current study was approved by the Ethical committee of the Uruguayan Catholic University.

4.1.2.3 Instruments

Socio-demographic characteristics

A socio-demographic survey was used, consisting of 41 items regarding individual, family, and school characteristics. This survey is part of the ADA (Daset et al., 2015). In the current study, we used the variable 'socioeconomic status' (SES), subdivided into low, medium and high. SES is calculated by classifying households according to their consumption or expenditure capacity and consisted of questions regarding individual, family, school and environment characteristics. We also included gender and age, with the latter being dichotomised into younger (12-14 years) and older (15-18 years) adolescents.

Psychopathology

The ADA was used to assess psychopathology. This instrument consists of 82 items and is scored using a 5-point Likert scale (0-4). Psychopathological symptoms refer to emotional, behavioural and thought related problems (e.g., "*I feel sad and fed-up most of the time*"). The instrument also includes some items referring to positive development, including strengths, life planning, coping skills, and social desirability (e.g., "*I have self-confidence*"). Cronbach's alpha's for the ADA-domains range from .70 to .90 (Daset, et. al. 2015). The ADA screening is based on the empirical taxonomies and studies of Achenbach and Edelbrock (1978), Lemos and colleagues (1992) and López-Soler and contributors (1998). The ADA consists of 6 cluster dimensions: Factor 1 'depression-anxiety', Factor 2 'dissocial behaviour, substance use and negative emotionality', Factor 3 'disrupted and dysregulated behaviour', Factor 4 'social anxiety', Factor 5 'resilience and pro-sociality' and Factor 6 'obsessive-

compulsive symptoms'. In the current study, Cronbach's alpha was .94 for F1, .84 for F2, .94 for F3, .92 for F4, .93 for F5, and .87 for F6.

Alcohol use

To assess adolescents' alcohol use, an existing questionnaire (JND, 2011) was used. The questionnaire assessed (i) the lifetime prevalence of alcohol use (yes/no), (ii) the prevalence of alcohol use during the last 12 months (yes/no); (iii) the prevalence of alcohol use during the last 30 days (yes/no); and (iv) the age of first alcohol use in school-going adolescents from 12 to 18 years old.

Marihuana use

We used the Spanish version of the Cannabis Abuse Screening Test (Cast) (Legleye et al., 2003), which was validated by the "Junta Nacional de Drogas, Uruguay" (2003), to measure marihuana use and associated problems. This scale considers possible problems in relation to the consumption of marihuana in the last 12 months and is based on the criteria for substance abuse of the DSM-IV. It consists of 6 items and employs a 4-point Likert scale, with higher scores indicating more severe marihuana use. The Cronbach's alpha of the instrument in the current sample was .73. We dichotomized the variables alcohol and marihuana use into ever/never use (including once in lifetime, last year, and last month use), in order to have more cases that were ever exposed and to be able to include these variables in the model.

Subjective well-being

Cummins and Lau (2003) developed the Personal Well-being Index (PWI) to measure SWB across 50 countries and different age groups (12 to 65 years old) and cultures. The instrument showed good psychometric properties and cultural stability (The International Well-being Group, 2013). We used the PWI (Cummins et al., 2003) in its Spanish version, validated for Chile (Alfaro et al., 2016). The scale is unidimensional and consists of 7 items that evaluate following domains: 'standard of living', 'health', 'achievements', 'relationships with others' (peers and family), 'safety', 'community-connectedness', and 'future security'. The items assess the perceived satisfaction with these life domains. It is measured using a Likert scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied). The index is

calculated by summing up all the items and transforming the scores into a 0-100 scale. Cronbach's alpha of the original instrument in international studies vary between .70 and .85. The version we used had an internal reliability of .77 and was validated for teenagers (Cummins et al., 2003). In the current study, the Cronbach's alpha of the PWI was .87.

4.1.2.4 Statistical analyses

First, descriptive statistics were calculated regarding psychopathology, substance use and SWB for gender, age and SES groups. Second, gender, age and SES differences regarding psychopathology, substance use and SWB were examined using (a) independent t-tests and ANOVAs for continuous variables and (b) chi-square tests for categorical variables. Third, a multivariate linear regression analysis was performed to examine the relationship between psychopathology and substance use on the one hand (i.e., the independent variables), and SWB on the other hand (i.e., the dependent variable). To maximize the statistical power, we decided to only include those socio-demographic variables that were significantly (p -value 0.05) related with psychopathology, substance use and/or SWB (i.e., gender and age, and SES).

We performed a correlation analysis and found that F2 and F4 are highly correlated (0.9). Given this fact, as they appear in the estimations (first performed linear regression model with all variables) with almost the same coefficient but of opposite sign, probably indicating that in fact they are not significant if included alone because they are canceling each other out (same coefficient of opposite sign); we decided to perform separate linear regression analysis including each variable (disocial behaviour and social anxiety) separate. In the first appendix we included the table of the correlation analysis between all variables. The variance inflation factor (VIF) indicates whether a predictor has a strong linear relationship with the other predictor(s). Although there are no hard and fast rules about what value of the VIF should cause concern, Myers (1990) (in Fields, 2009) suggests that a value below 10 is adequate. What's more, if the average VIF is greater than 1, then multicollinearity may be biasing the regression model (Bowerman & O'Connell, 1990, in Fields, 2009). Related to the VIF is the tolerance statistic, which is its reciprocal ($1/VIF$). As such, values below 0.1 indicate serious problems although Menard (1995) (in Fields, 2009) suggests that values below 0.2 are worthy of concern. Table

4.1.3 and table 4.1.4 present both linear regression models including the VIF and tolerance statistic. In our model VIF is below 5 and the tolerance above 0.2, therefore showing that no collinearity problems are found in both regressions. Fourth, the multivariate linear regression analysis was extended with the interaction effects between psychopathology and substance use on the one hand, and gender and age on the other hand. Before creating the interaction variables, all continuous variables were standardized. Subsequently, the interaction variables were constructed by multiplying psychopathology and substance use variables with age and gender. The R and R^2 are stated for each model. A p-value of 0.05 was used in all analyses as the standard for statistical significance.

4.1.3 Results

The mean score of global SWB of the total sample was 84.00 ($SD = 4.16$). In table 4.1.1, we describe the distribution of SWB, psychopathology and substance use for boys versus girls. Compared to girls, boys had significantly higher levels of SWB and significantly lower scores for Factor 1 'depression anxiety', Factor 2 'dissocial behaviour' and Factor 4 'social anxiety'. Regarding marijuana use, no significant gender differences could be revealed.

Table 4.1.1. Subjective well-being, psychopathology and substance use: distribution and gender differences

Variables	Boys (N = 152)		Girls (N = 173)		Boys vs. Girls
	Mean	SD	Mean	SD	t (df)
SWB	59.67	7.80	57.22	10.15	-2.456 (317)*
Depression-anxiety	11.17	9.54	17.73	14.22	4.934 (302)*
Dissocial behaviour	15.74	8.39	18.69	9.94	2.899 (320)*
Disrupted dysregulated	46.23	9.95	46.03	9.36	-189 (323)
Social anxiety	7.75	6.25	10.63	7.58	3.756 (321)*
Resilience	40.63	7.80	41.23	7.77	.685 (323)
OCD	11.50	4.45	11.89	4.82	.754 (323)
	N	(%)	N	(%)	χ^2 (df)
Alcohol use	105	(60.7)	91	(59.9)	.023 (1)*
Marijuana use	22	(12.7)	21	(13.9)	.099 (1)

* $p < 0.05$

In table 4.1.2, we describe the distribution of SWB, psychopathology and substance use for younger versus older adolescents. Compared to younger students (12 to 14), older students (15 to 18) had significantly lower levels of SWB, significantly higher scores for Factor 3 'disrupted dysregulated behaviour', and significantly higher prevalence rates for lifetime alcohol and marihuana use.

Table 4.1.2. *Subjective well-being, psychopathology and substance use: distribution and age differences*

Variables	Younger (12-14) (N = 155)		Older (15-18) (N = 169)		Younger vs. Older t (df)
	Mean	SD	Mean	SD	
SWB	60.50	9.14	56.45	8.85	4.040 (317)*
Depression-anxiety	13.61	12.17	15.60	13.11	-1.412 (322)
Dissocial behaviour	16.52	9.75	17.97	8.94	-1.388 (322)
Disrupted dysregulated	44.27	9.51	47.88	9.44	-3.424 (319)*
Social anxiety	8.80	7.44	9.69	6.83	-1.125 (322)
Resilience	40.58	8.77	41.31	6.76	-845 (322)
OCD	11.29	4.75	12.05	4.53	-1.489 (322)
	N	%	N	%	X ² (df)
Alcohol use	53	(34.2)	143	(84.6)	86.007 (1)*
Marihuana use	6	(3.9)	36	(22)	23.020 (1)*

* $p < 0.05$

In table 4.1.3, we present the multivariate regression model predicting the global score of SWB, including psychopathology, substance use and the selected socio-demographic variables, excluding social anxiety. This model identified four significant predictors of SWB. The predictors in this model explained 58.2% of the variance in the dependent variable (SWB). Regarding psychopathology, two ADA psychopathology factors were identified with a negative association: Factor 1 'depression-anxiety' ($p = .001$) and Factor 2 'dissocial behaviour' ($p = .038$). One ADA-factor had a positive association with SWB: Factor 5 'resilience and pro-sociality' ($p = .001$). Also, age had a significant negative association with SWB ($p = .002$).

Table 4.1.3. *Multivariate linear regression analysis predicting SWB (excluding 'social anxiety')*

Variables	B	SE	Beta	t	p	Tolerance	VIF
Depression-anxiety	-.321	.045	-.442	-7.111	.000	.348	2.870
Dissocial behaviour	-.168	.080	-.170	-2.085	.038	.202	4.958
Disrupted dysregulated	.020	.069	.020	.285	.776	.261	3.835
Resilience	.366	.086	.310	4.230	.000	.252	3.972
OCD	.111	.125	.056	.894	.372	.339	2.949
Marihuana use	-1.529	1.099	-.056	-1.391	.165	.820	1.219
Alcohol use	-.910	.836	-.048	-1.089	.277	.681	1.469
Age	-1.007	.250	-.177	-4.037	.000	.698	1.432
Gender	-.151	.730	-.008	-.207	.836	.860	1.163

$N = 325$; $R^2 = 0.582$

In table 4.1.4, we present the multivariate regression model predicting the global score of SWB, including psychopathology, substance use and the selected socio-demographic variables, excluding the variable dissocial behavior. We identified depression-anxiety ($p = .001$), social anxiety ($p = .004$), and age negatively related to SWB and resilience with a positive association ($p = .001$).

Table 4.1.4. *Multivariate linear regression analysis predicting SWB (excluding 'dissocial behaviour')*

Variables	B	SE	Beta	t	p	Tolerance	VIF
Depression-anxiety	-.297	.045	-.409	-6.555	.000	.342	2.924
Social anxiety	.018	.068	.019	.265	.791	.261	3.826
Disrupted dysregulated	-.221	.076	-.171	-2.899	.004	.382	2.618
Resilience	.369	.085	.312	4.324	.000	.256	3.910
OCD	-.025	.086	-.013	-.290	.772	.703	1.423
Marihuana use	-1.687	1.095	-.062	-1.541	.124	.817	1.225
Alcohol use	-1.033	.831	-.055	-1.243	.215	.680	1.471
Age	-.966	.249	-.170	-3.884	.000	.694	1.442
Gender	-.171	.725	-.009	-.235	.814	.860	1.163

$N = 325$; $R^2 = 0.582$

When extending the multivariate linear regression analysis with interaction effects between psychopathology and substance use on the one hand, and age and gender on the other hand, only the interaction effects of gender*Factor 5 'resilience and pro-sociality' for our model without the factor of 'dissocial behavior' ($t(df) = 3.232(24)$; $p = .001$), age*alcohol use ($t(df) = 2.171(24)$; $p = .031$), age*marihuana use ($t(df) = 2.052(24)$; $p = .041$). This model explained 62.8% of the variance. The multivariate linear regression analysis with interaction effects between psychopathology and substance use, and age and gender, only the interaction effects of gender*Factor 5 'resilience and pro-sociality' for our model without the factor of social anxiety was positively related to SWB in girls, ($t(df) = 3.223(24)$; $p = .001$). Regarding the interactions with substance use, age*alcohol use ($t(df) = 2.064(24)$; $p = .040$), age*marihuana use ($t(df) = 1.927(24)$; $p = .055$) appeared as significant. This model explained 62.2% of the variance.

4.1.4 Discussion

In this study, we aimed to assess the global level of SWB of a sample of school-going adolescents from Uruguay, exploring the moderating role of age and gender in the relation between psychopathology and substance use on the one hand, and SWB on the other hand. The Well-being International Group (2013) suggests a normative range between a minimum of 73.8 and a maximum of 90.4 (Well-being International Group, 2013). The total score of SWB in our sample (i.e., $M = 84.00$, $SD = 4.16$) falls within this stipulated normative range which illustrates that overall, school-going adolescents from this specific sample are relatively satisfied with their life.

Regarding psychopathology, the multivariate regression model indicated a significant association between four ADA psychopathology factors and SWB. Three factors (i.e., 'depression-anxiety', 'social anxiety' and 'dissocial behaviour') had a negative association with SWB. In line with prior studies (Huebner et al., 2004; Park, 2004), these results suggest that negative development (e.g., psychological problems) is associated with lower levels of SWB in teenagers. It is likely that adolescents who display high levels of dissocial behaviour lack empathy to others and lack insight about their own behaviour and its consequences (Aalsma, Lapsley & Flannery, 2006; Berk, 2006;

Seagrave & Grisso, 2002). More research is needed to gain more insight regarding the construct of this particular ADA-factor, as well as regarding plausible variables that could mediate the association between SWB and 'dissocial behaviour', such as peer relationships, bonds with the family, and patterns of problems behaviour since childhood (Costello, 2016; Keyes, 2006).

Also in line with prior studies (Casas et al., 2012), the factor 'resilience' showed a positive association, providing support for the idea that positive development is associated with higher levels of SWB during the developmental period of adolescence. Resilience is defined as healthy development in the face of adversity, and refers to contextual challenges.

Regarding age, both the bivariate analysis indicated that, compared to older adolescents, younger adolescents reported higher levels of SWB. This is in line with previous studies (Brann et al., 2017), showing a negative association between age and global level of SWB. This also accords with prior work in other Latin American countries. For example, the study of Castella and colleagues (2012) compared the SWB of 12 to 16 year old adolescents from Brazil and Argentina. In both countries, the level of SWB decreased with age. In addition, our study results revealed some interesting interaction effects; alcohol and marihuana use displayed a significant interaction effect with age. The positive coefficient of the interaction between age and substance use (alcohol and marihuana), implies that as the individuals grow up the negative impact of the use of these substances over the global SWB is reduced. Similarly, the study by Van Ouytsel and colleagues (2017) found that Belgian adolescents that use alcohol and marihuana at a young age are more vulnerable or prone to engage in risk behavior such as dating violence, and more vulnerability to have depression and low self-esteem.

Significant gender differences were observed regarding the global level of SWB and the ADA-factors 'depression-anxiety', 'dissocial behaviour' and 'social anxiety'. Bivariate analyses showed that – compared to girls – boys had significantly higher levels of SWB. This is in line with prior work (Brann et al., 2017; González-Carrasco et al., 2017b; Garcia et al., 2017), including the Latin American study by Castella and colleagues (2012) that indicated higher levels of SWB among boys than among girls in both Brazil and Argentina. A possible explanation for this finding is the strong existing connection between SWB and psychopathology, where there is a higher prevalence of psychopathology in female

adolescents (Belloch & Alvarez, 2002; Costelo, 2016, López-Soler et al., 1998). Noteworthy, these gender differences did not appear in our multivariate regression model. However, a significant gender interaction effect was found: gender and resilience had a significant positive interaction effect for girls only.

Our study has several contributions. In the first place, this is the first study in Uruguay that relates SWB in adolescents to psychopathology and substance use, thereby contributing to the scant research on the topic in Latin America (Castella-Sarriera et al., 2012). Our study focuses on the necessity to have evidence-based results in order to plan appropriate preventive interventions with adolescents to avoid negative development and promote positive development (Montserrat et al., 2015). In relation to age and gender, our results suggest that when planning interventions aimed at increasing the level of SWB in adolescents, educators, teachers, psychologists and youth workers should consider gender and age differences. Additionally, interventions aimed at stimulating the level of SWB should be specific, based on the main significant factors that are related to SWB in teenagers (Casas et al., 2015). Our results also suggest that it is important to invest efforts in detecting and preventing depression-anxiety, social anxiety and dissocial behaviour in school settings.

Based on the current study, it is therefore suggested to not only adopt a problem-oriented approach (i.e., striving to reduce depressive, anxious and compulsive symptoms), but to also apply strength-based principles (i.e., striving to enhance resilience), in particular among girls given the interaction effect.

4.1.5 Research limitations and recommendations

The study findings, however, need to be considered in the light of some limitations. First, the cross-sectional nature of the study does not allow any causal conclusions. Of note, while we considered the effects of psychopathology and substance use on SWB, other studies suggested an inverse impact (Alfaro et al., 2016; Huebner et al., 2004). Longitudinal studies are needed to reveal more insight in the bi-directionality of this relationship, which is clearly needed in future research on this topic in Uruguay and Latin America.

Second, the results can only be considered for this particular sample, as we only collected data from one school that displayed some specific characteristics (i.e., a catholic school, located in the city centre of a small city near the capital). For future research, it is recommended to collect data at national level and to design the study including a probabilistic sample.

Third, it is advisable to assess SWB on various groups of adolescents, including clinical samples, to assess whether the current age- and gender-specific relationships can also be revealed in at risk adolescents or adolescents with pre-existing health and/or mental health problems. Also, pre-adolescents, from 10 years old, should be included in future longitudinal studies in order to observe whether any pattern of change in SWB can be observed in the transition from primary school to high school (González-Carrasco et al., 2017b).

Finally, we suggest further research to add a qualitative assessment of SWB, in order to gain a deeper understanding of individuals' interpretation of different dimensions of SWB, as well as about the importance they attach to it (Casas, 2011)

4.2

DETERMINANTS OF DOMAIN-SPECIFIC ASPECTS OF SUBJECTIVE WELL-BEING AMONG SCHOOL-GOING ADOLESCENTS IN URUGUAY⁶

Abstract

Research shows that subjective well-being (SWB) is of high relevance in the developmental period of adolescence, with many researchers emphasizing the importance of a concrete and multidimensional conceptualisation. In this study we aim to explore determinants of domain-specific dimensions of SWB, in a sample of students between 12 and 18 years old in Uruguay. The Personal Well-being Index (PWI) was used to assess the global level of SWB and the scores of the seven SWB-domains (standard of living, health, achievements, relationships with others (peers and family), safety, community-connectedness, and future security). The Adolescents self-report (ADA), the national alcohol survey (JND) and the cannabis screening test (CAST) were used to assess psychopathology and resilience, alcohol and marihuana use, respectively. Adolescents were most satisfied with the domain of community-connectedness and least satisfied with the domain of safety. Multivariate linear regression analyses indicated the existence of domain-specific determinants for the different domains of SWB. The domain safety was most influenced by the selected variables of interest, while these variables had a rather limited impact on their health. Implications for prevention and clinical interventions in the context of schools, consultation to parents and teachers, and psychological assessment and treatment are discussed.

Keywords: *subjective well-being dimensions; adolescents; psychopathology; substance use; personal well-being index; Uruguay*

⁶ This study is based on the article by Fernández, M. E., Van Damme, L., Daset, L., & Vanderplasschen, W. (2017). Domain-specific determinants of Subjective well-being among school-going adolescents in Uruguay. *Submitted to the Journal Child Indicators Research*.

4.2.1 Introduction

4.2.1.1 Theoretical background on subjective well-being

Recently, further attention is given to the concept of QoL or life satisfaction, for example, in the disciplines of medical, social sciences and economic sciences. QoL refers to the goodness of various aspects of life that goes beyond the mere subsistence. Importantly, two different, yet complementary perspectives can be distinguished when considering individuals' QoL. The objective perspective focuses on objective measures of QoL, such as income, health, education, and other resources. The subjective perspective focuses on individuals' own satisfaction with and views on their lives. QoL is understood as a multidimensional construct that includes the interaction of the environment and personal aspects, (objective and subjective indicators). It can be improved by the person's sense of belonging, determination, material and social resources and purposes in life (Broekaert et al., 2017). For a long time, the majority of research in the field of QoL adopted the objective perspective (Casas, 2011). However, within the light of changes in society (i.e., more community-based support, the increasing importance of people's own perceptions and values, and the rise of person-centred and empowerment approaches), there is a shift towards the subjective perspective (Casas et al., 2007; Huebner et al., 2004; Schalock et al., 2002). Additionally, it is advised to measure objective and subjective indicators separately, as many of these indicators do not correlate (Broekaert et al., 2017; Cummins, 2010).

The concept of well-being is based on the scrutiny of QoL, health and living conditions (Ben-Arieh & Frones, 2011). The evaluation of well-being from the person's own perspective is one of the key micro aspects of QoL. There are two perspectives of well-being: (i) the hedonic perspective, which emphasises the person's satisfaction in terms of happiness and pleasure; and (ii) the eudemonic perspective, which emphasises the development of the personal potential and the achievement of a meaningful life (Broekaert et al., 2017). SWB is the most widespread construct to assess the well-being of a person, within the eudemonic perspective. Diener, Lucas & Scollon (2006) define SWB as a general evaluation of the person on their lives. SWB is defined as the people's own evaluation and satisfaction with different domains of life (The International Well-being Group, 2013). The theoretical construct

of SWB includes cognitive and affective components (Montserrat et al., 2015). These components are positive affect (e.g., enthusiasm, joy, excitement, and curiosity), negative affect (e.g., anger, distress, sadness, lethargy) that should be reduced in order to have a high level of SWB, and a global positive judgment of one's life. Life satisfaction is part of the third domain, the global self-judgment, and refers to the cognitive aspect of SWB (Park, 2004).

4.2.1.2 Subjective well-being in adolescence

In comparison to studies on SWB in adults, the studies on adolescents' SWB are less extended (González-Carrasco et al., 2017a). Studying SWB in this period of life is highly relevant, as during adolescence there are diverse developmental transitions and changes (Garcia et al., 2017). The homeostasis theory of SWB states that there is a neurological innate tendency in each person that maintains the level of SWB around set points. However, the SWB homeostatic system may be influenced by life disturbances or regulatory adjustment processes, which may be particularly prevalent during the turbulent developmental phase of adolescence (Cummins et al., 2014). Throughout the lifespan, different domains can become more or less important, satisfaction with particular domains can increase or decrease and domain-specific determinants of SWB may change. The study of Casas (2011) pointed that the domain of 'interpersonal relationships' is the most important within the developmental period of adolescence. This study suggested that other domains may be equally important for adolescents, such as their perception and satisfaction about their rights, their opinions about their families, their satisfaction with their conversations with adults and the use of technology (Casas, 2011).

As mentioned above, research on SWB in adolescence is still limited. Previous work has focused on the effects of critical changes in life and gender (González-Carrasco, 2017a; Montserrat et al., 2015), as well as the effects of age (Braan et al., 2017; González-Carrasco, 2017b), culture (Casas et al., 2012; Castella-Sarriera et al., 2012; Garcia et al., 2017) and substance use (Arria et al., 2016; Bogart et al., 2007; Zullig et al., 2001) on adolescents' SWB. However, the majority of these studies adopt a global, instead of a multidimensional, approach, thereby hampering a more detailed evaluation. Assessing adolescents' SWB from a multidimensional approach is relevant for determining their relative

satisfaction with each specific domain of life as well as for exploring domain-specific determinants of SWB in this period of life. The limited number of studies that did adopt a multidimensional approach indeed indicates its relevance. For example, the study of Braan and colleagues (2017) compares specific domains of SWB between adolescents and young adults in Sweden using the “Gothenburg Well-Being in adolescence scale” (GWBa). One of the aims of this study was to assess how well-being (in all domains) was affected by environment, societal changes and physical conditions. They found significant differences between the two groups for the domain of stress balance (defined as feeling calm, unconcerned, relaxed), while for the other domains of SWB (i.e., mood, physical condition, energy, self-esteem) no significant differences were found (Braan et al., 2017). Another example is the study of Casas and colleagues (2015), using the PWI and the brief multidimensional student’s life satisfaction scale, in a sample of adolescents from Spain, Chile and Brazil. Their results show that, overall, adolescents are most satisfied with the groups of people they belong to (community-connectedness) and least satisfied with their religion practise (Casas et al., 2015).

4.2.1.3 Determinants of subjective well-being

Previous work on SWB (Huebner et al., 2004; Park, 2004) in adolescents has shown that positive development is highly linked to a high level of SWB. Park (2004) considers the SWB as a key factor in the healthy development of the adolescents. The most relevant variables related to a high level of SWB in youth area good physical and mental health, positive interpersonal relationships, and high academic performance (Park, 2004). Additionally, prosocial aspects, personality and temperament factors (e.g., extraversion, and low degree of neuroticism), a high self-perception of control, high self-esteem, and optimism are indicated as positive correlates of SWB (Cummins, 2010). On the other hand, negative development in this age period is linked to a low SWB level. Adolescents who present social and psychological problems are likely to report low levels of SWB. The most common problems that previous studies reported in relation to low levels of SWB are depressive symptoms, dissocial behaviour, suicidal intent and ideation, low self-esteem, and family and peer relationship problems (Alfaro et al., 2016; Suldo & Huebner 2004; Zullig et al., 2001). In addition, low levels of SWB in adolescents have been found to be associated to substance use and other risky behaviours, such as

aggression to others and sexual harassment (Proctor et al., 2009). Noteworthy, most of the above studies focus only on the overall level of SWB, not providing details about variations on specific determinants of each domain of SWB.

4.2.1.4 Aims of this study

Overall, the majority of research on SWB has been conducted among adults, while research in the transitional period of adolescence is still scarce (Garcia et al., 2017). In addition, the majority of previous studies focus on the global SWB, while a multidimensional approach may yield more detailed findings. Moreover, there is a lack of studies in Latin America (Castella-Sarriera et al., 2012), specifically in Uruguay. This study was designed to fill this gap by studying domain-specific determinants of each dimension of the PWI in a sample of school-going adolescents in Uruguay. We expect to find differences in the mean scores of the different dimensions of SWB, as well as differences in the determinants for the specific SWB-domains. The selection of independent variables was based on prior indications that resilience is associated with higher levels of SWB (Rodríguez-Fernández et al., 2016; Satıcı, 2016), while substance use and psychopathology are associated with reduced levels of SWB (Cummins, 2010; Park, 2004). The selection of socio-demographic covariates was based on prior indications that SES, age and gender (Fernández et al., 2017) are also likely to influence youngsters' SWB.

4.2.2 Method

4.2.2.1 Sample

The sample (non-probabilistic) was recruited between May and June 2016 in one secondary school. This school is located in a city at the outskirts of Montevideo, a county called Canelones. The school is a private and traditional catholic school. This school was chosen given its good gender and age balance. Secondary school is compulsory in Uruguay until 18 years old. The total target sample of the current study was 390 students. Some students ($N = 65$) and/or their parents did not approve to participate or were not at school at the moment of data collection, resulting in a final sample of 325. The sample consisted of 172 girls (53,2%) and 153 boys (46,8%) from 12 to 18 years old ($M_{age} = 14.67$;

$SD = 1.62$). The socioeconomic status was low for 8 (3%) adolescents, medium for 156 (48%) and high for 159 (49%) adolescents.

4.2.2.2 Procedure

Before starting data collection, a verbal explanation was given to the students about the content of the study and ethical issues regarding their participation. Active informed consent was signed by the head of the institution, tutors, parents, and students. The self-report scales (all in electronic version) were applied in the school computer labs in Spanish during the class period. On average, the administration took around an hour to complete. An IT teacher was present during the administration for assistance on any problems with the computers and software used. Additionally, the first author as well as a research assistant was present during administration in case students had any further questions. The current study was approved by the Ethical committee at the University from Montevideo.

4.2.2.3 Instruments

Socio-demographic characteristics

A socio-demographic survey was used consisting of 41 items regarding individual, family, and school characteristics. This scale is part of the ADA (Daset et al., 2015). In the current study, we used the variable of SES, subdivided into low, medium and high. SES is calculated by classifying households according to their consumption or expenditure capacity. We also included gender and age, with the latter as a continuous variable.

Psychopathology and resilience

The ADA (Daset et al., 2015) was used to assess adolescents' psychological problems. This instrument consists of 82 items and is scored using a 5-point Likert scale (0-4). Psychopathological symptoms refer to emotional and behavioural problems (e.g., "*I feel sad and fed-up most of the time*"). The instrument also includes some items referring to resilience (e.g., "*Besides bad things happens, I always find a reason to smile*"), also, positive development, including strengths, life planning, coping skills, and social desirability (e.g., "*I have self-confidence*"). Cronbach's alpha ranges from .70 to .90 (Daset et al.,

2015). The ADA screening test is based on the empirical taxonomies and studies of Achenbach and Edelbrock (1978), Lemos and colleagues (1992) and López-Soler and colleagues (1998). The ADA has 6 cluster dimensions: Factor 1 'depression-anxiety', Factor 2 'dissocial behaviour, substance use and negative emotionality', Factor 3 'disrupted and dysregulated behaviour, Factor 4 'social anxiety', Factor 5 'resilience and pro-sociality', and Factor 6 'obsessive-compulsive symptoms'. In the current sample, the Cronbach's alpha is .94 for F1, .84 for F2, .94 for F3, .92 for F4, .93 for F5, and .87 for F6.

Alcohol use

To assess adolescents' alcohol use, a survey (JND, 2011) was conducted. The survey assessed (i) the lifetime prevalence of alcohol use (yes/no); (ii) the prevalence of alcohol use during the last 12 months (yes/no); (iii) the prevalence of alcohol use during the last 30 days (yes/no); and (iv) the age of first alcohol use.

Marihuana use

We used the CAST (Legleye et al., 2013) in its Spanish version validated by the "Junta Nacional de Drogas, Uruguay" (2003), to measure marihuana use and associated problems. This scale considers possible problems in relation to the consumption of marihuana in the last 12 months and is based on the criteria for substance abuse of the DSM-IV. It consists of 6 items and has a Likert scale of 4 points with higher scores indicating more severe marihuana use. In the current study, the Cronbach's alpha was .73. We dichotomized the variables alcohol and marihuana use into use/never use (including, once in lifetime, past year, and last month) in order to have more cases and be able to include these variables in the model.

Subjective well-being

The PWI is one of the most widely used international instruments that measures individuals' global level of life satisfaction, as well as their satisfaction with seven specific domains of life (standard of living, health, achievements, relationships with others (peers and family) safety, community-connectedness, and future security) (Cummins, 2003). Cummins and Lau (2003) developed the PWI to measure SWB across 50 countries and different cultures. The instrument showed good psychometric

properties and cultural stability (The International Well-being Group, 2013). We used the PWI (Cummins et al., 2003) in its Spanish version, validated for Chile (Alfaro et al., 2016). The scale consists of 7 items that evaluate the areas of standard of living, health, achievements, relationships with others (peers and family), safety, community-connectedness, and future security. The items assess how “satisfied are you with”... this particular area of life. It has a Likert scale of 0-10, being 0 (completely dissatisfied) and 10 (completely satisfied). The index is calculated summing up all the items and transforming the scores into a 0-100 scale. We use an overall score of SWB and the mean of each area/item of SWB. Cronbach’s alphas of the original test, in international studies, are between .70 and .85. The version used had an internal reliability of .77 and was validated for teenagers. For the current study, the Cronbach’s alpha was .87.

4.2.2.4 Statistical analysis

First, we calculated descriptive statistics for the total sample, as well as for boys and girls separately. Second, we run linear regression models for each specific domain of the PWI: standard of living, health, achievements, relationships with others (peers and family), safety, community-connectedness, and future security as dependant variables. The six ADA psychopathology factors, alcohol use and marijuana use were included as independent variables. Age, gender and SES were included as socio-demographic covariates. We performed a correlation analysis and found that F2 and F4 are highly correlated (0.9). Given this fact, and that they appear in the estimations (first performed linear regression model with all variables) with almost the same coefficient but of opposite sign, probably indicating that in fact they are not significant if included alone because they are canceling each other out (same coefficient of opposite sign); we decided to perform separate regression analysis including each variable (disocial behaviour and social anxiety) separate. In appendix 1 we included the table of the correlation analysis between all variables. The R-squared is stated for each model, indicating the variation in SWB that is accounted for by the predictors in the model. A p-value of 0.05 was used in all analyses as the standard for statistical significance.

4.2.3 Results

Table 4.2.1 presents the mean scores of each SWB-dimension with the standard deviation for the total sample, as well as for girls and boys separately. Adolescents are most satisfied with how connected they feel with their community ($M = 89$; $SD = 1.45$) and least satisfied with safety ($M = 79$; $SD = 1.97$) and future security ($M = 79$; $SD = 1.97$). The mean of the domain safety was significantly lower for girls, compared to boys. In the other life domains, no significant gender differences in the mean scores were observed.

Table 4.2.1. Mean scores of SWB-domains

PWI domains	Total sample (N = 325)		Girls (N = 173)		Boys (N = 152)		Boys vs. Girls t (df)
	Mean	SD	Mean	SD	Mean	SD	
Standard of living	85	1.56	84	1.56	87	1.47	-1.65 (323)
Health	83	1.7	81	1.78	84	1.59	-1.66 (323)
Achievements	82	1.72	81	1.89	84	1.51	-1.44 (323)
Relationships with others	84	1.64	83	1.76	85	1.49	-1.23 (323)
Safety	78	1.99	74	2.17	83	1.65	-4.08 (316)*
Community-connectedness	89	1.45	88	1.48	89	1.41	-0.69 (323)
Future security	79	1.97	77	2.15	81	1.71	-1.75 (320)

* $p < 0.05$

Table 4.2.2 presents the linear regression models for the different domains of the PWI. We only presented the variables that were significant for the specific PWI domain of interest. The models indicate the existence of diverse determinants for the different domains of SWB. The domain of safety was most influenced by the selected variables of interest ($R^2 = .530$; $R^2 = .525$), while these variables had a rather limited impact on the domain of health ($R^2 = .242$; $R^2 = .240$).

Table 4.2.2. Linear regression models predicting the PWI domains (N = 325)

PWI domains	Variables	B	SE	Beta	t	p	R ²	F(df)
Standard of living 1/	Depression-anxiety	-0.040	0.010	-0.325	-3.897	0.000*	0.255	10.716 (10)
	Resilience	0.037	0.019	0.186	1.926	0.055		
	Marihuana	-0.566	0.249	-0.123	-2.270	0.024*		
	SES	0.019	0.007	0.144	2.921	0.004*		
Standard of living 2/	Depression-anxiety	-0.043	0.010	-0.344	-4.157	0.000*	0.255	10.715 (10)
	Resilience	0.038	0.020	0.190	1.959	0.051		
	Marihuana	-0.555	0.249	-0.120	-2.232	0.026*		
	SES	0.019	0.007	0.144	2.917	0.004*		
Health 1/	Depression-anxiety	-0.030	0.011	-0.224	-2.661	0.008*	0.242	9.989 (10)
	Resilience	0.062	0.021	0.283	2.911	0.004*		
	Marihuana	-0.629	0.273	-0.125	-2.303	0.022*		
Health 2/	Depression-anxiety	-0.034	0.011	-0.253	-3.034	0.003*	0.240	9.910 (10)
	Resilience	0.063	0.021	0.287	2.928	0.004*		
	Marihuana	-0.608	0.273	-0.121	-2.229	0.027*		
Achievements 1/	Depression-anxiety	-0.051	0.010	-0.372	-5.198	0.000*	0.454	25.989 (10)
	Resilience	0.073	0.018	0.328	3.966	0.000*		
	Marihuana	-0.475	0.235	-0.093	-2.018	0.044*		
	Alcohol	-0.471	0.179	-0.134	-2.635	0.009*		
	Age	-0.124	0.053	-0.116	-2.315	0.021*		
Achievements 2/	Depression-anxiety	-0.057	0.010	-0.417	-5.873	0.000*	0.453	25.869 (10)
	Resilience	0.075	0.018	0.337	4.048	0.000*		
	Marihuana	-0.445	0.235	-0.087	-1.893	0.059		
	Alcohol	-0.441	0.179	-0.125	-2.464	0.014*		
	Age	-0.131	0.053	-0.123	-2.458	0.014*		
Relationships 1/	Depression-anxiety	-0.034	0.009	-0.266	-3.636	0.000	0.430	23.593 (10)
	Social Anxiety	-0.059	0.016	-0.257	-3.715	0.000		
	Resilience	0.065	0.018	0.306	3.621	0.000		
	Age	-0.200	0.052	-0.197	-3.846	0.000		
Relationships 2/	Depression-anxiety	-0.036	0.009	-0.275	-3.792	0.000*	0.428	23.446 (10)
	Dissocial behaviour	-0.060	0.017	-0.342	-3.594	0.000*		
	Resilience	0.061	0.018	0.289	3.394	0.001*		
	OCD	0.056	0.026	0.159	2.170	0.031*		
	Age	-0.206	0.052	-0.202	-3.958	0.000*		
Safety 1/	Depression-anxiety	-0.067	0.010	-0.429	-6.460	0.000*	0.530	35.261 (10)
	Social anxiety	-0.044	0.018	-0.157	-2.503	0.013*		
	Disrupted dysregulated	0.043	0.016	0.207	2.734	0.007*		
	Resilience	0.034	0.020	0.132	1.724	0.086*		
Safety 2/	Depression-anxiety	-0.073	0.010	-0.463	-7.007	0.000*	0.525	34.564 (10)
	Dissocial behaviour	-0.032	0.018	-0.148	-1.709	0.088		
	Disrupted dysregulated	0.043	0.016	0.208	2.729	0.007*		
	Resilience	0.034	0.020	0.131	1.688	0.092		
	Age	-0.189	0.057	-0.154	-3.300	0.001*		

Community-connectedness 1/	Depression-anxiety	-0.016	0.010	-0.140	-1.690	0.092	0.262	11.107 (10)
	Social anxiety	-0.058	0.016	-0.285	-3.626	0.000*		
	Resilience	0.047	0.018	0.252	2.620	0.009*		
	Age	-0.111	0.052	-0.124	-2.121	0.035*		
Community-connectedness 2/	Depression-anxiety	-0.017	0.009	-0.144	-1.753	0.081	0.262	11.118 (10)
	Dissocial behaviour	-0.061	0.017	-0.393	-3.638	0.000*		
	Resilience	0.043	0.018	0.231	2.391	0.017*		
	OCD	0.084	0.026	0.269	3.231	0.001*		
	Age	-0.115	0.052	-0.129	-2.216	0.027*		
Future security 1/	Depression-anxiety	-0.056	0.012	-0.362	-4.709	0.000*	0.369	18.281 (10)
	Resilience	0.051	0.022	0.204	2.292	0.023*		
	Age	-0.243	0.065	-0.200	-3.717	0.000*		
Future security 2/	Depression-anxiety	-0.061	0.012	-0.394	-5.157	0.000*	0.366	18.063 (10)
	Resilience	0.052	0.023	0.206	2.294	0.022*		
	Age	-0.251	0.065	-0.206	-3.830	0.000*		

Notes: OCD = obsessive-compulsive disorder

1/ Not including Dissocial behaviour; 2/ Not including Social anxiety

* $p < .05$

Depression-anxiety (with a negative association) appears to be the most robust predictor for SWB in all dimensions. While resilience (with a positive association) also appears closely related to a high SWB in all dimensions. The other variable which appears in most of the domains of SWB with a negative association is age (apart from the domains of safety (model 1), health (models 1+2) and standard of living (models 1+2)).

Regarding substance use, marijuana appears (with a negative association) to SWB in the domains of standard of living, health and achievements. Alcohol use is negatively associated to SWB in the domain of achievements in life; it does not seem to have an impact on the other SWB-domains.

4.2.4 Discussion

In this study we aimed to assess the determinants for domain-specific aspects of SWB in a sample of 325 school-going adolescents in Uruguay, considering possible variations regarding the determinants of the different domains.

Our results suggest that adolescents are most satisfied with community-connectedness and least satisfied with safety. These differences support the importance of a multidimensional approach when

studying individuals' SWB. Adolescents' relatively high level of satisfaction with community-connectedness may be explained by the characteristics of the local environment (it's a small city near the capital where people tend to know each other), characteristics of the school (as a catholic school they have many extracurricular activities as well as close supervision and involvement with students). Their relatively low level of satisfaction with safety may be explained by the general context of the country: recently there is a major concern among the population of Uruguay regarding a rise of concerns about crime and insecurity (Aboal, Lanzilotta, Dominguez & Vairo, 2015). Further studies are needed to explore further possible explanations and to confirm these findings.

The regression models of the current study indicate that different psychopathology factors are significantly associated with different domains of SWB. Two factors (i.e., 'depression-anxiety' and 'resilience') were most frequently identified as significant predictors.

First of all, 'depression-anxiety' seems to be the most significant predictor for a low SWB in all the domains. In line with prior work (Nitkowski, Laakmann, Petersen, Peterman & Peterman, 2017), our results suggest to especially consider the prevention and treatment of depression and anxiety in adolescents, in order to safeguard or improve their well-being. In this respect, early screening of psychopathology is a good way of detecting early emerging symptoms and doing early referrals to professionals. In addition, it could be useful to teach adolescents strategies on how to deal with anxiety and to help them to develop social skills in order to avoid social isolation.

Second, 'resilience' had a positive association to SWB in all domains. In line with previous research, our study points to the importance of resilience, confirming that this construct is tightly related to one's SWB (Rodríguez-Fernández et al., 2016; Satici, 2016). Resilience is understood as a dynamic adaptation process in a context of adversity (Luthar, Cicchetti & Becker, 2000). In relation to clinical implications, this means that enhancing resilience (for example, by means of teaching problem solving, coping and social skills to adolescents) is a way to also enhance adolescents' SWB.

The factor 'disrupted and dysregulated behaviour' had a positive association in the SWB-dimension of safety. It is likely that adolescents who display high levels of dissocial behaviour, impulsivity and

difficulties in regulating emotions, lack empathy to others and lack insight about their own behaviour and its consequences. This is not uncommon within the developmental phase of adolescence, in which youngsters become more self-centered, as illustrated by the emergence of personal fables of omnipotence, invulnerability, and personal uniqueness (Aalsma, Lapsley & Flannery, 2006; Berk, 2006; Seagrave & Grisso, 2002).

The factor 'dissocial behaviour' appears with a negative association with SWB in the dimensions of relationships with others, community-connectedness and safety. This factor involves refusal and confrontation to norms and rules in a persistent way and restricted prosocial emotions (Molinuevo, 2014), therefore, it is expected that adolescents who display high dissocial behaviour might have difficulties in their social relationships, mainly with authority figures such as parents, teachers.

The factor 'social anxiety' had a negative association with SWB in the dimensions of safety (model 1) and community-connectedness (model 1). Adolescents that present these psychopathological symptoms usually ruminate and worry about their future, safety and the negative judgement of other people (Boileau, 2011).

In relation to substance use, marihuana use had a significant negative association with SWB in the domains of standard of living, health, and achievements, and was not significant in the other domains of SWB. This is in line with the longitudinal study of Arria and colleagues (2016), indicating that even occasional, non-problematic use of marihuana can have an impact on the mental health and global SWB of young people. Alcohol use was negatively associated to SWB only in the domain of achievements. The longitudinal study of Bogart and colleagues (2007) also found the detrimental effect of substance use (cigarettes, alcohol, marihuana and hard drugs) on adolescents' global SWB over time. The above mentioned results provide some more detail regarding specific SWB-domains. Regarding the use of marihuana and alcohol, our findings suggest that preventive work is needed as the use of these substances (especially marihuana) affects adolescents' SWB. A way of preventing early use of alcohol and marihuana in adolescents is to design specific school- and community-based interventions that increase healthy peer relationships, assertiveness and greater social participation (Bogart et al., 2007). Our results offer detailed information regarding specific domains of SWB in

adolescents that could be particularly useful for teachers, youth workers and educational psychologists, helping to tailor programs to the developmental requirements of adolescents.

Age had a negative significant association with SWB in the domains of achievements in life, safety (model 2), relationships with others, community-connectedness, and future security. This means that with age the level of SWB decreased. This goes in line with previous work that indicates the decrease of SWB-satisfaction in older adolescents (Brann et al., 2017; Castella-Sarriera et al., 2012). However, in our findings, age does not seem to have an impact on the adolescents' satisfaction with their subjective evaluation of their safety (model 1), standard of living, and health. A possible explanation, following Cummins' homeostatic theory, is that the other SWB-domains (achievements, safety, community-connectedness, relationships with others and future safety) could imply more life uncertainties and could be more challenging areas as adolescents move into adulthood. Yet, more studies with a multidimensional approach are needed to confirm this finding. In relation to clinical implications our results indicate the importance of having age-appropriate interventions (Montserrat et al., 2015); taking into account the specific life dimensions that play a role and that SWB tends to decrease in older adolescents. For future studies, we recommend to do additional moderator analyses regarding age and gender for each dimension of SWB.

4.2.5 Research limitations and recommendations

The results of the current study need to be considered in light of some limitations. First, the cross-sectional nature of our study makes it not possible to draw any causal conclusions. Future research should adopt a longitudinal design to address the direction of the associations between SWB specific domains and psychopathology, substance use and sociodemographic characteristics, as well as the development of these different concepts throughout the developmental period of adolescence (González-Carrasco et al., 2017; Montserrat et al., 2015). Second, the results can only be considered for this sample, since data had been collected from one school that has some specific characteristics (e.g., a catholic school, located in the metropolitan area outside the country capital). For future studies, it would be good to obtain the profile of SWB in a national sample and to do comparative studies with

other countries of the region, in order to gain more insight into possible cultural differences (Casas, 2011; Casas et al., 2015). Third, we only focussed on school-going adolescents. It would be relevant for further studies to include adolescents at risk that are no longer connected to the school system, since measuring SWB in different social realities can provide useful indicators for policy makers and social programs aiming to improve the living conditions of all adolescents, including the most vulnerable ones (Casas, 2011).

The main objective of this dissertation was to advance knowledge about psychopathology and well-being in adolescence in Uruguay. This in order to provide better ways of approaching adolescents and this complex developmental period that is experienced by many as full of uncertainty. The developmental stage of adolescence is crucial for reaching a healthy adult life (Belloch & Alvarez, 2002; Costelo, 2016). In this section, we present a summary and general discussion of the global findings from our study. At the end of this chapter, the overall limitations and recommendations for future research are addressed. Also, we present the implications of the results for academic, clinical and educational settings.

5.1 Main findings

The main objective of this thesis was to explore the global subjective-wellbeing and determinants of domain-specific aspects of SWB of school-going adolescents in Montevideo, Uruguay, in relation to substance use (alcohol and marihuana) and psychopathological syndromes. Great emphasis was given to the individual perspective of the adolescents, which is in line with a strengths-based approach. We based our research regarding SWB on the theoretical framework of QoL, and more specifically, on the subjective dimension of QoL. Moreover, we adhered to the construct of developmental psychopathology. In this dissertation, we studied the dynamic interplay between risk and protective factors in adolescence from this perspective.

Our first study (chapter 2) focused on the development and validation of a screening instrument for psychopathology and resilience, specifically designed for adolescents in Uruguay. This study is developed by the research team of the department of Clinical Psychology and Health (UCUDAL). The second study (chapter 3) addressed risk and protective factors for alcohol use in relation to psychopathological syndromes in adolescents attending secondary school in Montevideo, Uruguay. Based on the first two studies and the lack of information on individuals' QoL, we included a specific instrument to assess SWB in the latter two studies. The main focus of the third study (chapter 4.1) was to explore the global SWB in adolescents and to assess the most important predictors of SWB, also exploring the moderating effects of age and gender. Based on previous studies on the main determinants of SBW and variables that affect it, we focused on the association between SWB and psychopathology and substance use (alcohol and marihuana). In the last study (chapter 4.2), we focused on specific domains of SWB, assessed by the PWI, in relation to psychopathology and alcohol and marihuana use.

5.1.1 Risk and protective factors for the use of alcohol in adolescents

Alcohol use and psychopathology

The results from our second study (chapter 3), with a sample of 315 school-going adolescents from 12 to 15 years old, show that the average age of first alcohol use among our sample is 12.8 years.

This result is in line with the findings by the Uruguayan national drug board (JND, 2014), demonstrating that adolescents start using alcohol at a very young age (12-13 years old), which warrants a national public health strategy regarding the use of this substance among adolescents from 12 to 17 years old (JND, 2014).

In line with previous research in Chile, Finland and South Africa (Mason-Jones & Cabieses, 2015; Miettunen et al., 2014; Saban et al., 2010), a significant relationship was found between adolescents' mental health and alcohol use. In this second study, last year prevalence of alcohol use appeared to be significantly associated with two psychopathological patterns: factor 2 (antisocial behaviour, substance use and negative emotions) and factor 8 (disruptive and dysregulated behaviour). Although our findings are based on a cross-sectional study and limited to alcohol use (not abuse), one recent longitudinal study indicates that externalizing and subsequent criminal behaviour are important predictors for future alcohol abuse among adolescents (Lian & Chikritzhs, 2015). We found that 13- to 15-year-old adolescents are at greater risk for alcohol consumption compared to 12 year old boys and girls. This result converges with findings from other studies in Australia, the US, South Africa, India, and China (Arpawong et al., 2015; Freitas-Rosa, Goncalves & Antunez, 2015; Olumide et al., 2014). These findings indicate the importance of prevention and early intervention with regard to alcohol use (e.g., ID controls, price increases, alcohol selling restrictions, advertisement bans, warning signs, higher taxation, school preventive workshops with adolescents raising awareness about risks).

Regarding the newly launched (September, 2017) alcohol legislation in Uruguay (about alcohol use and its commercialization), additional legal restrictions are welcome. However, it is not yet clear how the announced preventive strategies will be carried out and evaluated in practice. The new legislation includes some commercial and advertisement restrictions, but it is not yet determined how these will be controlled. Currently, alcohol is widely available in Uruguay and drinking alcohol is part of the culture. Adolescents can easily obtain alcohol and are not strictly controlled when purchasing alcohol beverages. Based on our and previous results regarding the impact of alcohol use on mental health and well-being of adolescents, strong and clear preventive strategies should be put in place, integrating a multidisciplinary perspective in different settings.

Protective factors for alcohol use

Considering the complex interplay between risk and protective factors, scientific literature shows that not all adolescents that are exposed to risk factors develop problematic behaviour or engage in risk behaviour such as substance use. It is important to highlight and identify some protective factors that may mitigate or reduce the presence of risk factors. In the second empirical study (chapter 3), we tried to identify possible protective factors for alcohol use in the last 12 months. Our findings demonstrated that a greater number of close friends appeared as a protective factor for past year alcohol use. Given the direction of this association, it is likely that it concerns close relationships with prosocial peers, which is in line with prior findings that positive peer influence and pro-social peer norms buffer against drinking intentions and alcohol use (Lee et al., 2015; Liu et al., 2014). In addition, the study by Birhanu and colleagues (2014) found that adolescents with good social skills were less likely to use alcohol. These findings emphasize the importance of a stable, broad and prosocial network and the development and maintenance of prosocial skills. In this sense, schools and youth organizations may play an important role in this.

5.1.2 Subjective well-being, psychopathology and substance use

Characteristics of subjective well-being of adolescents in Uruguay

In the third and fourth study, we intended to gain insight in the personal perspectives of adolescents regarding their subjective well-being. First, by assessing the global SWB and comparing our results with international norms. Second, by gathering specific information on the characteristics of SWB and its different domains within our sample. Additionally, our focus was on identifying significant predictors of SWB in our sample of adolescents in relation to psychopathology and substance use (alcohol and marijuana).

The International Well-being Group (2013) states that the normative range for SWB is situated between a minimum of 73.8 and a maximum of 90.4, based on international studies that used the PWI and showed the adequate levels of SWB. The range point of the PWI goes from 0 to 100, values below 50 indicates a extremely poor level of SWB. The total score of SWB in our sample of adolescents was 84.00 (SD= 4.16). This score falls within the stipulated normative range, indicating that, overall, school-going adolescents from our sample in Montevideo are relatively

satisfied with their lives. Adolescents were most satisfied with their 'community-connectedness', and least satisfied with their 'safety'. Adolescents' relatively high level of satisfaction with community-connectedness may be explained by the characteristics of the local environment (it's a small city near the capital where people tend to know each other), characteristics of the school (as a catholic school they have many extracurricular activities as well as close supervision and involvement with students). Their relatively low level of satisfaction with safety may be explained by the general context of the country: recently there is a major concern among the population of Uruguay regarding a rise of concerns about crime and insecurity (Aboal et al., 2015). Further studies are needed to explore further possible explanations and to confirm these findings.

The domain safety was most influenced by the selected variables of interest, while these variables had a rather limited impact on their health. These different domain scores support the importance of adopting a multidimensional approach, when studying individuals' SWB.

The impact of psychopathology on the SWB of adolescents

The development of the Adolescent Self-Report (ADA, chapter 2) for the screening of psychopathological symptoms and resilience, which is based on the construct of empirical taxonomies, resulted in the construction of a valid and reliable instrument, taking language and context characteristics into account. The main benefit of such a context-specific instrument is the avoidance of cultural bias, knowing that the instrument discriminates well. This instrument (last version) consists of 82 items and is scored using a 5-point Likert scale (0-4). Psychopathological symptoms refer to emotional and behavioural problems (e.g., "I feel sad and fed-up most of the time"). The instrument also includes some items referring to resilience (e.g., "Besides bad things happens, I always find a reason to smile"), also, positive development, including strengths, life planning, coping skills, and social desirability (e.g., "I have self-confidence").

Regarding the relationship between SWB and psychopathology, the multivariate regression model in chapter 4.1 indicated a significant association between five ADA psychopathology factors and SWB. Depression-anxiety, social anxiety and dissocial behaviour had a negative association with SWB. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) includes a new categorization for the Dissocial Disorder, highlighting the lack of

emotional control and social problems with others, social norms and authority. In adolescence, this disorder involves refusal and confrontation to norms and rules in a persistent way and restricted prosocial emotions (Molinuevo, 2014). The study by Molinuevo (2014) discussed the difficulty in reaching agreement about clear diagnostic criteria for dissocial disorders in adolescence, since youngsters are still growing and in development. In this sense, an approach based on taxonomies (like the ADA-instrument) takes into account the context and strengths of the adolescent and applies a dimensional perspective.

These syndromes interfere with healthy development and may generate lifelong disability (Williams & Jahn, 2016). For this reason, it is crucial to screen for psychopathology and well-being early in young people, despite their capacity to be resilient.

Also in line with prior studies (Casas et al., 2012), the factor 'resilience' showed a positive association with SWB, providing support for the idea that positive development is associated with higher levels of SWB during the developmental period of adolescence (Casas, 2011; Montserrat et al., 2015; Brann et al., 2017). Additionally based on our multidimensional study (4.2) we found that resilience is a robust predictor for SWB in all the dimensions. Resilience is understood as a dynamic adaptation process in a context of adversity (Luthar, Cicchetti & Becker, 2000). Given the factors that are identified as indicators of the presence of resilience characteristics in the ADA (Daset et al., 2015), we could distinguish four fundamental concepts: optimistic thinking ('I think that good things will happen to me'; 'when I have a problem, I think there is a solution'; 'I think I'm going to achieve what I dream'), the enjoyment / acceptance of the other ('I like to help others'; 'Being with other people makes me feel good'; 'when I'm wrong, it helps to talk with others about my problems'; 'I feel that people loves me'; 'When I have a problem, it helps to hear other points of view') positive self-referrals ('I have confidence in myself'; 'I am proud of the things I do') and perseverance ('When I have a problem, I do what I can to solve it, when I make a mistake, I am willing to acknowledge it'). These factors resemble the concept of Resilience developed by Wagnild and Young (1993) defined as the ability to adapt or "bounce back" following adversity and challenge and connote inner strength, competence, optimism, flexibility, and the ability to cope effectively when faced with adversity.

As presented in the introduction, different domains of SWB can become more or less important throughout life and satisfaction with particular domains can increase or decrease. For this reason, we tried to identify the predictors of SWB in relation to psychopathology for each life domain in our fourth study (chapter 4.2). When adopting a multidimensional exploration of SWB, the regression models indicated that distinct psychopathological factors were significantly associated with different domains of SWB. Our findings show that the ADA-factors depression-anxiety has a negative association with SWB in all domains. In line with prior studies (Huebner et al., 2004; Park, 2004), these results suggest that negative development (e.g., psychological problems) is associated with lower levels of SWB in teenagers. In line with prior work (Nitkowski et al., 2017), our results suggest to especially consider prevention and treatment of depression and anxiety in adolescents, in order to safeguard or improve their well-being. In this respect, early screening of psychopathology and depressive symptoms is a good way of detecting emerging depression in an early stage and allows making appropriate referrals to trained professionals. In addition, it could be useful to teach adolescents strategies on how to deal with anxiety and to help them to develop social skills in order to avoid social isolation.

Gender differences in the level of SWB

Another important finding from our third study (chapter 4.1) concerned gender differences. We found significant gender differences regarding the global level of SWB and the ADA factors 'depression-anxiety', 'dissocial behaviour' and 'social anxiety'. Bivariate analyses showed that – compared to girls – boys had significantly higher levels of SWB. This is in line with prior work (Brann et al., 2017; Garcia et al., 2017; González-Carrasco et al., 2017b), including the Latin American study by Castella and colleagues (2012) that indicated higher levels of SWB among boys than among girls in both Brazil and Argentina. A possible explanation for this finding is the strong connection between SWB and psychopathology, suggesting a higher prevalence of psychopathology in female adolescents (Belloch & Alvarez, 2002; Costelo, 2016; López-Soler et al., 1998). Another explanation proposed by González-Carrasco and colleagues (2017b) is that girls might be more susceptible to external aspects, which would affect the homeostatic system as outlined by Cummins (2010). Noteworthy, these gender differences did not appear in the multivariate regression model. However, a significant gender interaction effect was found.

Gender and resilience showed a significant positive interaction effect for girls. This goes in line with the study of Pritzker & Minter (2014) which found significant higher scores of resilience for girls in comparison to boys. The relationship between gender and SWB, including sociological and cultural aspects, should be further explored in future studies. Gender specific approaches to improve the SWB of adolescents would be advisable.

Age differences and the decline of SWB with age

Based on previous research findings (Brann et al., 2017; Castella et al., 2012), we wanted to know if there were any differences between the level of SWB between younger and older adolescents. Our results indicate that compared to older adolescents (15 to 18 years old), younger adolescents (12 to 14 years old) reported higher levels of SWB. This is in line with previous studies (Brann et al., 2017), showing a negative association between age and global levels of SWB in adolescents. This is also in agreement with prior work in other Latin American countries. For example, the study of Castella and colleagues (2012) compared the SWB of 12 to 16 year old adolescents from Brazil and Argentina. In both countries, the level of SWB decreased with age. A possible explanation for this finding is that older adolescents might face higher responsibilities and social pressure. Moreover, older adolescents face an important transitional stage as they are entering adulthood. Longitudinal studies are needed to confirm this trend.

How alcohol and marihuana use impact on SWB of adolescents

Substance use appeared to be a significant determinant of SWB. In our fourth empirical study (chapter 4.2), marihuana use had a significant negative association with SWB in the domains 'standard of living', 'health', and 'achievements'. For the other domains of SWB, there was no significant association with SWB. This result is in line with the longitudinal study of Arria and colleagues (2016), indicating that even occasional, non-problematic use of marihuana can have an impact on mental health and global SWB of young people. Alcohol use was negatively associated to SWB only in the domain of 'achievements'. The longitudinal study by Bogart and colleagues (2007) also found a detrimental effect of substance use (cigarettes, alcohol, marihuana and hard drugs) on adolescents' global SWB over time. The above-mentioned results of our study provide more detail regarding specific SWB-domains in a sample of adolescents. Regarding the

use of marihuana and alcohol, our findings suggest that preventive work is needed as the use of these substances (especially marihuana) affects adolescents' SWB. Similarly, the study by Van Ouytsel and colleagues (2017) found that Belgian adolescents that use alcohol and marihuana at a young age are more vulnerable or prone to engage in risk behavior such as dating violent partners and are more vulnerable to have a depression and low self-esteem.

In relation to the implementation of the progressive law regarding marihuana in Uruguay, it will be important to further explore the consequences of the legalisation on adolescent substance use and risk perception. A study by Palamar, Ompad and Petkova (2014) among US adolescents about their intentions regarding marihuana use (if marihuana would be legal) showed a significant increase in consumption intentions. In this study, students who already consumed marihuana (N = 3829) stated they would increase their consumption, while 10% of the group who never consumed (N = 6116) said they would consume marihuana if it would be legal. The study by Estoup and colleagues (2016) (N = 262) highlights the negative impact of the legalization of marihuana on the rise of problematic use and negative consequences for risk perception by adolescents. The study by Hopfer (2014) addressed some relevant implications of the legalization of marihuana use for adolescents, as this would result in greater availability, lower prices, and greater social acceptance of the use of this substance. This study also highlighted the negative effects of the consumption of marihuana on adolescent's academic performance and mental health (Hopfer, 2014). Since this new legislation only came into force recently, its impact needs to be monitored and it should be accompanied by adequate prevention and intervention strategies.

5.2 Study limitations and recommendations for future research

The four studies included in this dissertation have several strengths. However, we should also see our findings in the light of its limitations. In every study, we included the specific study limitations and – additionally – we proposed how future studies on these topics could be designed in order to advance further research in this area. Below, the general limitations of the four studies are addressed, integrating suggestions to be taken into account for future research.

A first limitation of this doctoral study refers to the generalization of the results. We collected data in private catholic schools. It is important to note that not all of the students and families that attend a catholic school in Uruguay are catholic. They choose the school for various reasons such as location and advantages over public schools (e.g., extracurricular activities, more days of classes, more stable appointment of teachers). The contextual characteristics of the schools and students might affect the generalization of the findings. We used convenience samples as the possibility to obtain a national sample would have required much more resources, in terms of time, costs, etc. Yet, for future studies, we are making arrangements to collect a large sample including private and public schools from other regions of the country. As we described in the section on the Uruguayan school context, pupils in private schools might differ from those attending public educational institutions. The main differences could be regarding the socioeconomic status and family background characteristics.

A second limitation of the study is its cross-sectional nature, which does not allow assuming causality or explain causal relationships. Although the sample size of the studies is quite large, greater samples would result in greater statistical power to confirm our results. Besides that, it would help to identify and gain more insights regarding group differences, such as age and gender differences. Future studies should be based on probabilistic sampling methods and include schools nationwide. Moreover, future research should adopt a longitudinal design, not only to confirm our results, but also to be able to address the direction of the association between specific SWB-domains and psychopathology, substance use and socio-demographic characteristics. A further advantage of a longitudinal approach is that it may provide insight in the development of these different concepts throughout the developmental period of adolescence (González-Carrasco et al., 2017a; Montserrat et al., 2015).

In our studies, we focused on school-going adolescents. Yet, it would be relevant for further research to include adolescents from other backgrounds, such as adolescents at risk who are not connected to the school system. Another aspect to be considered is that the information was obtained using self-report questionnaires. Although this way of collecting data is extensively used in research, future studies should also include information from significant others (i.e., teachers and parents). A multi-informant approach is likely to yield additional insights, as adolescents

themselves may not be aware of some risks or tend to minimize specific problems. Moreover, it would be helpful to include children under 12 in future studies, in order to observe whether any pattern of change in SWB can be observed in the transition from primary to secondary school (González-Carrasco et al., 2017a).

Another limitation of the study is related to the operationalization and measurement of the constructs. As mentioned in the description of each work package, we used two versions of the ADA. In the study on risk and protective factors for alcohol use (study 2), we used the original version of the ADA (118 items and 8 factors), and in the two last studies (study 3 and 4) we used the adapted version of the ADA (82 items and 6 factors). This doctoral project and the ADA-development have run over several years. Some of the work packages overlap in time as stated in the introduction. Chapter 2 describes the development and adaptation of the ADA, which was only finalized in 2015. In chapter 2 (first article) we describe the psychometric validation of the version of 118 items and the further reduction of the instrument to 98 items. In chapter 3, we used the version of 118 items as the reduced version of 82 items was not available at that time (October 2013). Only in chapter 4 (work package 3), we used the 82 item ADA-version, which was administered in May 2016.

As outlined before, the research group working on the ADA project at UCUDAL is currently preparing a large population-based probabilistic sample. The instruments we used had been applied before in different contexts and demonstrated good validity. The external validation study of the ADA is currently carried out, using other validated instruments that measure each of the specific ADA-factors (e.g., SDQ, Hamilton anxiety scale, Kutcher Kads depression scale, BDI, Y-Bocs). Moreover, besides the study of the external validity, a brief version of the ADA (24 items) is currently validated. Additionally, the ADA-version of 82 items was used in a sample of at risk adolescents and the brief version of 24 items has yet been administered among adolescents in one secondary school. Also, the ADA-manual has been adapted and updated, based on these recent developments.

Regarding the conceptualisation of QoL, it is recommended to include an assessment of objective components of QoL in future studies, in order to integrate objective and subjective elements of QoL and both traditions of QoL research. In relation to the PWI, we used a validated Spanish

version for the southern part of Latin America, which was also used in previous studies with very good validity and reliability. The research group at UCUDAL, in collaboration with the “Junta Nacional de Drogas” (JND), is currently working on the validation of the PWI for Uruguay, based on a national sample (N = 5189) of school-going adolescents from 12 to 18 years old. For further studies on SWB, we also recommend to use more comprehensive instruments and additional measures, in order to assess other important determinants of SWB as stated in the literature, such as personality traits (Paramo et al., 2012). Moreover for future studies we recommend to include further instruments to assess well-being such as the ‘Ryff Scales of Psychological Well-Being’. In this work we did not include it as it is a long instrument (84 items) and it has a cost per application and has not yet been tested in general samples of school going adolescents. Based on Ryff theory there is another instrument that measures well-being the ‘Psychological well-being scale for adolescents’ (BIEPS) (Casullo & Castro Solano, 2000). This instrument is validated for the Latin America region, and it is based in the theoretical framework of positive psychology.

Another limitation of the study is that we used a dichotomous approach to the construct of alcohol and marijuana use in the last two articles, in this sense we did not take into account frequency of alcohol use and marijuana, we added all the frequencies into one category. This was done because we had so many missing cases in these variables. Finally, a significant limitation refers to the changing marijuana legislation in Uruguay. This new policy implementation, although very recent and enacted after the finalization of study 3 and 4, should be considered when interpreting the results as it may have changed adolescents’ substance use prior to the enactment of the marijuana law. Moreover, the impact of the new legislation regarding alcohol has to be taken into account in future research.

5.3 Study implications

In every chapter, we addressed specific clinical and policy implications of all the separate studies. Here, we provide a global overview of these implications. We focus on implications of our findings in four main areas. First, academic implications of our results are discussed in relation to future research on this topic. Second, the contribution of our findings to public and (inter)national policies in relation to mental health, substance use and well-being in adolescents is addressed. Third, we discuss the results in the context of educational institutions and the educational system

in Uruguay. Finally, we address the value and implications of the findings for clinical practice. Although further research is needed to back up the findings discussed in the current dissertation, the available evidence presented here extends our knowledge about the relationship between SWB, psychopathology and substance use in adolescents in Uruguay.

Academic implications

Our studies contribute to the existing literature on this topic. To the best of our knowledge, this is the first study in Uruguay that relates SWB in adolescents to emerging psychopathological symptoms and alcohol and marijuana use. It also contributes to the limited available research on this topic in Latin America. Our study in Uruguay provides the opportunity to compare our findings with other findings about SWB in the near region (e.g., Brazil, Argentina, and Chile). Beyond the limitations stated previously, the studies included in this dissertation focus on the necessity to have evidence-based results in order to plan appropriate preventive interventions with adolescents, in order to support them to avoid risk behaviours and to choose for healthy ones. Also, the results suggest continuing research on specific variables that relate significantly to SWB, such as depression and anxiety and dissocial behaviour in adolescents and to consider gender and age differences when working on SWB. From the perspective of developmental psychopathology and in line with the strengths-based approach and pedagogical perspective that oriented this study, our results suggest to emphasize an integral approach in future research with adolescents and considering the interaction of risk and protective factors, highlighting capabilities over deficits. For assessing both aspects it is important to include in future studies measures that assess psychopathology, resilience and well-being in a combined way.

Our research group at UCUDAL already collected data on SWB of adolescents in a representative national sample (N = 5189), in collaboration with the National Drug Board in Uruguay (Junta Nacional de Drogas). The main objective of future research based on this database will be to build out the psychometric validation of the Personal Well-being Index (PWI) in Uruguay. The findings on the utility of this instrument obtained in this dissertation provide the basis for this future study. Another objective is to explore SWB in this national sample of school-going adolescents from 12 to 18 years (general population). Our interest is to assess age and gender differences regarding the global level of SWB. Based on the evidence provided in the present study, we would like to

see our results confirmed in relation to the moderating role of gender on SWB and regarding the finding that SWB declines in older adolescents. Repeated measures are needed to monitor the evolution of SWB throughout adolescence.

In addition, we plan to use this national database to conduct a study on SWB in adolescents, based on a multidimensional approach of QoL. In our fourth study, we already suggest some of the life domains that adolescents are either more satisfied or less satisfied with. We will not be able to replicate the study using the same instruments, as the Adolescent-Self Report (ADA) was not applied among this national database. However, in relation to alcohol and marijuana use, the National Drug Board in Uruguay is analysing substance use data regarding various dimensions of SWB. Our research group was already granted access to these data about substance use and SWB among school-going adolescents at national level.

An added strength of our study came from the doctoral mobility possibilities at Ghent University. Moreover, the development of a joint PhD contract between UCUDAL and Ghent University provided further opportunities for academic collaboration (e.g., joint supervision, exchange of master students). Both developments enabled the two departments to collaborate on common research projects and to exchange expertise. This exchange led to new insights and perspectives for future research on the topic of QoL and substance use.

Policy implications

Our studies provide also useful information on SWB and its determinants in adolescents that could be used by policy makers to plan and evaluate social programmes. The results suggest the need for prevention or early intervention of alcohol and marijuana use and early detection and screening of potential psychopathological problems in adolescence. Our results highlight the importance of strengthening protective factors (such as healthy relationships with peers and family, community-connectedness, SWB). Interventions should focus on specific periods of increased risk of starting alcohol use, such as among adolescents from 13 to 15 years old. Moreover, we recommend preventive interventions that start prior to periods of risk. We recommend using primary prevention when problems have not developed (yet). When emerging problems (e.g., psychopathological symptoms and substance use) are detected in an early stage,

secondary preventive interventions are recommended, to avoid that the emerging problems develop into severe disorders or impairments (Novoa & Recto, 2015). Enhancing SWB and QoL should further take into account the decline of SWB in older adolescents and its association with psychopathology and marijuana use in adolescents, especially regarding the dimensions 'achievements in life', 'health' and 'standard of living'.

Given the recent legalization of marijuana in Uruguay, detailed monitoring of adolescents' substance use is needed, as well as a specific focus of public health policies on the prevention of marijuana use in adolescents. It is unclear yet how this new legislation will impact on the prevalence of drug consumption and risk perception among adolescents. The study of Santos-Burgoa (2017) that highlights the need for more effective control of other legal substances, also stresses the need for a stronger legal framework for the regulation of marijuana use, in order to improve control and efficient prevention.

Educational implications

Our results could be particularly useful for those professionals that work with adolescents in educational institutions, youth centres, community centres, etc. The findings reflect the individual perspectives of adolescents regarding life domains that they feel more and less satisfied with. The school context is where students spend most of their daily time. Therefore, the close contact of teachers with adolescents includes the potential to address different issues that are important to enhance positive and healthy adolescent development (e.g., SWB, prevention of substance use, healthy relationships, etc.).

Given the significant relationship found between SWB and resilience, we recommend that the planning and developing of strategies to enhance resilience among adolescents in educational contexts (for example, by means of teaching adolescents problem solving skills and coping and social skills). In relation to alcohol use, the protective role of close and healthy peer relationships was observed. Therefore, it is important to promote strategies for healthy bonds between students in the school context. Also, it is relevant to provide evidence-based information to teachers and youth workers about the benefits of enhancing well-being and healthy development among adolescents.

In relation to the impact of substance use on SWB among adolescents, there is recent evidence regarding intervention programmes to prevent marihuana use among students in Uruguay and the US (Hatzler et al., 2017; Marsiglia et al., 2017). Both studies presented intervention programmes to be carried out in secondary schools.

Marsiglia and colleagues (2017) present a pilot study of the “Keep it REAL”-prevention programme that was adapted to the Uruguayan context. This programme involves risk assessment and teaching students’ life skills and decision making. The results point at a reduction in the frequency and amount of alcohol and marihuana use in the intervention group as compared to the control group. Despite the encouraging results of this study, further research about the implementation and effectiveness of this programme is needed. The sample of this study (Marsiglia et al., 2017) involved students from 12 to 13 years old and was recruited in only two schools from a vulnerable area in Montevideo. No older students were included in the study. Further issues refer to the possibility of extending the programme to the national level, appropriate training of teachers and adequate monitoring of the outcomes.

The second study from the United States concerned a clinical trial called “Teen marihuana check-up”, that was developed to be applied by trained staff in school contexts (Hatzler et al., 2017). The intervention protocol targets students from 14 to 19 years old and has the format of a brief individual therapy (Hatzler et al., 2017). Although the outcomes of this study suggested improvement of academic performance and school connection, its implementation raised some questions in terms of appropriate training, costs, and time for individual interventions with each student. In addition, it would be necessary to validate this program for the Uruguayan context and culture. It was beyond the scope of this doctoral study to assess and evaluate substance use prevention programs applied in Uruguay. This could be an interesting recommendation for future research.

Clinical implications

The concept of SWB is especially useful in clinical settings. Our findings provide insight in the subjective perspectives of adolescents about different domains of their lives and their future goals. Also, our findings provide useful information about the aspects that affect adolescents’

SWB in relation to mental health and substance use. The ADA appeared to be a reliable instrument for early screening potential and emerging psychopathological symptoms.

A way of preventing early and problematic alcohol and marijuana use in adolescents is to design specific school and community-based interventions that increase healthy peer relationships, assertiveness and social participation (Bogart et al., 2007). Our results offer detailed information regarding specific domains of SWB in adolescents that could be particularly useful for teachers, educators, youth workers and educational psychologists and help them to tailor interventions and programs to the developmental needs of adolescents. Such interventions could be for example, stimulating youngsters to build a stable and prosocial network of close friends and promote better communication and bonding between adolescents and families, as well as healthy social activities among adolescents (Jones & Magee, 2014; Tomczyk et al., 2015). Educational programmes that enhance academic performance and prosocial peer relationships have proven to be helpful to prevent adolescents' substance use/abuse (Andrade, 2014; Tomczyk et al., 2015; Wongtongkam et al., 2014).

Finally, the findings of the current study provide key resources to clinicians and health workers to develop preventive interventions for adolescents to enhance their SWB, reduce psychopathological symptoms and prevent risk behaviours, such as alcohol and marijuana use. Furthermore, our results could motivate clinicians working with adolescents to adopt an integrative perspective, not only focusing on and considering risks but also strengths and capabilities, as well as applying a comprehensive approach to QoL and SWB. This is the focus of multidisciplinary and integrative approaches used in the Special Needs Education tradition, which have a close link and application into practise (Vanderplasschen et al., 2017). Broekaert (in Vanderplasschen et al., 2017) defines the 'Theoretical Approach of Social Needs Educations' as an integrative inclusion of diverse theories and methodologies which leads to new perspectives and insights that are then applied with systematic appraisals and intervention planning, into research and into practise to improve educational practise mainly of vulnerable people (Vanderplasschen et al., 2017). *"The current era is characterised by a focus on evidence-based knowledge and practice. A fundamental question in this regard is how to define different types of knowledge and how these different strands could contribute to evidence-based practice. (...) The*

integrative scientific point of view searches for the integration of diverse types of interventions, as well as methodological approaches. It means that various treatment modalities, paradigms of care and research methodologies can alternatively go together". "The human prerogative" (Broekaert et al., 2010; quote in Vanderplasschen et al., 2017 p. 132).

My experience comes from the field of clinical psychology, where interventions with adolescents are difficult, because of the complexity and cross-referencing of many variables that are affecting their process of constructing their self, so it becomes necessary also consider including in future works the study of attachment types, parenting styles, as well as belief systems of the reference group, family and culture, among others. Based on the current study, we therefore suggest to complement a problem-oriented focus (i.e., striving to reduce symptoms of depression and anxiety), by applying a strength-based perspective (i.e., striving to enhance resilience) (Vandavelde et al., 2017).

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ENGLISH SUMMARY

Relevance and context of the study

Quality of Life, in particular Subjective well-being (SWB) is vastly relevant in adolescence, as during this period in life adolescents go through diverse developmental transitions and changes (Garcia et al., 2017). The theoretical framework of Developmental Psychopathology takes evolutionary aspects into account, considering normal and atypical behavior as dynamic and dimensional constructs. Moreover, a focus on healthy development and minimization of risk behaviours, such as substance use, is important. Based on the available evidence, SWB has emerged as a key factor for healthy and positive development among adolescents (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). Studies in Latin America about SWB in adolescents are still in an early stage. Especially in Uruguay, there are no previous studies that assessed SWB of adolescents in relation to psychopathology and substance use.

According to the World Health Organization (WHO, 2013), 20% of all children and adolescents have mental health problems, with half of its manifestations occurring before the age of 14 years. In Uruguay, studies on this subject have indicated a high prevalence of mental health problems in adolescence (22%) (Cajigas de Segredo et al., 2004; Daset, 2002; Daset et al., 2009; Viola, Garrido & Varela, 2007). The most common mental health problems among Uruguayan children and adolescents are: depression-anxiety, behavioral and social problems and attention problems (Daset et al., 2009; Viola, Garrido & Varela, 2007). In relation to substance use in Latin America, Uruguay is the country with the highest life time prevalence of alcohol consumption among 15- to 65-year-olds and the lowest risk perception (OEA, 2015; ONUDD, 2009). Over the past years, the age of onset for alcohol use has decreased and was accompanied by an increased incidence in binge drinking (JND, 2011; 2012). Marihuana is the third most frequently consumed substance among students in Uruguay after alcohol and energetic drinks, with a last year prevalence of 17% and lifetime prevalence of 20% (JND, 2014). Several studies have focused on the negative impact of early

and frequent alcohol use on adolescents' mental health, social situation and academic performance (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). Early onset of alcohol use has repeatedly been identified as a predictor for the development of future problematic substance use (Liang & Chikritzhs, 2015), as well as for other mental health problems. Previous studies observed the negative effect of the use of marijuana by adolescents on their school performance, mental health, cognitive performance, social behaviour and future problematic substance use (Butterworth, Slade & Degenhardt, 2014; Hopfer, 2014; Popovici et al., 2014; Tait, Mackinnon & Christensen, 2011). The longitudinal study by Bogart and colleagues (2007) demonstrated that the use of alcohol and marijuana had a lasting negative effect on SWB.

The developmental, biological, cognitive and social changes and challenges that adolescents face during adolescence influence their SWB (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). As mentioned before, substance use in adolescence is an important concern for public health, educators, health professionals, parents, etc. This is particularly the case in the specific and changing Uruguayan context for the prevalence of mental health problems in Uruguayan adolescents is high, and mental health problems are likely to impact the SWB of adolescents (Huebner et al., 2004). Despite abundant instruments that assess psychopathology among youth, studies are needed on the development of instruments that measure psychopathology and well-being and that are adapted to specific contexts and cultures. Consequently, this study seeks to contribute to filling this gap, but also by providing evidence-based outcomes for preventive strategies for adolescents at different levels (public policy, education, and clinical practice). Identifying the characteristics of SWB in adolescents on a global and multidimensional level and assessing the predictors of SWB in adolescents in relation to psychopathology and substance use may provide insights about potential areas that can be targeted by preventive strategies.

Aims

The overall objective of this doctoral dissertation is to further extend our knowledge about the relationship between SWB, psychopathological syndromes and substance use among school-going adolescents (boys and girls from 12 to 18 years old) in Uruguay. First, we aim to develop and validate a screening instrument to assess psychopathological syndromes and resilience in adolescents in Uruguay. Second, we seek to explore the prevalence and nature of alcohol use in relation to psychopathology and to assess other risk and protective factors. Third, we want to explore the self-perceived subjective global well-being of adolescents, as well as associated characteristics and determinants in relation to substance use and psychopathology. Finally, we want to explore the SWB of adolescents based on a multidimensional approach.

Methods

This thesis explores the relationship between SWB – in the frame of QoL – psychopathology and alcohol and marijuana use among school-going adolescents in Montevideo, Uruguay. The thesis includes four studies, with the first one focusing on the development and validation of a screening test for psychopathology and resilience of adolescents, the Adolescent Self-Report (ADA). In the first study, we have done two focus groups (N = 11 and N = 30) and collected data in six secondary schools in Montevideo, Uruguay (N = 362). The second study explores risk and protective factors of alcohol use of school-going adolescents in Montevideo. In the second study (N = 331), we applied the ADA to explore psychopathology and resilience, the socio-demographic survey, and the Alcohol survey (JND). The third study addresses the global well-being of adolescents in relation to substance use and psychopathology, exploring gender and age differences. In the last study, we explored specific domains of SWB in relation to substance use and psychopathology in a sample of school-going adolescents in Uruguay. In the last two studies (N = 325), we included the Cannabis screening test (CAST), in order to explore the use of marijuana and possible associated problems. We also used the PWI to explore the global perception of SWB and the different life dimensions among adolescents.

Results

The first study showed that the instrument that was developed (the Adolescent Self-Report, ADA) appeared to be a reliable and valid screening tool for psychopathology and protective factors based on our study sample. Oblique rotation using EFA (MPlus) for categorical indicators resulted in a six factor structure of narrowband syndromes: 'depression-anxiety'; 'dissocial with addictive behaviour'; 'dysregulation and disruptive behaviour'; 'social anxiety'; 'resilience-prosociality' and 'obsession-compulsion'. Two broadband syndromes are distinguished: one made up of psychopathological syndromes and the other being resilience-prosociality.

In the second study regarding alcohol use in the last year, dissocial behavior, substance use and negative emotionality (F2), disruptive and dysregulated behavior (F8), older age and recent death of a close relative were identified as risk factors, while the number of close friends was found to be a protective factor for past year alcohol use. No straightforward relationship was found between school setting and risk of past year alcohol use. Age, dissocial behavior, substance use and negative emotionality (F2) and disruptive and dysregulated behavior (F8), and recent death of a close relative appeared to be the most robust predictors.

Multivariate linear regression analyses, including psychopathology, substance use, age and gender, indicated five significant predictors of SWB: three psychopathology factors ('depression-anxiety', 'social anxiety' and 'dissocial behaviour'), and age displayed a negative association, while one psychopathology factor ('resilience') showed a positive association. When extending the multivariate linear regression analysis with interaction effects, significant interactions appeared regarding gender and resilience and age and substance use.

The results of the last study showed that adolescents were most satisfied with the domain 'community-connectedness' of the PWI, but least satisfied with the domain 'safety'. Results further indicated the existence of domain-specific determinants for the different domains of SWB. The domain 'safety' was most influenced by the selected variables of interest, while these variables had a limited impact on the experience of health.

Conclusion and recommendations

This is the first study in Uruguay that relates SWB in adolescents to psychopathology and substance use, thereby contributing to the scant research on this topic in Latin America. Our study focuses on the necessity to have evidence-based findings in order to plan appropriate preventive activities and interventions with adolescents. Our findings provide insight in the subjective perspectives of adolescents regarding different life domains and their future goals. Also, our findings provide useful information about the aspects that affect adolescents' SWB in relation to mental health and substance use. Furthermore, information is provided on the determinants of SWB in adolescents that could be used by policy makers to plan and evaluate social programmes. The results suggest the need for prevention and/or early intervention of alcohol and marihuana use and for early detection and screening of potential psychopathological problems in adolescence. Given the recent legalization of marihuana in Uruguay, detailed monitoring of adolescents' substance use is needed, as well as a specific focus of public health policies on the prevention of marihuana use in adolescents. It is unclear yet how the new legislation will impact on the prevalence of drug consumption and risk perception among adolescents, but in absence of adequate sensitizing efforts and targeted prevention substance use among adolescents is likely to increase.

Given the significant relationship that was found between SWB and resilience, we recommend the implementation of strategies to enhance resilience among adolescents in educational contexts (e.g., by means of teaching adolescents problem-solving skills and coping and social skills). Finally, the findings of the current study provide key resources to clinicians and health workers to develop preventive interventions for adolescents to enhance their SWB, reduce psychopathological symptoms and prevent risk behaviour, such alcohol and marihuana use.

Keywords: *adolescents; subjective well-being; psychopathology; alcohol use; marihuana use; empirical taxonomies; empirical syndromes; Uruguay*

Relevancia y contexto del estudio

La calidad de vida, en particular el bienestar psicológico subjetivo (BPS) es sumamente relevante en la adolescencia, ya que durante este período de la vida los adolescentes atraviesan diversas transiciones y cambios de desarrollo (García et al., 2017). El marco teórico de la psicopatología del Desarrollo toma en cuenta los aspectos evolutivos, considerando el comportamiento 'normal' y 'atípico' como constructos dinámicos y dimensionales. Además, es importante centrarse en el desarrollo saludable y la minimización de los comportamientos de riesgo, como el consumo de sustancias. Sobre la base de la evidencia disponible, BPS ha surgido como un factor clave para un desarrollo saludable y positivo entre los adolescentes (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). Los estudios en América Latina sobre BPS en adolescentes todavía se encuentran en una etapa temprana. Especialmente en Uruguay, no existen estudios previos que evalúen el BPS de los adolescentes en relación con la psicopatología y el consumo de sustancias.

Según la Organización Mundial de la Salud (OMS, 2013), el 20% de todos los niños y adolescentes tienen problemas de salud mental, y la mitad presenta manifestaciones que ocurren antes de los 14 años. En Uruguay, los estudios sobre este tema han indicado una alta prevalencia de problemas de salud mental en la adolescencia (22%) (Cajigas de Segredo et al., 2004; Daset, 2002; Daset et al., 2009; Viola Garrido & Varela, 2007). Los problemas de salud mental más comunes entre niños y adolescentes uruguayos son: depresión-ansiedad, problemas conductuales y sociales y problemas de atención (Daset et al., 2009; Viola, Garrido & Varela, 2007). En relación con el consumo de sustancias en América Latina, Uruguay es el país con la mayor prevalencia de consumo de alcohol entre los jóvenes de 15 a 65 años y con la menor percepción de riesgo (OEA, 2015; ONUDD, 2009). En los últimos años, la edad de inicio del consumo de alcohol ha disminuido y se acompañó de una mayor incidencia de episodios de consumo excesivo de alcohol (binge drinking) (JND, 2011, 2012). La marihuana es la sustancia consumida con mayor frecuencia entre los estudiantes en Uruguay, después del alcohol, con

una prevalencia del 17% en el último año y una prevalencia del 20% en la vida (JND, 2014). Varios estudios se han centrado en el impacto negativo del consumo temprano y frecuente de alcohol en la salud mental, los aspectos sociales y el rendimiento académico de los adolescentes (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). La aparición temprana del uso de alcohol se ha identificado en repetidas ocasiones como un predictor para el desarrollo de futuro consumo problemático de sustancias (Liang & Chikritzhs, 2015), así como para otros problemas de salud mental. Estudios previos observaron el efecto negativo del uso de la marihuana por parte de los adolescentes en el rendimiento escolar, la salud mental, el rendimiento cognitivo, el comportamiento social y el futuro consumo problemático de sustancias (Butterworth, Slade & Degenhardt, 2014; Hopfer, 2014; Popovici et al., 2014; Tait, Mackinnon & Christensen, 2011). El estudio longitudinal de Bogart y colegas (2007) demostró que el uso de alcohol y marihuana tuvo un efecto negativo duradero en el BPS.

Los cambios y desafíos evolutivos, biológicos, cognitivos y sociales que enfrentan los adolescentes influyen en su BPS (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). Como se mencionó anteriormente, el consumo de sustancias en la adolescencia es una preocupación importante para la salud pública, los educadores, los profesionales de la salud, los padres, etc., en particular en el contexto uruguayo específico y cambiante. Porque, la prevalencia de problemas de salud mental en adolescentes uruguayos es alta, y es probable que los problemas de salud mental tengan un impacto en el BPS de adolescentes (Huebner et al., 2004). A pesar de los abundantes instrumentos que evalúan la psicopatología entre los jóvenes, se necesitan estudios sobre el desarrollo de instrumentos que midan la psicopatología y el bienestar que se adapten a contextos y culturas específicas. En consecuencia, este estudio busca contribuir a llenar esta brecha en la investigación, pero también proporcionar resultados basados en evidencia para realizar estrategias preventivas para adolescentes en diferentes niveles (política pública, educación y práctica clínica). La identificación de las características del BPS en adolescentes en un nivel global y multidimensional y la evaluación de los predictores del BPS en adolescentes en relación con la psicopatología y el consumo de sustancias

puede proporcionar información sobre áreas potenciales que pueden ser focalizadas en estrategias preventivas.

El objetivo general de esta tesis doctoral es ampliar aún más nuestro conocimiento sobre la relación entre SWB, síndromes psicopatológicos y consumo de sustancias en adolescentes escolarizados (ambos sexos de 12 a 18 años) en Uruguay. Primero, nuestro objetivo es desarrollar y validar un instrumento de cribado para evaluar los síndromes psicopatológicos y resiliencia en adolescentes en Uruguay. En segundo lugar, buscamos explorar la prevalencia y la naturaleza del consumo de alcohol en relación con la psicopatología y evaluar otros factores de riesgo y protección. Tercero, queremos explorar el bienestar psicológico subjetivo auto-percibido de los adolescentes, así como las características asociadas y determinantes en relación con el consumo de sustancias y la psicopatología. Finalmente, queremos explorar el BPS de adolescentes en base a un enfoque multidimensional.

Métodos

Esta tesis explora la relación entre BPS -en el marco teórico de Calidad de vida-, en relación a la psicopatología y el consumo de alcohol y marihuana en adolescentes de Montevideo, Uruguay. La tesis incluye cuatro estudios, y el primero se centra en el desarrollo y la validación de una prueba de cribado de aspectos psicopatológicos y resiliencia para adolescentes, el Autoinforme Adolescente (ADA). En el primer estudio, hemos realizado dos grupos focales (N = 11 y N = 30) y recogido datos en seis escuelas secundarias en Montevideo, Uruguay (N = 362). El segundo estudio explora los factores de riesgo y protección del consumo de alcohol en adolescentes en Montevideo. En el segundo estudio (N = 331), aplicamos el Auto-Informe de Adolescentes (ADA) para explorar la psicopatología y la resiliencia, la encuesta sociodemográfica y la Encuesta de Alcohol (JND). El tercer estudio aborda el bienestar global de los adolescentes en relación con el consumo de sustancias y psicopatología, explorando las diferencias de género y edad. En el último estudio, exploramos los determinantes de los dominios específicos de BPS en relación con el consumo de sustancias y psicopatología en una muestra de adolescentes escolarizados de Montevideo. En los dos últimos estudios (N = 325), incluimos la prueba de detección de cannabis (CAST), para explorar el uso de marihuana y posibles

problemas asociados. También usamos el Índice de Bienestar Personal (PWI) para explorar la percepción global del BPS y sus diferentes dimensiones en adolescentes.

Resultados

El primer estudio mostró que el instrumento que se desarrolló (el Autoinforme de Adolescentes, ADA) es una herramienta de cribado confiable y válida para detectar psicopatología y resiliencia. La rotación oblicua usando EFA (MPlus) para los indicadores categóricos resultó en una estructura de seis factores de síndromes de banda estrecha: Depresión-ansiedad; Disocial con comportamiento adictivo; Disregulación y comportamiento disruptivo; Ansiedad social; Resiliencia-prosocialidad y Obsesión-compulsión. Se distinguen dos síndromes de banda ancha: uno compuesto por síndromes psicopatológicos y el otro el de resiliencia-prosocialidad.

En el segundo estudio sobre el consumo de alcohol en el último año, se identificaron como factores de riesgo: el comportamiento disocial, el consumo de sustancias y la emocionalidad negativa (F2), el comportamiento disruptivo y desregulado (F8), la edad avanzada y la muerte reciente de un pariente cercano, mientras que el número de amigos cercanos era un factor protector para el consumo de alcohol en el último año. No se encontró una relación directa entre las instituciones educativas y el riesgo de consumo de alcohol en el último año. La edad, el comportamiento disocial, el consumo de sustancias y la emocionalidad negativa (F2) y el comportamiento disruptivo y desregulado (F8) y la muerte reciente de un pariente cercano parecían ser los predictores más robustos.

Los análisis multivariados de regresión lineal, que incluyen psicopatología, uso de sustancias, edad y sexo, indicaron cinco predictores significativos de SWB: tres factores psicopatológicos (depresión-ansiedad, ansiedad social y comportamiento disocial) y la edad mostraron una asociación negativa, mientras que un factor psicopatológico (resiliencia) mostró una asociación positiva. Al extender el análisis de regresión lineal multivariante con efectos de interacción, aparecieron interacciones significativas con respecto al género y la resiliencia y la edad y el uso de sustancias.

Los resultados del último estudio mostraron que los adolescentes están más satisfechos con la "conectividad comunitaria" del dominio del PWI, pero menos satisfechos con la "seguridad". Los

resultados indicaron además la existencia de determinantes específicos de para los diferentes dominios de BPS. El dominio de 'seguridad' estuvo más influenciado por las variables de interés seleccionadas, mientras que estas variables tuvieron un impacto limitado en el dominio de salud.

Conclusión y Recomendaciones

Este es el primer estudio en Uruguay que relaciona el BPS en adolescentes con la psicopatología y el consumo de sustancias, contribuyendo así a la escasa investigación sobre este tema en América Latina. Nuestro estudio se centra en la necesidad de tener hallazgos basados en la evidencia para planificar actividades e intervenciones preventivas apropiadas con adolescentes. Nuestros resultados proporcionan información sobre las perspectivas subjetivas de los adolescentes con respecto a los diferentes dominios de la vida y sus objetivos futuros. Además, nuestros estudios brindan información útil sobre los aspectos que afectan el BPS de los adolescentes en relación a la salud mental y el consumo de sustancias. Además, se proporciona información sobre los determinantes de BPS en adolescentes que podrían ser utilizados para planificar y evaluar programas sociales por parte de los formuladores de políticas públicas. Los resultados sugieren la necesidad de prevención y/o intervención temprana del consumo de alcohol y marihuana y la detección precoz de posibles problemas psicopatológicos en la adolescencia. Dada la reciente legalización de la marihuana en Uruguay, se necesita un monitoreo detallado del consumo de esta sustancia en adolescentes, así como un enfoque específico de políticas de salud pública enfocadas a la prevención del consumo de marihuana en adolescentes. No está claro aún cómo la nueva legislación afectará la prevalencia del consumo y la percepción de riesgo en los adolescentes, pero en ausencia de esfuerzos de sensibilización adecuados y de prevención dirigida, el uso de sustancias entre adolescentes probablemente aumente.

Dada la relación significativa que se encontró entre el BPS y resiliencia, recomendamos la implementación de estrategias para fomentar la resiliencia entre los adolescentes en contextos educativos (por ejemplo, mediante la enseñanza de habilidades para resolver problemas, el afrontamiento y habilidades sociales). Finalmente, los hallazgos del presente estudio proporcionan recursos claves para trabajadores de la salud que permiten desarrollar intervenciones preventivas

para adolescentes para fomentar su BPS, reducir los síntomas psicopatológicos y prevenir comportamientos de riesgo, tales como el consumo de alcohol y marihuana.

Palabras claves: *adolescentes; bienestar psicológico subjetivo; psicopatología; consumo de alcohol; consumo de marihuana; taxonomías empíricas; síndromes empíricos; Uruguay*

NEDERLANDSTALIGE SAMENVATTING

Relevantie en context van de studie

Gezien adolescenten verschillende ontwikkelingsovergangen en veranderingen doormaken, is aandacht voor 'Quality of Life' (QoL) en meer specifiek 'subjectief welbevinden' (SWB) erg belangrijk tijdens deze levensperiode (Garcia et al., 2017). Het ontwikkelingspsychopathologisch theoretisch kader houdt rekening met evolutionaire aspecten en beschouwt 'normaal' en 'atypisch' gedrag hierbij als dynamische en dimensionale constructen. Vervolgens is het van belang om te focussen op gezonde ontwikkeling en op het minimaliseren van risicogedrag, zoals middelengebruik. Verschillende internationale studies indiceren SWB als kernaspect van gezonde en positieve ontwikkeling bij adolescenten (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). In Latijns-Amerika situeert onderzoek naar SWB bij adolescenten zich echter nog in een vrij pril stadium. In Uruguay in het bijzonder is er tot nog toe geen voorgaandelijk onderzoek gebeurd naar het SWB van adolescenten in relatie tot psychopathologie en middelengebruik. Volgens de Wereldgezondheidsorganisatie (WHO, 2013) hebben 20% van de kinderen en adolescenten geestelijke gezondheidsproblemen, waarbij deze problemen zich in de helft van de gevallen manifesteren vóór de leeftijd van 14 jaar. Studies over dit onderwerp tonen aan dat er ook in Uruguay een hoge prevalentie bestaat wat betreft geestelijke gezondheidsproblemen tijdens de adolescentie (22%) (Cajigas de Segredo et al., 2004; Daset, 2002; Daset et al., 2009; Viola, Garrido & Varela, 2007). Zo zijn de meest voorkomende geestelijke gezondheidsproblemen bij Uruguayaanse kinderen en adolescenten bijvoorbeeld angst-depressie, gedrags- en sociale problemen en aandachtsproblemen (Daset et al., 2009; Viola, Garrido & Varela, 2007). In relatie tot middelengebruik in Latijns-Amerika, is Uruguay enerzijds het land met de hoogste prevalentie wat betreft alcoholconsumptie bij 15- tot 65-jarigen ('ooit in het leven gebruikt') en kent het anderzijds de laagste risicoperceptie (OEA, 2015; ONUDD, 2009). De leeftijd waarop alcoholgebruik geïnitieerd wordt is de afgelopen jaren gedaald, gepaard gaande met een verhoogde incidentie van binge drinking (JND, 2011, 2012). Na alcohol en energiedrank is marihuana het derde meest gebruikte middel onder studenten in Uruguay, met een prevalentie van 17% voor 'gebruik in

het laatste jaar' en 20% voor 'gebruik ooit in het leven' (JND, 2014). Verschillende studies legden zich toe op de negatieve impact van vroegtijdig en frequent alcoholgebruik op de geestelijke gezondheid, sociale situatie en academische prestaties van adolescenten (Fergusson, Boden & Horwood, 2013; Hemphill et al., 2014; Liang & Chikritzhs, 2015). Vroegtijdig alcoholgebruik is hierbij herhaaldelijk geïdentificeerd als een voorspeller voor de transitie naar toekomstig problematisch middelengebruik (Liang & Chikritzhs, 2015) en andere geestelijke gezondheidsproblemen. Vorige studies toonden het negatieve effect aan van marihuana-gebruik op de cognitieve en schoolprestaties van adolescenten, hun geestelijke gezondheid, en toekomstig problematisch middelengebruik (Butterworth, Slade & Degenhardt, 2014; Hopfer, 2014; Popovici, et al., 2014; Tait, Mackinnon & Christensen, 2011). Volgens de longitudinale studie van Bogart en collega's (2007) heeft het gebruik van alcohol en marihuana een blijvend negatief effect op het SWB.

De ontwikkelings-, biologische, cognitieve en sociale processen en uitdagingen waarmee adolescenten geconfronteerd worden beïnvloeden aldus hun SWB (Brann et al., 2017; Casas, 2011; Montserrat et al., 2015). Zoals reeds eerder aangehaald stelt middelengebruik gedurende deze levensperiode volksgezondheid, onderwijs, gezondheidswerkers, ouders, etc. voor een grote uitdaging. Dit valt zich bij uitstek te situeren binnen de specifieke en veranderende Uruguayaanse context, waarin zich een hoge prevalentie van geestelijke gezondheidsproblemen onder adolescenten voordoet, wat op zijn beurt hoogstwaarschijnlijk een invloed uitoefent op het SWB. Ondanks de uitvoerige beschikbaarheid van instrumenten die psychopathologie bij jongeren kunnen vaststellen, is er nood aan onderzoek naar de ontwikkeling van context- en cultuursensitieve instrumenten die psychopathologie en welbevinden kunnen meten. Bijgevolg beoogt dit onderzoek enerzijds deze leemtes in te vullen, en anderzijds betracht het de toepassing van evidence-based resultaten met het oog op preventieve strategieën voor adolescenten binnen verschillende segmenten (beleid, onderwijs en klinische praktijk). Identificering van SWB-kenmerken bij adolescenten wereldwijd en op multidimensionaal niveau, en de beoordeling van SWB-predictoren in verhouding tot psychopathologie en middelengebruik bij adolescenten, kan inzicht geven in mogelijke gebieden waar preventieve strategieën op in kunnen zetten.

Doel

Het algemene doel van dit proefschrift is om onze kennis over de relatie tussen SWB, psychopathologische syndromen en middelengebruik onder schoolgaande adolescenten in Uruguay (jongens en meisjes van 12 tot 18 jaar oud) verder uit te breiden. Allereerst trachten we een screeningsinstrument te ontwikkelen en te valideren, gericht op het taxeren van psychopathologische syndromen en veerkracht bij jongeren in Uruguay. Ten tweede tracht deze studie de prevalentie en de aard van alcoholgebruik in relatie tot psychopathologie te onderzoeken alsook andere risico- en protectieve factoren te bepalen. Ten derde willen we het ervaren subjectief algemeen welbevinden van adolescenten onderzoeken, evenals geassocieerde kenmerken en determinanten in relatie tot middelengebruik en psychopathologie. Als laatste willen we het SWB van adolescenten onderzoeken, gebaseerd op een multidimensionele aanpak.

Methoden

Deze dissertatie onderzoekt de relatie tussen SWB – vanuit het QoL-kader –, psychopathologie en alcohol- en marihuana-gebruik onder schoolgaande adolescenten in Montevideo, Uruguay. De thesis omvat 4 studies, waarbij de eerste zich richt op de ontwikkeling en validatie van een screeningsinstrument voor psychopathologie en veerkracht bij adolescenten, de Adolescent Self-Report (ADA). In deze eerste studie zijn er twee focusgroepen doorgegaan (N = 11 en N = 30) en werd daarnaast aan dataverzameling gedaan in zes middelbare scholen in Montevideo, Uruguay (N = 362). De tweede studie onderzoekt de risico- en protectieve factoren van alcoholgebruik bij schoolgaande adolescenten in Montevideo. In deze studie (N = 331) hebben we de ADA afgenomen om psychopathologie en veerkracht te onderzoeken; vervolgens werden een socio-demografische survey en de Alcohol Survey (JND) afgenomen. De derde studie richt zich op het SWB van adolescenten in relatie tot middelengebruik en psychopathologie, met aandacht voor gender- en leeftijdsverschillen. In de laatste studie onderzoeken we specifieke domeinen van SWB in relatie tot middelengebruik en psychopathologie in een steekproef van schoolgaande adolescenten in Uruguay. In deze laatste twee studies (N = 325) includeerden we de Cannabis Screening Test (CAST), om het gebruik van marihuana en mogelijke gerelateerde problemen te onderzoeken. We gebruikten eveneens de Personal Well-

being Index (PWI) om de globale perceptie onder adolescenten op SWB en andere levensdimensies te onderzoeken.

Resultaten

De eerste studie laat zien dat, gebaseerd op onze steekproef, het ontwikkelde instrument (de ADA) een betrouwbaar en valide screeningstool is voor psychopathologie en protectieve factoren. Oblique rotatie bij een exploratieve factoranalyse (EFA) (MPlus) voor categorische indicatoren resulteerde in zes factoren van “smalle band”-syndromen: ‘angst-depressie’; ‘dissociaal met verslavingsgedrag’; ‘disregulatie en disruptief gedrag’; ‘sociale angst’; ‘veerkracht-prosociaal gedrag’; en ‘obsessief-compulsief gedrag’. Twee “brede band”-syndromen worden onderscheiden, waarvan de ene uit ‘psychopathologische syndromen’ bestaat en de andere uit ‘veerkracht-prosociaal gedrag’.

In de tweede studie met betrekking tot alcoholgebruik in het laatste jaar werden dissociaal gedrag, middelengebruik en negatieve emotionaliteit (F2), disruptief en disregulatief gedrag (F8), hogere leeftijd en recent overlijden van een dicht familielid geïdentificeerd als risicofactoren, terwijl het aantal dichte vrienden werd beschouwd als een protectieve factor. Er werd geen eenduidige relatie gevonden tussen schoolsetting en risico van alcoholgebruik in het laatste jaar. Leeftijd, dissociaal gedrag, middelengebruik en negatieve emotionaliteit (F2), disruptief en disregulatief gedrag (F8), en het recent overlijden van een dicht familielid blijken de meest krachtige voorspellers.

Multivariate regressieanalyse, waarbij psychopathologie, middelengebruik, leeftijd en gender zijn opgenomen, brengt vijf significante predictoren voor SWB naar voren: drie psychopathologische factoren (‘angst-depressie’, ‘sociale angst’ en ‘dissociaal gedrag’), en leeftijd zouden een negatieve associatie hebben met SWB, terwijl één psychopathologische factor (‘veerkracht’) een positieve associatie laat zien. Wanneer de multivariate lineaire regressieanalyse wordt uitgebreid met interactie-effecten, verschijnen significante interacties met betrekking tot gender en ‘veerkracht’, evenals met betrekking tot leeftijd en ‘middelengebruik’. Uit resultaten van de laatste studie blijkt dat adolescenten het meest tevreden waren met het domein ‘gemeenschapsverbondenheid’ van de PWI, en het minst tevreden met het domein ‘veiligheid’. Resultaten geven verder het bestaan van domein-

specifieke factoren aan voor de verschillende domeinen van SWB. Het domein 'veiligheid' werd het meest beïnvloed door de geselecteerde variabelen, terwijl deze variabelen slechts beperkte impact hadden op de ervaren gezondheid.

Conclusie en aanbevelingen

Dit is de eerste studie in Uruguay die SWB bij adolescenten in relatie brengt met psychopathologie en middelengebruik, welke hierdoor bijdraagt aan het schaars onderzoek over dit topic in Latijns-Amerika. Onze studie richt zich op de noodzaak van evidence-based resultaten op basis waarvan gepaste preventieve interventies en activiteiten met adolescenten kunnen worden opgezet. Onze bevindingen geven inzicht in de subjectieve perspectieven van adolescenten met betrekking tot verschillende levensdomeinen en hun toekomstdoelen. Verder bieden onze bevindingen bruikbare informatie over aspecten die invloed hebben op het SWB van adolescenten in relatie tot geestelijke gezondheid en middelengebruik. Daarnaast wordt informatie voorzien omtrent de bepalende factoren van SWB bij adolescenten, wat kan gebruikt worden door beleidsmakers voor het plannen en evalueren van sociale programma's. De resultaten suggereren de nood aan preventie en/of vroeginterventie bij alcohol- en marihuana-gebruik en vroegdetectie en screening van potentiële psychopathologische problemen bij adolescenten. Gezien de recente legalisering van marihuana in Uruguay, is zowel een uitvoerige monitoring van middelengebruik onder adolescenten, alsook een specifieke focus op preventie van marihuana-gebruik namens het volksgezondheidsbeleid, jegens adolescenten, noodzakelijk. Het is tot op heden onduidelijk op welke manier de nieuwe wetgeving een impact zal hebben op de prevalentie van druggebruik en risicoperceptie onder adolescenten, maar door de afwezigheid van adequate sensibiliserende acties en gerichte preventie is het plausibel dat het middelengebruik onder adolescenten zal toenemen.

Gezien de vastgestelde significante relatie tussen SWB en veerkracht, raden wij de implementatie van veerkrachtverhogende strategieën aan onder adolescenten in onderwijscontexten (bv. middels het aanleren van probleemoplossende vaardigheden en coping- en sociale vaardigheden). Tot slot reiken de bevindingen van voorliggende studie essentiële hulpbronnen voor klinici en gezondheidswerkers aan ter ontwikkeling van preventieve interventies voor adolescenten om het SWB te verhogen,

psychopathologische symptomen te verminderen en om risicogedrag zoals alcohol- en marihuana-gebruik te voorkomen.

Kernwoorden: *adolescenten; subjectief welbevinden; psychopathologie; alcoholgebruik; marihuana-gebruik; empirische taxonomieën; empirische syndromen; Uruguay*

APPENDIX 1. PEARSON CORRELATION ADA-FACTORS (CHAPTER 4.1)

Table A1. *Pearson Correlation ADA-factors*

	F1 Depr.- anxiety	F2 Dissocial behaviour	F3 Disrupted dysregulated	F4 Social anxiety	F5 Resilience	F6 OCD
F1 Depression-anxiety	1	0.721	0.081	0.754	-0.26	0.377
F2 Dissocial behaviour		1	0.162	0.904	-0.122	0.744
F3 Disrupted dysregulated			1	0.033	0.772	0.345
F4 Social anxiety				1	-0.234	0.413
F5 Resilience					1	0.175
F6 OCD						1

APPENDIX 2. INSTRUMENTS AND PROTOCOLS

APPENDIX 2.1. ENCUESTA SOCIODEMOGRAFICA Y AUTOINFORME DE ADOLESCENTES

A continuación encontrarás una serie de preguntas. En cada una deberás indicar la opción que corresponda y en otros casos escribir una palabra o frase, o colocar un número, según lo indique la pregunta. Es importante que respondas honestamente, ya que utilizaremos la información para ayudar a otros jóvenes como tú. Toda la información que obtenemos del cuestionario es confidencial.

1. Número que te han asignado:

2. Sexo:

Femenino

Masculino

3. Fecha de nacimiento:

4. Año que cursas:

5. País de nacimiento:

6. Departamento en el que vives:

7. Barrio en el que vives:

8.Cuál es la principal persona que sostiene económicamente el hogar:

Madre

Padre

Hermano/a

Tío/a

Otro (escribe quien)

9. ¿Cuál es el máximo nivel de estudios completó esa persona?

No tiene estudios

Escuela – primaria

Liceo –secundaria

Enseñanza técnica (UTU o similar)

Estudios terciarios (universidad, magisterio, profesorado)

Estudios de posgrado

10. ¿Qué atención médica recibe el principal sostenedor del hogar?

- Salud pública
- Mutualistas (Española, Médica Uruguaya, SMI...)
- Seguro médico privado (SUMMUM, Británico, MP)
- Hospital Militar/Policial

11. ¿Tienen empleada doméstico?

- No
- Si, por hora (viene algunos días)
- Si, por día (viene todos los días)
- Si, con cama (duerme en la casa)

12. Acerca de tu casa contesta las siguientes preguntas

- 12.1 ¿Hay auto en tu casa? Escribe la cantidad
- 12.2 ¿Hay TV en tu casa? Escribe la cantidad
- 12.3 ¿Hay heladera en tu casa? Escribe la cantidad
- 12.4 ¿Hay baño en tu casa? Escribe la cantidad

13. ¿En tu casa, cuántas personas reciben sueldo/pensión/jubilación?

14. Cantidad de personas que viven en tu casa incluido tu:

15. Marca con quienes vives en tu casa

Padre	Madre	Hermano/a
Abuelo/a	Tío/a	Madrastra
Padrastro	Tu pareja	Hijos

Otro (escribe quien)

16. ¿Cómo acostumbran a resolver los problemas familiares? Marca una opción

- Con poca dificultad (Ej. conversando, se apoyan entre sí, buscan ayuda)
- Con alguna dificultad. (Ej. Dejan de hablarse, se alejan)
- Con mucha dificultad (Ej., gritando, rompiendo cosas, con insultos)

Acerca de ti

17. ¿Tienes algún mejor amigo/a? ¿Cuántos?

18. En el último año, ¿cómo te fue en los estudios? Marca una opción

- Muy bien (nota 9-12)
- Bien (nota 6-8)

Regular (nota 1-5)

19. ¿Tienes novio o novia?

20. ¿Realizas actividad física fuera de clases?

21. ¿Participas en actividades religiosas? Marca una opción

Si (participo voluntariamente en actividades como: misa, catequesis, grupos asociativos, etc.)

No

22. ¿Qué sientes más a menudo? Puedes marcar más de una

Alegría	Vergüenza
Enojo	Sorpresa
Miedo	Tristeza

23. De lunes a viernes, ¿Cuántas horas duermes de noche? Marca una opción

Menos de 6 hs

Entre 6 y 8 hs

Entre 8 y 10 hs

Más de 10 hs

24. Acerca de tus hábitos, consumes... (marca una opción por fila!)

	Nunca	Algunas veces	Fines de semana	Siempre
Tabaco				
Alcohol				
Pasta base				
Marihuana				

25. ¿Cuántas horas al día dedicas a....? (marca una opción por fila!)

	nada	Menos de 4h	Entre 4 y 6 hs	Más de 6h
Televisión				
Redes sociales				
Video juegos				
Web de adultos				

26. ¿Para qué usas las redes sociales? Puedes marcar más de una

Comunicarme con amigos

Conocer gente diferente

Conseguir amigos

Conseguir novio/a

Salir con un chico/a

Hacer de cuenta que soy otra persona

Otros

27. En el último año, ¿Has pasado por alguna de estas situaciones? Puedes marcar más de una

Accidente con daño importante

Alguna enfermedad grave

Maltrato físico

Muerte de alguien cercano

Robo violento / Copamiento

Mudanza

Romper con tu novio/a

Divorcio de padres

Ninguna

APPENDIX 2.2: AUTOINFORME DE ADOLESCENTES (ADA)

A continuación te presentamos una lista de frases. Lee cada frase y responde en qué medida estás de acuerdo (Nada, Muy poco, Poco, Bastante o Mucho).

Es importante que sepas que no hay respuestas buenas o malas.

Tus respuestas contribuirán al bienestar de muchos jóvenes como tú.

¡Muchas gracias!

ADA	Nada	Poco	Muy poco	Bastante	Mucho
1. Lloro mucho más que otra gente de mi edad	0	1	2	3	4
2. Aunque otros piensen que soy delgado/a yo me veo gordo/a	0	1	2	3	4
3. Me siento demasiado culpable por cosas que hago	0	1	2	3	4
4. Mis compañeros me amenazan o me humillan por teléfono o internet	0	1	2	3	4
5. Me siento tan mal que quisiera hacerme daño	0	1	2	3	4
6. Pienso que voy a lograr lo que sueño	0	1	2	3	4
7. Mis compañeros/as me dejan de lado en todo	0	1	2	3	4
8. He robado cosas o dinero de mi casa	0	1	2	3	4
9. Tengo la idea de que los demás me quieren hacer daño	0	1	2	3	4
10. Siento vergüenza de mí mismo/a	0	1	2	3	4
11. Me obligo a vomitar después de comer	0	1	2	3	4
12. Tengo algunos movimientos que repito (tocarme el pelo, mover el pie, etc.)	0	1	2	3	4
13. He robado cosas fuera de mi casa	0	1	2	3	4
14. Tengo ataques de rabia que no logro controlar	0	1	2	3	4
15. Me encanta ser el centro de atención	0	1	2	3	4
16. Debo ser perfecto/a en todo lo que hago	0	1	2	3	4
17. Golpeo a otros/as a propósito	0	1	2	3	4
18. Hago sufrir a los animales si tengo ganas	0	1	2	3	4
19. Tengo la sensación de que otras personas me miran mal o hablan mal de mi	0	1	2	3	4

20. Cada vez necesito consumir más alcohol o drogas para sentir el mismo efecto	0	1	2	3	4
21. Pienso que soy torpe, incapaz o inferior a los/as demás	0	1	2	3	4
22. Siento que nadie me quiere	0	1	2	3	4
23. Estar con otras personas me hace sentir bien	0	1	2	3	4
24. Repito ciertas acciones (como tocar algo o lavarme las manos) porque eso me tranquiliza	0	1	2	3	4
25. Cuando cometo un error estoy dispuesto/a a reconocerlo	0	1	2	3	4
26. Cuando tengo un problema, pienso que hay una solución	0	1	2	3	4
27. Me lastimo el cuerpo a propósito (cortes, heridas, etc.)	0	1	2	3	4
28. Me siento orgulloso/a por las cosas que hago	0	1	2	3	4
29. He tenido ataques de pánico	0	1	2	3	4
30. Odio me aspecto	0	1	2	3	4
31. Hay ideas o imágenes que no puedo sacar de mi cabeza y no me gustan	0	1	2	3	4
32. Me siento muy solo/a	0	1	2	3	4
33. Me da miedo ir al liceo	0	1	2	3	4
34. Discuto más violentamente que la mayoría de los/as jóvenes de mi edad	0	1	2	3	4
35. Pienso que me van a pasar cosas buenas	0	1	2	3	4
36. Siento ganas de causar algún tipo de daño a otros	0	1	2	3	4
37. He prendido fuego cosas que no debía	0	1	2	3	4
38. Por momentos siento que me va a dar un ataque o me va a pasar algo malo	0	1	2	3	4
39. Siento que la gente me quiere	0	1	2	3	4
40. Se me hace difícil prestar atención por mucho tiempo y eso me trae problemas	0	1	2	3	4
41. Me gusta ayudar a los demás	0	1	2	3	4
42. Me siento triste e infeliz la mayor parte del tiempo	0	1	2	3	4
43. Amenazo a los demás	0	1	2	3	4
44. Tengo la idea de que algo en mi mente no anda bien	0	1	2	3	4
45. Me cuesta estar quieto/a en mi asiento por mucho tiempo	0	1	2	3	4
46. Tengo miedo de pensar o hacer algo malo	0	1	2	3	4

47. Tengo ganas de vomitar (sin que el médico encuentre la causa)	0	1	2	3	4
48. Me gustaría ser del otro sexo	0	1	2	3	4
49. Tengo confianza en mí mismo/a	0	1	2	3	4
50. Pienso en como quítame la vida	0	1	2	3	4
51. Por temor a que se burlen de mí, no me acerco mucho a la gente	0	1	2	3	4
52. Soy más miedoso/a que otros chicos/as de mí edad	0	1	2	3	4
53. Pienso que soy un fracaso	0	1	2	3	4
54. Recibo más insultos o bromas humillantes de las que puedo soportar	0	1	2	3	4
55. Tengo amigos que tienen problemas por el consumo de drogas	0	1	2	3	4
56. Tengo dolores de cabeza (sin causa aparente)	0	1	2	3	4
57. Destruyo las cosas de los demás	0	1	2	3	4
58. Si alguien se pelea conmigo, no le hago caso	0	1	2	3	4
59. La mayoría de mis problemas son por culpa de los demás	0	1	2	3	4
60. Cuando me enojo pierdo el control de lo que digo o hago	0	1	2	3	4
61. Cuando tengo un problema, hago todo lo que puedo para resolverlo	0	1	2	3	4
62. Cuando estoy entre mucha gente tengo miedo de que se burlen de mí	0	1	2	3	4
63. Cuando tengo un problema, me sirve escuchar otros puntos de vista	0	1	2	3	4
64. Me comporto como si fuera del sexo opuesto	0	1	2	3	4
65. Aunque pasen cosas difíciles, puedo encontrar un motivo para sonreír	0	1	2	3	4
66. Cuando estoy mal, me cuesta entender lo que me pasa	0	1	2	3	4
67. Si tengo ganas de romper algo, me cuesta controlarme	0	1	2	3	4
68. Para mí es difícil demostrar lo que siento	0	1	2	3	4
69. Siento miedo en espacios abiertos o en la calle	0	1	2	3	4
70. Cuando estoy mal, me ayuda estar con otros (amigos, familiares)	0	1	2	3	4
71. Tengo que revisar las cosas que hago, para comprobar que están bien (cerrar con llave, etc.)	0	1	2	3	4

72. Evito ciertas cosas, lugares o actividades que me dan miedo	0	1	2	3	4
73. Cuanto más me mandan a hacer algo, más voy a tardar en hacerlo	0	1	2	3	4
74. Me siento mejor, cuando hablo con otros de mis problemas	0	1	2	3	4
75. Si alguien me pega primero, empiezo a pegarle u no puedo parar	0	1	2	3	4
76. He deseado estar muerto	0	1	2	3	4
77. Cuando empiezo a insultar, no puedo parar	0	1	2	3	4
78. Tengo miedo a tener miedo	0	1	2	3	4
79. Me peleo a golpes más seguido que los demás	0	1	2	3	4
80. Pienso que necesito ayuda psicológica	0	1	2	3	4
81. Tengo miedo que en mi familia se contagien o enfermen	0	1	2	3	4
82. Antes de salir de casa tengo que revisar varias veces mis cosas	0	1	2	3	4

Consumo de bebidas alcohólicas

Marca la que corresponde o redondea.

1. ¿Ha consumido bebidas alcohólicas alguna vez en la vida?
Sí No (si contestaste No pasa a la pregunta 7)
2. ¿Cuándo fue la primera vez que consumiste bebidas alcohólicas?
Últimos 30 días
Hace más de 1 mes pero menos de 1 año
Hace más de 1 año
3. ¿Qué edad tenías cuando consumiste bebidas alcohólicas por primera vez?
(10-18)..... Años
No recuerda
No contesta
4. ¿Has consumido bebidas alcohólicas en los últimos 12 meses?
Sí No
5. ¿Cuáles fueron los principales motivos por los que probaste alcohol?
Curiosidad
Entorno/amigos
olvidarme de problemas
No se
Otros

6. **¿En los últimos 15 días, cuántas veces has consumido en una misma salida más de 2 litros de cerveza o/ más de 3/4 litros de vino/o más de 4 medidas de whisky o tragos combinados? N° de veces**

6 Opinión sobre riesgos

	¿Cuál crees que es el riesgo que corre una persona que... ?			
	Ningún riesgo	Riesgo leve	Riesgo moderado	Gran riesgo
A; Toma bebidas alcohólicas algunas veces	1	2	3	4
B; Toma bebidas alcohólicas frecuentemente	1	2	3	4
C; Se emborracha con bebidas alcohólicas	1	2	3	4
D; Prueba marihuana una o dos veces en la vida	1	2	3	4
E; Fuma marihuana algunas veces	1	2	3	4
F; Fuma marihuana frecuentemente	1	2	3	4

Consumo de Marihuana

Marca la que corresponde o redondea.

1. ¿Tienes amigos/as que consumen marihuana?
Sí No
2. ¿Ha consumido marihuana (porro) alguna vez en la vida?
Sí No (solo si marcaste SI, continúa con las preguntas)
3. ¿Cuándo fue la primera vez que consumiste marihuana?
Últimos 30 días
Hace más de 1 mes pero menos de 1 año
Hace más de 1 año
4. ¿Qué edad tenías cuando consumiste marihuana por primera vez?
____ Años
No recuerda
No contesta
5. ¿Has consumido marihuana en los últimos 12 meses?
Sí No

6.	¿Con qué frecuencia has usado marihuana en los últimos 12 meses?	
	Una sola vez	1
	Algunas veces durante los últimos 12 meses	2
	Algunas veces mensualmente	3
	Algunas veces semanalmente	4
	Diariamente	5

7. ¿Cuáles fueron los principales motivos por los que probaste marihuana?

Curiosidad
Entorno/amigos
olvidarme de problemas
No se
Otros

8.	Si en tu grupo de amigos más cercanos supieran que fumas marihuana, ¿tú crees que: (Marcá 1 sola opción)	
	Te criticarían o dirían algo para que no lo hicieras	1
	Algunos te criticarían y otros no	2
	No harían ningún crítica o no te dirían nada	3
	Te alentarían para que lo hicieras	4
	No sabes bien lo que harían o te dirían	5

APPENDIX 2.3: ESCALA CAST

Con que frecuencia te ha ocurrido algo de lo que se describe a continuación **en los últimos 12 meses**

PREGUNTA		Nunca	Rara-mente	De vez en cuando	Bastante a menudo	Muy a menudo
1	¿Has fumado marihuana antes del mediodía?					
2	¿Has fumado marihuana estando solo/a?					
3	¿Has tenido problemas de memoria al fumar marihuana?					
4	¿Te han dicho los amigos o miembros de tu familia que deberías reducir el consumo de marihuana?					
5	¿Has intentado reducir o dejar de consumir marihuana sin conseguirlo?					
6	¿Has tenido problemas debido a tu consumo de marihuana?					
	¿Cuáles? (disputa, pelea, accidente, mal resultado escolar, etc.)					

Hasta donde tú sabes o has visto, en los últimos 30 días, en tu casa consumieron		
<i>Marca una respuesta en cada fila</i>		
	SI	NO
A. Tabaco		
B. Alcohol		
C. Tranquilizantes		
D. Marihuana		
E. Otras drogas		

¿Han tenido tratamiento psiquiátrico alguna vez?

Padre SI / NO

Madre SI / NO

APPENDIX 2.4: INDICE DE BIENESTAR PSICOLOGICO (PWI)

A continuación encontrarás una serie de preguntas acerca de si estas contento o no.

0 significa que no te encuentras para nada satisfecho, y 10 significa que estas completamente satisfecho.

- ¿Qué tan satisfecho te encuentras con tu salud?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- ¿Qué tan satisfecho te encuentras con tu nivel de vida?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- ¿Qué tan satisfecho te encuentras con las cosas que has logrado en la vida?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- Cuán seguro/a te sientes?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- ¿Qué tan satisfecho te encuentras con los grupos de gente del cual formas parte?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- ¿Qué tan satisfecho te encuentras con tu seguridad de tu futuro?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

- ¿Qué tan satisfecho te encuentras con tus relaciones con las otras personas?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

APPENDIX 3. INFORMED CONSENTS AND APPROVAL OF THE STUDY BY THE ETHICAL COMMITTEE AT UCUDAL



Montevideo, 6 may 2015.

The Ethics Committee of the Faculty of Psychology is noted that the doctoral project by the student Maria Eugenia Fernandez on the topic: *Adolescent Substance: empirical relation syndromes, socio-demographic and protective factors*, was presented in August 2013, and the Committee considered that:

The project complies with ethical requirements requested for research with human beings, not involving risks to subjects participating.

That project is part of a research of the Faculty of Psychology, about Adolescence and Psychopathology, headed by Prof. Lilian Daset.

Based on these considerations, the Ethics Committee of Faculty of Psychology, approved the project presented by Ms. Maria Eugenia Fernandez in October 2013.

By the Ethics Committee of Faculty of Psychology

Dra. María del Luján González Tornaría.

CONSENTIMIENTO INFORMADO INSTITUCIONAL

Facultad de Psicología, Universidad Católica del Uruguay

Estimados Sres. del Colegio

Atte.: Señora

Director/a

Por la presente solicitamos su consentimiento para que vuestra institución participe en el estudio que se describe a continuación.

En el marco de la Línea de Investigación en Niñez y Adolescencia (LINA), de nuestra Facultad, se está llevando a cabo un estudio para la validación final de un instrumento para jóvenes de entre 11 y 18 años, ambos sexos, que permite obtener un perfil psicológico general del adolescente, tanto en sus aspectos más prosociales como en aquellos que impliquen alguna medida de disfuncionalidad o sufrimiento psíquico.

Dicho instrumento, Autoinforme de Adolescentes (ADA), es un cuestionario con 98 ítems preestablecidos, que el adolescente completará por sí mismo, respondiendo según su propio juicio, acerca de aspectos propios y de su entorno. El cuestionario es electrónico y responderlo completamente lleva un promedio de 60 minutos.

Antecedentes y descripción general del ADA

El desarrollo de este Autoinforme (ADA) se basa en los hallazgos de Achenbach y Edelbrock (1978) con el Youth Self-report, adaptado a España (Lemos, Fidalgo, Calvo & Menéndez, 1992) y a Uruguay (Daset, 1998).

El ADA consta de tres secciones: la primera sección recoge datos sociodemográficos de orden general, la segunda encuesta aspectos prosociales, fortalezas, estilos de afrontamiento, proyecto de vida y una última sección explora aspectos desadaptativos o que suponen, muchos de ellos, sufrimiento psíquico.

¿Qué pasará si la institución acepta participar en este trabajo?

Si decide participar, nuestros investigadores les administrarán el cuestionario ADA a los participantes. La aplicación del mismo será en forma grupal y tomara alrededor de 60 minutos en ser completada. Será a partir de los participantes de quienes se obtendrán los datos, la institución no será evaluada.

¿Qué material se utilizará en la investigación?

Se realizara utilizando una computadora, o ceibalita con conexión a internet.

A causa de la participación, ¿qué beneficios son posibles para la institución y para los participantes?

A los directivos de la institución se les brindará una devolución sobre lo relevado en la investigación, en un informe global de los perfiles globales por grupos de edad.

Si así lo desearan los participantes, al final de la investigación también podrán recibir una devolución grupal en la cual se destacarán aquellos aspectos más relevantes.

Este estudio es totalmente gratuito tanto para los participantes como para la institución.

No se brindara ningún tipo de compensación económica o de tipo alguno por participar, más allá de los beneficios implícitos que derivan del estudio.

¿Existen riesgos durante la participación en el trabajo?

La participación en este estudio no conlleva riesgo físico. Se han tomado los recaudos suficientes como para que las preguntas del cuestionario no generen ninguna reacción adversa, más allá de las de mayor o menor coincidencia o agrado. De todas formas, si algún participante tiene una reacción que le resulte molesta o anómala, puede acudir a los

investigadores responsables del grupo, quienes tomarán las acciones pertinentes, a la vez que pueden ser estos mismos investigadores los que detecten precozmente alguna anomalía y determinen intervenir.

En caso de no participar la institución en este estudio, ¿qué otras opciones están disponibles para la misma?

La participación es completamente voluntaria. Si la institución no participa, ello no le ocasionará perjuicio alguno.

¿A quién deberá contactar si tiene alguna pregunta?

Si usted tiene alguna pregunta sobre esta investigación puede contactarse con el equipo de investigación a cargo de la Prof. Dra. G5 Lilian R. Daset responsable de la línea de investigación.

¿Cómo serán protegidas la privacidad y la confidencialidad en los registros tanto de los voluntarios como de la institución?

La participación individual será confidencial, mientras que la institucional será anónima. En cuanto a la institución, la identidad no será revelada, únicamente se tomarán los datos generales sin especificar el nombre de la institución ni señas identificatorias de la misma (tales como dirección, teléfonos, colectividad a la que pertenece u otros datos).

En cuanto a los participantes, el interés está centrado en los resultados grupales y no en los individuales. Los datos personales o los resultados individuales no serán hechos públicos. La única excepción y por la cual toma el carácter de confidencial, refiere a casos puntuales donde el voluntario realiza una explícita mención a una acción perjudicial de vida para sí o para terceros. En ese caso será informado a los responsables de la Institución vía los profesionales de la misma o a quién la Institución considere pertinente.

¿Serán beneficiados los investigadores a causa de vuestra participación?

Los resultados obtenidos, en conjunto con otros estudios llevados a cabo por los investigadores responsables, podrán eventualmente resultar en la publicación de un artículo científico, donde se mantendrá la debida confidencialidad y cuidado de las personas e Institución.

Declaro haber sido informado de los objetivos y alcances de los estudios en los que participaré, así como de mis derechos a participar voluntariamente y retirarme en cualquier momento que lo desee.

Nombre:	
Firma:	Montevideo, ... de de 2016

Facultad de Psicología. Universidad Católica del Uruguay

Consentimiento Válido de los padres/tutores

Estimados padres o tutores

La Facultad de Psicología de la Universidad Católica del Uruguay realizando la validación un instrumento de evaluación para adolescentes denominado Autoinforme de Adolescentes (ADA). Por esta vía, solicitamos autorice para que su hijo/a participe en esta investigación respondiendo a las preguntas de los cuestionarios.

El trabajo solicita una autovaloración a partir de la autopercepción y para ello se le ofrece al adolescente un punto de comparación con sus pares. El instrumento se fundamenta en los hallazgos de Achenbach y Edelbrock (1978) con el Youth Self-report, adaptado a España (Lemos, Fidalgo, Calvo & Menéndez, 1992) y a Uruguay (Daset, 1998). El ADA consta de tres secciones: la primera sección recoge datos sociodemográficos de orden general, la segunda encuesta aspectos prosociales, fortalezas, estilos de afrontamiento y proyecto de vida; y una última sección explora aspectos desadaptativos o que suponen, muchos de ellos, sufrimiento psíquico.

En el marco de este trabajo, se administrarán los cuestionarios en una única vez y en forma grupal, en un tiempo estimado de 60 minutos, con un intervalo de descanso. La administración se realizará dentro del colegiodurante el horario curricular.

Con respecto a la posible inclusión de su hijo/a en esta investigación, hacemos constar que la no participación de la/el joven no acarreará ningún tipo de consecuencias negativas para él/ella. Al mismo tiempo es pertinente aclarar que los resultados individuales obtenidos y todos los datos personales serán mantenidos bajo estricta confidencialidad, a través de un sistema identificador de doble vía.

Acerca del producto de esta investigación, cabe mencionar que tanto los padres como la institución podrán acceder a resultados o perfiles generales, de tipo poblacional.

En caso de que usted autorice la participación de su hijo/a en esta investigación, le agradecemos que nos haga llegar el talón adjunto firmado.

Los saluda atentamente,

Equipo de Investigación en la Línea de Niñez y Adolescencia

Por favor complete el siguiente talón y marque según corresponda

AUTORIZO NO AUTORIZO

A QUE MI HIJO/A PARTICIPE DE LA INVESTIGACIÓN ADA

Fecha: Nombre del alumno:

Firma de padre, madre o tutor:

Aclaración de firma:.....

Por cualquier información adicional sobre la investigación comunicarse con la Mag. María Eugenia Fernández y/o Dra. G.5 Lilian. R. Daset (2487.2717 interno 337)



**Facultad de Psicología
Universidad Católica del Uruguay**

Consentimiento para Participantes de la Investigación con el Autoinforme de Adolescentes (ADA)

Yo,....., por voluntad propia, doy mi consentimiento a participar en este proceso de investigación psicológica, sabiendo que,

- Se me han explicado los fines del estudio y para ello debo responder a todos los cuestionarios que me serán provistos por los investigadores.
- Que tengo el derecho a suspender mi participación informando a los investigadores en cualquier momento del estudio, sin que ello implique ninguna consecuencia negativa para mi persona.
- Los datos del presente estudio científico serán solamente utilizados con fines de investigación, preservando la identidad de las personas involucradas, manteniendo en confidencialidad los datos personales y resultados individuales de los participantes.
- He comprendido la información suministrada y he podido formular preguntas.

Montevideo,..... de 2016

Firma del participante:.....

Aclaración de firma:

Quedando a vuestra grata disposición les saludamos cordialmente.

APPENDIX 4. DATA STORAGE MANAGEMENT

Data Storage Fact Sheet

Name/Data storage fact sheets/articles 1 and 2/Enhancing Quality of Life and Mental Health in Substance using Adolescents

Author: Maria Fernández

Date: 13/06/2017

1. Contact details

=====

1a. Main researcher

- name: Maria Fernández
- address: Universidad Católica del Uruguay Av. 8 de Octubre 2738 Montevideo, Uruguay
- e-mail: maria.fernandez@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Lilian Daset
- address: Universidad Católica del Uruguay Av. 8 de Octubre 2738 Montevideo, Uruguay
- e-mail: ldaset@ucu.edu.uy

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

=====

* Reference of the publication in which the datasets are reported:

- Daset, L.R., Fernández-Pintos, M.E., Costa-Ball, D., López-Soler, C., & Vanderplasschen, W. (2015). Desarrollo y Validación del autoinforme de adolescentes: ADA. *Ciencias Psicológicas* 9 (1), 85-104.

- Fernández, M.E., Daset, L., Vanderplasschen, W., Costa-Ball, D., Van Damme, L., & Vindevogel, S. (2017). Risk and protective factors for alcohol use among school-going adolescents in Montevideo (Uruguay). *Drugs and Alcohol Today*, 17(1), 12-22. doi 10.1108/DAT01-2016-0002

* Which datasets in that publication does this sheet apply to?

One data set is used in both studies, articles 1 and 2.

3. Information about the files that have been stored

=====

3a. Raw data

* Have the raw data been stored by the main researcher? YES / NO

If NO, please justify:

* On which platform are the raw data stored?

- researcher PC
- research group file server
- other (specify): paper questionnaires stored in a locked cuboard at the researcher's room at the department.

* Who has direct access to the raw data (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group
- all members of Ugent
- other (specify): ...

3b. Other files

* Which other files have been stored?

- file(s) describing the transition from raw data to reported results.
- file(s) containing processed data.
- file(s) containing analyses.
- files(s) containing information about informed consent

- a file specifying legal and ethical provisions
- file(s) that describe the content of the stored files and how this content should be interpreted.
- other files. Specify: ...

* On which platform are these other files stored?

- individual PC
- research group file server
- other: stored in a locked cabinet at the researcher's room at the department

* Who has direct access to these other files (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group
- all members of Ugent
- other (specify): ...

4. Reproduction

=====

* Have the results been reproduced independently?: YES / NO

* If yes, by whom (add if multiple):

- name:
- address:
- affiliation:
- e-mail:

Data Storage Fact Sheet

Name/Data storage fact sheets/article 3 and 4/Enhancing Quality of Life and Mental Health in Substance using Adolescents

Author: Maria Fernández

Date: 13/06/2017

1. Contact details

=====

1a. Main researcher

- name: María Fernández
- address: Universidad Católica del Uruguay Av. 8 de Octubre 2738 Montevideo, Uruguay
- e-mail: maria.fernandez@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Lilian Daset
- address: Universidad Católica del Uruguay Av. 8 de Octubre 2738 Montevideo, Uruguay
- e-mail: ldaset@ucu.edu.uy

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

=====

* Reference of the publication in which the datasets are reported:

- Fernández, M. E., Van Damme, L., Costa, D., De Pauw, S., Daset, L., & Vanderplasschen, W. (2017). The mediating role of age and gender differences in the relation between subjective well-being and psychopathology and substance use in Uruguayan adolescents. *Submitted to the Journal of Community Psychology*.
- Fernández, M. E., Van Damme, L., Daset, L., & Vanderplasschen, W. (2017). Domain-specific determinants of Subjective well-being among school-going adolescents in Uruguay. *Submitted to the Journal Child Indicators Research*.

* Which datasets in that publication does this sheet apply to?

One data set is used in article 3 and 4

3. Information about the files that have been stored

=====

3a. Raw data

* Have the raw data been stored by the main researcher? YES / NO

If NO, please justify:

* On which platform are the raw data stored?

- researcher PC
- research group file server
- other (specify):

* Who has direct access to the raw data (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group all members of Ugent
- other (specify): ...

3b. Other files

* Which other files have been stored?

- file(s) describing the transition from raw data to reported results. Specify: stored in researchers pc and research group file server
- file(s) containing processed data. Specify: stored in researchers pc and research group file server
- file(s) containing analyses. Specify: stored in researchers pc and research group file server
- files(s) containing information about informed consent: stored in a locked cupboard at the main responsible ZAP room
- a file specifying legal and ethical provisions
- file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...

- other files. Specify: ...

* On which platform are these other files stored?

- individual PC
- research group file server
- other: stored in a locked cupboard at the main responsible ZAP room

* Who has direct access to these other files (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group
- all members of Ugent
- other (specify): ...

4. Reproduction

=====

* Have the results been reproduced independently?: YES / NO

APPENDIX 5. LIST OF PUBLICATIONS

Article 1

Daset, L. R., Fernández-Pintos, M. E., Costa-Ball, D., López-Soler, C., & Vanderplasschen, W. (2015). Desarrollo y Validación del autoinforme de adolescentes: ADA. *Ciencias Psicológicas*, 9(1), 85-104.

Article 2

Fernández, M. E., Daset, L., Vanderplasschen, W., Costa-Ball, D., Van Damme, L., & Vindevogel, S. (2017). Risk and protective factors for alcohol use among school-going adolescents in Montevideo (Uruguay). *Drugs and Alcohol Today*, 17(1), 12-22. doi 10.1108/DAT01-2016-0002

Article 3

Fernández, M. E., Van Damme, L., Costa-Ball, D., Daset, L., & Vanderplasschen, W. (submitted, 2017). The mediating role of age and gender differences in the relation between subjective well-being and psychopathology and substance use in Uruguayan adolescents. *Journal of Community Psychology*.

Article 4

Fernández, M. E., Van Damme, L., Daset, L., & Vanderplasschen, W. (submitted, 2017). Domain specific determinants of subjective well-being among school-going adolescents in Uruguay. *Child Indicators Research*.