MINORS AT RISK: ADVERSE CHILDHOOD EXPERIENCES AND YOUTH OFFENDING

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Report presented by Aitana Gomis Pomares to apply for the degree of doctor by the Universitat Jaume I.

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The following thesis consists of a compendium of international publications. The articles are presented in the version authorised by the publisher, and they include the name and affiliation of all co-authors of the work, as well as the full reference of the publication. For this reason, there may be variations in the references depending on the format established by each specific journal.

This thesis has the acceptance of the co-authors of the publications that the doctoral candidate presents as a thesis and their express waiver to present them as part of another doctoral thesis.

Thesis by compendium of publications

- ψ Gomis-Pomares, A. & Villanueva, L. (2020). The effect of adverse childhood experiences on deviant and altruistic behavior during emerging adulthood. *Psicothema, 32*(1), 33-39. https://doi.org/10.7334/psicothema2019.142
- ψ Villanueva, L. & Gomis-Pomares, A. (2020). The cumulative and differential relation of adverse childhood experiences and substance use during emerging adulthood. *Child Psychiatry & Human Development, 52,* 420-429. https://doi.org/10.1007/s10578-020-01029-x.
- ψ Gomis-Pomares, A., Villanueva, L. & Prado-Gascó, V. (2021). Does it run in the family? Intergenerational transmission of household dysfunctions. *Child and Adolescent Social Work Journal*. https://doi.org/10.1007/s10560-021-00766-9.
- ψ Gomis-Pomares, A., Basto-Pereira, M. & Villanueva, L. (accepted). Psychometric properties of the Deviant Behavior Variety Scale in Spanish emerging adults. *Psicothema*.
- ψ Villanueva, L., Gomis-Pomares, A**.** & Adrián, J.E. (2019). Predictive validity of the YLS/CMI Inventory in a sample of Spanish youth offenders of Arab descent. *International Journal of Offender Therapy and Comparative Criminology*, *63*(10), 1914-1930. https://doi.org/10.1177/0306624X19834403.
- ψ Gomis-Pomares, A., Villanueva, L. & Adrián, J. E. (2021). The prediction of youth recidivism in a Spanish Roma population by the Youth Level of Service/Case Management Inventory (YLS/CMI). *International Journal of Offender Therapy and Comparative Criminology*. https://doi.org/10.1177/0306624X211022668.

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Abstract

Adverse Childhood Experiences (ACEs), broadly defined such as those experiences of abuse, neglect and household dysfunction, have been widely associated to unfavourable consequences throughout the life course. The sequelae of such experiences are clearly manifested during adulthood, with consequences as diverse as substance abuse, emotional distress, deviant behaviour or even premature death. One of the most extended outcomes of ACEs is related to juvenile justice involvement or persistence in crime, due to the large overlap of juvenile victims who subsequently become juvenile offenders. Therefore, the overarching aim of this thesis is to analyse how ACEs influences in the development of negative consequences during the emerging adulthood period.

With the first three studies that make up this thesis, an attempt has been made to respond to some aspects scarcely analysed in previous literature such as the consequences of the differential or the cumulative impact of multiple ACEs as well as the intergenerational transmission of these experiences. The results obtained here indicated that the experience of physical abuse increases the odds of antisocial behaviour, neglect predicts lack of altruism, and substance use at home increases the odds of a higher use of drugs in later development. In addition, having 4 or more ACEs was the major turning point in the probability of developing negative effects, especially deviant behaviour. Results also showed an intergenerational transmission of such experiences, perpetuating the cycle of violence generation after generation.

The fourth study, a validation of the *Deviant Behavior Variety Scale (DBVS)* which assesses different types of antisocial behaviour, serves as a transition from minor victims to minor offenders, emphasizing the importance of the applicability of the evaluation instruments depending on the assessed context. Confirmatory factor analyses as well as validity, reliability and consistency analyses demonstrated that the Spanish

version of DBVS presented good psychometric properties and therefore, it is a valid measure when assessing deviant behaviour in young Spanish.

The last two studies included in this thesis analyse the predictive validity of the *Youth Level of Service/Case Management Inventory (YLS/CMI)* to assess the risk of recidivism in ethnic minority groups such as the Arab minority and the Roma minority in Spain. Cultural differences were found in both cases (underclassification errors in the case of Arab minority and overclassification errors in the Roma minority) which suggest that predictive validity of the instrument is not as accurate in minority groups as it is in majority groups. In addition, these results also suggest that not only are risk factors taken into account in the assessment of ethnic minorities, but that there is also a disparate impact leading to differences in mean scores between racial groups. This violates the right of children to be equal before the law and emphasises the importance of routinely testing assessment tools for possible biases based on race or ethnicity.

Altogether, the results of these studies demonstrate that ACEs have a detrimental impact whose consequences are visible throughout life and may even be passed on from generation to generation. Therefore, the importance of early detection is crucial to mitigate the adverse effects that children may suffer. Trauma-informed care approaches that recognize the need for ACE screening practices may help all those agents involved with children (such as paediatricians, teachers or professionals in the juvenile justice system) to monitor, identify, and address the psychological and behavioural repercussions of ACEs.

Resumen

Las Experiencias Adversas en la Infancia (ACEs), comúnmente definidas como aquellas experiencias de abuso, negligencia y disfunciones en el hogar, se han asociado con consecuencias desfavorables a lo largo de la vida. Las secuelas de dichas experiencias se manifiestan claramente durante la edad adulta, con consecuencias tan diversas como el abuso de sustancias, el malestar emocional, el comportamiento antisocial o incluso la muerte prematura. Uno de los resultados más prevalentes, fruto de haber sufrido ACEs, está relacionado con la participación en el sistema de justicia juvenil o la persistencia delictiva, debido al gran solapamiento de menores víctimas que posteriormente se convierten en menores infractores. Así pues, el objetivo general de esta tesis es analizar la influencia que las ACEs tienen en el posterior desarrollo de consecuencias negativas, durante el período de la adultez emergente.

Los tres primeros estudios que componen la presente tesis han tratado de dar respuesta a algunos aspectos escasamente analizados en la literatura previa como son las consecuencias del impacto diferencial o acumulativo de múltiples ACEs, así como la transmisión intergeneracional de estas experiencias. Los resultados obtenidos indicaron que la experiencia de abuso físico predijo una mayor probabilidad de comportamiento antisocial, así como la negligencia la falta de altruismo, o el consumo de sustancias en el hogar, un mayor uso de drogas. Además, haber experimentado 4 ó más ACEs era el principal punto de inflexión en la probabilidad de desarrollar consecuencias negativas, especialmente conductas antisociales. Los resultados también evidenciaron una transmisión intergeneracional de dichas experiencias perpetuando así el ciclo de la violencia generación tras generación.

El cuarto estudio, la validación de la escala *Deviant Behavior Variety Scale (DBVS)* que evalúa diferentes tipos de conductas antisociales, sirve como transición entre los menores víctima y los menores infractores, destacando la importancia de la aplicabilidad de los instrumentos de evaluación en función del contexto evaluado. Los análisis factoriales confirmatorios, así como los análisis de validez, fiabilidad y consistencia, demostraron que la versión española del DBVS presenta buenas propiedades psicométricas y, por tanto, es una medida válida a la hora de evaluar la conducta antisocial en jóvenes españoles.

Los dos últimos estudios incluidos en esta tesis analizan la capacidad de predicción del *Youth Level of Service/Case Management Inventory (YLS/CMI)* para evaluar el riesgo de reincidencia en grupos étnicos minoritarios como la minoría árabe y la minoría gitana en España. En ambos casos se encontraron diferencias culturales (errores de subclasificación en el caso de la minoría árabe y errores de sobreclasificación en la minoría gitana) que sugieren que la validez predictiva del instrumento no es tan precisa en los grupos minoritarios como en los mayoritarios. Además, los resultados también sugieren que no sólo se tienen en cuenta los factores de riesgo en la evaluación de las minorías étnicas, sino que existe un impacto dispar que provoca diferencias en las puntuaciones medias entre los grupos raciales. Esto viola el derecho de los menores a la igualdad ante la ley y subraya la importancia de comprobar de forma rutinaria las herramientas de evaluación para detectar posibles sesgos basados en la raza o la etnia.

En conjunto, los resultados de estos estudios demuestran que las ACEs tienen un impacto perjudicial cuyas consecuencias son visibles a lo largo de la vida y pueden incluso transmitirse de generación en generación. Por lo tanto, la importancia de la detección temprana es crucial para mitigar los efectos adversos que pueden sufrir los menores. Los enfoques basados en la atención e información del trauma reconocen la

necesidad de llevar a cabo prácticas de detección de las ACEs que puedan ayudar a todos los agentes que intervienen con los niños (como los pediatras, los profesores o los profesionales del sistema de justicia juvenil) a supervisar, identificar y abordar las repercusiones psicológicas y conductuales de las ACEs.

CHAPTER 1

GENERAL INTRODUCTION

Minor Victims

This thesis will address different approaches on children at risk (minor victims and minor offenders) with the aim of helping to understand the different manifestations or consequences that entails.

Sometimes children who have had a long experience of victimisation become perpetrators (Berg & Schreck, 2022; Erdmann, 2021). It may even happen that for a period of time a child plays both roles, victim and perpetrator, almost simultaneously. In fact, some authors such as Finkelhor et al. (2005) coined the term "juvenile-victim justice system", which would include two subsystems: the criminal justice system and the child protection system. These systems are typically thought of as separate, but the reality is that there is a strong relationship between both. In other words, some of the minors who have been involved in juvenile justice system have previously undergone a protection system (Finkelhor et al., 2005).

In this line, some general features of children at risk will be discussed, such as the simultaneity of victim-offender roles or the risk factors that lead a child to move from being a victim to become an offender.

According to the World Health Organization (WHO, 2020), nearly 300 million children (aged from 2 to 4 years) regularly suffer physical punishment and/or psychological violence at the hands of parents and caregivers. The different experiences of maltreatment are nowadays known as Adverse Childhood Experiences (ACEs) and are defined as potentially traumatic events that occur in childhood (0-17 years). These adverse events include abuse (emotional, physical, sexual); neglect (emotional, physical); and growing up in households where domestic violence is witnessed, members abuse alcohol or drugs or have mental illnesses, there is relational stress (such as separation or

divorce), or members exhibit criminal behaviours (Centers for Disease Control and Prevention (CDC), 2021; Dube et al., 2003).

These early negative life experiences seem to contribute to the impairment of different developmental milestones in children and adolescents, such as emotional, social or cognitive processes (Felitti et al., 1998). Since the wide range of adverse outcomes negatively affect the people who suffer from negative life experiences, it is estimated that they represent a high cost for healthcare systems, social services, or mental health systems (Loxton et al., 2019). In this line, some authors have argued that a 10% reduction in the prevalence of adverse childhood experiences could equate to annual savings of $105 billion in Europe and North America (Bellis et al., 2019).

Globally, it is estimated that up to 1 billion children aged 2–17 years (a minimum of 64% children in Asia, 56% in Northern America, 50% in Africa, 34% in Latin America, and 12% in Europe), have experienced physical, sexual, or emotional violence or neglect in the past year (Hillis et al., 2016). In this line, authors such as Basto-Pereira et al. (2022) found that, in 10 different countries (Portugal, Spain, France, Mozambique, South Africa, Brazil, Iraq, Palestine, Thailand, and Australia) across five continents (Europe, Africa, South America, Asia, and Australia), young people aged 18-20 years reported an average of 1.15 adverse experiences in the best-case scenario (Iraq) and 3.92 in the worst-case scenario (South Africa). This means that, at least 1 to 3 adverse experiences were experienced on average among the 4,182 participants.

Other worldwide studies as the one carried out by Kessler et al. (2010) also revealed a high prevalence of ACEs among 51,945 adults from 21 different countries. In this case, 38.8% of the sample experienced at least one ACE before the age of 18. The most prevalent type of ACE reported was parental death (12.5%), succeeded by physical

abuse (8.0%), parental divorce (6.6%) and family violence (6.5%). With regard to the specific types of maltreatment, the World Health Organization (2020) detected that abuse and neglect were the most harmful types of adversities and yet they are very prevalent among the population worldwide.

Therefore, it is evident that maltreatment is a prevailing phenomenon affecting millions of children around the world and which entails a high economic cost for healthcare systems accompanied by consequences that can be dire for the people who suffer from them.

On this respect, studies show that adverse experiences tend to be frequent and co-occurring. About 67% of the population suffered from at least one before the age of 18, and over 10% experienced 5 or more (Bellis et al., 2014; Felitti et al.,1998). Similar results were found in a study conducted by Pereda et al. (2014) where 83% of adolescents reported at least one type of victimization in their lives, while 20% were considered polyvictims (7 or more different forms of victimization). In that sense, other authors also found that ACEs were highly interrelated (Kessler et al., 2010). In other words, one child experiencing one type of adversity (e.g., physical or emotional abuse) has a substantially higher likelihood of experiencing other severe forms of adversity during childhood (e.g., witnessing domestic violence).

A substantial number of studies (Dube et al., 2001, 2003; Felitti et al., 1998) have also highlighted the negative effects of exposure to severe adversity during childhood on multiple long-term outcomes. According to Felitti et al., (1998) framework, persons exposed to ACEs may suffer from social, emotional, and cognitive handicaps (for example, insecure attachment or different emotional biases). Besides this, to cope with the discomfort caused by ACEs, they use maladaptive strategies (in a consciously or

unconsciously way), such as drug or alcohol use. These strategies, which in the short term manage to reduce the anxiety or stress generated, end up becoming chronic over time as they produce a regulation of mood. Decades later, this "solution" ends up provoking serious health problems as it could be, for example, the development of liver cirrhosis due to excessive alcohol consumption.

In addition, they indicated that the number of cases that are observed and attended to by professionals is only what is considered the "tip of the iceberg", since there is an infinite number of underlying and hidden cases of abuse that are never reported and therefore, never come to light (Stoltenborgh et al., 2015). Thus, preventing ACEs could potentially reduce a large number of health conditions that many researchers have associated with them such as alcoholism (Dube et al., 2001), drug abuse, depression (Chapman et al., 2004; Gomis-Pomares & Villanueva, 2020), deviant behaviour (Braga et al., 2017) or even premature death (Brown et al., 2009).

From Victim to Offender

As aforementioned, numerous studies have provided important insights in relation to the impact of child maltreatment on multiple outcomes (Braga et al., 2017; Carr et al., 2020; Fitton et al., 2020), and, in turn, it has been demonstrated that these outcomes can behave as risk factors for juvenile antisocial behaviour and systemic obstacles to desist from crime during adulthood (Basto-Pereira & Maia, 2018).

Based on research evidence, different authors (see Palacios et al., 1998) seem to agree that around 30-40% of maltreated children are likely to reproduce violent patterns of behaviour other used with them. In this line, studies show a high correlation between being abused during childhood and committing future criminal acts, showing that 1 in 4 reform minors has gone through protection before (Carrasco et al., 2014). In this line,

prior research on ACEs and traumatic experiences have revealed higher prevalence rates of adversity for juvenile justice-involved youth compared to the general population (Dierkhising et al., 2013). In addition, in the field of criminology, it is known that among offenders, experiencing childhood physical abuse and other forms of maltreatment lead to higher rates of reoffending, substance abuse or deviant behaviours (Baglivio et al., 2014; Gomis-Pomares & Villanueva, 2021). Other studies have also noticed that adverse experiences during childhood may lead to the development of risk factors for reoffending. Indeed, the moderate correlations that have been found between ACEs and adolescents' scores suggested that adolescents' reoffense risks were linked to ACEs (Muir & Viljoen, 2022).

Apart from that, studies have found an additive effect between ACEs exposure and levels of transgressive acts (Braga et al., 2017). The risk of violent offending and self-harm was found to increase 35% to 144% with each additional ACE reported (Arata et al., 2007; Duke et al., 2010). Around 30% of the abused and neglected children were arrested during their adolescence and had an increased delinquency rate of 10% compared to their non-maltreated controls (Widom & Maxfield, 2001). Nonetheless, some differences can emerge depending on maltreatments' subtypes. For example, physical and sexual abuses are more strongly associated with aggressive behaviours whereas negligence seems to be more strongly related to general antisocial acts (Braga et al., 2017). In fact, physically abused children have more externalizing problems during childhood compared to neglected children, including increased noncompliance and aggression towards adults and other children (Hildyard & Wolfe, 2002; Hoffman-Plotkin & Twentyman, 1984).

In this connection, according to learning mechanisms such as modelling and differential reinforcement, criminal behaviour is learned and maintained by observing

criminal behaviours and the social consequences attached to those behaviours (Akers, 2009, 2017; Felson & Lane, 2009). This means that children who have suffered from physical and aggressive maltreatment copy this pattern of behaviour and replicate it when they grow up. Indeed, learning and consequently the acquisition of antisocial behaviour has a higher probability of occurrence during early developmental stages (i.e., infancy and adolescence) and even more so if the transgressive behaviours are carried out by close relatives (Felson & Lane, 2009). This process of replication of the violence suffered is also known as the "circle of violence" and authors such as Widom (1989) found that exposure to neglect or abuse increased the likelihood of future arrest by 53% in young people and by 38% in adults. A meta-analysis in this field have also demonstrated that the experience of physical, sexual, and emotional abuse and neglect substantially increased the odds of juveniles perpetrating aggressive antisocial acts (Braga et al., 2017).

For this reason, the detection of risk factors associated with deviant behaviour and delinquency (including adverse experiences in childhood) is crucial to understand the specific elements or circumstances that may propel a juvenile into a criminal career, or in other words, what makes him vulnerable to further offending.

Minor Offenders

Juvenile offending is one of the most pressing issues a society must face and solve as it leads to social problems with detrimental emotional, physical, and economic effects felt throughout the communities in which it occurs (Tarolla et al., 2002). Additionally, juvenile offenders consume a large proportion of child welfare, juvenile justice, special education, and mental health resources. Chronic and violent juvenile offending has been related to adverse health, educational, vocational, and interpersonal consequences, with repercussions seen into adulthood as they are often, the first step in a criminal career (Basto-Pereira et al., 2015; Farrington, 2003; Mulder et al., 2011; Trulson et al., 2005).

As reported by the Spanish National Statistics Institute (INE, 2021), in 2020, about 11,238 minors (between 14 and 17 years old) were convicted of committing crimes. By age, the 17-year age group was the largest (30.7% of the total number of convicts), followed by the 16-year age group (28.9%). In keeping with this, previous investigations demonstrated that, when age is related to delinquency, lower scores are observed during preadolescence and early adolescence, showing higher scores at 16-17 years of age that increase even more at 18 years of age (Farrington, 1986; Sanabria & Uribe, 2009; Stolzenberg & D'Alessio, 2008). Once past this point, behaviour normalizes and at the end of adolescence, around the age of 18, delinquent behaviours generally begin to decline (Fernández et al., 2009).

According with this, in general, most criminal careers tend to be abandoned naturally, while minors who persist tend to be fewer in number, with early onset of maladaptive behaviour and more serious offending (Howell, 2003; Moffitt, 2003, 2006). Considering this, pursuant to the *Dual Taxonomy Theory* (Moffitt, 1993) there are two typologies of juvenile offending: one in which the offending trajectory is limited to adolescence, and another persistent throughout the individual's life. The first trajectory begins in early adolescence, peaking in mid-adolescence and ending in early adulthood. This would represent a standard in their development as a statement of their autonomy and a test of their limits (Cuervo & Villanueva, 2013). However, most of them abandon this trajectory when they become adults, in a natural desistance process. On the other hand, life-course persistent trajectory comprises antisocial behaviour onsets early in life and who become life-long offenders (Moffitt & Caspi, 2001).

One of the most well-known and widely used theoretical frameworks for youth offending is the *General Psychological, Social and Personality Model of Criminal Behavior* (Andrews & Bonta, 1998; 2003). It states that criminal activity of young people

is a complex network of personal and environmental variables. In turn, it derives from social learning theory, which assumes that behaviour is learned through the interaction of the individual with the environment. That is to say, offending is multidetermined by the reciprocal and dynamic interplay of individual characteristics and key social systems of these youths as can be their families, peer groups, schools, or communities (Andrews & Bonta, 2003; Moffitt, 2006).

In this complex network of personal and environmental variables, there is a wide range of risk factors that boost the odds of recidivism. These are antisocial attitudes, antisocial friendships, antisocial personality pattern, and a history of previous offenses. They are known as the "*Big Four*" (Andrews, Bonta, & Wormith, 2006). Next, other four factors present a moderate predictive power for recidivism. These are deficient family circumstances, education and employment, substance abuse, and leisure and free time. All eight factors are so-called "*Central Eight*" (Andrews & Bonta, 2010).

Actually, one of the most frequently used risk assessment instruments in minors which includes the "Central Eight" factors is the *Youth Level of Service/Case Management Inventory (YLS/CMI),* by Andrews and Bonta (1995). This inventory evaluates the risk of recidivism according to 42 items resulting in an overall risk score ranging from low to very high probability of recidivism. In turn, this inventory also includes factors that may decrease likelihood of recidivism, known as strength factors.

Assessing risk for recidivism and identifying criminogenic needs, is of vital importance for decision making such as informing sentencing decisions, specifying intensity of treatment, identifying potential treatment targets, or promoting public safety (Andrews & Bonta, 2010). Current assessment instruments are designed in accordance with the *Risk-Needs-Responsivity (RNR)* model (Andrews & Bonta, 2010), and the

YLS/CMI is included among them. The *risk principle* posits that interventions should match the likelihood of reoffending. That means when the risk of recidivism is low (low level of risk factors), measures should be imposed commensurate with that risk, therefore complex interventions may be unreasonable. On the other hand, for high-risk offenders' intensive interventions are likely necessary to induce any kind of change. *Need principle* states that every offender has different dynamic risk factors or criminogenic needs and when they are modified, the probability or reoffending also changes. Thus, interventions should focus on these dynamic factors for best results. *Responsivity principle* highlights those different ways of intervention can differ in their effectiveness reducing recidivism. This is why cognitive and behavioural treatment and tailoring interventions are preferred to maximize offenders' ability to learn from a rehabilitative intervention.

Thus, the use of validated offender risk assessment measures to manage juveniles' risk of reoffending is a critical component of any offender rehabilitation practice such as they provide an opportunity to establish penal sanctions based on evidence-informed risk reduction strategies (Chu et al., 2015). Hence, empirically reliable, valid, and culturally sensitive risk assessment measures that systemically assess the risk and needs of offenders are essential to avoid youth offenders and recidivism.

Empirical support for the usage of the YLS/CMI measures have been reported in studies conducted in different countries such as Canada (Schmidt et al., 2011), United Kingdom (Marshal et al., 2006) or Japan (Takahashi et al., 2013). Nonetheless, there are also some critical studies about the general application of risk assessment instruments to different races or cultures (Martel et al., 2011; Wilson & Gutierrez, 2014). For instance, some studies showed an overrepresentation of non-native youths or youths belonging to minority groups in the recidivism group compared to the native youths (Campbell et al., 2018; Piquero et al., 2015). That is to say, there may be a decrease in true predictive

validity of the ratings for a risk assessment measure as “it transverses national, hence legal, boundaries” (Andrews et al., 2011, p. 426).

In addition, the accuracy of youth risk assessment tools in ethnic minorities remains in short supply (Schmidt et al., 2020; Threadcraft-Walker et al., 2018). Given that most risk assessment instruments have been validated in dominant white and male majority groups, the question about their ability to predict accurately for minority groups emerges (Olver et al., 2009; Rembert et al., 2014; Wormith & Bonta, 2018). In fact, several authors even defend that by now, it is not possible to explain cross-cultural differences in risk tools. Thereby, these instruments should be used with carefulness in minority groups, otherwise, this issue may jeopardize the constitutional rights of people being evaluated (Schmidt et al., 2020).

Rationale of the study

The experience of coping with adverse experiences in early ages (childhood and adolescence), such as neglect, emotional and sexual abuse, household domestic violence, and so on, has consistently been linked to a wide range of negative outcomes (Felitti & Anda, 2010). These include antisocial behaviour or drug use, which can have dire detrimental long-term consequences, such as juvenile justice involvement or persistence in crime into later developmental stages. The considerable associated emotional and financial costs of suffering the negative impact of adverse experiences in childhood (Bellis et al., 2019), and the higher prevalence of criminal activity in the age range of emerging adulthood (namely 18-20 years old), (INE, 2021), turns this relation into an urgent need to address.

Nonetheless, even though the impact of adverse experiences on risky strategies has been vastly addressed in previous literature, this thesis tries to answer some aspects

scarcely analysed. These aspects include the differential and cumulative impact of adverse experiences (being the individual impact of ACEs the most studied one) or the intergenerational transmission of indirect ACEs (such as household dysfunctions). Moreover, this research has been performed in English non-speaking countries (Spanish context not very explored either for ACEs or youth offending), and it includes well regarded and validated instruments. Additionally, it has been carried out mainly with emerging adults. This developmental stage is now considered very important in western societies and allows participants to remember past adverse experiences more clearly and accurately (Dube et al., 2003), which prevents the difficulty of accessing memories in later life.

To achieve this goal, this thesis combines samples from different contexts (i.e., Juvenile Court for the sample of minor offenders, and community young adults to analyse the influence of ACEs). It also includes different data collection tools (i.e., self-reports, objective indicators of recidivism, etc.) and different data analysis methodologies (i.e., linear binomial regressions, fuzzy qualitative comparative analysis (fsQCA), confirmatory factor analyses (CFA), convergent validity, intraclass reliability, etc.). Altogether, the main goal is to obtain a complete and more realistic picture of the situation of minors at risk.

Objectives of this thesis

Therefore, the main goal of this thesis is to analyse adverse experiences in childhood and adolescence as risk factors for the development of negative outcomes into emerging adulthood.

The specific objectives would be the following:

1. To analyse the cumulative and individual impact of a wide range of ACEs on future negative consequences.
2. To analyse the existence of an intergenerational transmission or continuity of household dysfunctions in Spanish emerging adults.
3. To assess the psychometric properties of the *Deviant Behavior Variety Scale (DBVS)* among a Spanish-speaking sample of young adults.
4. To examine the predictive validity and disparate impact of the *Youth Level of Service/Case Management Inventory (YLS/CMI)* in two group minorities of young offenders (Arab and Roma minor offenders).

To address this, *study 1*, *study 2* and *study 3* are intended to provide a response to the relationship between ACEs and future negative consequences such as deviant behaviour, substance use, and lack of altruism. In addition, they determine which combinations of ACEs are most associated with a given consequence and, in turn, whether there is an intergenerational transmission of the dysfunctions in the home suffered during childhood and adolescence (objectives 1 and 2).

Secondly, *study 4* presents the validation of the Deviant Behavior Validity Scale (DBVS). This validation has been carried out for the first time in a Spanish sample. The importance of using valid and reliable instruments in the field of forensic psychology is the reason for this study (objective 3).

Finally, *study 5* and *study 6* analyse the predictive power of the YLS/CMI Inventory in two ethnic minority groups present in Spanish society, the Arab minority, and the Roma minority. In doing so, the aim is to contribute to highlighting and raising awareness of the importance of a reliable and accurate assessment taking into account cultural differences. Thus, trying to preserve the outstanding principle of equality is our task as forensic psychologists. At this point, accuracy in the offending assessment as well as the likelihood of recidivism are key aspects that are addressed in this thesis (objective 4).

CHAPTER 2

EXPERIMENTAL SECTION

STUDY 1

THE EFFECT OF ADVERSE CHILDHOOD EXPERIENCES ON DEVIANT AND ALTRUISTIC BEHAVIOR DURING EMERGING ADULTHOOD

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Abstract

Background: The experience of coping with negative events in early ages (childhood and adolescence) has consistently been linked to some specific deviant behaviors, such as juvenile justice involvement or persistence in crime. In contrast, very few studies have focused on the link between Adverse Childhood Experiences and altruistic behavior. The objective of this study is to examine the possible influence of Adverse Childhood Experiences on the social behavior exhibited in emerging adulthood (specifically deviant and altruistic behavior). *Method:* The study population consisted of 490 young adults between the ages of 18 and 20, with a mean of 18.90 years (*SD* = .77). All voluntarily completed the following self-report questionnaires: the Adverse Childhood Experiences questionnaire, the Deviant Behavior Scale, and the Altruistic Scale. *Results:* Linear regression models found that Adverse Childhood Experiences were strong, positive predictors of deviant behaviors. Moreover, specific Adverse Childhood Experiences (physical abuse for deviant behavior, and emotional neglect for altruistic behaviors) had notable, differential effects. *Conclusions:* The prevention or early detection of Adverse Childhood Experiences during childhood could contribute to reducing maladaptive patterns of behavior and to increasing altruistic patterns during emerging adulthood.

Keywords: Adverse childhood experiences, deviant behavior, altruism, emerging adulthood, different impact.

Resumen

La influencia de las experiencias adversas infantiles sobre la conducta antisocial y altruista en la adultez emergente.

Antecedentes: sufrir experiencias negativas durante la infancia se ha relacionado con comportamientos antisociales, como la implicación en la justicia juvenil o la persistencia en el crimen. Sin embargo, en comparación con la conducta antisocial, muy pocos estudios se han enfocado en la relación entre las Experiencias Adversas Infantiles y la conducta altruista. Por ello, el objetivo de este estudio es examinar la posible influencia de dichas experiencias en el comportamiento social manifestado durante la adultez emergente (conducta antisocial y altruista concretamente). *Método:* la muestra estaba formada por 490 jóvenes con edades comprendidas entre 18 y 20 años, con una media de 18.90 años (DT = .77). Todos completaron voluntariamente los siguientes cuestionarios de autoinforme: Adverse Childhood Experiences questionnaire, Deviant Behavior Scale y Altruistic Scale. *Resultados:* los modelos de regresión lineal mostraron que las Experiencias Adversas Infantiles eran fuertes predictoras de las conductas antisociales. Además, había experiencias adversas específicas (abuso físico para la conducta antisocial y negligencia emocional para las conductas altruistas) que produjeron un efecto diferencial y destacable. *Conclusiones:* la prevención o detección temprana de las Experiencias Adversas durante la Infancia podría contribuir a reducir los patrones de conducta inadaptados y a aumentar los patrones altruistas durante la adultez emergente.

Palabras clave: experiencias adversas en la infancia, conducta antisocial, altruismo, adultez emergente, impacto diferencial.

Introduction

Adverse Childhood Experiences (ACEs) are defined as traumatic experiences that may include sexual, physical, or emotional abuse or emotional and physical neglect, as well as adverse family circumstances that occurred during childhood or adolescence. Studies show that adverse experiences tend to be frequent and co-occurring: two-thirds of the population suffered from at least one before the age of 18, and over 10% experienced 5 or more (Bellis, Lowey, Leckenby, & Hughes, 2014; Felitti et al., 1998). In overall terms, adverse experiences are more common among children under 6 years of age than among older children (Thompson et al., 2015). The results obtained by Kerker et al. (2015) indicate that almost all children between 18 and 71 months of age (98.1%) have experienced at least one adverse event, and 50.5% have experienced 4 or more. On average, the first exposure to ACEs occurs at one and a half years of age (Dong et al., 2004). Once an adverse event occurs in a child's life, the likelihood of additional ACEs increases significantly, which is why a chain of early risks opens up.

For this reason, various studies have increasingly established the importance of early life experiences in people's health throughout the life course (Felitti et al., 1998; Hughes et al., 2017). Individuals who have adverse childhood experiences during childhood or adolescence tend to have more physical and mental health problems as adults than those who do not have ACEs. All the advances made in this field lead to the theoretical assumption that childhood adversity is strongly linked to social, emotional, and cognitive impairment, and to the adoption of health risk behaviors that promote a wide range of negative outcomes: early disease, disability, social problems, and even early death (Felitti et al., 1998; Hughes et al., 2017). These risk behaviors, such as alcohol and drug abuse, or deviant behaviors (either consciously or unconsciously) may act as

effective coping devices in the extreme short term to reduce the stress levels caused by experiencing these adverse situations.

It is generally the cumulative impact of multiple ACEs that leads to risk behaviors and negative outcomes in later life (Felitti & Anda, 2010). However, the individual contributions of the specific ACEs must also be considered, as some studies claim they have differential impact (Agnew, 2001; Sharp, Peck, & Hartsfield, 2012). For example, Agnew (2001) argues that most cumulative measures have only a moderate impact on crime. Meanwhile, different types of experiences may have a strong impact on crime, whereas others have little or no impact. In this study, we analyse both the cumulative and individual impacts of childhood adverse experiences on the adoption of non-adaptive strategies by young adults.

Deviant and non-altruistic behaviors can be regarded as risk strategies leading to negative outcomes, such as social problems, judicial involvement, and imprisonment. Deviant behavior might be conceptualized as behavior that violates social norms and values, including a wide range of acts such as theft, lying and assault. The definition includes antisocial behaviors that are violations of criminal law, usually referred to as offences or crimes, as well as acts that are not subject to sanctions by the criminal justice system, such as externalizing or disruptive behaviour (Braga, Gonçalves, Basto-Pereira, & Maia, 2017). Meanwhile, altruistic behavior is a concept that involves human actions being taken for the benefit of others, i.e., living for others (Eisenberg, 2014). This concept is encompassed within the prosocial behavior that consists of a broad category of actions which are defined by society as generally beneficial to other people (Piliavin, Dovidio, Gaertner, & Clark, 1981).

According to the Integrated Cognitive Theory of Antisocial Potential (Farrington, 2017), experiences of child and adolescent maltreatment, such as problematic family environments, antisocial models, delinquent parents and/or peers or traumatic experiences, are factors that foster deviant behavior in the long run. Likewise, according to Sampson and Laub (2003) being exposed to adverse situations such as poverty, or toxic family environments, provides more favourable conditions for future criminal behavior. For example, a child who experiences a negligent family environment may receive little affection, limited family supervision, as well as carelessness on the part of their legal guardians. Due to negligent parenting practices, the probability of this young person establishing a weakened social bond is higher, which is the central aspect in delinquent behavior (Sampson & Laub, 2003). Involvement with the juvenile justice system or persistence in crime (Basto-Pereira, Miranda, Ribeiro, & Maia, 2016; Craig, 2019; Dierkhising et al., 2013), have consistently been found to be related to adverse childhood experiences. Moreover, ACEs not only increase the chances of problems with the juvenile justice system, but also increase the risk of re-offending (Baglivio et al., 2014).

However, besides the cumulative effect of ACEs, we can also focus on the differential contribution of each specific ACE to the adoption of risk behaviors. Widom and Maxfield (1996) conducted one of the first studies to address the relationship between child maltreatment and deviant behavior. The results showed that children who were victims of physical abuse and/or neglect were almost twice as likely to be arrested as a result of violent crime as adults. Same results were also reported by Piquero and Sealock (2000), in a young offending population that was also substance abusing. Meanwhile, other studies found household members who had been physically abused and incarcerated in childhood/ adolescence to be the most significant predictors of involvement with the juvenile justice system (Baglivio et al., 2014; Basto-Pereira et al., 2016). As is apparent,

physical abuse is the most consistent predictor of deviant behavior, in both juveniles (Braga et al., 2017; Maas, Herrenkohl, & Sousa, 2008), and young adults (Braga, Cunha, & Maia, 2018). Nevertheless, the research on the differential impact of ACEs on deviant behaviour has been limited in comparison to their cumulative impact.

In comparison to deviant behavior, very few studies have focused on the link between ACEs and altruistic behavior (Music, 2011). These studies have highlighted empathy difficulties in physically abused children, during their middle childhood (Margolin & Gordis, 2000). Other studies have mainly focused on child maltreatment victims that do not show serious negative sequelae and are therefore resilient. One of the multiple personal characteristics that may foster this resilience is altruism (Mrazek & Mrazek, 1987). Further exploration of the neglected relationship between ACEs and altruism is therefore extremely relevant. In overall terms, an early identification of adverse childhood experiences is crucial outstanding for preventing deviant behavior and fostering altruistic behavior, thereby preventing negative outcomes in the long-term.

Previous studies agree that this cumulative impact of ACEs on later developments is strong in the long term (Felitti et al., 1998). Accordingly, most of the studies examined the influence of adverse childhood experiences in later stages of adulthood, but not in the period of emerging adulthood, a new conception of development for the period from the late teens through the twenties, with a focus on ages 18-25 (Arnett, 2000). It is precisely in this emerging adulthood period that participation in illegal activities peaks, and tends to decline thereafter (Stolzenberg & D'Alessio, 2008). Moreover, due to this specific age range analyzed, this study does not present the weakness of retrospective designs, which present some difficulties with remembering the negative events. In fact, older people report less ACEs (Dube et al., 2003). Finally, there is limited research studying childhood

adversity experiences in Spanish populations compared to English-speaking countries. As Cronholm et al., (2015) found, some ACEs might differentially impact specific demographic groups that are often neglected by most studies in the field, such as African Americans, Hispanics, and Asians. Cultural nuances and invariances in childhood adversity are worthy of analysis.

The purpose of this study is therefore to explore the overall and differential effect of childhood adversity experiences on the adoption of risk strategies (deviant behaviors), and on the possible lack of positive strategies (altruistic conducts), in a Spanish emerging adult population. It is also hypothesized that having experienced more ACEs during childhood will increase deviant behavior and reduce altruistic behavior during emerging adulthood. Moreover, we expect to find a differential contribution of ACE subtypes to the adoption of both behavioral strategies.

Method

Participants

The total study population consisted of 490 young adults, with 37.6% males and 62.4% females. The ages ranged from 18 to 20 years, with a mean of 18.90 years (*SD*=.77). Only a small portion of the population belonged to an ethnic minority (7.3%) consisting of 2.3% Romanian (*N*= 11), 1.9% Latin-American (*N*= 9), 1% African origin (*N*= 5) and 2.1% belonging to other nationalities (*N*= 10), and the rest were of Spanish origin. As for the level of schooling of the participants, 4.3% presented primary school level, 38.7% high school studies and 57%, university studies.

Instruments

The "*Adverse Childhood Experiences*" (ACEs) questionnaire (Felitti et al., 1998; Spanish translation carried out by the authors of this study) evaluates adverse childhood and adolescent experiences: abuse, neglect, and household dysfunction during the first 18 years of life. The following ten adverse experiences were assessed: sexual (4 items), physical (4 items) and emotional abuse (3 items); physical (5 items) and emotional neglect (3 items); living in a household with domestic violence (3 items), parental divorce (1 item), household substance abuse (2 items), mental illness in the household (2 items) and incarceration of a member of the household (1 item). For the areas of emotional and physical abuse, neglect and witnessing domestic violence, the frequency with which the person experienced them is measured from "0 = Never" to "4 = Too Often". For the remaining experiences, the classification is "Yes" or "No". Each adverse experience (ACE dimension) was dichotomized according to the original author's instructions (Felitti et al., 1998; Pinto, Correia, & Maia, 2014). If the subject scored one or more items as often or very often the category was considered present, and otherwise it was considered absent.

The "*Deviant Behavior Scale*" (DVB) by Sanches, Gouveia-Pereira, Marôco, Gomes, & Roncon (2016), includes both illegal behavior and rule-breaking behavior that is not illegal (e.g., lying to adults, or skipping school for several days without parental consent). The scale contains 19 items, answered in a two-point response style (No/Yes), regarding whether the participants have engaged in each of the 19 behaviors during the previous year (12- month DVB). The total score for deviant behaviors is obtained by the sum of positive answers. The participants were also asked to write the number of behaviors they had engaged in throughout their entire life (Lifelong DVB).

The "*Altruistic Scale (A.A.S)*" (Loureiro & Lima, 2009) is composed of 12 items, organized in three subscales: Cognition (4 items), Affection (4 items), and Behavior (4 items). For the assessment of the cognitive dimension, participants are asked to indicate their level of agreement with a series of statements (e.g., "I think that, in this world, all you have to do is take care of yourself"). The affective component is made up of issues about which the subject is asked to indicate how he or she would feel if the actions described were carried out (e.g., "Caring for someone, without expecting a reward"). In the behavioral component, the subject is asked about a series of behaviours (e.g., "Giving up your place in a queue to someone who needs it" in the supermarket, bank, etc.). All the subscales are answered on a five-point scale (where 1 corresponds to "totally disagree" and 5 to "totally agree").

Procedure

The collected data is part of the *International study of pro/ antisocial behavior in young adults SOCIALDEVIANCE1820 Research Project*. Data were collected in different contexts: 280 from universities (57.14%), 140 from technical and leisure centers (28.57%) and 70 from adult education centers (14.28%), after obtaining consent from the University Ethics Committee and the participants. The researchers visited these centers and explained the objective of the study. All participants took part voluntarily, and they were entitled to enter in a voucher draw. They were informed that the questionnaire was anonymous, and the data was strictly confidential. The questionnaires were administered collectively, in the presence of the researchers.

Data Analysis

First, frequencies and Chi-Square (χ^2) tests were conducted to examine whether the males and females differed in their reported ACEs. Second, ANOVA analysis for independent samples and post-hoc tests were carried out to compare if there were any differences between the subjects who did not have any ACE, those who had from 1 to 3 ACEs, and those who had more than 4 ACEs. Subsequently, bivariate correlations were carried out between the variables under study of Adverse Childhood Experiences (ACE), Deviant Behavior (DVB) and Altruism (AAS). Finally, a series of linear regressions were also performed to determine whether the total and the different components of the ACE were predictors of deviant and altruistic behaviors.

Results

Descriptive results

Table 1 shows the prevalence of each specific ACE in the total sample and depending on gender. All ACE percentages were higher for women than men, except for emotional neglect and household substance abuse. However, significant differences were only found in physical and sexual abuse, and mental illness or suicide, with a higher incidence in women. In the case of women, 64.5% of respondents reported at least 1 of the 10 ACEs, and 33.4% reported 2 or more. The percentages for men were 57.3% and 20.8%, respectively.

When the subjects were grouped into 3 groups according to the number of ACEs they presented (0 ACEs, 37.6%; 1-3 ACEs, 52.8% and 4 or more ACEs, 8.2%), the results of the ANOVA analysis for independent samples indicated significant differences in the variables of deviant behavior over the last year (p = .021*), and lifelong deviant behavior

(p = .002*). No difference between groups was found for the altruism variable (p = .742). Tukey's post-hoc tests indicated that these differences in the two deviant behavior variables (lifelong and last year) were between the group of subjects that presented no ACE and the group of subjects with 1 to 3 ACEs, compared to the group with 4 or more ACEs.

Table 1. *Prevalence of Each Category of ACE and ACE Score by Gender*

Category of ACE	Prevalence (%)			
	Women (N=301)	Men (N=181)	Total (N=490)	*p*
Abuse				
Emotional	9.3	7.2	8.8	.419
Physical	18.9	11.6	16.4	.039*
Sexual	13.3	4.4	10.0	.002*
Neglect				
Emotional	1.7	4.4	2.7	.073
Physical	.00	.00	.00	-
Household dysfunction				
Parental Separation or Divorce	25.6	24.3	26.1	.755
Domestic violence	7.6	6.1	7.6	.516
Household Substance Abuse	17.9	18.2	18.4	.936
Mental illness or Suicide	31.6	21.0	28.0	.012*
Incarcerated household member	5.0	4.4	4.7	.779
ACE score				
0	35.5	42.7	37.6	
1	31.1	36.5	32.0	
2	16.9	9.6	14.1	
3	7.4	5.6	6.8	
4	3.4	2.2	3.1	
≥5	5.7	3.4	5.1	

*$p<.05$

Bivariate correlations between the different variables in the study showed a positive association between total ACE and lifelong deviant behavior (r = .14; p = .002*), and last year (r = .09; p = .003*), and a negative correlation between total ACE and altruism (r = -.04; p = .361).

Predictive analysis of the total ACE score

A linear regression was carried out with the different dependent variables of DVB overlife, 12-month DVB, and altruism and the independent variables of gender, age, and total ACE score. As seen in Table 2, where the variable lifelong DVB was considered, gender and total ACE were significant variables, explaining 12.5% of the variance. In Table 3, in which the dependent variable was DVB over the last year, gender and total ACE also appeared as the two significant variables in the model, explaining the 15.8%. This means that being a man and having experienced adverse situations in childhood are predictive variables of deviant behaviors in the first 18 years of life and during the last year. Table 4 shows that the only predictor variable of altruism was gender, i.e., being a woman was a good predictor of altruistic behaviors. This model only explained 5.5% of the total variance.

Table 2. *Linear regression of the total ACE variable on Lifelong DVB*

	B	SE	t	*p*	LL	UL
Woman (1)	-2.48	.33	-7.45	.000*	-3.13	-1.82
Age	.29	.21	1.41	.159	-.17	.71
Total ACE	.36	.11	3.18	.002*	.14	.58
Constant	.72	3.99	.18	.856	-7.12	8.57

*N=490; R^2=.130; R^2 adjusted=.125; *p<.05*

Table 3. *Linear regression of the total ACE variable on 12-month DVB*

	B	SE	t	*p*	LL	UL
Woman (1)	-.14	.02	-9.36	.000*	-.17	-.11
Age	-.01	.01	-1.09	.274	-.03	.01
Total ACE	.01	.01	2.44	.015*	.00	.02
Constant	.50	.18	2.87	.004	.16	.85

*N=490; R^2=.164; R^2 adjusted=.158; *p<.05*

Table 4. *Linear regression of the total ACE variable on Altruism*

	B	SE	t	*p*	LL	UL
Woman (1)	.23	.04	5.37	.000*	.14	.31
Age	.02	.03	.80	.424	-.03	.07
Total ACE	-.02	.01	-1.40	.164	-.05	.01
Constant	2.42	.50	4.85	.000	1.44	3.41

*N=490; R^2=.061; R^2 adjusted=.055; *p<.05*

Predictive analysis of the scales of the ACE

An analysis of the linear regression of the different components of the ACE and the demographic variables of gender and age, highlighted the following results. In Table 5, the variables that predicted the presence of deviant behaviors throughout life were gender, physical abuse, and household substance abuse. This indicates that being a man, having suffered from physical abuse in childhood and someone in the home having abused substances are significant predictors of deviant behaviors throughout the course of life. This first model was statistically significant, explaining 15% of the variance.

The prediction of the different categories of ACE on DVB during last year is presented in Table 6. Gender and physical abuse were the two variables that predicted deviant behaviors during the previous year. This means that, to a certain extent as in the previous model, being a man and having suffered from physical abuse during childhood is significantly linked to the probability of deviant behaviors during the previous year. This model explained the 16% of the total variance.

Table 5. *Linear regression of Each Category of ACE on Lifelong DVB*

	B	SE	t	*p*	LL	UL
Woman (1)	-2.55	.34	.31	.000*	-3.21	-1.89
Age	.27	.21	1.27	.205	-.15	.68
Emotional Abuse	-.42	.49	-.86	.393	-1.39	.55
Physical Abuse	1.15	.39	2.95	.003*	.38	1.92
Sexual Abuse	.12	.19	.58	.564	-.28	.51
Emotional Neglect	.09	.05	1.91	.057	-.01	.19
Physical Neglect	-.32	.10	-.32	.749	-.23	.17
Parental Separation or Divorce	-.24	.38	-.65	.519	-.99	.50
Domestic Violence	-.32	.31	-1.02	.308	-.94	.30
Household Substance Abuse	.79	.34	2.31	.002*	.12	1.47
Mental Illness or Suicide	-.30	.29	-.79	.428	-.80	.34
Incarcerated household member	.73	.84	.87	.385	-.92	2.39
Constant	1.24	3.97	.31	.756	-6.57	9.04

*N=490; R^2=.173; R^2 adjusted=.150; *p<.05*

Table 6. *Linear regression of Each Category of ACE on 12-Month DVB*

	B	SE	t	*p*	LL	UL
Woman (1)	-.14	.02	-9.28	.000*	-.17	-.11
Age	-.01	.01	-1.09	.278	-.03	.01
Emotional Abuse	-.01	.02	-.39	.695	-.05	.04
Physical Abuse	.04	.02	2.17	.030*	.01	.07
Sexual Abuse	.01	.01	.98	.327	-.01	.03
Emotional Neglect	.01	.01	1.67	.096	-.01	.01
Physical Neglect	.01	.01	.26	.797	-.01	.01
Parental Separation or Divorce	.01	.02	.78	.436	-.02	.05
Domestic Violence	-.02	.01	-1.14	.255	-.04	.01
Household Substance Abuse	.01	.02	.63	.529	-.02	.04
Mental Illness or Suicide	-.02	.01	-1.13	.259	-.04	.01
Incarcerated household member	.03	.04	.75	.453	-.05	.10
Constant	.49	.18	2.81	.005	.15	.84

*N=490; R^2=.188; R^2 adjusted=.166; *p<.05*

Finally, Table 7 shows how the different dimensions of ACE and demographic variables predict altruism. In this case, gender and emotional neglect were the two variables that explained 6.4% of the total variance. Being a woman and not having suffered emotional neglect in childhood therefore increase the level of altruism.

Table 7. *Linear regression of Each Category of ACE on Altruism*

	B	SE	t	*p*	LL	UL
Woman (1)	.23	.04	5.28	.000*	.14	.31
Age	.02	.03	.71	.481	-.03	.07
Emotional Abuse	-.02	.06	-.32	.751	-.15	.10
Physical Abuse	-.07	.05	-1.43	.152	-.17	.03
Sexual Abuse	.01	.03	.17	.868	-.05	.06
Emotional Neglect	-.01	.01	-2.24	.026*	-.03	-.01
Physical Neglect	-.01	.01	-.07	.948	-.03	.03
Parental Separation or Divorce	-.03	.05	-.63	.526	-.13	.07
Domestic Violence	.06	.04	1.46	.144	-.02	.13
Household Substance Abuse	-.02	.05	-.41	.684	-.12	.07
Mental Illness or Suicide	.02	.04	.53	.595	-.05	.09
Incarcerated household member	.05	.11	.43	.668	-.16	.25
Constant	2.51	.50	4.99	.000	10.52	3.50

*N=490; R^2=.089; R^2 adjusted=.064; *p<.05*

Discussion

This study was conducted to assess the overall and differential effect of childhood adverse experiences on social behavior in a Spanish sample of emerging adults. The first hypothesis predicted that having suffered from ACEs during childhood will increase the adoption of deviant behaviors and the absence of altruism conducts. This hypothesis about the cumulative impact of ACEs was partly supported by the results. First, having experienced ACEs during childhood appeared to be a good predictor of deviant behavior not only during the previous year (12-month DVB), supporting previous studies (Basto-

Pereira et al., 2016; Craig 2019), but also over the entire life (lifelong DVB). In specific terms, presenting 4 or more ACEs was a major turning point in the probability of exhibiting deviant behaviors. On the other hand, if we only focus on the cumulative impact of ACEs, these adverse experiences were not predictive of altruistic behaviors, as if an undifferentiated global experience of adverse situations was not related to the absence of positive actions for the benefit of others. Even the group with 4 or more ACEs presented the same mean for altruistic behaviors as the other groups (0 ACEs and 1-3 ACEs).

The second hypothesis on differential contributions of ACE subtypes to the adoption of deviant and altruistic behaviors provided the following results. Physical abuse was the main significant predictor of deviant behaviors, not only in the previous year of the young adult's life, but also for their entire life. In contrast, household substance abuse was only a significant predictor when deviant behaviors were assessed over their entire life. Apart from this, and contrary to the absence of an ACE cumulative effect on altruism, emotional neglect was the only differential ACE that predicted the lack of altruism. This result undoubtedly reinforces the need to study both types of impact of ACEs, cumulative and differential, to provide a more realistic overview of the situation, as suggested by Agnew (2001).

There therefore seems to be a differential effect depending on the type of adverse experience. Consistent with previous studies (Basto-Pereira et al., 2016; Braga et al., 2018), our data indicated that physical abuse appeared as the most consistent predictor of deviant behaviors. In fact, physically abused children have more externalizing problems in childhood compared to neglected children, including increased noncompliance and aggression towards adults and other children (Hildyard & Wolfe, 2002; Hoffman-Plotkin

& Twentyman, 1984). These results could be due to learning mechanisms such as modelling and differential reinforcement. Children who have been victims of violence may imitate this behavior, particularly if they perceive that such violence results in rewards, such as compliance to one's wishes (Akers, 2009; Braga et al., 2017). Consequently, from a developmental point of view, it is logical and consistent to think that children who have experienced physical abuse and consequently present externalizing problems in middle childhood (Hildyard & Wolfe, 2002; Margolin & Gordis, 2000), continue to adopt the same type of risk strategies with deviant behaviors in emerging adulthood. This externalizing trajectory would also be consistent with the result, indicating that lifelong deviant behavior was also predicted by physical abuse. In this trajectory, the older the youth, the more severe type of transgressive acts that may be adopted, especially if they are not encouraged to abandon these maladaptive strategies and to adopt positive ones.

The differential predictive power of emotional neglect on altruistic behavior, is also intuitive, assuming that children who have never been loved by significant relatives, who have not ever felt special or important within a protective context, have also failed to learn the ability to love or care about others. According to the Integrated Cognitive Theory of Antisocial Potential mentioned above, being exposed to adverse situations during childhood or adolescence, may weaken the social bond that should be established under normal conditions (Farrington, 2017; Sampson & Laub, 2003). Similarly, some authors also consider these experiences of neglect as a threat to the overall development of children's self, as they do not receive any attention or care, meaning no valuable contributions to the process of self-construction (Toth, Cicchetti, Macfie, & Emde, 1997). Problems with the self may consequently contribute to problems with other selves. In fact, neglected children have been shown to present more social withdrawal and limited peer

interactions, and more internalizing problems than physically abused children (Hildyard & Wolfe, 2002; Hoffman-Plotkin & Twentyman, 1984).

As a summary, we can assume that different socio-emotional and cognitive impairments take place due to these adverse experiences. In physical abuse, the construction of a hostile mental scheme (deviant behavior) appears to be the key factor. Meanwhile, in children whose needs have been systematically ignored, the absence of a mental scheme of other's needs is the central point. Furthermore, although it was not an objective of this study, some comments are worth to be made about the variable gender in relation to early adverse situations. First, ACEs were more predominant in women than in men, which supports previous studies (Basto-Pereira, Miranda, Ribeiro, & Maia, 2016; Dube et al., 2003). Secondly, gender was a significant variable in all the predictive models analysed. However, while being a man suffering different ACEs was predictive of deviant behaviors, only being a woman was a good predictor of altruistic behaviors. These results are coherent with previous research showing the highest association of male gender to externalizing or disruptive behaviours as well as to violations of criminal law (Godinet, Li, & Berg, 2014; Kroneman, Loeber, & Hipwell, 2004).

Despite these results, this study is not without some limitations. All the variables in this study were measured by self-reported questionnaires, with a retrospective design. This method may involve some difficulties with remembering events that happened during childhood. However, unlike previous studies (Dube et al., 2013), the participants in this study are younger (18-20 years old), and consequently they can easily recall more recent events. Moreover, previous studies with young adults have already shown good reliability for retrospective reports of Adverse Childhood Experiences (Pinto et al., 2014). Second, the ACE questionnaire does not account for the intensity, frequency, duration or

on some occasions, the specific perpetrator of each negative experience. Future studies must focus in depth on these parameters, which surely make a difference on the impact of the negative experience.

The cumulative effect and some specific dimensions of ACEs (even in the absence of this cumulative effect) had a relationship with the risk of presenting deviant behaviors and inhibiting the expression of altruistic behaviors. The results were highly predictive of deviant or violent behavior when the child had suffered from physical abuse, and a lack of altruistic behaviour when emotionally neglected. The results of this study therefore support the implementation of secondary and tertiary prevention strategies, as advocated by Felitti et al., (1998). Due to the age period chosen in this study, preventing the early adoption of deviant behaviors as chronic coping mechanisms is still possible. For those already using these maladaptive mechanisms, helping to promote change (desistance) may act as tertiary prevention. In both cases, networking, and specialized training of all the agents involved in identifying ACEs and deviant behaviors (schools, public health services, the juvenile justice system), would be incredibly valuable. Likewise, implementing strategies for neglected children to be able to develop skills such as empathy or understanding the emotions of others would be very useful in fostering altruistic behaviors among children who have not learned how to do this earlier in life.

References

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency, 38*(4), 319-361. https://doi.org/10.1177/002242780103804001

Akers, R. L. (2009). *Social learning and social structure: A general theory of crime and deviance*. New Brunswick, NJ: Transaction Publishers.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480.

Baglivio, M. T., Epps, N., Swartz, K., Huq, M. S., Sheer, A., & Hardt, N. S. (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice, 3*(2), 1-17.

Basto-Pereira, M., Miranda, A., Ribeiro, S., & Maia, A. (2016). Growing up with adversity: From juvenile justice involvement to criminal persistence and psychosocial problems in young adulthood. *Child Abuse & Neglect, 62*(1), 63-75.

Bellis, M.A., Lowey, H., Leckenby, N., & Hughes, K. (2014). Adverse childhood experiences: Retrospective study to determine their impact on adult health behaviours and health outcomes in a UK population. *Journal of Public Health, 36*(1), 81-91. https://doi.org/10.1093/pubmed/fdt038

Braga, T., Cunha, O., & Maia, Â. (2018). The enduring effect of maltreatment on antisocial behavior: A meta-analysis of longitudinal studies. *Aggression and Violent Behavior, 40*(1), 91-100. https://doi.org/10.1016/j.avb.2018.04.003

Braga, T., Gonçalves, L. C., Basto-Pereira, M., & Maia, Â. (2017). Unraveling the link between maltreatment and juvenile antisocial behavior: A meta-analysis of prospective longitudinal studies. *Aggression and Violent Behavior, 33*(1), 37-50. https://doi.org/10.1016/j.avb.2017.01.006

Craig, J. M. (2019). Do Adverse Childhood Experiences influence the desistance process? *Deviant Behavior*. Advance online publication. https://doi.org/10.1080/01639625.2019.1594294

Cronholm, P. F., Forke, C. M., Wade, R., Bair-Merritt, M. H., Davis, M., Harkins-Schwarz, M., & Fein, J. A. (2015). Adverse childhood experiences: Expanding the concept of adversity. *American Journal of Preventive Medicine, 49*(3), 354-361. https://doi.org/10.1016/j.amepre.2015.02.001

Dierkhising, C. B., Ko, S. J., Woods-Jaeger, B., Briggs, E. C., Lee, R., & Pynoos, R. S. (2013). Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network. *European Journal of Psychotraumatology, 4*(1), 1-12. https://doi.org/10.3402/ejpt.v4i0.20274

Dong, M., Anda, R. F., Felitti, V. J., Dube, S. R., Williamson, D. F., Thompson, T. J., & Giles, W. H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect, 28*(7), 771-784. https://doi.org/10.1016/j.chiabu.2004.01.008

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. *Pediatrics, 111*(3), 564-572. 10.1542/peds.111.3.564

Eisenberg, N. (2014). *Altruistic emotion, cognition, and behavior*. London: Psychology Press.

Farrington, D. P. (Ed.) (2017). *Integrated developmental and life-course theories of offending*. London: Routledge.

Felitti, V. J., & Anda, R. F. (2010). The relationship of adverse childhood experiences to adult health, well-being, social function, and healthcare. In R. Lanius, E. Vermetten & C. Pain (Eds.), *The impact of early life trauma on health and disease: The hidden epidemic* (chapter 8) (pp.77-87). New York: Cambridge University Press.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) *Study. American Journal of Preventive Medicine, 14*(4), 245-258. https://doi.org/10.1016/S0749-3797(98)00017-8

Godinet, M. T., Li, F., & Berg, T. (2014). Early childhood maltreatment and trajectories of behavioral problems: Exploring gender and racial differences. *Child Abuse & Neglect, 38(*3), 544-556. https://doi.org/10.1016/j.chiabu.2013.07.018

Hildyard, K. L., & Wolfe, D. A. (2002). Child neglect: developmental issues and outcomes. *Child Abuse & Neglect, 26*(6-7), 679-695. https://doi.org/10.1016/S0145-2134(02)00341-1

Hoffman-Plotkin, D., & Twentyman, C. T. (1984). A multimodal assessment of behavioral and cognitive deficits in abused and neglected preschoolers. *Child Development, 55*(3), 794-802.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356-e366. https://doi.org/10.1016/S2468-2667(17)30118-4

Kerker, B. D., Zhang, J., Nadeem, E., Stein, R. E., Hurlburt, M. S., Heneghan, A., Landsverk, J., McCue, S., & Horwitz, S. M. (2015). Adverse childhood experiences and mental health, chronic medical conditions, and development in young children. *Academic Pediatrics, 15*(5), 510-517. https://doi.org/10.1016/j.acap.2015.05.005

Kroneman, L., Loeber, R., & Hipwell, A. E. (2004). Is neighborhood context differently related to externalizing problems and delinquency for girls compared with boys? *Clinical Child and Family Psychology Review, 7*(2), 109-122.

Loureiro, A., & Lima, M. L. (2009). Escala de atitudes altruístas: Estudo de validação e fiabilidade. *Laboratório de Psicologia, 7*, 73-83.

Maas, C., Herrenkohl, T., & Sousa, C. (2008). Review of research on child maltreatment and violence in youth. *Trauma, Violence & Abuse, 9*(1), 56-67. http://dx.doi.org/10.1177/ 1524838007311105

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*(1), 445-479. https://doi.org/10.1146/annurev.psych.51.1.445

Mrazek, P. J., & Mrazek, D. A. (1987). Resilience in child maltreatment victims: A conceptual exploration. *Child Abuse & Neglect, 11*(3), 357-366. https://doi.org/10.1016/0145-2134(87)90009-3

Music, G. (2011). Trauma, helpfulness and selfishness: The effect of abuse and neglect on altruistic, moral, and pro-social capacities. *Journal of Child Psychotherapy, 37*(2), 113-128. ttps://doi.org/10.1080/0075417X.2011.581466

Piquero, N. L., & Sealock, M. D. (2000). Generalizing general strain theory: An examination of an offending population. *Justice Quarterly, 17*(3), 449-484. https://doi.org/10.1080/07418820000094631

Piliavin, J. A., Dovidio, J. F., Gaertner, S. L., & Clark, R. D. (1981). *Emergency intervention*. New York, NY: Academic Press.

Sampson, R., & Laub, J. (2003). Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology, 41*(3), 555-592. https://doi.org/10.1111/j.1745-9125.2003.tb00997.x

Sanches, C., Gouveia-Pereira, M., Marôco, J., Gomes, H., & Roncon, F. (2016). Deviant behavior variety scale: Development and validation with a sample of Portuguese adolescents. Psicologia: *Reflexão e Crítica, 29*(1), 1-8. https://doi.org/10.1186/s41155-016-0035-7

Sharp, S. F., Peck, B. M., & Hartsfield, J. (2012). Childhood adversity and substance use of women prisoners: A general strain theory approach. *Journal of Criminal Justice, 40*(3), 202-211. https://doi.org/10.1016/j.jcrimjus.2012.01.003

Stolzenberg, L., & D'Alessio, S. J. (2008). Co-offending and the age-crime curve. *Journal of Research in Crime and Delinquency, 45*(1), 65-86. https://doi.org/10.1177/0022427807309441

Thompson, R., Flaherty, E. G., English, D. J., Litrownik, A. J., Dubowitz, H., Kotch, J. B., & Runyan, D. K. (2015). Trajectories of adverse childhood experiences and self-reported health at age 18. *Academic Pediatrics*, *15*(5), 503-509. https://doi.org/10.1016/j.acap.2014.09.010

Toth, S. L., Cicchetti, D., Macfie, J., & Emde, R. N. (1997). Representations of self and other in the narratives of neglected, physically abused, and sexually abused preschoolers. *Development and Psychopathology*, *9*(4), 781-796.

Widom, C. S., & Maxfield, M. G. (1996). A prospective examination of risk for violence among abused and neglected children. *Annals of the New York Academy of Sciences*, *794*(1), 224-237. https://doi.org/10.1111/j.1749-6632.1996.tb32523.x

STUDY 2

THE CUMULATIVE AND DIFFERENTIAL RELATION OF ADVERSE CHILDHOOD EXPERIENCES AND SUBSTANCE USE DURING EMERGING ADULTHOOD

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Abstract

Adverse childhood experiences (ACEs) have far-reaching effects on a wide range of health outcomes in adulthood, however, less is known about their consequences in emerging adulthood or in a geographically distinct sample. We examined the cumulative and individual relation of ACEs and two risky behaviors: alcohol and illegal drugs consumed by 490 Spanish emerging adults (*mean age*= 18.9). Participants answered the ACEs questionnaire, and two items about alcohol and illegal drugs consumption. Results showed that the overall experience of suffering different ACEs was a significant predictor of drug but not of alcohol consumption. Moreover, ACEs subtypes presented differential effects on substance use. Whereas some increased the likelihood of either drug or alcohol use, others reduced it. This study supports the importance of examining specific adverse experiences rather than only using an overall measure and provides some counterintuitive results that may be linked to resilient mechanisms.

Keywords: substance use; adverse childhood experiences; adolescence: emerging adulthood; Spanish population.

Introduction

Since the term was coined by Felitti et al. [1], Adverse Childhood Experiences (ACEs), have been a prolific topic and an outstanding variable for their strong relationship to a wide range of negative health consequences [2]. The concept of Adverse Childhood Experiences (ACEs) includes exposure to omission maltreatment actions (neglect), commission maltreatment patterns (abuse), and household dysfunction (parental substance abuse, incarceration, separation, mental illness and exposure to domestic violence), at vulnerable ages in childhood and adolescence.

The cumulative association of these different ACEs appears to lead to risky behaviors and negative outcomes in later periods of life [3] with considerable associated financial costs [4]. In a review of studies of ACEs, Liming and Grube [5] found that between 12.3 and 70% of the early childhood samples (0–6 years old) suffered three or more ACEs. Two-thirds of adults (67%) reported at least one ACE, and between 81 and 98% of those who had experienced one ACE reported at least one additional ACE, showing the interrelatedness of these experiences [6]. The more adverse experiences the child had, the greater the effect on their health and behavior. An ACE score≥4 is usually strongly associated with increased odds for a vast array of negative outcomes [7].

Nevertheless, the individual contributions of the specific ACEs must also be considered, as the cumulative approach constraints the individual ACEs to equal influence on the outcomes, when in fact they have a differential influence [8, 9], even depending on the child race [10]. For example, Agnew [11] states that most cumulative measures have only a moderate association on crime. Meanwhile, distinct types of experiences may have a strong relation to crime, whereas others have little or no relation.

In this study, we analyze both the individual and cumulative association of adverse childhood experiences with young adult outcomes, as enriching and additive perspectives.

As stated above, the wide range of negative outcomes associated with ACEs includes problems with psychological wellbeing [12], mental health and somatic disturbances [13], internalizing disorders [14], deviant behavior [15], and even premature death [16]. The connection between ACEs and this vast spectrum of negative outcomes may be the activation and use of conscious or unconscious mechanisms to cope with the stress and anxiety caused by these adverse experiences. In other words, childhood adversity is strongly linked to social, emotional and cognitive impairment, and to the adoption of health risk behaviors that promote these negative outcomes [1, 2]. These risky behaviors, such as the alcohol or drug abuse examined in this study, become effective coping devices in the short term due to their immediate pharmacological and psychological benefits, to escape from the dramatic reality of negative experiences [17]. In the long term, these strategies become maladjusted and may lead to negative outcomes.

In the case of the risky behavior of substance abuse, recent studies in the neurosciences have shown that stressful exposures can affect the brain's structures and functions, inducing drug seeking behaviors [13]. Unsurprisingly, the overall experience of suffering from adverse situations in childhood and adolescence is associated with a higher risk of substance abuse as an adult [17–20]. The relation of ACEs and illicit drug use appears to be a consistent phenomenon over time [21] and even transcends secular changes, such as drug availability, social attitudes toward drugs and preventive policies [17].

Very few studies have specifically analyzed the differential association of ACE subtypes with drug and alcohol use. For example, the specific experience of suffering parental and even sibling alcoholism and illegal drug use increase the risk of both

alcoholism and drug use due to a modeling effect that supports the intergenerational cycle of substance abuse [22–25]. Other specific ACEs include domestic violence and sexual abuse positively associated to drugs use [9], and neglect and physical abuse positively associated to alcohol [26].

Some counterintuitive results for specific ACEs have also emerged in the literature. For example, in the study by Sharp et al. [9], adults who experienced domestic violence and physical neglect in childhood were less prone to alcohol and drug consumption, respectively. The authors mention the puzzling nature of these results that merit further exploration.

Due to the far-reaching effects of ACEs, most studies analyze their influence in the later stages of adulthood, but not in emerging adulthood, a developmental phase that is now considered important in western societies [27]. With some exceptions [28], the few studies analyzing early adulthood include only college participants [29], or do not contemplate the full range of the ACE subtypes [5, 19, 30]. This study includes emerging adults with various educational levels, and the full range of ACEs. A positive aspect stemming from this age period is that the study may not have the weakness of retrospective designs, which may involve some difficulties with remembering negative events. In fact, older people report less ACEs [1, 17].

Finally, limited research on racial and ethnic differences in ACEs has been carried out, especially in Spanish populations compared to English-speaking countries. The original sample in the Adverse Childhood Experiences (ACE) Study was composed of predominantly white, middle-class adults (with a mean age of around 50) who were enrolled in private insurance plans [1]. This is the reason for exploring the differential relation that some ACEs might have with specific demographic groups which are often

neglected by most studies in the field, e.g. African-Americans, Hispanics, Asians [29, 31, 32], and Native Americans [33]. In fact, ACEs may function differently across demographic groups [8], therefore supporting the need to include a differential analysis of specific ACEs.

Although some studies found that young people from racial/ethnic minorities were at a greater risk of experiencing higher levels of adversity [10, 34], other studies also highlighted subtle differences between these minority ethnic groups. For example, Native Americans reported the highest rates of total adversity, and Hispanics the lowest [33]. Moreover, Forster et al. [29] found that among Pacific/Asian emerging adults, increasing ACE enhanced vulnerability to different substance use behaviors and polysubstance use. In the Pacific/Asian culture, ACEs were mainly private matters that could stigmatize the family, and therefore could not be shared with other people.

One of the key points of collectivism cultures like Spanish society is the value of the family, which can either buffer the influence of ACEs or on the contrary, exacerbate vulnerability among its members (as ACEs are considered an important violation of family obligations) [28]. To date, the relationship between ACEs and various risky strategies such as substance use has been replicated in emerging Hispanic adults in Southern California [28], but not in emerging Spanish adults. Various European reports confirm that levels of illegal drug abuse in Spain are one of the highest in Europe, taking place mainly in adolescents and young adults under 35 years old [35, 36]. Ethnocultural diversity at the social and community levels can influence individuals' risks for alcohol use and related outcomes [37]. Knowledge about the factors associated to this differential substance consumption will provide us with some key components for preventing it.

Therefore, the cultural nuances or invariances in childhood and adolescent adversity in relation to substance abuse are worth analyzing.

In short, in this study we examine both the cumulative and individual associations of a wide range of ACEs and two types of substance consumption: alcohol and illegal drugs, among Spanish community respondents with a clearly defined age range (18–20 years old). We expect that the overall experience of suffering from adverse situations in childhood and adolescence would be related to a higher consumption of alcohol and drugs in emerging adulthood. Apart from this overall association, we expect to find a differential contribution of ACE subtypes to this substance consumption.

Method

Participants

This study included 490 young adults between the ages of 18 and 20, with a mean age of 18.90 years (*SD*=.77), from a province in the Valencian Region in Spain. The distribution by gender comprised 37.6% males and 62.4% females. Only a small portion of the population belonged to an ethnic minority (7.3%), and the rest were of Spanish origin. As for the level of schooling of the participants, 4.3% of the sample never completed high school, 42.7% only completed high school education, and 53% attended college.

Measures

Adverse Childhood Experiences

The ACE study questionnaire [1, Spanish version translated by the authors of this study] contains detailed information about adverse childhood and adolescent experiences.

All questions pertained to the respondents' first 18 years of life, and concern three general areas: abuse, neglect and household dysfunction.

Abuse Variables

- Emotional abuse (3 items): action, attitude or inability to provide an emotional environment conducive to psychological, physical development that allows for independence and security.
- Physical abuse (4 items): consisting of any action taken voluntarily which causes or is likely to cause injury.
- Sexual abuse (4 items): referring to any behavior in which a minor is used by an adult or other minor (who is at least 5 years older than the minor) to obtain sexual stimulation or gratification.

Neglect Variables

- Emotional neglect (3 items): the omission of an action necessary to address the development and psychological well-being of a child, such as feeling loved by family members.
- Physical neglect (5 items): the omission of an action necessary to address the development and physical wellbeing of a child, such as having enough to eat or wear clean clothes.

Household Dysfunction Variables

- Mother treated violently (3 items): the mother or stepmother was pushed, grabbed, slapped, and had something thrown at her, etc., by the father (or stepfather) or mother's boyfriend.

- Household substance abuse (2 items): a household member was a problem drinker or alcoholic or a household member used street drugs.
- Mental illness in household (2 items): a household member was depressed or mentally ill or a household member attempted suicide.
- Parental separation or divorce (1 item): parents were separated or divorced at some time.
- Criminal household member (1 item): a household member went to prison.

Experiences of abuse and neglect or witnessing domestic violence were evaluated according to their frequency from "0=Never" to "4=Too Often". The classification was "Yes" or "No" for the other experiences. Each adverse experience (ACE dimension) was dichotomized according to the original author's instructions [22, 38]; if the subject scored one or more items as occurring often or very often the category was considered present; otherwise, it was considered absent. The ACE questionnaire evaluates the presence/absence of objective facts, rather than a latent dimension. Therefore, it is not totally appropriate to measure factor invariance or internal consistency for items composing ACE dimensions. However, some few studies have previously analyzed and found good psychometric properties of the questionnaire [39, 40].

Illicit Drug Use

The use of illicit drugs was defined as an affirmative response to the question, "Within the last 12 months, how often have you used any illicit drugs?" Its frequency was evaluated from "0=every day" to "4=it didn't happen". Accordingly, a high score would indicate low drugs consumption, while a low score would indicate more frequent consumption.

Alcohol Use

The use of alcohol considered participants self-reported consuming alcohol in the last year, based on the following question: “In the last 12 months, how often have you been drunk? As in the previous variable, its frequency was evaluated from “0=every day” to “4=it didn’t happen”. Again, a low score would indicate a high rate of alcohol consumption.

Procedure

The data collected is part of the *International study of pro/antisocial behavior in young adults SOCIALDEVIANCE1820 Research Project* [for more details, see 41]. This study was approved by the Ethics Committee of the research centre (reference number 22/2018). The participants were recruited using convenience and snowball sampling methods, at high schools, schools for adults, universities, workplaces, and sports organizations. The researchers presented the study to the directors of the centres by e-mail and in-person. All participants were fully able to give their consent to participating in the research and provided their written informed consent prior to taking part in the study. Only those participants who provided consent to the researchers were included in the data collection phase. The questionnaires were administered by means of paper and pencil and collectively in the presence of the researchers, who explained the objective of the study beforehand.

Demographic data were obtained through the Sociodemographic Questionnaire, including information such as gender, age and socioeconomic status (SES). If the youth was financially independent, his/her profession and school education were considered, otherwise, parental SES was taken. High SES was regarded if managerial and professional occupations, as well as professions requiring college education or large business owners, were indicated. Medium SES was coded for intermediate occupations,

that is, professions requiring high school education or specialized professional skills (e.g., electrician) or small employers. Finally, low SES was coded for routine or semi-routine works and all others. In order to assure consistency of this measure, 10% of all cases were analyzed for the SES variable by two independent judges, to calculate the interjudge reliability (kappa coefficient). The agreement was considered high, reaching an average value of .85. Moreover, participants answered self-reported questionnaires about adverse childhood/adolescent experiences and their alcohol and drug use.

Data Analysis

First, the characteristics of the sample are shown (Table 1). Afterward, correlation analyses were performed among the variables of age, drugs and alcohol use and total ACE score. Secondly, ordinal regression with the total ACE score and the specific ACEs was carried out to analyze the prediction of having suffered adverse experiences during childhood and adolescence, and the future consumption of drugs and alcohol. In all the regression models, the reference group is the one suffering the adverse experience (e.g. sexual abuse or emotional neglect). A positive sign estimate therefore means obtaining a higher score for the variable than the reference group (lower levels of drug or alcohol consumption), whereas a negative sign is related to a lower score on the variable than the reference group (higher levels of drugs and alcohol consumption) (see Tables 3 and 5). Statistical post hoc analyses of the effect size (f^2) and statistical power were calculated using the program G * Power 3.1.6 [42, 43].

Results

A total of 505 subjects were invited to participate on the study, and a refusal rate of 3.3% was obtained. Therefore, the final sample was 490 subjects whose characteristics are shown in Table 1. The age distribution of 18, 19 and 20 years was similar, ranging

from 25.3 to 39.4%. The most frequent socio-economic level was medium (52.1%) and most of the sample were students (71.2%). As for the ACEs, the most prevalent ones were: divorce or parental separation, household substance abuse, and physical abuse with percentages of 26.1%, 18.4%, and 16.3%, respectively.

Table 1. *Sample Characteristics*

Characteristics	N= 490 participants
Sex	Female= 301 (62.4%) Male= 181 (37.6%)
Age	18= 173 (35.3%) 19= 192 (39.4%) 20=124 (25.3%)
Ethnicity/Race	Majority= 454 (92.7%) Minority= 36 (7.3%)
SES	Low= 148 (31.1%) Medium= 248 (52.1%) High= 80 (16.8%)
Occupation	Worker= 13 (2.7%) Student= 348 (71.2%) Student-Worker= 101 (20.7%) Without occupation= 27 (5.5%)
ACEs prevalence	Emotional abuse= 43 (8.8%) Physical abuse= 80 (16.3%) Sexual abuse= 49 (10%) Emotional neglect= 53 (10.9%) Physical neglect= 33 (6.7%) Parental Separation or Divorce= 128 (26.1%) Domestic Violence= 37 (2.6%) Household Substance Abuse= 90 (18.4%) Mental Illness or Suicide= 23 (4.7%)
Consumption of Illicit Drugs	Never consumed = 300 (61.3%) Annually = 63 (12.9%) Monthly = 74 (15%) Weekly = 33 (6.8%) Daily = 20 (4.1%)
Consumption of Alcohol	Never consumed = 89 (18.2%) Annually = 96 (19.6%) Monthly = 210 (43%) Weekly = 92 (18.8%) Daily = 3 (0.6%)

SES: socioeconomic status.

As regards the frequency of consumption of alcohol and illegal drugs, 61.3% of the participants replied that they had never consumed illegal drugs, followed by those who indicated that they used drugs on a monthly basis (15%), those who used them annually (12.9%), those who consume them weekly (6.8%) and finally those who consume them daily (4.1%). As for the frequency of alcohol use, 43% of the participants reported drinking alcohol monthly (43%), and practically no one reported consuming alcohol daily (0.6%). On the other hand, annual, weekly and no consumption of alcohol were around 20%, with percentages of 19.6%, 18.8% and 18.2%, respectively.

Next, Pearson correlations were run to determine the relation between ACE total score, age and alcohol and drug use frequency. There was a positive and significant correlation between alcohol use and illegal drug use $r(487) = .41$, $p < .001$, and between alcohol use and age $r(489)=.12$, $p <.01$. This means that the greater the consumption of alcohol, the greater the consumption of illegal drugs. The only significant and negative correlation for the total ACE score was with drug use frequency $r(479)= .-13$ $p <.01$, so that having a higher ACE score indicates a higher frequency of drug use.

Then, ordinal regressions were performed to assess the predictive validity of the total ACE score and specific ACEs in the frequency of alcohol and illicit drug consumption during emerging adulthood. On the one hand, the variables that predicted illicit drug use were gender, socioeconomic status (SES) and the total ACE score (see Table 2). This indicates that being a man, having a low socioeconomic status and having experienced more adverse experiences during the childhood were significant predictors of drug use during emerging adulthood. This first model explained 11.7% of the variance. Effect size f^2 was 0.14, showing values close to medium effects. Meanwhile, power (1 − β err prob) was 1 [44].

Table 2. *Ordinal regression of the total ACE variable on Drug Use*

	Estimate	SE	Wald	*p*	LL	UL
Gender	-1.09	.20	29.54	.000*	-1.48	-.69
Age	.10	.26	.87	.351	-.72	.25
SES	.71	.26	7.41	.006*	.20	1.22
Total ACE	-19.40	1.43	9.18	.000*	-.2.20	-.1.06

Note: *SES: socioeconomic status; N=490; -2 Log likelihood= 353.556; Cox & Snell* R^2 *= .074; Nagelkerke* R^2*=.117; *p<.05*

When specific ACEs were considered in the prediction of illicit drug use, gender, socioeconomic status, sexual abuse, emotional neglect, household substance abuse and mental illness/suicide explained 14.8% of the total variance (see Table 3). Effect size f^2 was .18, thus showing medium effects and again power (1 − β err prob) was 1 [44]. In this case, being a man with a low socioeconomic status and having suffered from sexual abuse, emotional neglect household substance abuse increased the likelihood of illegal drug use. However, having lived at home with a person with mental illness or attempted suicide makes the person less likely to use illegal drugs. The ordered logit for being in a higher drug category was 2.29 more for the absence of sexual abuse, 3.78 more for the absence of emotional neglect, and 1.89 more for the absence of household substance abuse, than for the presence of these variables. On the other hand, the ordered logit for being in a higher drug category was 0.58 less for the absence of mental illness or suicide than for the presence of this variable.

Table 3. *Ordinal Regression of Each Category of ACE on Drug Use*

	Estimate	SE	Wald	*p*	LL	UL
Gender	-1.19	.21	33.99	.000*	-1.60	-.79
Age	.17	.26	.41	.521	-.68	.35
SES	.66	.27	6.07	.014*	.13	1.18
Emotional Abuse	.47	.38	1.57	.211	-.27	1.21
Physical Abuse	.43	.29	2.25	.133	-.13	.99
Sexual Abuse	.83	.32	6.73	.009*	.20	1.45
Emotional Neglect	.33	.33	3.61	.059†	-.32	.98
Physical Neglect	-.45	.43	.95	.331	-1.25	.42
Parental Separation or Divorce	.01	.24	0	.997	-.46	.46
Domestic Violence	-.46	.45	1.07	.302	-1.34	.42
Household Substance Abuse	.64	.27	5.43	.020*	-.10	1.17
Mental Illness or Suicide	-.53	.24	4.74	.030*	-.1.01	-.05
Incarcerated household member	-.40	.49	.01	.935	-1.01	.93

*Note: SES: Socioeconomic status; N=490; -2 Log likelihood=605.476; Cox & Snell R^2 = .121; Nagelkerke R^2=.148; *p<.05; † < .1. The presence of each specific ACE is the reference group, whereas the absence of the specific ACEs is shown in the table.*

Table 4 presents the predictions of alcohol consumption by demographic variable and total ACE score. In this case, the frequency of alcohol consumption is more likely when the individual is a man and younger, since these two variables have been shown to be statistically significant. Nevertheless, the overall experience of suffering adverse circumstances did not emerge as a significant variable. This third model was statistically

significant, explaining 7.1% of the variance (effect size f^2=.07, small effects). In this case, power (1 − β err prob) was .99 [44].

Table 4. *Ordinal regression of the total ACE variable on Alcohol Use*

	Estimate	SE	Wald	*p*	LL	UL
Gender	-.40	.18	4.79	.029*	-.76	-.04
Age	.35	.23	10.81	.001*	-1.21	-.31
SES	.26	.26	.98	.322	-.26	.78
Total ACE	-.07	.54	.96	.320	-.16	.60

*Note: SES: socioeconomic status; N=490; -2 Log likelihood= 347.109; Cox & Snell R^2 = .027; Nagelkerke R2=.071; *p<.05*

Finally, the prediction of the relation of various categories of ACE and alcohol use (presented in Table 5) showed that age, gender, emotional abuse, domestic violence, household substance abuse and living at home with a family member with mental illness or attempted suicide were the variables that contributed significantly to the final model (R^2= .083), (effect size f^2= .08, small effects; and power (1 − β err prob)=.99), [44]. This means that being an older man and having suffered from emotional abuse and household substance abuse were associated with a higher probability of alcohol use during emerging adulthood. Nevertheless, being exposed to domestic violence and household mental illness or suicide presented a different sign, being linked to a lower alcohol consumption. The ordered logit for being in a higher alcohol category was 0.58 more for the absence of emotional abuse, and 1.97 more for the absence of household substance abuse than for the presence of these variables. However, the ordered logit for being in a higher alcohol category was 0.41 less for the absence of domestic violence and 0.65 less for the absence of mental illness or suicide than for the presence of these variables.

Table 5. *Ordinal regression of Each Category of ACE on Alcohol Use*

	Estimate	SE	Wald	*p*	LL	UL
Gender	-.42	.19	5.23	.022*	-.79	-.06
Age	-.80	.23	11.85	.001*	-1.25	-.34
SES	.15	.27	.32	.571	-.37	.68
Emotional Abuse	.72	.37	3.91	.048*	.01	1.45
Physical Abuse	.21	.27	.61	.438	-.31	.73
Sexual Abuse	.11	.29	.14	.713	-.48	.70
Emotional Neglect	.12	.31	.15	.697	-.73	.50
Physical Neglect	-.36	.39	.83	.363	-1.13	.41
Parental Separation or Divorce	.20	.21	.90	.344	-.21	.60
Domestic Violence	-.89	.38	5.42	.020*	-1.64	-.14
Household Substance Abuse	.68	.26	6.98	.008*	.18	1.18
Mental Illness or Suicide	-.43	.46	.10	.033*	-.83	-.04
Incarcerated household member	.16	.45	.10	.750	-1.04	.75

Note: *SES: socioeconomic status; N=490; -2 Log likelihood=675.017; Cox & Snell R^2 = .072; Nagelkerke R^2=.083; *p<.05; † < .1. The presence of each specific ACE is the reference group, whereas the absence of the specific ACEs is shown in the table.*

As reversals shown in both model predictions may signify model overfitting, we tested for multicollinearity. The correlations between independent variables ranged from .11 to .46, suggesting that multicollinearity was not a significant concern in this model. Moreover, the same results were found when linear regression models were applied to the same variables. In these linear regression models, variance inflation factors (VIF) for all

coefficients ranged between 1.1 and 1.3, showing that multicollinearity was not a problem.

Discussion

The goal of this study was to analyze both the cumulative and individual associations of a wide range of ACEs with two risky behaviors: alcohol and illegal drug consumption, in Spanish emerging adults. We expected that the overall experience of suffering from adverse situations in childhood and adolescence would be related to a higher consumption of alcohol and drugs in emerging adulthood. Apart from this overall association, we expected to find a differential contribution of ACE subtypes to this substance consumption.

The results only partially support the first hypothesis posited. The total number of ACEs was a significant predictor of drug consumption but not of alcohol consumption in emerging adulthood. In addition, the explained variance of the regression models for drugs was higher than the one for alcohol (11% versus 7%), which was consistent with previous studies [9]. Likewise, the effect sizes of drug differences were also the highest ones in comparison to the alcohol effect sizes [44]. In other words, the overall experience of ACEs during childhood appeared to be a good predictor of subsequent drug consumption, supporting previous studies [13, 17]. If we focus only on the cumulative association of ACEs, these adverse experiences were not predictive of alcohol consumption, as if the undifferentiated overall experience of adverse situations was not related to this risky strategy.

If we turn to the second hypothesis on the differential contributions of ACE subtypes to substance consumption, we can find the following results. In relation to alcohol consumption, and in contrast to the absence of an ACE with a cumulative effect

on it, a differential association of specific ACEs could be found. Emotional abuse and substance abuse in the household were significant predictors of alcohol consumption in the expected direction. The influence of substance abuse in the household on alcohol consumption (and on drug consumption) is already a classic result, based on the modeling effect that supports the intergenerational cycle of substance abuse [22, 24]. Additional results also emerged: emotional abuse was a significant predictor of alcohol consumption, and sexual abuse and emotional neglect, significant predictors of drug consumption. It seems evident that emotional impairments derived from adverse experiences seem to be a central factor in the adoption of a risk strategy based on substance consumption, as suggested by Felitti et al. [1].

These results undoubtedly reinforce the need to study both types of ACEs influences: cumulative and differential, to provide a more realistic picture of the situation [11]. Both perspectives are urgently required, especially in the case of alcohol use, for which no global relation to ACEs was found. As Campbell et al. [7] argue, finding a differential association of individual ACEs which may exert their effects on risky behaviors through different mechanisms may be important, especially in the absence of an overall relation. For both alcohol and drug use, the regression models in this study for each specific ACE doubled the explained variance of the regression models for the cumulative association, as shown in previous studies [9]. The second hypothesis about the differential association of specific ACEs with substance abuse therefore was fully supported by the results.

One intriguing aspect in the analysis of the differential association of ACEs with substance use was the finding of counterintuitive results. Some relationships between specific ACEs and predicted variables were not in the hypothesized direction. In specific

terms, mental illness in the household was a significant negative predictor of both alcohol and drug consumption, and exposure to domestic violence was a significant negative predictor of alcohol. Adults with high levels of these specific ACEs have a lower probability of substance abuse than adults with low levels.

This kind of counterintuitive results have previously been found in other studies with different predicted variables and cultural contexts, such as Sharp et al. [9] with substance abuse. Barrera et al. [45] reported that parental and social support aggravated the effects of adverse childhood experiences on truancy, and Mersky et al. [46] found that physical neglect was associated with reduced odds of smoking.

Moreover, the counterintuitive results found in this study only appear in the household dysfunction dimension. In fact, some studies have already found that the influence of direct victimization (abuse and neglect) does not seem to be similar to that found for household dysfunction. For example, Roos et al. [47] found no relation between caregiver maladjustment (mental illness, incarceration, suicide) and incarceration in adulthood (the other categories of ACEs presented a significant positive relation). These authors argue that it is not the characteristics of the caregiver, but rather the nature of the caregiving (i.e. maltreatment) that confers risk.

There are some possible explanations to account for these unexpected results in mental illness in the household and exposure to domestic violence. For example, a strong and secure attachment with a battered mother is perhaps a possible buffer against the effects of witnessing domestic violence, thus protecting the minor against the specific adoption of a substance abuse risk behavior. A close parent–child relationship has been found to be one mechanism responsible for promoting resilience and decreasing delinquency in Mexican–American youth [48]. Is this result a reflection of some traits of

collectivist cultures, like the Spanish one [28], or a general pattern present in an overall assortment of cultures? Even the social construction of mental illness changes in each culture [49]. This adverse experience may therefore foster neutral, negative or even positive consequences, depending on the culture. Further examination of compensatory factors for the long-term effects of some specific ACEs in different cultures is urgently required.

Another tentative explanation may rest upon some individual characteristics of children. Maybe children experiencing mental illness and domestic violence in the house tend to behave with fear and caution, avoiding extra risks that could contribute to the exacerbation of their situation. They might present a precocious maturity, even leading to role reversals, usually with parents (e.g. taking care of them). In fact, this personal characteristic of precocious maturity is one of the proposed features that may foster resilience in maltreated children [50].

Additionally, other characteristics of children such as a strong sense of autonomy [51], and the ability to think and act separately from their parents appear to be important protective factors in these adverse situations. Resilient children seem to be able to distinguish perfectly between their own experiences and the problematic experiences of their parents (mental illness and domestic violence), therefore thinking that their future would be different from that of their parents [38]. In the same line, perceived positive experiences in childhood seem to mitigate the adverse effects of family violence in childhood on adult mental health [52].

In summary, these counterintuitive results allow us to open a promising research line that must be promoted in future studies, which emphasizes the importance of studying not only the cumulative association of ACEs but also their individual associations,

focusing on the distinction between primary victimizations and household dysfunctions. For instance, drug consumption appears to be mainly associated with primary victimization experiences, such as sexual abuse and emotional neglect. This result was also reported by Sharp et al. [9], and it seems logical if we consider that the use of illegal drugs is a more extreme strategy for coping with a more severe situation, such as primary victimization. Society in general is far less tolerant of drug use than alcohol abuse. Purchasing and consuming alcohol is legal for adults. That is, minors under 18 years are not allowed to drink alcohol or be sold alcoholic beverages. Meanwhile, the possession and use of illegal drugs is systematically punished in all situations. The highest prevalence in substance abuse and the earliest onset age is for alcohol, according to the Spanish Ministry of Health, Consumption and Social Welfare [53]. In line with this information, only 18% of the participants in this study reported never having consumed alcohol in their entire life, compared to 61% of participants who reported never having consumed drugs.

Finally, this study is not without some limitations. First, all the variables in this study were measured by self-report questionnaires, and with a retrospective design. This method may imply that some problems with recalling adverse experiences during childhood can emerge, such as memory problems or false memories [54, 55]. Nevertheless, the participants in this study were younger (18–20 years old) than those in most studies, and consequently they can easily remember events closer in time. Moreover, previous studies with young adults have yielded a good reliability of retrospective reports of ACEs [56]. Second, additional information about ACEs should be taken into account in future studies, since it is to be expected that age of onset, frequency, severity, or chronicity of exposure may have more severe implications than the number of exposures [5, 32], and may even depend on the type of ACE. Finally, this is a cross-sectional study. Inferences about causation cannot therefore be made.

Despite these limitations, this study supports the importance of examining specific adverse experiences rather than merely using an overall measure. Not only the cumulative measure of ACE but also the specific experiences may act as outstanding indicators of children at risk of future negative outcomes. Furthermore, this differential relation of specific ACEs provides some counterintuitive results that may be linked to resilient mechanisms in children. In this line, recent studies about ACEs have included protective and compensatory experiences (PACEs), which have been nearly absent from the research, such as strong and secure attachment with an adult, friends and hobbies, etc., [57, 58]. These resilient mechanisms are worth in-depth study as they may be the basis for prevention initiatives in substance consumption or at least in adopting harm reduction strategies. In addition, priority prevention strategies should be aimed at child maltreatment (versus household problems), as their relationship with ACEs is more unambiguous and explicit. In this way, we could prevent these experiences from translating to substance abuse patterns in emerging adulthood.

Summary

Very few studies have specifically analyzed the differential association of ACE subtypes with risky strategies adopted by young adults. In this study, we examine both the cumulative and individual associations of a wide range of ACEs with two types of substance consumption: alcohol and illegal drugs, among Spanish emerging adults. Results showed that emotional abuse and substance abuse in the household were significant predictors of alcohol consumption, and sexual abuse and emotional neglect, significant predictors of drug consumption. One interesting aspect was the finding of counterintuitive results. In specific terms, mental illness in the household was a significant negative predictor of both alcohol and drug consumption, and exposure to

domestic violence was a significant negative predictor of alcohol. In other words, adults with high levels of these specific ACEs have a lower probability of substance abuse than adults with low levels. These results may be linked to resilient mechanisms in children which can contribute to buffer the effects of some early household dysfunctions.

References

1. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spit AM, Edwards V, Marks JS (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. Am J Prev Med 14(4):245–258

2. Hughes K, Bellis MA, Hardcastle KA, Sethi D, Butchart A, Mikton, Jones L, Dunne MP (2017) The effect of multiple adverse childhood experiences on health: a systematic review and metanalysis. Lancet Public Health 2(8):e356–e366

3. Felitti VJ, Anda RF (2010) The relationship of adverse childhood experiences to adult medical disease, psychiatric disorders, and sexual behavior: Implications for healthcare. In: Lanius R, Vermetten E (eds) The impact of early life trauma on health and disease: the hidden epidemic. Cambridge University Press, Cambridge, pp 77–87

4. Bellis MA, Hughes K, Ford K, Rodriguez GR, Sethi D, Passmore J (2019) Life course health consequences and associated annual costs of adverse childhood experiences across Europe and North America: a systematic review and meta-analysis. Lancet Public Health 4(10):e517–e528

5. Liming KW, Grube WA (2018) Wellbeing outcomes for children exposed to multiple adverse experiences in early childhood: a systematic review. Child Adolesc Soc Work J 35:317–335.

6. Dong M, Anda RF, Felitti VJ, Dube SR, Williamson DF, Thompson TJ, Loo CM, Giles WH (2004) The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. Child Abuse Negl 28(7):771–784

7. Campbell JA, Walker RJ, Egede LE (2016) Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. Am J Prev Med 50(3):344–352

8. Olofson MW (2018) A new measurement of adverse childhood experiences drawn from the panel study of income dynamics child development supplement. Child Indic Res 11(2):629–647

9. Sharp SF, Peck BM, Hartsfeld J (2012) Childhood adversity and substance use of women prisoners: a general strain theory approach. J Crim Justice 40(3):202–211

10. Maguire-Jack K, Lanier P, Lombardi B (2019) Investigating racial differences in clusters of adverse childhood experiences. Am J Orthopsychiatry 90(1):106–114

11. Agnew R (2001) Building on the foundation of general strain theory: specifying the types of strain most likely to lead to crime and delinquency. J Res Crime Delinq 38(4):319–361

12. Nurius PS, Green S, Logan-Greene P, Borja S (2015) Life course pathways of adverse childhood experiences toward adult psychological well-being: a stress process analysis. Child Abuse Negl 45:143–153

13. Anda RF, Felitti VJ, Bremner JD, Walker JD, Whitfeld CH, Perry BD, Dube R, Giles WH (2006) The enduring effects of abuse and related adverse experiences in childhood. Eur Arch Psychiatry Clin Neurosci 256(3):174–186

14. Lew D, Xian H (2019) Identifying distinct latent classes of adverse childhood experiences among US children and their relationship with childhood internalizing disorders. Child Psychiatry Hum Dev 50(4):668–680

15. Gomis-Pomares A, Villanueva L (2020) The effect of adverse childhood experiences on deviant and altruistic behavior during emerging adulthood. Psicothema 32(1):33–39

16. Brown DW, Anda RF, Tiemeier H, Felitti VJ, Edward VJ, Croft JB, Giles WH (2009) Adverse childhood experiences and the risk of premature mortality. Am J Prev Med 37(5):389–396

17. Dube SR, Felitti VJ, Dong M, Chapman DP, Giles WH, Anda RF (2003) Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. Pediatrics 111:564–572

18. Blayney JA, Scalco M, Radomski S, Colder C, Read JP (2019) Sexual victimization histories and substance use trajectories during the transition out of college. Psychol Addict Behav 33(6):529–539

19. Dube SR, Anda RF, Felitti VJ, Edwards VJ, Croft JB (2002) Adverse childhood experiences and personal alcohol abuse as an adult. Addict Behav 27(5):713–725

20. Strine TW, Dube SR, Edwards VJ, Prehn AW, Rasmussen S, Wagenfeld M, Satvinder D, Croft JB (2012) Associations between adverse childhood experiences, psychological distress, and adult alcohol problems. Am J Health Behav 36(3):408–423

21. Leban L, Gibson CL (2020) The role of gender in the relationship between adverse childhood experiences and delinquency and substance use in adolescence. J Crime Justice 66:101637

22. Anda RF, Whitfeld CL, Felitti V, Chapman D, Edwards VJ, Dube SR, Williamson DF (2002) Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression. Psychiatr Serv 53(8):1001–1009

23. Dube SR, Anda RF, Felitti VJ, Croft JB, Edwards VJ, Giles WH (2001) Growing up with parental alcohol abuse: exposure to childhood abuse, neglect, and household dysfunction. Child Abuse Negl 25(12):1627–1640

24. Hawkins JD, Catalano RF, Mille JY (1992) Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. Psychol Bull 112(1):64–105

25. Rothenberg WA, Sternberg A, Blake A, Waddell J, Chassin L, Hussong A (2019) Identifying adolescent protective factors that disrupt the intergenerational transmission of cannabis use and disorder. Psychol Addict Behav. https://doi.org/10.1037/adb0000511

26. Shin SH, Miller DP, Teicher MH (2013) Exposure to childhood neglect and physical abuse and developmental trajectories of heavy episodic drinking from early adolescence into young adulthood. Drug Alcohol Depend 127(1–3):31–38

27. Arnett J (2000) Emerging adulthood: a theory of development from the late teens through the twenties. Am Psychol 55(5):469–480

28. Allem JP, Soto DW, Baezconde-Garbanati L, Unger JB (2015) Adverse childhood experiences and substance use among Hispanic emerging adults in Southern California. Addict Behav 50:199–204

29. Forster M, Grigsby TJ, Rogers CJ, Benjamin S (2018) The relationship between family-based adverse childhood experiences and substance use behaviors among a diverse sample of college students. Addict Behav 76:298–304

30. Mersky JP, Topitzes J, Reynolds AJ (2013) Impacts of adverse childhood experiences on health, mental health, and substance use in early adulthood: a cohort study of an urban, minority sample in the US. Child Abuse Negl 37(11):917–925

31. Cronholm PF, Forke CM, Wade R, Bair-Merritt MH, Davis, Harkins-Schwarz M, Pachter LM, Fein JA (2015) Adverse childhood experiences: expanding the concept of adversity. Am J Prev Med 49(3):354–361

32. Hsu YT, Kawachi I (2019) Timing of family adversity during adolescence and its impact on alcohol and tobacco initiation: a longitudinal study among Taiwanese adolescents. Child Psychiatry Hum Dev 50(2):257–267

33. Mersky JP, Janczewski CE (2018) Racial and ethnic differences in the prevalence of adverse childhood experiences: findings from a low-income sample of US women. Child Abuse Negl 76:480–487

34. Liu SR, Kia-Keating M, Nylund-Gibson K (2018) Patterns of adversity and pathways to health among White, Black, and Latinx youth. Child Abuse Negl 86:89–99

35. European Observatory for Drugs and Addictions (2017) European report on drugs 2017: Tendencies and news. OfIcina de Publicaciones de la Unión Europea, Luxemburgo

36. World Health Organization (2018) Alcohol consumption, harm and policy response fact sheets for 30 European countries. European Commission, Denmark

37. Lui PP, Zamboanga BL (2019) Ethnocultural diversity in alcohol use and misuse. Am J Orthopsychiatry 89(5):543–548

38. Beardslee W, Podorefsky D (1988) Resilient adolescents whose parents have serious affective and other psychiatric disorders: importance of self-understanding and relationships. Am J Psychiatr 145(1):63–69

39. Holden GW, Gower T, Chmielewski M (2020) Methodological considerations in ACEs research. In: Gordon GJG, Aff TO (eds) adverse childhood experiences: using evidence to advance research, practice, policy, and prevention. Academic Press, New York, pp 161–182

40. Murphy A, Steele M, Dube SR, Bate J, Bonuck K, Meissner P, Goldman H, Steele H (2014) Adverse childhood experiences (ACEs) questionnaire and adult attachment interview (AAI): implications for parent child relationships. Child Abuse Negl 38(2):224–233

41. Basto-Pereira M, Queiroz-Garcia I, Maciel L, Leal I, Gouveia-Pereira M (2020) An international study of pro/antisocial behavior in young adults. Cross Cult Res 54(1):92–105

42. Erdfelder E, Faul F, Buchner A (1996) G*POWER: a general power analysis program. Behav Res Methods Instrum Comput 28:1–11

43. Faul F, Erdfelder, Lang AG, Buchner A (2007) G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behav Res Methods 39(2):175–191

44. Castro JMC, Martini HA (2014) Statistical power and effect size calculating in G*Power: complementary analysis of statistical significance testing and its application in psychology. Salud Soc 5(2):210–244

45. Barrera DJ, Gaga-a B, Pabayos J (2016) Negative life events and maladaptive behaviors among Filipino adolescents: an empirical test of the general strain theory. Asian J Criminol 11(4):265–287

46. Mersky JP, Janczewski CE, Topitzes J (2017) Rethinking the measurement of adversity: moving toward second-generation research on adverse childhood experiences. Child Maltreat 22(1):58–68

47. Roos LE, Aff TO, Martin CG, Pietrzak RH, Tsai J, Sareen J (2016) Linking typologies of childhood adversity to adult incarceration: findings from a nationally representative sample. Am J Orthopsychiatry 86(5):584–593

48. O'Gara JL, Calzada EJ, Kim SY (2019) The father's role in risk and resilience among Mexican-American adolescents. Am J Orthopsychiatry 90:70

49. Lopez SR, Guarnaccia PJ (2000) Cultural psychopathology: uncovering the social world of mental illness. Annu Rev Psychol 51(1):571–598

50. Mrazek PJ, Mrazek DA (1987) Resilience in child maltreatment victims: a conceptual exploration. Child Abuse Negl 11(3):357–366

51. Benard B (2006) Using strengths-based practice to tap the resilience of families. In: Saleebey D (ed) The strengths perspective in social work practice. Allyn & Bacon, Boston, pp 197–220

52. Mehlhausen-Hassoen D, Winstok Z (2019) The association between family violence in childhood and mental health in adulthood as mediated by the experience of childhood. Child Indic Res 12(5):1697–1716

53. Spanish Ministry of Health, Consumption and Social Welfare (2017) Survey about alcohol and other drugs in Spain (EDADES, 1995- 2017). Secretaría de Estado de Servicios Sociales, Madrid

54. Colman I, Kingsbury M, Garad Y, Zeng Y, Naicker K, Patten S, Jones PB, Wild TC, Thompson AH (2016) Consistency in adult reporting of adverse childhood experiences. Psychol Med 46(3):543–549

55. Reuben A, Moftt TE, Caspi A, Belsky D, Harrington H, Schroeder F, Hogan S, Poulon R, Danese A (2016) Lest we forget: comparing retrospective and prospective assessments of adverse childhood experiences in the prediction of adult health. J Child Psychol Psychiatry 57(10):1103–1112

56. Pinto R, Correia L, Maia ÂC (2014) Assessing the reliability of retrospective reports of adverse childhood experiences among adolescents with documented childhood maltreatment. J Fam Violence 29:431–438

57. Hays-Grudo J, Morri AS (2020) Adverse and protective childhood experiences: a developmental perspective. American Psychological Association, Washington

58. Lamson A, Richardson N, Cobb E (2020) The health and readiness of service members: ACEs to PACEs. Mil Med 185:348–354

STUDY 3

DOES IT RUN IN THE FAMILY? INTERGENERATIONAL TRANSMISSION OF HOUSEHOLD DYSFUNCTIONS

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Abstract

One of the most evident negative outcomes of adverse childhood experiences at vulnerable ages in childhood and adolescence seems to be intergenerational transmission or continuity in later periods of life. Most studies analyze this phenomenon in terms of direct victimizations, but what about the intergenerational transmission of more indirect victimizations, such as household dysfunctions (substance abuse, mental illness, or incarceration in the family)? The objective of this study is to examine if young adults present similar dysfunctions to those they experienced in their family as a child. This study included 420 Spanish young adults aged between 18 and 20 (*M*= 18.92), 63.3% of whom were females. All of them answered self-report questionnaires about household dysfunctions during their childhood and adolescence, and a general questionnaire about current similar behavior (drug and alcohol use, mental health problems and psychological distress, coping strategies, detentions/arrests, and deviant behavior), at the same data collection period. Both regression models and fuzzy qualitative analyses support the intergenerational transmission or continuity of household dysfunctions in this Spanish population. Some household dysfunctions presented a more univocal and specific intergenerational transmission process and others were mainly present in combination to yield negative results.

Keywords: household dysfunctions; intergenerational transmission; emerging adulthood; Spanish population; adverse childhood experiences.

Introduction

Early negative life experiences seem to contribute to the impairment of different developmental milestones in children and adolescents, such as outstanding emotional, social and cognitive processes (Felitti et al., 1998). Moreover, risky behavior and strategies are activated to cope with the stress and anxiety caused by these adverse experiences, resulting in a vast array of negative outcomes in later periods of life (Hughes et al., 2017). These negative consequences associated with adverse childhood experiences include problems with psychological wellbeing, antisocial and delinquent behavior (Basto-Pereira et al., 2016; Gomis-Pomares & Villanueva, 2020), mental health and somatic disturbances, sexual dissatisfaction (Anda et al., 2006), autoimmune diseases (Dube et al., 2009), and even premature death (Brown et al., 2009).

Given the vast array of negative outcomes in the individual's life, these experiences represent a high cost for healthcare systems, social services, or mental health systems (Loxton et al., 2019). Bellis et al. (2019) argue that a 10% reduction in the prevalence of adverse childhood experiences could equate to annual savings of $105 billion in Europe and North America. Ensuring safe and nurturing childhoods would prevent those negative outcomes from appearing and would also be economically beneficial and relieve pressures on all these systems.

However, one of the most long-term consequences of negative experiences in childhood and adolescence that contributes to perpetuating the cycle of violence is the intergenerational transmission or continuity of these experiences (Madigan et al., 2019; Warmingham et al., 2020). Some authors refer to this phenomenon as "the possibility of negative cascading consequences from generation to generation" (Thornberry et al., 2012, p. 136). According to this concept, maltreated children are likely to repeat their

maladaptive family patterns when they are adults. Within a social learning perspective, these children seem to assume that there is a set of rules in behavior where the maladaptive patterns are appropriate. Another possible explanation lies in the attachment paradigm: early rejecting experiences seem to be part of the representational models transmitted to the next generation (Kaufman & Ziegler, 1989).

In this context, Kaufman & Ziegler (1989), suggest a widely accepted estimated intergenerational transmission rate of 30% (±5%) for direct maltreatment (not indirect maltreatment was analyzed), i.e., six times higher than the base rate for abuse in the general population (5%). Nevertheless, some recent reviews offer prevalence rates of continuity ranging from 7 to 88%, depending on a vast array of variables (Langevin et al., 2019). The situation also involves a large number of individuals who fortunately do not repeat the learnt maladaptive patterns. The individuals that broke the cycle of violence presented more social support, were better able to give detailed accounts of their own experience, less likely to have been abused by both parents, and more apt to report a supportive relationship with one of their parents (Berlin et al., 2011; Kaufman & Ziegler, 1989; Langevin et al., 2019).

When it takes place, this intergenerational transmission seems to be stronger for physical abuse (Berlin et al., 2011; Madigan et al., 2019). However, other studies found that the strongest evidence for this link was for sexual abuse and neglect (Widom et al., 2015). In other words, there is no clear answer to this specific question, or at least the answer is still controversial. In fact, most of the meta-analyses carried out to confirm the cycle of maltreatment hypothesis do not provide a definitive answer, and show modest effect sizes (Capaldi et al., 2019; Madigan et al., 2019), and methodologically weaker designs (Thornberry et al., 2012).

Intergenerational Transmission and Household Dysfunctions

There are very few studies examining the transmission of other kind of adverse childhood experiences (ACEs), apart from the very well-known direct victimizations: abuse and neglect (Berzenski et al., 2014). The following question is consequently pertinent: what about the intergenerational transmission of more indirect ACEs, such as household dysfunctions? To what extent do young adults present similar dysfunctions as the ones they experienced in their family? The objective of this study is to analyze whether these early household dysfunctions have negative consequences in later adjustment, and if these negative consequences follow a similar pattern to the household dysfunctions. In specific terms, the intergenerational transmission or continuity of three household dysfunctions in childhood and adolescence will be studied: having incarcerated household members, substance abuse in the household, and mental illness in the household.

Children with incarcerated parents or household members commonly tend to display more behavioral problems (Geller et al., 2009) later in development, and supporting the intergenerational transmission process, an incarcerated household member predicted the likelihood of individuals of presenting subsequent arrests (Besemer et al., 2017a; Muniz et al., 2019), and being incarcerated themselves (Augustyn et al., 2019; Murray & Farrington, 2005), as if these early behavioral problems had continued and even worsened. Some authors suggest that labelling effects might be stronger for children of incarcerated parents (Augustyn et al., 2019; Besemer et al., 2017b), and others appeal to the "linked lives" perspective, in which intertwined relation- ships (such as those of parents and children) influence each other (Thornberry et al., 2003), in a kind of deviant social learning (van Dijk et al., 2019). Additional risk factors such as a decrease of the

parenting quality, an increased exposure to delinquent peers, or material hardship, can also be found (Wildeman, 2020).

The variable of parental mental health is usually considered a mediator or a moderator variable. Not in vain, it is highly relevant that this household dysfunction presents the highest co-occurrence with other ACEs (parental separation, parental convictions, etc.), (Lacey et al., 2020). This variable consistently emerges as a probable mechanism involved in intergenerational transmission (Berzenski et al., 2014; Langevin et al., 2019). Household mental illness has been linked to a higher risk of internalizing problems, such as depression and anxiety (Bevilacqua et al., 2021; Muniz et al., 2019), as well as to a higher risk of externalizing problems (aggression, conduct problems, and criminal activity in children), (Anderson & Hammen, 1993). Nevertheless, other studies offer a more precise picture of this variable which seems to operate differently depending on the specific maltreatment, sometimes reducing rates of transmission (for physical abuse) or increasing those rates (for sexual abuse), (Choi et al., 2019; Pears & Capaldi, 2001). However, no studies with indirect victimizations are known to date.

In contrast to other family dysfunctions, studies have mainly yielded mixed results regarding household substance abuse and intergenerational transmission (Langevin et al., 2019). The studies showing a positive link between the two variables showed that children whose parents consume illegal substances were more likely to also use drugs (Augustyn et al., 2020; Kerr et al., 2020). In some studies, this negative effect was even present across three generations (Neppl et al., 2020; Tiberio et al., 2020). In addition, substance abuse in the household also predicted externalizing outcomes, such as violence and chronic offending (Edwards et al., 2001; Muniz et al., 2019).

Although household dysfunctions have traditionally been studied as if they were independent, the fact is that these ACEs mostly occur in combination (Berzenski & Yates, 2011). It is also true that it is difficult to find participants who have experienced just one single form of ACE. In fact, the most common situation is an individual presenting several negative experiences in their life, which may have a cumulative effect (Felitti & Anda, 2010). For example, between 12.3% and 70% of children between 0–6 years old were exposed to three or more ACEs (Liming & Grube, 2018), and 81%–98% of adults had experienced at least two ACEs (Dong et al., 2004). The use of various methodologies, such as fuzzy qualitative comparative analysis which enables a combination of several adverse experiences, will therefore provide interesting and complementary information beyond regression models. Both analytical methodologies (regression and fuzzy analysis) will be used in this study.

Finally, research about racial and ethnic differences in ACEs has been scarce (Cronholm et al., 2015), especially in Spanish populations in comparison to English-speaking countries, where the original sample of the ACE study came from (Felitti et al., 1998). In their review of the intergenerational cycle of maltreatment, Langevin et al. (2019) found that 94% of the studies analyzed were carried out in English- speaking countries. One of the key points of collectivism cultures like Spanish society is the value of the family, which can either buffer the impact of ACEs or on the contrary, exacerbate vulnerability among its members (as ACEs are considered an important violation of family obligations), (Allem et al., 2015). Moreover, some studies point out that the subjective perception of adversity may differ in different racial and ethnic contexts. For example, in the study by Mersky and Janczewski (2018), White participants were more likely to report a household dysfunction than Blacks, and Hispanics living in the United States. Forster et al. (2018) also found consistently that in Pacifc/Asian culture, adverse

childhood experiences were mainly private matters that could stigmatize the family and therefore could not be reported. Cultural nuances in childhood are undoubtedly of great interest for the study of long-term consequences.

Besides considering a different cultural origin, this study tries to overcome the problems associated with self-report recall of traumatic events in a retrospective design. Previous studies have consistently found some difficulties with remembering events that happened during childhood due to the lack of memory or false memories, but most of them were carried out with older adults (Colman et al., 2016). In this study, participants from a younger age range (18–20 years old) are included, as they can outperform older adults in memory capacity (Fuhrmann et al., 2015; Schneider, 2014). In fact, good reliability for retrospective reports of ACEs and outstanding levels of longitudinal continuity have already been reported for this population (McAdams et al., 2006; Pinto et al., 2014).

The Current Study

The contributions made by this study are as follows: the use of non-clinical or at-risk populations, the existence of a comparison group of non-maltreated minors, the inclusion of a valid measure for assessing household dysfunctions, and controls for potential confounding factors (such as gender and age), which are some of the study quality indicators suggested in this field by Madigan et al. (2019). In addition, this study provides a combination of different data analyses (regression models and fuzzy qualitative comparative analysis), as well as an insight into a sample that is geographically distinct from the original study of household dysfunctions by Fellitti et al. (1998). Finally, most studies examine household dysfunction influences in the later stages of adulthood, but not in emerging adulthood, which is also an increasingly important developmental

phase in western societies (Arnett, 2000). This study includes emerging adults from 18 to 20 years old, and therefore does not present the weakness of other studies with older participants.

The objective of this study is therefore to analyze if early household dysfunctions present an intergenerational transmission or continuity in Spanish emerging adults. The hypotheses posited are as follows: (1) Substance abuse in the household will be related to a higher substance use and the use of coping strategies based on substance use in emerging adulthood; (2) Having incarcerated household members in childhood will be linked to a higher rate of detentions and arrests, and deviant behaviors in emerging adulthood; (3) Mental illness in the household will be associated with a higher prevalence of mental problems and psychological distress in emerging adulthood.

Method

Participants

The present study included 420 young adults from a province in the Valencian Community in Spain. Their ages ranged between 18 and 20 years, with a mean age of 18.92 (*SD*= 0.77), and 63.3% were females. As regards the cultural majority/minority, the largest proportion of participants had a Spanish cultural background (92.7%). In relation to the level of schooling, 4.3% had completed only primary education, 42.7% had completed up secondary school, and 53% were university students.

Measures

Sociodemographic questionnaire. This questionnaire was used to collect sociodemographic information such as gender, age and school grade achievement. The following information about current behavior was also collected in the format of yes/no answers:

- Detained/Arrested: “Have you ever been detained or arrested?”
- Mental illness: “Do you have any serious mental health problem?”
- Illicit drug use: “Have you ever used illegal drugs?”
- Alcohol use: “Have you ever been drunk with alcoholic drinks?”

Adverse Childhood Experiences. The ACE study questionnaire (Felitti et al., 1998; Spanish version translated by some authors of this study) evaluates adverse childhood and adolescent experiences. All the questions about adverse childhood experiences pertain to the respondents’ first 18 years of life, and concern three general areas: abuse, neglect and household dysfunction. In this study, the focus is only on the area of household dysfunction, namely in:

- Household substance abuse (2 items). Two questions asked whether during their childhood, the respondents had lived with a problem drinker or alcoholic or with anyone who used street drugs. An affirmative response to either of these questions indicated childhood exposure to substance abuse in the household.
- Mental illness in household (2 items). A "yes" response to the questions "Was anyone in your household mentally ill or depressed?" and “Did anyone in your household attempt to commit suicide?” defined this adverse childhood experience.
- Incarcerated household members (1 item). This experience was defined with the following question: “Did anyone in your household go to prison?”

Each adverse experience (ACE dimension) was dichotomized according to the original author's instructions (see Felitti et al., 1998; Pinto et al., 2014); if the subject scored one or more items in a category, it was considered present; otherwise, it was considered absent. Although it is not totally appropriate to measure factor invariance or internal consistency for items composing ACE dimensions, the questionnaire showed appropriate psychometric characteristics in previous studies (Holden et al., 2020; Pinto et al., 2014).

Deviant Behavior Scale (DBVS). This self-reported frequency scale measures current deviant behavior which includes both illegal behavior (e.g., "Have you ever stolen something worth between 5 and 50 euros?") and rule-breaking behavior that is not illegal (e.g., "Have you ever lied to adults?"), (Sanches et al., 2016). The scale contains 19 items, answered in a two-point response style (Yes/No), regarding whether the participants have engaged in each of the 19 behaviors during the previous year. The total score for deviant behaviors is obtained by the sum of positive answers. Previous studies have shown good psychometric properties for this scale (Sanches et al., 2016).

Depression Anxiety and Stress Scale (DASS-21), (Daza et al., 2002). This is a self-report designed to measure the three related negative emotional states of depression, anxiety and tension/stress. Respondents indicate the extent to which they have experienced each of the symptoms listed in the 21 items during the previous week (e.g. "I found it difficult to relax", "I felt that life was meaningless" or "I tended to over-react to situations") using a Likert scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). The positive psychometric properties of the scale support its use for research (Daza et al., 2002).

Brief COPE Scale (Perczek et al., 2000). This scale is designed to assess a broad range of coping responses among adults in different situations. It contains 28 items and is rated by the four-point Likert scale, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four). Only one coping strategy was considered in this study: substance use, which consisted of two items: "I have been using alcohol or other drugs to make myself feel better" (item 4) and "I have been using alcohol or other drugs to help me get through it" (item 11). This scale has presented adequate psychometric characteristics in previous studies (Perczek et al., 2000).

Procedure

The data collected is part of the *International study of pro/antisocial behavior in young adults SOCIALDEVIANCE1820 Research Project* (for more details, see Basto-Pereira et al., 2020). The participants were invited to participate and recruited using convenience and snowball sampling methods, at high schools, schools for adults, universities, workplaces, and sports organizations. The questionnaires were administered collectively in the presence of the researchers, who explained the objective of the study beforehand. The Ethics Committee of the authors´ University approved this study (reference number 22/2018). All participants provided their written informed consent, and they had total freedom to choose whether to participate in the study. To encourage participation, participants were entitled to enter in a voucher draw. Despite this, a refusal rate of 3.3% was obtained.

The established preferential criteria specified a maximum gender discrepancy ratio of 35% to 65%, at least 10% non-student participants, and 10% to 50% with more than 12 years of education. In addition, the exclusion criteria included presenting less than 4 years

of schooling, not understanding the language, or having severe psychopathology, all of which might jeopardize participants' ability to understand and answer the questionnaire.

As there were few cases of young adults with household dysfunctions compared to the total sample obtained, after collecting the data it was decided to create a counterbalanced sample in the number of household dysfunctions, in order to subsequently analyze the predictive capacity of the variables considered. The variable "sum of ACE household dysfunction" was created for this reason. A first subsample of 210 young adults (of a total of 490) was then obtained, whose score was one or more in this variable. A second subsample, with similar gender percentages (X^2= 0.12; p= 0.98) and a similar average age (t= 1.65; p= 0.13) as the first subsample, was then randomly selected. In this case, the subsample did not have any dysfunction scores in the household variable (N= 210), (comparison group), creating a total sample formed by 420 participants.

Data Analysis

Regression models (both linear and logistic) mainly focus on the individual contribution of each household dysfunction, whereas the second strategy, fuzzy qualitative comparative analysis, also carried out in this study, enables a search of different combinations leading to the same outcome (Ragin, 2014). This type of strategy is a novel method for analysing complex phenomena in social sciences. Given that there is an interdependence between conditions (household dysfunctions) (Dong et al., 2004), different dysfunctions combining in complex ways may also produce negative outcomes. This study therefore uses a complex method that permits a more nuanced discussion about the negative consequences of a combination of household dysfunctions, mainly as they take place in real life.

First, logistic regression for dichotomous variables (arrested/detained, mental health problems and drugs and alcohol consumption), and linear regressions for continuous variables (DVBS, coping strategies and DASS-21) were carried out to analyze how experience of dysfunctional household situations is related to all the variables mentioned above. In all the regression models, the reference group was the group which had suffered from the adverse experience (e.g., family members who use alcohol or drugs, who suffer from mental illness, or who are or have been incarcerated). In this way, the value of the odds ratio expresses the increased risk in the direction that is consistent with the theory.

Second, fuzzy-set qualitative comparative analysis (fsQCA) was performed. This type of analysis enables a conjunction of all logically possible combinations of conditions. QCA assumes that the influence of a particular attribute on a specific outcome depends on a combination of attributes, rather than on individual levels of attributes (de la Barrera et al., 2019). In fsQCA, consistency represents the extent to which a causal combination leads to an outcome whereas coverage represents how many cases with the outcome are represented by a particular causal condition. The difference between the coverage and consistency indices is that the former reflects the total proportion of positive cases explained, while the latter reflects the proportion of cases with a certain causal configuration that are positive. In the calculation of both indices, the numerator is given by the number of positive cases with the proposed causal configuration. But in the coverage index, the denominator is the total number of positive cases, while in the consistency index, the denominator is the total number of cases in the causal configuration (Elliott, 2013).

Calibration values for QCA were then calculated, missing data were deleted (n=35 participants), and all the constructs (variables) were recalibrated. These were gender

(male=0; female = 1); household dysfunction ACEs (0 = absence; 1=presence) and all variables collected from the sociodemographic questionnaire (detained/arrested, mental illness and drug and alcohol use). The values of age, deviant behavior, coping strategy involving substance use and the three constructs of DASS (stress, anxiety, and depression) were recalibrated considering three thresholds: 10% (low level or fully outside the set), 50% (intermediate level, neither inside nor outside the set), and 90% (high level or fully in the set). After the responses had been transformed, necessary and sufficient condition tests were used to evaluate the effect of adverse childhood experiences related to household dysfunction on deviant behavior, drugs and alcohol use and psychological distress. Necessary conditions are the causes that must always be present to produce a specific result, whereas sufficient conditions are those which can produce a certain result, but their presence is not necessary. The IBM SPSS Statistics 24 software package (IBM Corporation) was used to perform the logistic regression models, and QCA 3.0 software (Claude & Christopher, 2014) was used to perform QCA.

Results

The predictive power of the variables under study were analyzed using logistic and linear regressions, depending on the nature of the target variable (Tables 1 and 2). First, having an incarcerated family member significantly predicted having been arrested or detained (R^2 adjusted =.31, $p \leq 0.001$), but not the other indicators. Second, living with relatives that had used substances such as alcohol and illegal drugs was a predictor of drug consumption (R^2 adjusted =.07, $p \leq 0.05$), deviant behavior (R^2 adjusted = .13, $p \leq 0.05$) and sub - stance use coping strategies (R^2 adjusted =.05, $p \leq 0.001$). Third, living with mentally ill family members predicted having more stress (R^2 adjusted =.05, $p \leq 0.001$), anxiety (R^2 adjusted =.05, $p \leq 0.001$), and depression problems (R^2 adjusted =.04,

$p \leq 0.001$) in emerging adulthood. However, it was not a good predictor of having a serious mental health problem in emerging adulthood. Moreover, gender was a predictor of drug consumption (R^2 adjusted =.07, $p \leq 0.05$), deviant behavior (R^2 adjusted =.13, $p \leq 0.05$) and substance use coping strategies (R^2 adjusted =.05, $p \leq 0.001$), with males more likely to present those behaviors, and for stress problems (R^2 adjusted =.05, $p \leq 0.001$), with females to experience those problems.

A comparative qualitative analysis of fuzzy sets (QCA) was then performed. Based on the assumption that a model in QCA is informative when the consistency is around or above 0.75 (Eng & Woodside, 2012), the resulting models for each dimension are shown below (Table 3). The various interactions accounted for 20% in the case of being arrested (overall consistency =1; overall coverage =.20) and 7% for deviant behavior (overall consistency =.79; overall coverage =.07). In the former case, only one pathway appeared as a predictor of being arrested/ detained. Accordingly, being a man, younger, not having witnessed any substance abuse at home and having a relative incarcerated were the variables that explained 20% of cases. In the latter case, the three most relevant pathways for predicting an increased incidence of deviant behavior were the interaction of being a man, having witnessed substance abuse by a family member at home, and having a relative with a mental illness. Another pathway included being a man and having a relative in prison. The third pathway contained being older, having observed family members using substances, not having relatives with any mental illness and having family members in prison.

For the prediction of drug and alcohol consumption, three combinations were observed which explained 8% (overall consistency =.90; overall coverage =.18) and 90% (over - all consistency =.89; overall coverage =.90) of the cases respectively. For drug

use, being a younger woman, having relatives with mental illness and substance abuse problems, and not having family members incarcerated were the variables that explained 7% of the cases. The second pathway was the result of the interaction of being younger, not having a history of mental illness in the family and having a relative in prison. Finally, the combination of having relatives with substance abuse or incarceration and the absence of any household mental illness accounted for 4% of the cases. Meanwhile, the prediction of alcohol consumption was the result of the interaction of not having either mentally ill or incarcerated relatives. Second, the combination of being younger and not having any relative in prison accounted for 54% of the cases. Finally, in the third pathway being a man and an absence of any mental illness in the household explained 30% of the cases.

In the same vein, for the prediction of maladaptive coping strategies through substance use, the three most important pathways explained 22% of the cases (overall consistency=.81; overall coverage=.22). These three pathways were as follows: the first was due to the combination of being older, not having witnessed substance abuse at home and having a relative with a mental illness. The second pathway contained being younger with an experience of relatives with mental illness and substance abuse. The third pathway was the result of the interaction of being a man, younger and having a relative with a substance abuse problem.

Finally, for psychological distress, Table 3 shows the different pathways that best predict the greatest presence of these variables. First, for the prediction of suffering from serious mental health problems, three paths or conditions explained 39% (overall consistency=.39; overall coverage=.90). The first was the result of the interaction of being a woman, not having relatives with substance abuse problems but having relatives with a mental illness and incarceration. The second pathway contained being a man and being

older, not having family member with substance abuse, and having incarcerated family members. In the third case, being older, not having relatives with substance abuse problems but having relatives who were incarcerated or with mental illness explained 10% of cases. The prediction of a higher presence of stress explained the 12% of the cases (overall coverage=.12, overall consistency=.84). The first pathway was explained by the joint combination of being a woman and younger, having witnessed family members with substance problems at home, and not having relatives with mental problems or incarcerated. The combination of being female, older, with relatives with substance abuse problems and mental illness, and not having family members incarcerated were those who explained the second pathway, accounting for 3% of the cases. The third pathway was the result of the interaction of being male, younger, having experienced substance abuse by a member of the household, and having relatives with mental illness.

Table 1. *Logistic Regression for Categorical Variables*

	Have been arrested				Drug use				Alcohol use				Serious mental health problems			
	B	SE	Wald	*p*	B	SE	Wald	*p*	B	SE	Wald	*p*	B	SE	Wald	*p*
Gender (1)	-.73	1.01	.51	.474	-.53	.21	6.30	.012*	-.27	.32	0.73	.392	.91	.94	.65	.421
Substance abuse household	-1.61	1.37	1.39	.239	.66	.28	5.68	.017*	.63	.44	2.01	.157	1.36	1.14	2.13	.145
Mental Illness household	-.82	1.28	.41	.523	-.33	.23	1.96	.161	-.56	.31	3.21	.073	-.63	8915.2	.31	.581
Incarcerated member household	4.54	1.12	13.35	.000*	1.09	.60	3.34	.068	-.79	.63	1.54	.215	-17.32	.60	.00	.998
NR^2				.312				.065				.029				.061

B = Regression coefficient ; SE = Standard error ; NR^2. $^*p \leq .05$.

Table 2. *Linear Regression for Quantitative Variables*

	Deviant Behaviour				BCS Substance Use				DASS Stress				DASS Anxiety				DASS Depression			
	B	SE	t	*p*	B	SE	t	*p*	B	SE	t	*p*	B	SE	t	*p*	B	SE	t	*p*
Gender (1)	-2.38	.33	-7.18	.000*	-.26	.07	-2.99	.003*	.21	.07	2.96	.003*	.09	.05	1.34	.181	.03	.06	.42	.676
Substance abuse household	1.18	.43	2.74	.006*	.44	.09	3.90	.000*	.16	.90	1.81	.071	.15	.06	1.76	.079	.09	.07	1.01	.313
Mental Illness household	-.16	.37	-0.45	.656	.13	.11	1.38	.170	.25	.08	3.20	.001*	.28	.08	3.90	.000*	.31	.09	4.19	.000*
Incarcerated member household	1.01	.80	1.27	.205	-.25	.10	-1.20	.229	-.08	.18	-.45	.651	-.12	.07	-.79	.432	-.07	.07	-.41	.683
R^2 Adjusted				.129				.053				.051				.045				.039

B = Regression coefficient; SE = Standard error; R^2 of Nagelkerke; $^*p \leq .05$; BCS= Brief Cope Scale; DASS= Depression, Anxiety and Stress Scales.

Table 3. *Summary of the main sufficient conditions for the intermediate solution of the study variables for Fuzzy Analysis*

	Arrested	Drug use			Alcohol use			Serious mental health problems			DBV			BCS Substance Use			DASS Stress			DASS Anxiety			DASS Depression		
Frequency cutoff: 1;	*Consistency cutoff:1*	*Consistency cutoff:.82*			*Consistency cutoff:.82*			*Consistency cutoff:.83*			*Consistency cutoff:.84*			*Consistency cutoff:.82*			*Consistency cutoff:.81*			*Consistency cutoff:.81*			*Consistency cutoff:.83*		
	1	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Male	●	○					●	○	●		●	●				●	○	○	●		○	●		○	
Older	○	○	○			○			●	●			●	●	○	○	○	●	○	○	●	●	○	○	○
Substance abuse household	○	●		●				○	○	○	●		●	○	●	●	●	●	●	●	●	●	●	●	○
Mental Illness household		●	○	○	○		○	●		●	●		○	●	●		○	●	●	●	●	○	●	●	○
Incarcerated member household	●	○	●	●	○	○		●	●	●		●	●				○	○		○	●	●	○	●	●
Raw coverage	.20	.07	.07	.04	.72	.54	.09	.20	.10	.19	.05	.03	.01	.11	.05	.04	.04	.03	.02	.05	.01	.01	.05	.01	.01
Unique coverage	.20	.03	.01	.01	.14	.03	.01	0	0	.01	.03	.02	.01	.09	.03	.02	.04	.03	.02	.05	.01	.01	.05	.01	.01
Consistency	1	.81	1	1	.89	.89	.90	.99	.99	.99	.77	.81	.93	.84	.86	.88	.83	.81	.94	.81	.81	.81	.85	.83	.98
Overall solution consistency	**1**			**.90**			**.89**			**.90**			**.79**			**.81**			**.84**			**.81**			**.86**
Overall solution coverage	**.20**			**.18**			**.90**			**.39**			**.07**			**.22**			**.12**			**.07**			**.08**

Note: DBV: Deviant Behavior; BCS: Brief Cope Scale; DASS: Depression Anxiety Stress Scales; Expected vector (0: absent; 1: present); Expected vector for have been arrested: 1.0.1.1.1; Expected vector for drugs use: 1.0.1.1.1; Expected vector for alcohol use: 1.0.1.1.1; Expected vector for mental illness: 0.1.1.1.1; Expected vector for DVB: 1.0.1.1.1; Expected vector for BCS Substance Use: 1.0.1.1.1; Expected vector for DASS Stress: 0.1.1.1.1; Expected vector for DASS Anxiety: 0.1.1.1.1; Expected vector for DASS Depression: 0.1.1.1.1.

Meanwhile, three paths explained the prediction of suffering levels of anxiety increased by 7% (overall coverage=.07; overall consistency=.81). These routes were as follows: being younger, having relatives with substance abuse problems and mental problems, and not having any incarcerated family member; being female and older with a family member with substance abuse problems, mental illness and who is incarcerated; and finally, the combination of being male and older, with relatives who are incarcerated or with substance abuse problems and not having family members with a mental illness. Finally, the presence of high levels of depression was observed in three main interactions that explained 8% of the cases (overall coverage=.08; overall consistency=.86). The frst pathway accounted for 5% of the cases and was the result of the interaction of being younger, having relatives with substance abuse or mental illness and not having an incarcerated family member. Second, being female and younger, and having witnessed substance abuse, mental illness and having an incarcerated family member explained 1% of the total cases. The third pathway was the result of being younger, not having relatives with either substance abuse problems or mental illness, and not having an incarcerated family member.

Discussion

The main objective of this study was to analyze the existence of an intergenerational transmission or continuity of household dysfunctions in Spanish emerging adults. The first hypothesis posited that substance abuse in the household would be related to a higher level of substance use and the use of coping strategies based on substance use in emerging adulthood. This was fully supported by the results.

Household substance abuse predicted drugs consumption (but not alcohol consumption), supporting the intergenerational transmission found in previous studies in

mainly English-speaking countries (Kerr et al., 2020; Langevin et al., 2019). In addition, substance abuse in the household also predicted deviant behavior in later development, as reported in other studies (Edwards et al., 2001; Muniz et al., 2019). The original contributions of this study mainly refer to two aspects: first, although the intergenerational transmission for drug use is quite clear, it is not as clear for alcohol use patterns. This may indicate that a distinction should be made between the two substances when carrying out research on these negative outcomes. Drug use seems to be more subject to intergenerational transmission and therefore, to social learning processes. In fact, drugs use is a more extreme strategy for coping with adverse situations than alcohol. Society in general (and Spanish society in particular) is far less tolerant of drug use than alcohol use (Spanish Ministry of Health, Consumption and Social Welfare, 2017). While purchasing and consuming alcohol is legal for adults, the use of illegal drugs is systematically punished in all circumstances. Future studies should determine whether this distinction between the two substances in intergenerational transmission is peculiar to Spanish society, or whether on the contrary it is prevalent in any kind of society.

Second, this study also found that living as a child with an alcoholic or with someone who used street drugs was significantly related to the substance use as coping strategies in emerging adulthood. Not only do individuals follow the same behavioral pattern that they witness at home (drug abuse), but they also integrate the justification of these patterns through these maladaptive coping strategies in daily life. This subscale of substance use as a coping strategy is one of the strongest subscales in the confirmatory factor analysis of this questionnaire, with no cultural differences observed (Mohanraj et al., 2015).

The second hypothesis, having incarcerated household members in childhood would be linked to a higher rate of detentions/arrests, and to a higher presence of deviant

behaviors in emerging adulthood, was partially supported by the results. Having incarcerated household members predicted a higher rate of detentions and arrests, as found in previous research (Augustyn et al., 2019; Besemer et al., 2017a), but it did not predict deviant behaviors. Nevertheless, as mention below in the discussion of the results from fuzzy analyses, the combination of incarcerated household members, substance abuse household and male gender will be sufficient conditions for the appearance of deviant behaviors.

The third hypothesis was only partially supported by the results, i.e., mental illness in the household was not associated with a higher presence of self-reported mental problems, but it predicted various self-reported psychological distress indicators in emerging adulthood (depression, anxiety and stress). As observed in other studies, participants experiencing mental illness in their household in childhood had a higher risk of subsequently internalizing problems (Muniz et al., 2019). The single self-reported item included in this study for assessing mental health problems: "Do you have any serious mental health problem?" was possibly not a valid indicator for capturing the subtle nuances of the situation. Instead, the validated questionnaire DASS-21 was able to detect greater signs of psychological distress in emerging adults living with household members who had mental problems in their childhood or adolescence.

Focusing on the data analyses carried out in this study, both methodologies were consistent, and they both supported the presence of intergenerational transmission or continuity in the household dysfunctions analyzed. At the same time, the absence of a specific intergenerational transmission for alcohol use patterns consistently appears in both types of analyses.

However, the most outstanding contribution of fuzzy analyzes involves the possibility of analyzing different combinations of household dysfunctions leading to the same outcome (Ragin, 2014). Given that household dysfunctions always occur in combination, and that adverse experiences have a well-known cumulative effect, the combination of these adversities presents a more realistic picture of the situation. There were two main combinations of household dysfunctions: the first was more closely related to externalizing outcomes, and the second was more closely linked to internalizing negative outcomes. First, the combination of substance abuse and incarcerated household members were the main conditions for the occurrence of drug use and deviant behaviors. Given the close association between substance use and criminal activity (Esbec & Echeburúa, 2016), it seems logical to expect this combination of household dysfunctions to provide a more complete view of its effects on the next generation. In other words, participants living with household members with substance abuse and incarceration problems were more likely to repeat maladaptive externalizing patterns related to these dysfunctions (drug use and deviant behavior) in a later stage of their lives.

The second main combination of household dysfunctions included the three dysfunctions analyzed in this study. Living with household members with mental illness, substance abuse and incarceration problems were the sufficient conditions for the presence of different indicators of psychological distress (namely depression and anxiety) in emerging adulthood. In this case, caution must be exercised when considering whether this result supports intergenerational transmission of mental illness in the household, or of it is also a general manifestation of distress due to the cumulative presence of three adverse experiences in the household. Some authors suggest that the relationship between adverse childhood experiences and chronicity of depression is not simply due to continuity (Liu, 2017). In any case, the relationship between adverse childhood

experiences and depression appears to be a long-term relationship and is even observed in people in their sixties (Ege et al., 2015).

However, even using this type of fuzzy analyses, which enhance the possibility of combinations to achieve the same result, the "incarcerated member" household dysfunction did not present any combination with other dysfunctions to be a sufficient condition for the occurrence of detentions and arrests in the participant's life. In other words, this household dysfunction presented a more unambiguous and specific intergenerational transmission process in relation to being detained/arrested in emerging adulthood. Other studies have shown significant independent effects of this household dysfunction in comparison to other household dysfunctions (Campbell et al., 2016). Nevertheless, this specific characteristic of incarceration of a household member warrants further exploration in the future.

Limitations

Finally, this study is not without some limitations. The use of a nonprobability sample is a major limitation that might jeopardize the generalizability of results. Nevertheless, the principal characteristics of the population (gender, level of schooling, and so on) should be proportionally present, due to the established preferential criteria stated before in the Procedure.

Although this study incorporates a large number and different types of measures, only household dysfunctions with a direct correspondence with assessed indicators were included in this study. As a result, no exposure to domestic violence or parental separation (the other household dysfunctions in the questionnaire) were included in this research. In addition, self-reporting (either by individual items or validated questionnaires), was the main method used to collect the information. Further studies including the whole range

of household dysfunctions, the other direct adverse childhood experiences, and objective measures of negative outcomes (medical reports, official criminal records) would be very useful. Moreover, this study did not consider specific information about the nature of the participants' household dysfunctions in terms of their severity, frequency, timing, or agent (the mother, the father, or both). Previous studies have shown that certain variables, such as severity of the maltreatment (Berzenski et al., 2014), or the timing (Thornberry & Henry, 2013) may be linked to higher rates of intergenerational transmission. Future studies should try to incorporate this information, which will surely contribute to an understanding of intergenerational transmission or continuity.

Implications

Despite these limitations, the results from this study suggest that one of the most long-term consequences of negative experiences in childhood and adolescence, intergenerational transmission or continuity of these experiences, exists even for indirect victimizations such as household dysfunctions. Given that this transmission may affect until three generations, inevitably fostering family dependence on child protection services, urgent prevention strategies should be implemented. Priority prevention strategies should be aimed at breaking the intergenerational transmission, focusing first on direct and univocal processes, mainly expressed by externalizing behaviors (individuals with incarcerated household members and their higher probability of being detained or arrested), but also on the rest of cumulative processes of transmission. Professionals may be aware of the potential relation of cumulative household dysfunctions with later internalizing problems, mainly depression and anxiety. In this way, professionals could prevent these household experiences from being translated to individual maladjusted patterns in emerging adulthood. One outstanding tool to detect these adverse experiences in the household may be early home visitation, which has been

proved to be highly effective on reducing their prevalence (Bilukha et al., 2005; Felitti et al., 1998). In any case, networking and specialized training of all the agents involved in identifying ACEs and maladjusted strategies (schools, public health services, justice system), would be highly advisable.

Conclusion

All that said, the results of this study support the intergenerational transmission or continuity of household dysfunctions among Spanish emerging adults. Moreover, while some household dysfunctions presented a more univocal and specific intergenerational transmission process (e.g., individuals with incarcerated household members presented a higher probability of being detained or arrested), others household problems were mainly present in combination when yielding negative results (substance abuse household and mental illness household). These results may therefore illustrate possible pathways of transmission (specific or cumulative) after experiencing early household dysfunctions and may help professionals to establish clearer and tailored relationships between adverse childhood experiences and later adjustment. The cumulative pathway may be especially crucial as participants with more ACEs are less likely to find interventions helpful and more likely to quit prematurely (DeHart & Altshuler, 2009; Karatekin, 2019).

Although these results may present a negative scenario in terms of the continuity of household dysfunctions, the emerging adults analyzed in this study are still developing and building their own life trajectories (Arnett, 2000). They therefore still have time to break this pattern and adopt new and adaptive processes and strategies. Future studies should include a follow-up period in later developmental stages to analyze continuity versus desistance in these trajectories during adulthood.

References

Allem, J. P., Soto, D. W., Baezconde-Garbanati, L., & Unger, J. B. (2015). Adverse childhood experiences and substance use among Hispanic emerging adults in Southern California. *Addictive Behaviors, 50,* 199–204. https://doi.org/10.1016/j.addbeh.2015.06.038

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfeld, C. H., Perry, B. D., Dube, R., & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174–186. https://doi.org/10.1007/s00406-005-0624-4

Anderson, C. A., & Hammen, C. L. (1993). Psychosocial outcomes of children of unipolar depressed, bipolar, medically ill, and normal women: a longitudinal study. *Journal of Consulting and Clinical Psychology, 61*(3), 448–454. https://doi.org/10.1037/0022-006X. 61.3.448

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Augustyn, M. B., Loughran, T., Larroulet, P., Fulco, C. J., & Henry, K. L. (2020). Intergenerational marijuana use: A life course examination of the relationship between parental trajectories of marijuana use and the onset of marijuana use by offspring. *Psychology of Addictive Behaviors, 34,* 818–829. https://doi.org/10.1037/adb00 00530

Augustyn, M. B., Ward, J. T., Krohn, M. D., & Dong, B. (2019). Criminal justice contact across generations: Assessing the intergenerational labeling hypothesis. *Journal of*

Developmental and Life-Course Criminology, 5(2), 137–175. https://doi.org/10.1007/s40865-019-00118-3

Basto-Pereira, M., Miranda, A., Ribeiro, S., & Maia, A. (2016). Growing up with adversity: From juvenile justice involvement to criminal persistence and psychosocial problems in young adulthood. *Child Abuse & Neglect, 62*, 63–75. https://doi.org/10.1016/j. chiabu.2016.10.011

Basto-Pereira, M., Queiroz-Garcia, I., Maciel, L., Leal, I., & GouveiaPereira, M. (2020). An international study of pro/antisocial behavior in young adults. *Cross-Cultural Research, 54*(1), 92–105. https://doi.org/10.1177/1069397119850741

Bellis, M. A., Hughes, K., Ford, K., Rodriguez, G. R., Sethi, D., & Passmore, J. (2019). Life course health consequences and associated annual costs of adverse childhood experiences across Europe and North America: A systematic review and meta-analysis. *The Lancet Public Health, 4*(10), e517–e528. https://doi.org/10.1016/ S2468-2667(19)30145-8

Berlin, L. J., Appleyard, K., & Dodge, K. A. (2011). Intergenerational continuity in child maltreatment: Mediating mechanisms and implications for prevention. *Child Development, 82*(1), 162–176. https://doi.org/10.1111/j.1467-8624.2010.01547.x

Berzenski, S. R., & Yates, T. M. (2011). Classes and consequences of multiple maltreatment: A person-centered analysis. *Child Maltreatment, 16*(4), 250–261. https://doi.org/10.1177/1077559511428353

Berzenski, S. R., Yates, T. M., & Egeland, B. (2014). A multidimensional view of continuity in intergenerational transmission of child maltreatment. In J. E. Korbin & R. D. Krugman (Eds.), *Handbook of child maltreatment*. (pp. 115–129). Springer.

Besemer, S., Ahmad, S. I., Hinshaw, S. P., & Farrington, D. P. (2017a). A systematic review and meta-analysis of the intergenerational transmission of criminal behavior. *Aggression and Violent Behavior, 37,* 161–178. https://doi.org/10.1016/j.avb.2017.10.004

Besemer, S., Farrington, D. P., & Bijleveld, C. C. J. H. (2017b). Labeling and intergenerational transmission of crime: The interaction between criminal justice intervention and a convicted parent. *PLoS One, 12*(3), e017241. https://doi.org/10.1371/journal.pone.0172419

Bevilacqua, L., Kelly, Y., Heilmann, A., Priest, N., & Lacey, R. E. (2021). Adverse childhood experiences and trajectories of internalizing, externalizing, and prosocial behaviors from childhood to adolescence. *Child Abuse & Neglect*. https://doi.org/10.1016/j.chiabu.2020.104890

Bilukha, O., Hahn, R. A., Crosby, A., Fullilove, M. T., Liberman, A., Moscicki, E., & Briss, P. A. (2005). The efectiveness of early childhood home visitation in preventing violence: A systematic review. *American Journal of Preventive Medicine, 28*(2), 11–39. https://doi.org/10.1016/j.amepre.2004.10.004

Brown, D. W., Anda, R. F., Tiemeier, H., Felitti, V. J., Edwards, V. J., Croft, J. B., & Giles, W. H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine, 37*(5), 389–396. https://doi.org/10.1016/j.amepre.2009.06.021

Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American*

Journal of Preventive Medicine, 50(3), 344–352. https://doi.org/10.1016/j.amepre.2015.07.022

Capaldi, D., Tiberio, S., Pears, K., Kerr, D., & Owen, L. (2019). Intergenerational associations in physical maltreatment: Examination of mediation by delinquency and substance use, and moderated mediation by anger. *Development and Psychopathology, 31*(1), 73–82. https://doi.org/10.1017/S0954579418001529

Choi, K. W., Houts, R., Arseneault, L., Pariante, C., Sikkema, K. J., & Moftt, T. E. (2019). Maternal depression in the intergenerational transmission of childhood maltreatment and its sequelae: Testing postpartum effects in a longitudinal birth cohort. *Development and Psychopathology, 31*(1), 143–156. https://doi.org/10.1017/S0954579418000032

Claud, R. & Christopher. R. (2014). QCA [*Computer Programme*]. University of Houston-Downtown.

Colman, I., Kingsbury, M., Garad, Y., Zeng, Y., Naicker, K., Patten, S., & Thompson, A. H. (2016). Consistency in adult reporting of adverse childhood experiences. *Psychological Medicine, 46*(3), 543-549. https://doi.org/10.1017/S0033291715002032

Cronholm, P. F., Forke, C. M., Wade, R., Bair-Merritt, M. H., Davis, M., Harkins-Schwarz, M., & Fein, J. A. (2015). Adverse childhood experiences: Expanding the concept of adversity. *American Journal of Preventive Medicine, 49*(3), 354–361. https://doi.org/10.1016/j.amepre.2015.02.001

Daza, P., Novy, D. M., Stanley, M. A., & Averill, P. (2002). The depression anxiety stress scale-21: Spanish translation and validation with a Hispanic sample. *Journal of Psychopathology and Behavioral Assessment, 24*(3), 195–205.

DeHart, D. D., & Altshuler, S. J. (2009). Violence exposure among children of incarcerated mothers. *Child and Adolescent Social Work Journal, 26*(5), 467–479.

De la Barrera, U., Villanueva, L., & Prado-Gascó, V. (2019). Emotional and personality predictors that infuence the appearance of somatic complaints in children and adults. *Psicothema, 31*(4), 407–413. https://doi.org/10.7334/psicothema2019.69

Dong, M., Anda, R. F., Felitti, V. J., Dube, S. R., Williamson, D. F., Thompson, T. J., & Giles, W. H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect, 28*(7), 771–784. https://doi.org/10.1016/j.chiabu.2004.01.008

Dube, S. R., Fairweather, D., Pearson, W. S., Felitti, V. J., Anda, R. F., & Croft, J. B. (2009). Cumulative childhood stress and autoimmune diseases in adults. *Psychosomatic Medicine, 71*(2), 243. https://doi.org/10.1097/PSY.0b013e3181907888

Edwards, E., Leonard, K. E., & Eiden, R. D. (2001). Temperament and behavioral problems among infants in alcoholic families. *Infant Mental Health Journal, 22*(3), 374–392. https://doi.org/10.1002/imhj.1007

Ege, M. A., Messias, E., Thapa, P. B., & Krain, L. P. (2015). Adverse childhood experiences and geriatric depression: Results from the 2010 BRFSS. *The American Journal of Geriatric Psychiatry, 23*(1), 110–114. https://doi.org/10.1016/j.jagp.2014.08.014

Elliott, T. (2013). *Fuzzy set qualitative comparative analysis. Research Notes: Statistics Group*. https://www.socsci.uci.edu/~sgsa/docs/fsQCA_thomas_elliot.pdf.

Eng, S., & Woodside, A. G. (2012). Confgural analysis of the drinking man: Fuzzy-set qualitative comparative analyses. *Addictive Behaviors, 37*(4), 541–543. https://doi.org/10.1016/j.addbeh.2011.11.034

Esbec, E., & Echeburúa, E. (2016). Abuso de drogas y delincuencia: consideraciones para una valoración forense integral [Drug abuse and crime: considerations for a comprehensive forensic assessment]. *Adicciones, 28*(1), 48–56. https://doi.org/10.4324/9780203077146

Felitti, V. J., & Anda, R. F. (2010). The relationship of adverse childhood experiences to adult health, well-being, social function, and healthcare. In R. Lanius, E. Vermetten, & C. Pain (Eds.), *The impact of early life trauma on health and disease: The hidden epidemic (chapter 8).* (pp. 77–87). Cambridge University Press.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8

Forster, M., Grigsby, T. J., Rogers, C. J., & Benjamin, S. M. (2018). The relationship between family-based adverse childhood experiences and substance use behaviors among a diverse sample of college students. *Addictive Behaviors, 76*, 298–304. https://doi.org/10.1016/j.addbeh.2017.08.037

Fuhrmann, D., Knoll, L. J., & Blakemore, S. J. (2015). Adolescence as a sensitive period of brain development. *Trends in Cognitive Sciences, 19*(10), 558–566. https://doi.org/10.1016/j.tics.2015.07.008

Geller, A., Garfnkel, I., Cooper, C. E., & Mincy, R. B. (2009). Parental incarceration and child well-being: implications for urban families. *Social Science Quarterly, 90*(5), 1186–1202. https://doi.org/10.1111/j.1540-6237.2009.00653.x

Gomis-Pomares, A., & Villanueva, L. (2020). The effect of adverse childhood experiences on deviant and altruistic behavior during emerging adulthood. *Psicothema, 32*(1), 33–39. https://doi.org/10.7334/psicothema2019.142

Holden, G. W., Gower, T., & Chmielewski, M. (2020). Methodological considerations in ACEs research. In G. J. G. Gordon & T. O. Aff (Eds.), *Adverse childhood experiences: Using evidence to advance research, practice, policy, and prevention*. (pp. 161–182). New York: Academic Press.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356–e366. https://doi.org/10.1016/S2468-2667(17)30118-4

Kaufman, J., & Zigler, E. (1989). The intergenerational transmission of child abuse. In D. Cichetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect.* (pp. 129–150). Cambridge University Press.

Karatekin, C. (2019). Adverse childhood experiences (ACEs) and helpseeking for health-related interventions in young adults. *The Journal of Psychology, 153*(1), 6–22.

Kerr, D. C., Tiberio, S. S., Capaldi, D. M., & Owen, L. D. (2020). Intergenerational congruence in adolescent onset of alcohol, tobacco, and marijuana use. *Psychology of Addictive Behaviors, 34*(8), 839–851. https://doi.org/10.1037/adb0000546

Lacey, R. E., Howe, L. D., Kelly-Irving, M., Bartley, M., & Kelly, Y. (2020). The clustering of adverse childhood experiences in the Avon Longitudinal Study of Parents and Children: Are gender and poverty important? *Journal of Interpersonal Violence*. https://doi.org/10.1177/0886260520935096

Langevin, R., Marshall, C., & Kingsland, E. (2019). Intergenerational cycles of maltreatment: A scoping review of psychosocial risk and protective factors. *Trauma, Violence, & Abuse*. https://doi.org/10.1177/1524838019870917

Liming, K. W., & Grube, W. A. (2018). Wellbeing outcomes for children exposed to multiple adverse experiences in early childhood: A systematic review. *Child and Adolescent Social Work Journal, 35*(4), 317–335. https://doi.org/10.1007/s10560-018-0532-x

Liu, R. T. (2017). Childhood adversities and depression in adulthood: Current findings and future directions. Clinical Psychology: *Science and Practice, 24*(2), 140–153. https://doi.org/10.1111/cpsp.12190

Loxton, D., Townsend, N., Dolja-Gore, X., Forder, P., & Coles, J. (2019). Adverse childhood experiences and healthcare costs in adult life. *Journal of Child Sexual Abuse, 28*(5), 511–525. https://doi.org/10.1080/10538712.2018.1523814

Madigan, S., Cyr, C., Eirich, R., Fearon, R. P., Ly, A., Rash, C., Pool, J. C., & Alink, L. R. (2019). Testing the cycle of maltreatment hypothesis: Meta-analytic evidence of the

intergenerational transmission of child maltreatment. *Development and Psychopathology, 31*(1), 23–51. https://doi.org/10.1017/S0954579418001700

McAdams, D. P., Bauer, J. J., Sakaeda, A. R., Anyidoho, N. A., Machado, M. A., Magrino-Failla, K., & Pals, J. L. (2006). Continuity and change in the life story: A longitudinal study of autobiographical memories in emerging adulthood. *Journal of Personality, 74*(5), 1371–1400. https://doi.org/10.1111/j.1467-6494.2006.00412.x

Mersky, J. P., & Janczewski, C. E. (2018). Racial and ethnic differences in the prevalence of adverse childhood experiences: Findings from a low-income sample of US women. *Child Abuse & Neglect, 76*, 480–487. https://doi.org/10.1016/j.chiabu.2017.12.012

Mohanraj, R., Jeyaseelan, V., Kumar, S., Mani, T., Rao, D., Murray, K. R., & Manhart, L. E. (2015). Cultural adaptation of the brief COPE for persons living with HIV/AIDS in southern India. *AIDS and Behavior, 19*(2), 341–351. https://doi.org/10.1007/s10461-014-0872-2

Muniz, C. N., Fox, B., Miley, L. N., DeLisi, M., Cigarran, G. P., & Birnbaum, A. (2019). The effects of adverse childhood experiences on internalizing versus externalizing outcomes. *Criminal Justice and Behavior, 46*(4), 568–589. https://doi.org/10.1177/0093854819826213

Murray, J., & Farrington, D. P. (2005). Parental imprisonment: effects on boys' antisocial behaviour and delinquency through the lifecourse. *Journal of Child Psychology and Psychiatry, 46*(12), 1269–1278. https://doi.org/10.1111/j.1469-7610.2005.01433.x

Neppl, T. K., Diggs, O. N., & Cleveland, M. J. (2020). The intergenerational transmission of harsh parenting, substance use, and emotional distress: Impact on the third-

generation child. *Psychology of Addictive Behaviors, 34*, 852–863. https://doi.org/10.1037/adb0000551

Pears, K. C., & Capaldi, D. M. (2001). Intergenerational transmission of abuse: A two-generational prospective study of an at-risk sample. *Child Abuse & Neglect, 25*(11), 1439–1461. https://doi.org/10.1016/S0145-2134(01)00286-1

Perczek, R., Carver, C. S., Price, A. A., & Pozo-Kaderman, C. (2000). Coping, mood, and aspects of personality in Spanish translation and evidence of convergence with English versions. *Journal of Personality Assessment, 74*, 63–87. https://doi.org/10.1207/S15327752JPA740105

Pinto, R., Correia, L., & Maia, Â. C. (2014). Assessing the reliability of retrospective reports of adverse childhood experiences among adolescents with documented childhood maltreatment. *Journal of Family Violence, 29*, 431–438. https://doi.org/10.1007/s10896-014-9602-9

Ragin, C. C. (2014). *The comparative method: Moving beyond qualitative and quantitative strategies*. University of California Press.

Sanches, C., Gouveia-Pereira, M., Marôco, J., Gomes, H., & Roncon, F. (2016). Deviant behavior variety scale: Development and validation with a sample of Portuguese adolescents. *Psicologia: Reflexão e Crítica, 29*, 31. https://doi.org/10.1186/s41155-016-0035-7

Schneider, W. (2014). *Memory development from early childhood through emerging adulthood*. Springer.

Spanish Ministry of Health, Consumption and Social Welfare. (2017). *Encuesta sobre alcohol y otras drogas en España (EDADES, 1995–2017)* [Survey about alcohol and other drugs in Spain (EDADES, 1995–2017)]. Secretaría de Estado de Servicios Sociales.

Thornberry, T. P., & Henry, K. L. (2013). Intergenerational continuity in maltreatment. *Journal of Abnormal Child Psychology, 41*, 555–569. https://doi.org/10.1007/s10802-012-9697-5

Thornberry, T. P., Freeman-Gallant, A., Lizotte, A. J., Krohn, M. D., & Smith, C. A. (2003). Linked lives: the intergenerational transmission of antisocial behavior. *Journal of Abnormal Child Psychology, 31*, 171–184. https://doi.org/10.1023/a:1022574208366

Thornberry, T. P., Knight, K. E., & Lovegrove, P. J. (2012). Does maltreatment beget maltreatment? A systematic review of the intergenerational literature. *Trauma, Violence, & Abuse, 13*(3), 135–152. https://doi.org/10.1177/1524838012447697

Tiberio, S. S., Kerr, D. C. R., Bailey, J. A., Henry, K. L., & Capaldi, D. M. (2020). Intergenerational associations in onset of cannabis use during adolescence: A data synthesis approach. *Psychology of Addictive Behaviors, 34*, 877–889. https://doi.org/10.1037/adb0000625

Van Dijk, M., Kleemans, E., & Eichelsheim, V. (2019). Children of organized crime ofenders: Like father, like child? An explorative and qualitative study into mechanisms of intergenerational (dis) continuity in organized crime families. *European Journal on Criminal Policy and Research, 25*(4), 345–363. https://doi.org/10.1007/s10610-018-9381-6

Warmingham, J. M., Rogosch, F. A., & Cicchetti, D. (2020). Intergenerational maltreatment and child emotion dysregulation. *Child Abuse & Neglect, 102*, 104–377. https://doi.org/10.1016/j.chiabu.2020.104377

Widom, C. S., Czaja, S. J., & DuMont, K. A. (2015). Intergenerational transmission of child abuse and neglect: Real or detection bias? *Science, 347*(6229), 1480–1485. https://doi.org/10.1126/science.1259917

Wildeman, C. (2020). The intergenerational transmission of criminal justice contact. *Annual Review of Criminology, 3,* 217–244. https://doi.org/10.1146/annurev-criminol-011419-041519

STUDY 4

PSYCHOMETRIC PROPERTIES OF THE DEVIANT BEHAVIOR VARIETY SCALE IN YOUNG SPANISH ADULTS

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Abstract

Background: Deviant behavior is a psychosocial problem that has attracted great interest from both the scientific community and society at large due to its prevalence and negative consequences. Valid, reliable measures of deviant behaviors are critical for providing a better understanding of their causes and outcomes. The central aim of the present study was to assess the psychometric properties of the Deviant Behavior Variety Scale (DBVS) in a sample of young Spanish adults. Method: Participants comprised 490 young adults (62.4% female) aged between 18 and 20 years old (*M*= 18.90; *SD*= .77). Results: Confirmatory factor analyses yielded a single-factor structure model of DBVS showing, in general, satisfactory or good fit indexes. Moreover, convergent validity was confirmed by assessing correlations between deviant behavior (r = .77) and psychopathy (r = .45), showing that both variables were correlated. Intraclass reliability (ICC) results demonstrated the test-retest reliability of the DBVS, and Kuder-Richardson 20 (KR-20 = .79) showed appropriate internal item consistency. Conclusions: This study found that the Spanish version of DBVS presented promising psychometric properties supporting it is a reliable, valid measure for assessing young adult's involvement in deviant behaviors.

Keywords: Deviant behavior; validity; reliability; young adults.

Resumen

Propiedades Psicométricas de la Escala de Conducta Transgresora en Adultos Jóvenes Españoles.

Antecedentes: la conducta transgresora es un problema psicosocial que ha despertado un gran interés tanto en la comunidad científica como en la sociedad en general dada la alta prevalencia y sus consecuencias negativas. Así pues, medir de forma válida y fiable la conducta transgresora es fundamental para proporcionar una mejor comprensión de sus causas y consecuencias. El presente estudio evaluó las propiedades psicométricas de la *Deviant Behavior Variety Scale (DBVS)* en una muestra de adultos jóvenes españoles. Método: los participantes fueron 490 adultos jóvenes (62,4% mujeres) con edades entre los 18 y 20 años (M= 18.90; SD= .77). Resultados: el análisis factorial confirmatorio evidenció un modelo de estructura unifactorial de la DBVS que mostró índices de ajuste entre satisfactorios y buenos. Se confirmó la validez convergente al evaluar las correlaciones entre la conducta antisocial (r =.77) y la psicopatía (r = .45). Los resultados de la fiabilidad intraclase (ICC) evidenciaron la fiabilidad test-retest del DBVS, y el Kuder-Richardson 20 (KR-20 = .79) mostró una consistencia interna adecuada de los ítems. Conclusiones: este estudio evidencia que la versión española del DBVS presenta propiedades psicométricas prometedoras, mostrando que es una medida fiable y válida para evaluar la conducta transgresora en adultos

jóvenes.

Palabras clave: conducta transgresora; validez; fiabilidad; jóvenes adultos.

Introduction

Deviant behavior is broadly defined as “any behavior that deviates significantly from what is considered appropriate or typical for a social group” (Pérez-Acosta, 2008); in other words, they are actions that violate societal norms and others’ personal or property rights (World Health Organization, 2018). Deviant behavior usually begins in early adolescence and is related to higher likelihood of both criminal justice involvement and premature death (Border et al., 2018).

In the last few years, some meta-analyses have found solid associations between different deviant behaviors and a wide range of negative outcomes such as alcoholism and drug consumption (Dube et al., 2003; Valdebenito et al., 2015), psychiatric disorders (Hughes et al., 2017), adjustment difficulties at work and in the family, and interpersonal problems (Berry et al., 2007). Furthermore, empirical research has also shown that deviant behavior is positively correlated with variables such as official crime records (Farrington et al., 2013), low self-control (Vazsonyi et al., 2006), substance and alcohol abuse (Mason et al., 2007) or psychological distress (Wiesner et al., 2005).

Moreover, psychopathic traits have also been linked to deviant behavior, which can seriously interfere with the psychosocial development in the different evolutionary stages (Fanti et al., 2021; Frick & White, 2008). Thus, accurately measuring juvenile deviance is one of the central methodological issues in criminology and forensic psychology for the serious personal, economic, and social consequences that span national boundaries.

In this vein, questionnaires of self-report delinquency have several benefits. One of these plays an important role in helping to unveil the prevalence and incidence of deviance beyond official data, as well as comparing deviant behavior rates among

countries using the same criteria (Pechorro et al., 2014). Regarding this, the International Self-Report Delinquency (ISRD) study (Enzmann et al., 2010) found that between 13.8% and 40.1% of youth around the world have committed at least one delinquent act. In the case of European countries, the prevalence ranged between 29.3% (western Europe), and 20.6% (northern Europe). Focusing on Mediterranean countries, such as Spain, Portugal, or Italy, the rate ranged from 25.6% to 14.5% (Enzmann et al., 2010).

In the gender and age debate, most studies have found significant differences with higher frequency of deviant behavior and delinquency in males and in early adulthood compared to the female sex and to other ages (Boniface & Bekom, 2021; Gomis-Pomares & Villanueva, 2020; Mezquita et al., 2021; Sanabria & Uribe, 2009; Stolzenberg & D'Alessio, 2008). In this regard, various international studies addressing the prevalence of self-reported deviance across the world have suggested that boys showed more deviant behaviors than girls, and that offending behavior was positively related to socially constructed masculinity (e.g., Ma, 2005). Moreover, when age is related to delinquency, it is observed that it increases during adolescence, peaks in early adulthood, and then declines (Stolzenberg & D'Alessio, 2008). For instance, lower scores are observed during preadolescence and early adolescence, showing higher scores at 16-17 years of age that increase even more at 18 years of age (Rechea, 2008; Sanabria & Uribe, 2009).

In Spain, where this study takes place, according to the Spanish National Statistics Institute (INE, 2020), in 2019, about 286,931 adults and 14,112 minors were convicted of committing crimes. Of adult convicts, 79.36% were males, and for minors, the percentage was quite similar, showing a higher prevalence of convicted males (79.03%). In addition, to know how deviance occurs and differs across cultures is crucial to understand how each person interacts in his or her context. In this line of research, some studies have found a higher prevalence of deviant behavior in individualistic countries

(Thalmayer & Rossier, 2019), while others have found it to be higher in collectivistic ones (such as Spain) (Mezquita et al., 2021). Therefore, the subtleties that the cultural context may add to the issue of deviant behavior are worth analyzing. However, most of the studies included were from the USA (e.g., Volkert et al., 2018), suggesting the need to perform similar epidemiologic studies in other countries around the world.

Self-reported delinquency questionnaires were developed to assess antisocial behavior, which has been traditionally assessed either by official records or by self-reported measures. Although both measures have positive and negative aspects, self-report measures have been shown to provide better estimates of the prevalence and frequency of offending behavior (Gomes et al., 2019; Loeber et al., 2015). Moreover, self-report measures provide extremely important information that facilitates early intervention that would be impossible to obtain through official records (Farrington et al., 2014). Furthermore, several studies have accounted for the validity of self-reports becoming the most widely used technique in psychological research to measure delinquent and deviant behavior (Jolliffe et al., 2003; Webb et al., 2006).

Self-report questionnaires have the advantage of detecting a vast array of behaviors in terms of presence, duration, variety, frequency, and seriousness, but they are less reliable due to its retrospective design, which may involve some difficulties with remembering events that happened in the past. Despite this disadvantage, a set of self-reported questionnaires evaluating deviance and crime, particularly for the last 12 months, has been shown to be valid and reliable in different countries from the Anglosphere and beyond around the world (Sanches et al., 2016; Webb et al., 2006).

One of the most important studies in this field was conducted by Elliott and Ageton (1980), who created and tested a scale for the National Youth Survey (NYS), a

longitudinal study of delinquent behavior among American youth that evaluated a broad range of delinquent acts and drug consumption habits. After Elliott and Ageton (1980), diverse self-report questionnaires evaluating deviance and delinquency have been examined in terms of their psychometric properties such as the AHSRD (Add Health Self-Report Delinquency), designed for the National Longitudinal Study of Adolescent Health, which assessed delinquency in the previous 12 months, including items evaluating violent behavior and non-violent delinquency. In addition, different studies have found appropriate psychometric properties of the AHSRD questionnaire (e.g., Cota-Robles et al., 2002; Vazsonyi et al., 2006). Along the same lines, the D-CRIM questionnaire (Basto-Pereira et al., 2015), which evaluates the presence of criminal behaviors both in the last year and during one's lifetime, is also an example of a self-report questionnaire with good psychometric properties for the adult Portuguese population.

Some studies have demonstrated that variety scales are better than other types of scales regarding their psychometric properties, presenting higher group differences, higher stability over time, and higher internal consistency (Bendixen et al., 2003). Furthermore, as variety scales usually present a simpler response format, this makes participants answer in a quicker way, and prevents the risk of guessing (Bendixen et al., 2003).

In this regard, a study conducted by Sanches and colleagues (2016) examined the psychometric properties of the Deviant Behavior Variety Scale (DBVS) among a Portuguese-speaking sample. The results obtained supported a one-factor simple and short scale, being reliable measure to evaluate adolescents' involvement in deviant activities. The psychometric properties of this scale will be tested in the current study.

Therefore, the current study assesses, for the first time, the psychometric properties of the DBVS among a Spanish-speaking sample of young adults. It was predicted that the DBVS would: (1) confirm the presumed one-factor structure; (2) show convergent validity with measures of deviant behavior over life and psychopathy; (3) display known-group validity in deviant behavior involvement, with men committing more offences; (4) show an adequate internal consistency measure by Kuder-Richardson 20 (KR20); and (5) present good test-retest reliability of the DBVS over time.

Method

Participants

The collected data of this study is part of the International Study of Pro/antisocial Behavior in Young Adults (*SOCIALDEVIANCE1820 Research Project* in Spain) (see Basto-Pereira et al., 2020). It was collected from different contexts such as universities, professional schools, adult education centers, and leisure centers using convenience and snowball sampling methods. The total study population consisted of 490 young adults from the Valencian Community in Spain, with ages ranging from 18 to 20 years old (M= 18.90; SD= .77). Of the total participants, 37.6% were males and 62.4% were females. The vast majority were of Spanish origin, and only a small portion belonged to an ethnic minority (7.3%). Regarding school attendance, 4.3% of the participants had studied for between 8 and 10 school years, 42.7% between 11 and 12 years and 53% had completed between 12 and 14 academic years.

Instruments

Deviant Behavior Variety Scale (DBVS; Sanches et al., 2016) is a self-report scale that includes both illegal behavior, like driving a motorbike or a car without having a driver's license, and rule-breaking behavior that is not illegal, such as lying to adults or

truancy without parental consent. It consists of 19 items answered using a dichotomous scale (yes/no) about whether the participants performed any of the 19 deviant behaviors during the previous year (12-month DBV). The overall score for deviant behaviors is obtained by the sum up of affirmative answers. In addition, a question was added, and participants were also asked to report the number of deviant behaviors they had carried out throughout their entire life (Lifelong DBV). As previously addressed, the Portuguese version of this scale showed appropriate psychometric characteristics (see Sanches et al., 2016).

Youth Psychopathic Traits: Short version (YPI-S) is an 18-item measure that assesses psychopathic features that map onto three domains: interpersonal (e.g., "I find it easy to manipulate people"), affective (e.g., "I think crying is a sign of weakness, even if no one is watching"), and behavioral (e.g., "I get bored quickly if I have to do the same thing over and over again"). The response format uses a 4-point Likert-type scale. The scale showed good psychometric properties in the original study and subsequent studies across Anglo-Saxon and Spanish samples of adolescents (e.g., Orue & Andershed, 2015). In the current sample of young adults, CFA analysis revealed a second order model with a good fit for the three theorized dimensions (interpersonal, affective, and behavioral). Across items, the loadings were always higher than .40, and the general indicators were appropriate: CFA = .97; TLI = .95 RMSEA = .06; χ^2 sb/df = 2.9, p <0.001). The internal consistency in the current sample was acceptable (α = .80).

Procedure

The questionnaires were self-reported, and they were completed on paper and pencil, always in the presence of the researchers who beforehand had explained the purpose of the study. The translation process was the following one (Hernández et al.,

2020). First, the permission from the author/s of the instruments was obtained. Afterwards, the translation and back-translation processes from English to Spanish were conducted by two experts in the construct to be measured and in the culture involved. Items were analyzed by two independent judges, to calculate the inter-judge reliability (kappa coefficient). The agreement was considered high, reaching an average value of .85. Informed consent was obtained from the University Ethics Committee (reference number 22/2018) and from all the participants. All participants took part voluntarily, and they were entitled to enter into a drawing for a voucher. They were informed that questionnaires were anonymous, and that the data was strictly confidential.

By email, the participants were asked to complete the DBVS online a second time, one year later, to assess the test-retest reliability of the scale. This second time, a subsample of 96 participants was obtained, with ages also ranging from 18 to 20 years old (M = 19.50; SD = .54), being 19.8% males and 80.2% females. The rejection rate was 19.59%.

Data Analysis

Statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS, version 23.0). Descriptive statistics were performed to assess the percentage of affirmative answers for each item of the DBVS. Then, convergent validity was evaluated using Spearman's correlations, and the known-group validity was assessed using Student's t-test. The factor structure of the Spanish language version of the DBVS was assessed with confirmatory factor analysis (CFA). For that end, we used the R lavaan Structural Equation Modeling program (Rosseel, 2012), with robust estimation methods considering the binary nature of the items. The diagonally weighted least squares (DWLS) estimations was used, indicated for categorical data, (e.g., binary or ordinal), as

in the case of the results of the present study. Goodness-of-fit indices were calculated, including chi-square/degrees of freedom (χ^2sb/df), root mean square error of approximation (RMSEA), comparative fit index (CFI), and incremental fit index (IFI). A χ^2sb/df < 5 is considered adequate, ≤ 2 are good, and values equal or lower than 1 are considered very good (Paswan, 2009). A RMSEA ≤ .10 and a CFI ≥ .90 indicate adequate fit, whereas a RMSEA ≤ .06 and a CFI ≥ .95 and indicate good model fit (Byrne, 2006). Tucker-Lewis index (TLI) values that ranged between ≥ .90 and ≤ .94 are considered as an adequate fit, and values that exceed .95 indicate a very good fit (Hu & Bentler, 1999).

A differential item functioning (DIF) analysis was performed to evaluate whether males and females respond differently to each one of the DBV items after controlling for the overall score. Logistic regression was the method used to test DIF, since it is a flexible method that can be applied to binary items across two subgroups (e.g., Friesen, 2019; Moses et al., 2010). DIF analysis was conducted using the PsychoPDA Binary LogR module (Friesen, 2019; Friesen et al., 2019; Zumbo, 1999) implemented in Jamovi Statistical Software (Jamovi Project, 2021). In addition, internal consistency of the scale was examined using the Kuder-Richardson 20 (KR-20) test for dichotomous items in which values ≥ .70 are considered adequate (Finch et al., 2016).

Finally, to assess the degree of agreement between DBVS measurements, intraclass reliability (ICC) was calculated. ICC estimates the average of the correlations between all possible orderings of the available pairs of observations and thus avoids the problem of order dependence of the correlation coefficient. The ICC ranges from 0 to 1. Values lower than .50 indicate poor reliability whereas values higher than .90 indicate excellent reliability. In addition, values ranging between .50 and .75 are indicative of good reliability (Koo & Li, 2016). ICC is regarded as a more appropriate reliability test over standard correlation analysis than paired t-test since it takes into account the

differences between the data sets (Weir, 2005). For this, measurements of DBVS were repeated a second time, one year later, which allows us to assess the test-retest reliability of the DBVS—the first time to the total sample (*N*= 490), and the second time to a subsample of 96 participants.

Results

Item Analysis

First, the distribution response for each dichotomic item (coded as 0 or 1) is presented in Table 1. As can be seen, prevalence rates ranged between 3.48% and 89.92%. Eight items had prevalence rates <10% (of which three had percentages below 5%), nine items had prevalence rates ranging from 10 and 50%, and only two items presented prevalence rates higher than 50%.

Validity

Evidences of Factorial Validity

A one-factor structure model was tested using CFA. The loadings were higher than .40 (ranging from ranged from .46 to .93) and the general model indicated a good model fit through adequate goodness-of-fi t indices (χ^2sb/df = 2.16, p<0.001; CFI = .98; RMSEA = .05, [.04-.05); TLI = .97). Modification indexes indicated considerable local dependency between items 12 and 17 requiring correlation of error terms. These two items may be related due to their adscription to the same deviant category: thefts. For a full description see Figure 1.

Evidences of Convergent Validity

Convergent validity was assessed using Spearman's correlations. As Table 2 shows, the strongest association was between deviant behavior with deviant behavior over a lifetime. In addition, the total score on psychopathy was also related to higher antisocial behavior, followed by the interpersonal dimension of psychopathy, the behavioural dimension, and finally, the emotional dimension. All correlations were positive and statistically significant, and in almost all cases ranging from moderate to large effect sizes (from r = .77 to r = .36). The only exception was found for the emotional dimension of psychopathy (r = .23).

Known-Group Validity: Gender Differences

Known-group validity was assessed through the scale's ability to identify group differences in different variables closely linked to delinquency involvement, such as gender (e.g., Junger-Tas et al., 2004). Results from Student's t-test showed a statistically significant difference in deviant involvement (t(245.22) = 8.02, d =.81, p< .001), with males reporting having engaged in a higher number of deviant behaviors (M= 6.08; SD= .20) than females (M= 3.61; SD= .12) (see Figure 2). Results clearly showed that involvement in deviant behaviors decreased over the years for females, while it peaked at 19 years of age for males. In turn, males were involved in more deviant behaviors than females in any age range. However, neither age nor gender were statistically significant.

Table 1. *Percentage of Positive Answers on the Scale Items*

Item	%
1. Been to school or to class after drinking alcohol?	30.53%
2. Lied to adults (e.g., family members, teachers, etc.)?	89.92%
3. Used cocaine or heroin?	4.51%
4. Used a motorbike or a car to go for a ride without the owner's permission?	7.79%
5. Hitted an adult (e.g., teacher, family, security guard, etc.)?	7.77%
6. Used public transport without paying?	32.58%
7. Damaged or destroyed public or private property (e.g., parking meters, traffic signs, product distribution machines, cars, etc.)?	12.30%
8. Used hashish ("hash") or marijuana ("grass")?	43.56%
9. Stolen something worth more than 50 euros (e.g., in shops, at school, to someone, etc.)?	3.48%
10. Skipped school for several days without your parents' knowing?	34.97%
11. Sold drugs (e.g., hashish, marijuana, cocaine, ecstasy, amphetamines, etc.)?	7.36%
12. Stolen something worth between 5 and 50 euros (e.g., in shops, at school, to someone, etc.)?	17.59%
13. Skipped classes because you didn't feel like going, to stay with colleagues, or to go for a ride?	69.61%
14. Drove a motorbike or a car without having a driver's license?	37.83%
15. Used LSD ("acid"), ecstasy ("tablets") or amphetamines ("speeds")?	3.48%
16. Carried a weapon (e.g., knife, pistol, etc.)?	7.61%
17. Stolen something worth less than 5 euros (e.g., in shops, at school, to someone, etc.)?	36.81%
18. Done graffiti on buildings or other locations (e.g., school, public transports, walls, etc.)?	10.43%
19. Broken into a car, a house, shop, school, or other building?	5.32%

Reliability

On the one hand, he internal consistency of the DBVS was assessed using KR-20 for the 19 items composing the scale. The result of KR-20 was .79 and no significant improvements were found excluding any item. In addition, ICC was performed to assess test-retest reliability. ICC estimates and their 95% confident intervals showed good reliability values (ICC= .79; [.69-.86]). Therefore, reliability of the DBVS with both analyses, the KR-20 and the ICC, demonstrated the adequacy and reliability of the DBVS

in the present sample. On the other hand, differential functioning analyses suggest that four items (i.e., DBV 1, DBV 7, DBV 13, and DBV 14) exhibiting gender differential item functioning. Those four items showed extremely small effect sizes ($\Delta R^2 \leq 0.04$). According to Zumbo (1999) values $\Delta R^2 \leq 0.13$ are considered negligible.

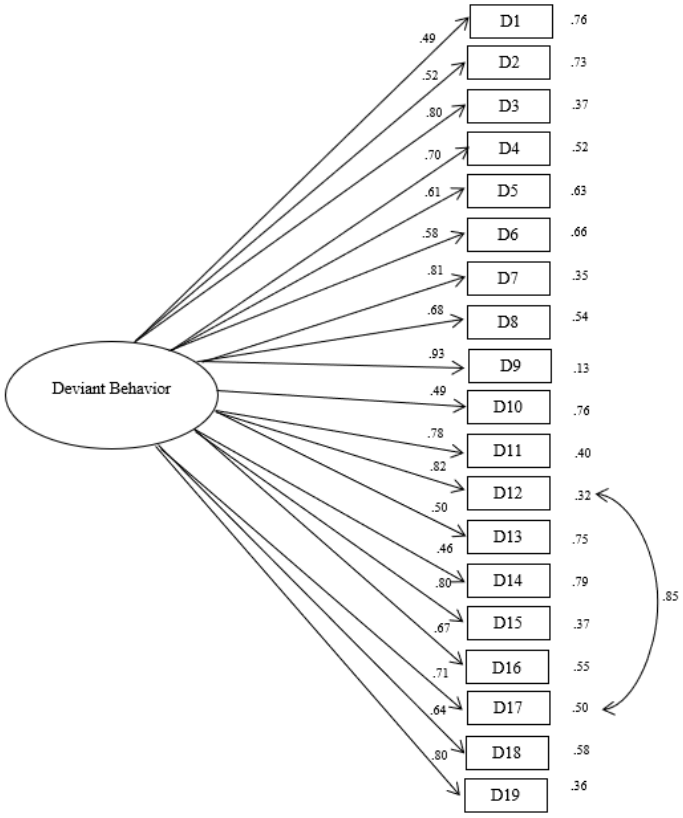

Figure 1. *Validation of the One-Factor Structure of DBVS With Confirmatory Factorial Analysis*. *Note: all coefficients displayed in the figure above were standardized loadings that are statistically significant (p<.05).*

Table 2. *Convergent Validity***.**

	DBVS Lifetime	YPIS Total	YPIS Interpersonal	YPIS Emotional	YPIS Behavioral
DBVS – 12 Months	.77**	.45**	.38**	.23**	.36**

*Note. DBVS=Deviant Behavior Variety Scale; YPIS= Youth Psychopathic Inventory – Short Version; *p ≤.05; **p ≤.001*

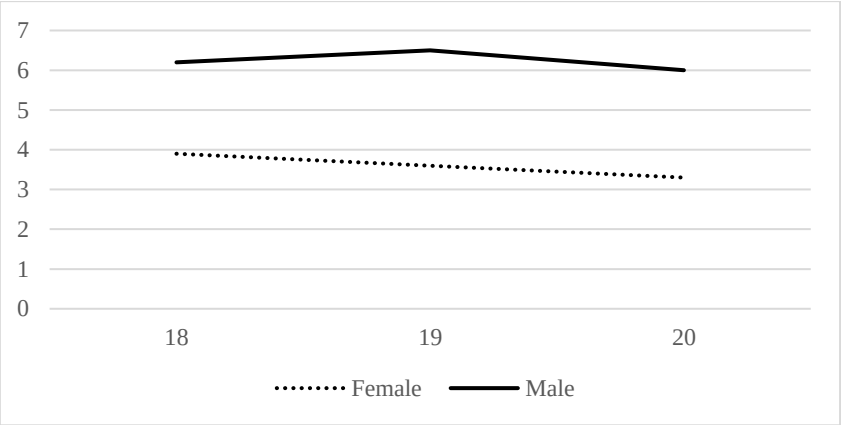

Figure 2. *Mean of the Variety Deviance Score for Each Age-Cohort, Separated by Gender.*

Discussion

The aim of this study was to assess the psychometric properties of the DBVS in a Spanish sample of young adults, and to our knowledge, this is the first paper testing it in the Spanish context. First, item analysis revealed the overall psychometric adequacy of the items of the scale. Items representing more severe deviant behaviors had a lower prevalence (e.g., used LSD, ecstasy, or amphetamines) compared to milder deviant behaviors that had a higher prevalence (e.g., lied to adults). In this vein, these results followed the expected pattern according to the previous literature (Bendixen & Olweus, 1999) and were very similar to those obtained in some Portuguese studies (Sanches et al., 2016), showing that serious infractions have much lower prevalence rates than minor infractions.

The factor validity analyses supported the one-factor structure model, with the single-factor first-order. All factor loadings were satisfactory, with the lowest being .46 for item 14 (“Drove a motorbike or a car without having a driver’s license”) and the highest .93 for item 9 (“Stolen something worth more than 50 euros”). The general model showed good fit through adequate goodness-of-fit indices. The results obtained in this study using CFA analysis showed, like in previous research (Sanches et al., 2016), that the one-factor model achieved an adequate fit across the Spanish young adult sample.

Recent studies that analyze other antisocial behavior tools also found a consistent one-factor model (Mezquita et al., 2021).

The convergent validity of the DBVS with measures of deviant behavior over life and psychopathy revealed mostly moderate to large positive correlations showing the expected construct convergence, and in line with the ones found in previous studies (e.g., Dube et al., 2003; Hughes et al., 2017; Valdebenito et al., 2015). The highest correlations were obtained with deviant behaviors over life (positive), total psychopathy score, and the interpersonal dimension of psychopathy. According to previous studies, there was a strong and positive correlation between psychopathic traits and the frequency of delinquent behaviors (e.g., Salekin et al., 2006; Vincent et al., 2003), which implies that youths with higher psychopathic traits tend to display more serious forms of antisocial behavior (Pardini & Loeber, 2008).

In terms of known-groups validity, the result of the comparison of males and females confirmed that males do indeed score higher on the DBVS. This gender difference is also supported by most of the previous research using self-reported measures of deviant and antisocial behaviour: males engage in deviance more frequently and engage in more serious and violent forms of delinquency (e. g., Bendixen & Olweus, 1999; Sanabria & Uribe, 2009; Stolzenberg & D'Alessio, 2008). The same results were found by Sanches and colleagues (2016), using the DBVS questionnaire in a Portuguese sample. This may be explained by the fact that antisocial behavior and aggression can be viewed as a behavior driven by gender roles. That is, gender differences in criminal and aggressive behavior reflect differences in normative expectations that society holds for

men and women. In this line of research, previous studies noted that across the lifespan, males are more physically aggressive and violent than females (Björkqvist, 2018).

According to Fox and DeLateur (2014) and Stone (2015), the greatest difference between males and females is found in physically violent behavior, with males committing the majority of violent acts (Fox & DeLateur, 2014; Stone, 2015). The perception of power and control associated with masculinity norms might be one of the most important factors contributing to this difference (Kimmel & Mahler, 2003).

An analysis of the internal consistency measured by KR-20 revealed good values well above the recommended minimum of .70 for the total scale and its factors (Finch et al., 2016). Moreover, the test-retest reliability agreement measurement through the ICC reliability test also confirmed the stability of deviant behaviors over time. This fact is very important, and it adds a great value to the study since many of the questionnaire's validations do not consider the temporal stability of the measurements (Basto-Pereira & Farrington, 2020; Pechorro et al., 2014; Sanches et al., 2016). Finally, our study suggests that males and females with the same overall score did not substantially differ in the likelihood to report each one of the deviant behaviors assessed. This finding is important, since it suggest the items of this scale are not particularly affected by gender bias.

Taken together with these findings from the factor analysis, the DBVS questionnaire demonstrates both validity and reliability. In addition, the similarity with Sanches and colleagues' (2016) findings regarding the psychometric properties of DBVS among Portuguese youths, in terms of factor structure and estimates of reliability, suggests that results from the DBVS are replicable across distinct samples in different countries with slightly different ages.

Although the DBVS has presented good psychometric properties, some limitations must be addressed. Measures in the current study were based on self-report

questionnaires. This method has the disadvantage of being less reliable, since it might be affected by memory, bias, and concealment. For this reason, future work would benefit from the inclusion of criterion measures from other domains (e.g., interviews, parent reports, etc.) (Drislane et al., 2014). However, since participants in this study were younger than those in previous studies (Dube et al., 2003), they were able to recall recent events more easily. In addition, it has been shown that retrospective designs with young populations show good reliability results for adverse childhood experiences (Pinto et al., 2014). On the other side, as commented in the procedure, the data collection was carried out by non-probability sampling (snowball and convenience sampling).

In addition, to assess the psychometric properties of the scale in other kind of samples, such as juvenile offenders or clinical samples, it is also relevant to know if similar results are obtained. The increase of sample size would also improve the range of data analyses carried out, such as the measurement invariance test with different groups (men/women; younger adults/older adults). Despite these limitations, our findings do provide support for the use of the DBVS in a Spanish sample of young adults.

Thus, this research has analysed the psychometric properties of the Deviant Behavior Variety Scale among a Spanish sample of young adults. The results indicated that DBVS can be considered a useful instrument in assessing the deviant behavior construct among Spanish young adults. Research on adolescents and youths' deviant behaviors is vital for the developing of more effective prevention programs in community settings. For such aims, it is crucial to have a valid and reliable instrument to assess this construct, such as the DBVS.

Therefore, the DBVS can be an important tool to identify deviant behaviors among adolescents and young adults, thus helping to understand the development and

maintenance of deviant behaviors and to improve prevention programs. It would be advisable that future studies replicate these findings in other groups of young adults in order to test the applicability of the DBVS in different contexts.

References

Basto-Pereira, M., Começanha, R., Ribeiro, S., & Maia, Â. (2015). Long-term predictors of crime desistance in juvenile delinquents: A systematic review of longitudinal studies. *Aggression and Violent Behavior, 25*, 332-342. https://doi.org/10.1016/j.avb.2015.09.012

Basto-Pereira, M., & Farrington, D. P. (2020). Lifelong conviction pathways and self-reported offending: Towards a deeper comprehension of criminal career development. *The British Journal of Criminology, 60*(2), 285-302. https://doi.org/10.1093/bjc/azz037

Basto-Pereira, M., Queiroz-García, I., Maciel, L., Leal, I., & Gouveia-Pereira, M. (2020). An international study of pro/antisocial behavior in young adults. *Cross-Cultural Research, 54*(1), 92-105. https://doi.org/10.1177/1069397119850741

Bendixen, M., & Olweus, D. (1999). Measurement of antisocial behaviour in early adolescence and adolescence: Psychometric properties and substantive findings. *Criminal Behaviour and Mental Health, 9*(4), 323-354. https://doi.org/10.1002/cbm.330

Bendixen, M., Endresen, I. M., & Olweus, D. (2003). Variety and frequency scales of antisocial involvement: Which one is better? *Legal and Criminological Psychology, 8*(2), 135-150. https://doi.org/10.1348/135532503322362924

Berry, K., Barrowclough, C., & Wearden, A. (2007). A review of the role of adult attachment style in psychosis: Unexplored issues and questions for further research. *Clinical Psychology Review, 27*(4), 458-475.https://doi.org/10.1016/j.cpr.2006.09.006

Björkqvist, K. (2018). Gender differences in aggression. *Current Opinion in Psychology, 19*, 39-42. https://doi.org/10.1016/j.copsyc.2017.03.030

Boniface, E. C., & Bekom, A. K. (2021). Understanding students' deviant behaviour based on gender in federal universities of southern Nigeria. *PalArch's Journal of Archaeology of Egypt/Egyptology, 18*(8), 4016-4025.

Border, R., Corley, R. P., Brown, S. A., Hewitt, J. K., Hopfer, C. J., McWilliams, S. K., Shriver, C. L., Stallings, M., Wall, T. L., Woodward, K. E., & Rhee, S. H. (2018). Independent predictors of mortality in adolescents ascertained for conduct disorder and substance use problems, their siblings and community controls. *Addiction, 113*(11), 2107-2115. https://doi.org/10.1111/add.14366

Byrne, B. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming*. Lawrence Erlbaum.

Cota-Robles, S., Neiss, M., & Rowe, D. C. (2002). The role of puberty in violent and nonviolent delinquency among Anglo American, Mexican American, and African American boys. *Journal of Adolescent Research, 17*, 364-376. https://doi.org/10.1177/07458402017004003

Drislane, L. E., Patrick, C. J., & Arsal, G. (2014). Clarifying the content coverage of differing psychopathy inventories through reference to the triarchic psychopathy measure. *Psychological Assessment, 26*(2), 350-362. https://doi.org/10.1037/a0035152

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. *Pediatrics, 111*(3), 564-572. https://doi.org/10.1542/peds.111.3.564

Elliott, D. S., & Ageton, S. S. (1980). Reconciling race and class differences in self-reported and official estimates of delinquency. *American Sociological Review, 45*(1), 95-110. https://doi.org/10.2307/2095245

Enzmann, D., Marshall, I. H., Killias, M., Junger-Tas, J., Steketee, M., & Gruszczynska, B. (2010). Self-reported youth delinquency in Europe and beyond: First results of the Second International Self-Report Delinquency Study in the context of police and victimization data. *European Journal of Criminology, 7*(2), 159-183. https://doi.org/10.1177/1477370809358018

Fanti, K. A., Phylactou, E., & Georgiou, G. (2021). Who is the hooligan? The role of psychopathic traits. *Deviant Behavior, 42*(4), 492-502.

Farrington, D. P., Auty, K. M., Coid, J. W., & Turner, R. E. (2013). Self-reported and official offending from age 10 to age 56. *European Journal on Criminal Policy and Research, 19*(2), 135-151. https://doi.org/10.1007/s10610-012-9195-x

Farrington, D. P., Ttofi, M. M., Crago, R. V., & Coid, J. W. (2014). Prevalence, frequency, onset, desistance and criminal career duration in self-reports compared with official records. *Criminal Behaviour and Mental Health, 24*(4), 241-253. https://doi.org/10.1002/cbm.1930

Finch, W., Immekus, J., & French, B. (2016). *Applied psychometrics using SPSS and AMOS*. Information Age Publishing.

Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49*(4), 359-375. https://doi.org/10.1111/j.1469-7610.2007.01862.x

Friesen, L. (2019). *Psychometrics & post-data analysis: A software implementation for binary logistic regression in Jamovi* (Doctoral dissertation, University of British Columbia).

Friesen, L., Kroc, E., & Zumbo, B. (2019). *Psychometrics & Post-Data Analysis: Binary Differential Item Functioning*. [Jamovi module]. Retrieved from https://github.com/lucasjfriesen/jamoviPsychoPDA

Fox, J. A., & DeLateur, M. J. (2014). Mass shootings in America: Moving beyond newtown. *Homicide Studies, 18*(1), 125-145. https://doi.org/10.1177/1088767913510297

Gomes, H. S., Farrington, D. P., Maia, A., & Krohn, M. D. (2019). Measurement bias in self-reports of offending: A systematic review of experiments. *Journal of Experimental Criminology, 15*(3), 313-339.

Gomis Pomares, A., & Villanueva, L. (2020). The effect of adverse childhood experiences on deviant and altruistic behavior during emerging adulthood. *Psicothema, 32*(1), 33-39. http://doi.org/10.7334/psicothema2019.142

Hernández, A., Hidalgo, M. D., Hambleton, R. K., & Gómez, J. (2020). International test commission guidelines for test adaptation: A criterion checklist. *Psicothema, 32*(3), 390-398. https://doi.org/10.7334/psicothema2019.306

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fi t indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356-e366. https://doi.org/10.1016/S2468-2667(17)30118-4

Informe del Instituto Nacional de Estadística (2020). *Estadística de Condenados: Adultos/Menores. Año 2019* [Convicted Statistics: Adults/ Minors. Year 2019]. Spanish Statistical Institute.

The Jamovi Project (2021). *Jamovi (Version 1.1.9.0) [Computer Software]*. Retrieved from https://www.jamovi.org

Jolliffe, D., Farrington, D. P., Hawkins, J. D., Catalano, R. F., Hill, K. G., & Kosterman, R. (2003). Predictive, concurrent, prospective and retrospective validity of self-reported delinquency. *Criminal Behaviour and Mental Health, 13*(3), 179-197. https://doi.org/10.1002/cbm.541

Junger-Tas, J., Ribeaud, D., & Cruyff, M. J. (2004). Juvenile delinquency and gender. *European Journal of Criminology, 1*(3), 333-75. https://doi.org/10.1177/1477370804044007.

Kimmel, M. S., & Mahler, M. (2003). Adolescent masculinity, homophobia, and violence: Random school shootings, 1982-2001. *American Behavioral Scientist, 46*(10), 1439-1458. https://doi.org/10.1177/0002764203046010010

Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155-163. https://doi.org/10.1016/j.jcm.2016.02.012

Ma, H. K. (2005). The relation of gender-role classifications to the prosocial and antisocial behavior of Chinese adolescents. *Journal of Genetic Psychology, 166*(2), 189-201. http://dx.doi.org/10.3200/GNTP.166.2.189-202

Mason, W. A., Hitchings, J. E., McMahon, R. J., & Spoth, R. L. (2007). A test of three alternative hypotheses regarding the effects of early delinquency on adolescent psychosocial functioning and substance involvement. *Journal of Abnormal Child Psychology, 35*(5), 831-843.

Mezquita, L., Bravo, A. J., Pilatti, A., Ortet, G., Ibáñez, M. I., & Cross- Cultural Addictions Study Team (2021). Preliminary validity and reliability evidence of the Brief Antisocial Behavior Scale (B-ABS) in young adults from four countries. *PloS One, 16*(2), e0247528. https://doi.org/10.1371/journal.pone.0247528

Moses, T., Miao, J., & Dorans, N. J. (2010). A comparison of strategies for estimating conditional DIF. *Journal of Educational and Behavioral Statistics, 35*(6), 726-743. https://doi.org/10.3102/1076998610379135

Loeber, R., Farrington, D. P., Hipwell, A. E., Stepp, S. D., Pardini, D., & Ahonen, L. (2015). Constancy and change in the prevalence and frequency of offending when based on longitudinal self-reports or official records: Comparisons by gender, race, and crime type. *Journal of Developmental and Life-course Criminology, 1*(2), 150-168.

Orue, I., & Andershed, H. (2015). The Youth Psychopathic Traits Inventory- Short Version in Spanish adolescents—factor structure, reliability, and relation with aggression, bullying, and cyber bullying. *Journal of Psychopathology and Behavioral Assessment, 37*(4), 563-575.

Pardini, D. A., & Loeber, R. (2008). Interpersonal callousness trajectories across adolescence: Early social influences and adult outcomes. *Criminal Justice and Behavior, 35*(2), 173-196. https://doi.org/10.1177/0093854807310157

Paswan, A. (2009). *Confirmatory Factor Analysis and Structural Equations Modeling: An Introduction*. Department of Marketing and Logistics, COB, University of North Texas.

Pinto, R., Correia, L., & Maia, Â. C. (2014). Assessing the reliability of retrospective reports of adverse childhood experiences among adolescents with documented childhood maltreatment. *Journal of Family Violence, 29*, 431-438. https://doi.org/10.1007/s10896-014-9602-9

Pechorro, P., Maroco, J., Gonçalves, R. A., Nunes, C., & Jesus, S. N. (2014). Psychopathic traits and age of crime onset in male juvenile delinquents. *European Journal of Criminology, 11*(3), 288-302. https://doi.org/10.1177/1477370813495759

Pérez-Acosta, A. M. (2008). VandenBos, GR (Ed.) (2007). APA Dictionary of psychology. *Revista Latinoamericana de Psicología, 40*(2), 381-384.

Rechea, C. (2008). *Conductas antisociales y delictivas de los jóvenes en España* [Antisocial and criminal behaviors in Young Spanish]. Universidad de Castilla-La Mancha, Centro de Investigación en Criminología.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5-12 (BETA). *Journal of Statistical Software, 48*(2), 1-36.

Sanabria, A., & Uribe, A. (2009). Conductas antisociales y delictivas en adolescentes infractores y no infractores [Antisocial and criminal behaviors in adolescent offenders and non-offenders]. *Pensamiento Psicológico, 6*(13), 203-218.

Sanches, C., Gouveia-Pereira, M., Marôco, J., Gomes, H., & Roncon, F. (2016). Deviant behavior variety scale: Development and validation with a sample of Portuguese adolescents. Psicologia: *Reflexão e Crítica, 29*(31), 2-8. https://doi.org/10.1186/s41155-016-0035-7.

Stolzenberg, L., & D'Alessio, S. J. (2008). Co-offending and the age-crime curve. *Journal of Research in Crime and Delinquency, 45*(1), 65-86. https://doi.org/10.1177/0022427807309441

Stone, M. H. (2015). Mass murder, mental illness, and men. *Violence and Gender, 2*(1), 51-86. https://doi.org/10.1089/vio.2015.0006

Thalmayer, A. G., & Rossier, J. (2019). Agreeableness, antagonism, and mental health across cultures. In J. W. Miller & D. Lynam (Eds.), *The handbook of antagonism* (pp. 97-111). Academic Press.

Valdebenito, S., Ttofi, M., & Eisner, M. (2015). Prevalence rates of drug use among school bullies and victims: A systematic review and meta-analysis of cross-sectional studies. *Aggression and Violent Behavior, 23*, 137-146. https://doi.org/10.1016/j.avb.2015.05.004

Vazsonyi, A. T., Cleveland, H. H., & Wiebe, R. (2006). Does the effect of impulsivity on delinquency vary by neighborhood disadvantage? *Criminal Justice and Behavior, 33*, 511-541. https://doi.org/10.1177/0093854806287318

Volkert, J., Gablonski, T. C., & Rabung, S. (2018). Prevalence of personality disorders in the general adult population in Western countries: Systematic review and meta-analysis. *The British Journal of Psychiatry, 213*(6), 709-715.

Webb, V. J., Katz, C. M., & Decker, S. H. (2006). Assessing the validity of self-reports by gang members: Results from the Arrestee Drug Abuse Monitoring Program. *Crime & Delinquency, 52*(2), 232-252. https://doi.org/10.1177/0011128705277972

Weir, J. P. (2005). Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. *The Journal of Strength & Conditioning Research, 19*(1), 231-240.

Wiesner, M., Kim, H. K., & Capaldi, D. M. (2005). Developmental trajectories of offending: Validation and prediction to young adult alcohol use, drug use, and depressive symptoms. *Development and Psychopathology, 17*(1), 251.

World Health Organization (2018). *International classification of diseases for mortality and morbidity statistics (11th Revision).* https://icd.who.int/browse11/l-m/enhttps://www.who.int/standards/classifications/classification-of-disease

Zumbo, B. D. (1999). *A handbook on the theory and methods of differential item functioning (DIF)*. National Defense Headquarters.

STUDY 5

PREDICTIVE VALIDITY OF THE YLS/CMI INVENTORY IN A SAMPLE OF SPANISH YOUTH OFFENDERS OF ARAB DESCENT

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Abstract

This study was conducted to assess the predictive validity of the Youth Level of Service/Case Management Inventory (YLS/CMI) in young offenders of Arab descent, living in Spain. To address this subject, the Inventory was administered to a sample of Arab minor offenders (N = 116), and results were compared to a sample of non- Arab minor offenders (N = 140), who were all aged between 14 and 17 years. The charges filed after the date of the first assessment carried out by the Youth Offending Team were coded during the follow-up period (2012-2017). The Inventory showed a similar predictive validity for both groups. However, the values were always slightly higher in the non-Arab group than in the Arab group. With subtle cultural differences, the YLS/CMI seems to be a risk instrument capable of predicting recidivism among Arab young offenders.

Keywords: Arab young offenders, predictive validity, YLS/CMI, recidivism, risk factors.

Introduction

The prediction of criminal behaviour has become a key point in the criminological field due to its capacity to prevent continuance in the short term (youth reoffending), and in the long term (adult offending; Bersani & Doherty, 2018; Sampson & Laub, 2003). One of the most well-known risk instruments which is in widespread use in many countries is the Youth Level of Service/Case Management Inventory (YLS/CMI), by Andrews and Bonta (1995). The theoretical framework of this Inventory states that for the prediction of criminal recidivism (Bonta, Law, & Hanson, 1998), the factors with the greatest predictive value are antisocial attitudes, antisocial friendships, an antisocial personality pattern, and a history of previous offenses, which are known as the "Big Four" (Andrews, Bonta, & Wormith, 2006). These four factors are followed by another group of factors with moderate correlations, which are deficient family circumstances, education and employment, substance abuse, and leisure and free time. Together, these factors are referred to as the "Central Eight" (Andrews & Bonta, 2010). However, as even Bonta and Andrews (2017) acknowledge, the Big Four are not present in some types of samples, such as offenders with mental health disorders, racial minorities, or drugs offenders. The social context and nature of each culture must consequently be taken into account when analyzing the factors predicting recidivism.

With regard to the validity of the YLS/CMI, several studies show the discriminant capacity of the Inventory for reoffenders and non-reoffenders (Anderson, Hawes, & Snow, 2016; Cuervo & Villanueva, 2015; Flores, Travis, & Latessa, 2004; Rennie & Dolan, 2010). As for the accuracy of the predictive validity of the Inventory, some studies have showed scores for area under the curve (AUC) values ranging from .57 to .75 (Marshall, Egan, English, & Jones, 2006; Schwalbe, 2007; Shepherd, Singh, & Fullam, 2015). This analysis assesses the capability of the total eight-factor score in predicting

recidivism where a score of .50 indicates a chance prediction, and a value of 1 a perfect prediction.

However, there are also some critical studies about the general application of risk assessment instruments to different races or cultures (Martel, Brassard, & Jaccoud, 2011; Wilson & Gutierrez, 2014). The fact that most instruments were developed and validated using Caucasian male offender populations creates some doubt about their capacity to deal with the unique characteristics of demographically different offender groups, such as ethnic minorities (Olver, Stockdale, & Wormith, 2009; Wormith & Bonta, 2018). Risk assessment instruments may fail to capture accurately the full range of aspects (language, custom, and religion) that are specific to the Arab culture which is the focus of this study. In fact, some authors have called for new risk assessments, including "culturally-specific risk factors that provide a more accurate measure of risk for groups of minority offenders" (Wilson & Gutierrez, 2014, p. 197).

Despite the limited research in this area, the few studies that have addressed this issue in adults have consistently showed a better prediction of recidivism for nonminority offenders than for minority offenders (Gutiérrez, Wilson, Rugge, & Bonta, 2013; Wormith, Hogg, & Guzzo, 2015). For example, in the previously quoted studies, the Aboriginal offenders yielded higher risk scores and higher rates of recidivism than their non-Aboriginal peers. In the few studies we know of containing a sample of low risk adult offenders from a Muslim country, for example, Bhutta and Wormith (2016) found that the predictive validities of the LS/CMI (the adult version of the YLS/CMI) were comparable with those in Western countries. AUC values ranged from .55 to .82, and Cronbach's alpha for the total score of the Inventory was .75. However, as the authors point out, these results may be confined only to low-risk probationers and LS/CMI and not to all kind of offenders and risk assessment tools.

On the contrary, Schmidt, van der Meer, Tydecks, and Bliesener (2018) found that the predictive power of the LS/CMI was reduced for adult offenders with an Arab migration background compared with German offenders without this background. Even fewer studies have been undertaken on minors belonging to ethnic groups (Rembert, Henderson, & Pirtle, 2014), especially from European countries and in Spanish justice populations and systems. Although some studies with young offenders show that, in general, the YLS/CMI significantly predicts reoffending for minority youths as well as for White youths (Barnes et al., 2016; Olver, Stockdale, & Wormith, 2014), other studies indicate that the minority group may present significantly higher risk scores and recidivism (Liddell, Blake, & Singh, 2016; Perrault, Vincent, & Guy, 2017; Thompson & McGrath, 2012). Moreover, false positives are more common in minority ethnic groups (Shepherd & Lewis-Fernandez, 2016) while false negatives are usually much lower (Douglas, Pugh, Singh, Savulescu, & Savell, 2017).

These results have been consistently found in Australian studies with Aboriginal young offenders (Shepherd et al., 2015; Thompson & McGrath, 2012), and in American studies with African American young offenders (Onifade, Davidson, & Campbell, 2009; Perrault et al., 2017). Some subtle differences have also been found, such as Black youth scoring significantly higher than White youth on the prior/current offense scale, a static factor in the Inventory (Perrault et al., 2017), and the instrument being able to accurately predict recidivism for high-risk youth in all ethnic groups, but not so accurately for the general sample (Shepherd et al., 2015). In spite of these findings, no studies in Europe with young offenders of Arab descent living in Spain has been carried out.

One of the most prominent immigrant groups in Spain is the Arab population, being the Moroccan, the most frequent nationality in obtaining the Spanish citizenship (N= 24,247; Informe del Instituto Nacional de Estadística [INE], 2016). The second and

later generations have been brought up in Spain and immersed into an acculturation process. However, this group still maintains some key features of Arab culture, such as the centrality of the family and religion (Erickson, Al-Timimi, 2001; Haboush, 2007; Soriano & Santos, 2002). In fact, most Arabs in Spain consider themselves Muslims.

Within the criminology field, the number of Moroccan young adults in Spanish prisons has increased in the last decade (García-España, 2016). Among minors, Arab young offenders account for 6% to 11% of the total youth offender population in Spain, but double the Spanish recidivism rate: 40% versus 20% (Capdevila, Ferrer, & Luque, 2005; Cuervo, Villanueva, Prado-Gascó, 2017). One study carried out in Catalonia (Spain) even argues that young offenders from the Maghreb are the group with the most risk factors and the fewest protective factors, that is, the group with the hardest criminal and criminological profile (Capdevila et al., 2005). However, to our knowledge, no study has analyzed the predictive validity of the YLS/CMI in the Arab youth population living in Spain. This question is of critical importance due to the discriminatory processes that this cultural group experiences.

Even in countries with a long tradition of integration, such as the Netherlands, Moroccan-Dutch individuals report high levels of perceived discrimination (Schrier et al., 2014). In fact, social integration is especially difficult in the case of Arab population (in contrast to other Christian and European groups; Awad, 2010). The Spanish population feels a great religious, cultural, and linguistic distance toward this group, with a higher level of rejection of Arabs compared to other immigrant groups (Maya & Puertas, 2008; Navas, Tejada, & Fernández, 2011). The possibility of a poor predictive validity in risk assessment instruments would be an institutional type of discrimination for this population. This would lead to assume wrong decisions in the custody process, based in biased risk assessment. In this line, the principle of fairness should drive the use of risk

assessment: First, any risk instrument must be shown to predict recidivism with similar accuracy across different groups (predictive fairness) and second, the use of the instrument in itself must not yield average score differences between racial groups (minimize disparate impact), (Monahan & Skeem, 2016; Skeem & Lowenkamp, 2016). In other words, risk assessments should provide similar ability to discriminate between risk classifications for different racial groups, regardless of the base rate of offending in each group (Campbell, Papp, Barnes, Onifade, & Anderson, 2018).

The study was therefore of interest due to its exploration of the applicability and validity of a Western risk/need instrument in a previously unexamined Arab youth minority in Spain. It was hypothesized that the predictive validity of the YLS/CMI would be more accurate for the non-Arab group than for the Arab group (predictive bias). Second, Arab young offenders were expected to present more recidivism, more risk factors, and fewer protective factors than the non-Arab group (disparate impact).

Method

Participants

The entire sample consisted of 256 minors, aged 14 to 17 years (M = 15.82 years; SD = 1.05), from a province in the Valencian Region in Spain, who had committed a crime and had consequently been interviewed by the Technical Team in the Juvenile Court during the period from 2012 to 2017. Of this sample, 59 were women and 197 were men, accounting for 23% and 77% respectively. This sample was subdivided into two subgroups: Arab-Spanish participants and non-Arab–Spanish participants.

The Arab group consisted of 116 subjects, of whom 14 were females and 102 males (12.1% and 87.9%). The mean age was 15.76 years (SD = 1.09). All were Arab-Spanish adolescents who had been born in Spain or moved there in very early childhood.

The criterion of classification as Arab or non-Arab was based on the culture and customs inculcated in the minors.

Meanwhile, the non-Arab group comprised 140 participants, of whom 45 were women and 95 men (32.1% and 67.9%), with an average age of 15.88 years (*SD* =1.01). Significant differences between the two groups could be found for the variable gender, $\chi^2(1) = 14.41$, $p = .000$*, due to the large proportion of men in the Arab group (87.9% men and 12.1% women), compared with the non-Arab group (67.9% men and 32.1% women). The age variable showed no differences between the two groups ($t = -0.82$, p = .41).

Instrument

The instrument used in this study was the YLS/CMI by Hoge and Andrews (2006), which was translated into Spanish by Garrido, López, Silva, López, and Molina (2006) as the "*Inventario de Gestión e Intervención para Jóvenes*" (IGI-J). This instrument is completed by the Technical Team in the Juvenile Court to evaluate the general risk in a minor's life, with data from a range of information sources (interviews with the young offender and his or her family, previous court records, contact with school and social centers, etc.). During 2 months, the members of the Technical Team were trained by an expert to understand the protocol of the Inventory and obtain common criteria.

The inventory consists of 42 items, which can be classified according to eight risk factors. In each factor, the evaluator marks the risk items that can be applied to the youth (1 = presence; 0 = absence), with each variable factor having between three and seven items. The factors included in the questionnaire are as follows: (a) *prior and current offenses and dispositions*, (b) *family circumstances/parenting*, (c) *education/employment*,

(d) *peer relations,* (e) *substance abuse,* (f) *leisure/recreation,* (g) *personality/behaviour,* and (h) *attitudes, values, and beliefs*.

The total general risk score of the YLS/CMI is obtained from the sum of each of the areas that constitute the Inventory. This score obtained indicates a minor's level of risk of recidivism. The score can in turn be classified into different ranges according to the manual: low (from 0 to 8 points), moderate (from 9 to 22 points), high (from 23 to 32 points), and very high (from 33 to 42 points). According to the overall score obtained on the Inventory, the Youth Offending Team proposes which kind of measure should be adopted with the juvenile.

The instrument also includes the protective factors. These are considered not only when there is an absence of risk in a factor but also when there is an explicit presence of a positive factor. It is possible to assess the minor with a protective factor on each scale except for prior and current offenses, as the positive factor here would be normative for all participants instead of protective. The maximum score for protective factors is therefore 7.

The Spanish version of the Inventory has shown adequate psychometric properties in previous studies, obtaining a Cronbach's alpha ranging from .87 (Cuervo & Villanueva, 2013) to .91 (Cuervo et al., 2017) for all the items on the Inventory. In this study, the Cronbach's alpha was .85.

Procedure

The study was conducted under the cooperation agreement established between the Justice Department and the Psychology Department of the University. The data for this study were obtained from an analysis of records of the Juvenile Court of a province in Spain's Valencian region. The analysis included the number of offenses for each minor

in a follow-up period from 2012 to 2017. Demographic data related to ethnicity, nationality and gender, and the risk of youth recidivism obtained by the YLS/CMI were collected.

The participant's selection procedure was the following one: First, all Arab juvenile offenders who had committed a crime during the period from 2012 to 2017 were selected according to the minor self-identification as Arab, providing a total of 116 subjects. The sample from the non-Arab comparison group was subsequently collected by a random selection procedure.

The recidivism variable was coded in binary format (0 = no recidivism, 1 = recidivism), but also in a continuous way (number of new offenses). The variable "criminal recidivism" refers to charges filed after the date of the first assessment carried out on the minor by the Youth Offending Team, which will be referred to as the baseline. Each minor therefore has a different baseline, considered from 2012.

Data Analysis

The analyses presented here have been mainly structured in two components: if the instrument predicts recidivism with similar accuracy across different groups (predictive validity) and if the use of the instrument yields average score differences between racial groups (disparate impact). For the first component, predictive validity of the YLS/CMI, point-biserial correlations, AUC analyses, hierarchical logistic and negative binomial regression analyses were conducted. In addition, the reliability analysis focused on the assessment of internal consistency using Cronbach's (1951) alpha was also performed.

As commented before, the outcome variables for youth recidivism were measured dichotomously and quantitatively. In the first case, logistic regression was performed, as

this strategy allows to predict a certain behaviour when the response variable is dichotomous (Flores, Holsinger, Lowenkamp, & Cohen, 2017). In the second case, binomial negative regression was carried out. Generalized linear regression with negative binomial distribution applies to count variables and appears to be quite appropriate for the non-normal distribution of the dependent variable under study (Weerman & Hoeve, 2012).

For the second component, disparate impact, a series of t tests for independent samples and chi-square tests were conducted to examine possible variations in the YLS/CMI scores for the two offender groups. The effect size was also calculated in accordance with Cohen (1988), and the confidence interval was 95% in all the analyses.

Results

Predictive Validity of Risk Scores for Recidivism

The internal consistency analyses (Cronbach's alpha) showed a reliability of .848 for the Arab sample and .855 for the non-Arab group. A contingency table was constructed to practically assess classification errors between the values predicted and those obtained for recidivism in each group (Table 1). The YLS/CMI predicted the correct outcomes (true positives and true negatives) for 73.3% in Arab minor offenders and 75.9% in non-Arab minor offenders. As can be seen, overclassification errors were slightly higher in the non-Arab group (6.79%), while underclassification errors were slightly higher for Arab minors (20%). Arab youth tend to be more classified as false negatives, that is, they engaged in a criminal act but they were judged to be at low risk.

Table 1. *Classification Table of Recidivism.*

	Predicted risk level			
	True positive (positive hit)		False negative (underclassification error)	
Recidivist	%	N	%	n
Arab group	11.43	12	20.00	21
Non-Arab group	14.72	19	17.05	22
	False positive (Overclassification error)		True negative (Negative hit)	
Non-Recidivist	%	N	%	n
Arab group	6.66	7	61.90	65
Non-Arab group	6.79	9	61.24	79

In addition, point-biserial correlations were run to determine the relationship between recidivism and the total YLS/CMI score (*rpb* = .396, *n* = 256, $p < .001$). In the Arab sample, there was a positive and significant correlation between recidivism and the total risk score (*rpb* = .355, $p < .001$). The same is true for the non-Arab sample (*rpb* = .426, $p < .001$).

An AUC analysis was performed to assess the capability of the total eight-factor score to predict recidivism. In this case, an AUC of .73 (*SE* = .05) was observed for the Arab group, and it was therefore significant ($p < .001$). In this case, the confidence interval for the AUC value lay between .63 and .83. On the contrary, an AUC of .76 (*SE* = .04) was obtained for the non-Arab group ($p = .000$). In this other case, the confidence interval for the AUC value ranges from .67 to .84. For both groups, the instrument correctly discriminated that a minor who engaged in a criminal act received a higher risk classification than an individual who did not.

The results of a logistic regression for the non-Arab group are presented below (Table 2), including the total risk score and demographic variables (gender and age). In the first model, which contains risk score along with demographics, the total risk score

emerged as the most significant predictor of recidivism. However, gender was the most important variable (inverse) in this second model. Taken together, these two variables (being male and presenting a high risk) account for 32.5% of the variance in the prediction of recidivism.

Table 2. *Logistic Regression Analysis of Recidivism for Non-Arab Offender Minors.*

						95% CI (B)		
	B	*SE*	Wald	*df*	*p*	Exp (B)	*LL*	*UL*
Model 1: Risk scores								
Women(1)	-.1.22	.54	5.03	1	.025*	.293	.10	.85
Age	-.04	.21	.04	1	.826	.95	.62	1.45
Total risk	.16	.03	21.1	1	.000*	1.17	1.09	1.25
Constant	-1.54	3.39	0.21	1	.648	.213		
Nagelkerke R^2 =.325; *p< .05; log likelihood= 127.289								
Model 2: Protective scores								
Women(1)	-.92	.48	3.63	1	.057	.400	.16	1.02
Age	-.02	.19	.01	1	.933	.984	.67	1.44
Total protective	-.68	.34	4.03	1	.045*	.506	.26	.99
Constant	-.05	3.13	.00	1	.987	.951		
Nagelkerke R^2 =.120; *p< .05; log likelihood= 149.746								
Women(1)	-1.21	.55	4.81	1	.02*	.299	.10	1.02
Age	-.06	.22	.07	1	.785	.943	.62	1.44
Total risk	.16	.04	17.53	1	.000*	1.17	1.08	.99
Total protective	-.15	.35	.18	1	.668	.859	.43	1.72
Constant	-1.26	3.13	.00	1	.715	.951		
Nagelkerke R^2 =.326; *p< .05; log likelihood= 127.093								

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

In the second model, containing protective score along with demographics, the total score for protective factors was the only variable predicting recidivism. Nevertheless, the percentage of variance in the prediction of recidivism explained by this variable is much lower than in the previous case (12%).

In the third model, including risk and protective scores and demographic variables, the total risk score was the variable that contributed significantly to the final model. The final model was statistically significant, accounting for 32.6% of the variance in the prediction of recidivism. In turn, gender was also a significant variable in the total model, and the protective total score was not significant in this model, which shows that when the two variables (protective and risk scores) are introduced, the significance of protective score disappears.

The regression analyses obtained for the sample of Arab minor offenders are presented in Table 3. As in the non-Arab group, in the first model the total risk score was the most significant variable predicting recidivism. However, unlike the previous case, neither gender nor age is a significant variable. This model accounted for 20.2% of the variance in the prediction of recidivism.

In the second model, containing protective score, none of the variables analysed were shown to be significant, unlike the case of the non-Arab group. This model explained 5.3% of the variance in the prediction of recidivism. In the third model, including risk and protective scores and demographic variables, the total risk score was again the only variable that significantly contributed to the final model. The model explains 21.1% of the variance on the prediction of recidivism.

Finally, the results from the negative binomial regression are presented for both groups. Similar results to the logistic regression models were found. The total risk score

for the Inventory also predicted the number of charges in the follow-up period in both cases.

Table 3. *Logistic Regression Analysis of Recidivism for Arab Offender Minors.*

						95% CI (B)		
	B	*SE*	Wald	*df*	*p*	Exp (B)	*LL*	*UL*
Model 1: Risk scores								
Women(1)	-.66	.85	.60	1	.437	.515	.09	2.74
Age	-.30	.21	1.98	1	.159	.737	.48	1.13
Total risk	.13	.38	12.36	1	.000*	1.14	1.06	1.22
Constant	2.83	3.39	0.71	1	.400	16.89		
Nagelkerke R^2 =.202; *p< .05; log likelihood= 114.385								
Model 2: Protective scores								
Women(1)	-.956	.82	1.36	1	.224	.384	.077	1.92
Age	-.217	.20	1.15	1	.283	.805	.542	1.19
Total protective	-.374	.28	1.77	1	.184	.688	.396	1.19
Constant	2.93	3.23	.83	1	.363	18.84		
Nagelkerke R^2 =.053; *p< .05; log likelihood= 126.657								
Women(1)	-0.63	.85	.55	1	.457	.532	.10	2.81
Age	-.28	.22	1.62	1	.203	.755	.49	1.16
Total risk	.15	.47	11.07	1	.001*	1.17	1.07	1.28
Total protective	.30	.33	.81	1	.369	1.35	.69	2.62
Constant	2.04	3.49	.34	1	.559	7.72		
Nagelkerke R^2 =.211; *p< .05; log likelihood= 113.599								

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

In the first case, referring to the non-Arab group (Table 4), the total risk score emerged as the most significant predictor of subsequent criminal charges. Likewise, the effect of the gender was also significant. If the minor is a male, he therefore is more likely to have a greater number of subsequent criminal charges than if he were a female. In the

second case, referring to the Arab group (Table 5), the only variable that showed a predictive value for the number of subsequent criminal charges was the total risk score. On this occasion, gender was not a significant variable.

Table 4. *Negative Binomial Regression of Number of Criminal Files for Non-Arab Offender Minors.*

						95% CI (B)	
	B	*SE*	χ2 Wald	*df*	*p*	*LL*	*UL*
(Intercept)	-2.37	2.60	.83	1	.362	-7.471	2.730
Women(1)	-.78	.39	3.98	1	.046*	-1.548	-.014
Age	.03	.16	.04	1	.824	-.282	.354
Total risk	.11	.02	22.17	1	.000*	.067	.163
Total strength	-.21	.27	.61	1	.433	-.755	.324

*Note. n = 129; log likelihood = −118.532; AIC = 247.063; BIC = 261.362. CI = confidence interval; LL = lower limit; UL = upper limit; AIC = Akaike information criterion; BIC = Bayesian information criterion. *p < .05.*

Table 5. *Negative Binomial Regression of Number of Criminal Files for Arab Offender Minors.*

						95% CI (B)	
	B	*SE*	χ2 Wald	*df*	*p*	*LL*	*UL*
(Intercept)	-4.15	2.48	2.80	1	.094	-9.013	.710
Women(1)	-.70	.70	.99	1	.320	-2.081	.679
Age	.16	.14	1.20	1	.273	-.128	.453
Total risk	.13	.03	18.99	1	.000*	.076	.200
Total strength	.09	.26	.13	1	.712	-.421	.617

*Note. n = 105; log likelihood = −126.865; AIC = 263.730; BIC = 277.000. CI = confidence interval; LL = lower limit; UL = upper limit; AIC = Akaike information criterion; BIC = Bayesian information criterion. *p < .05.*

Risk Scores and Recidivism

The results for the risk factors in the different areas of the Inventory are presented in Table 6. As can be seen, there are no significant differences in the total risk score, and only some differences in the subscales of family circumstances and peer relations. The average risk score on the scales was higher for the non-Arab group in both cases. The effect size of the significant risk factors analyzed was low-medium, ranging from −0.49 to 0.14.

For protective factors, significant differences were found in the subscales of peer relations, $\chi^2(1) = 5.27$, p = .002, and substance abuse, χ^2 (1) = 24.29, $p < .001$. These differences showed a higher mean for the non-Arab group on the Peer Relations subscale and a higher mean for the Arab group on the Substance Abuse subscale. No differences were found for the total protective score.

Table 6. *Descriptive Statistics for the Arab Group and Non-Arab Group (Risk Factors).*

	Arab group	Non-Arab group			
Inventory factors	M (SD)	M (SD)	*t*	*p*	Cohen's d
Prior and current offences	0.24 (0.54)	0.17 (0.43)	1.06	.287	0.14
Family circumstances	1.19 (1.35)	1.80 (1.62)	-3.20	.002*	-0.41
Education	2.04 (1.43)	1.79 (1.63)	1.33	.185	0.16
Peer relations	1.47 (1.32)	2.31 (1.52)	-3.63	.000*	-0.59
Substance abuse	0.48 (1.00)	0.74 (1.18)	-1.83	.069	-0.23
Leisure/recreation	1.89 (1.08)	1.94 (1.10)	-1.86	.064	-0.04
Personality/behaviour	0.91 (1.34)	1.11 (1.38)	-1.17	.240	-0.14
Attitudes/orientation	0.47 (0.89)	0.49 (.91)	-1.77	.860	-0.02
Total score	8.70 (6.449	10.15 (7.24)	-1.67	.095	-0.21

*$p < .05$.

When the absence or presence of recidivism was assessed, $\chi^2(1) = 0.15$, $p = .069$, no significant differences were found. Likewise, no differences were found between the two groups with regard to subsequent criminal charges (t = 1.62; p = .105). That is, both groups recidivated in a similar way, regardless of the type of recidivism variable used.

Conclusion

The current investigation examined the use of a common risk/need assessment tool with young offenders of Arab descent. First, we hypothesized that the predictive validity of the YLS/CMI would be more accurate for the non-Arab group than for the Arab group. This was not fully supported by the results. With very subtle differences, the Inventory showed a similar predictive validity for both groups. However, the values of the AUC analyses and the regression models for the YLS/CMI were always slightly higher in the non-Arab group than in the Arab group (AUC = .76; .73; R^2 = .33; .21, respectively). For both groups, the AUC values obtained in this study were in the upper range in comparison to previous studies (Shepherd et al., 2015).

In the different regression models, gender was never a significant predictor variable of recidivism in the group of Arab youths. However, this may be due to the small number of girls in the sample of Arab young offenders. This is consistent with previous studies that showed a low criminal involvement in Arab girls (Junger-Tas, Ribeaud, & Cruyff, 2004). On the contrary, the variable risk score was consistently a significant predictor for recidivism in both groups. For all the participants in this study, and regardless of culture, the risk score in the YLS/CMI was able to predict subsequent reoffending during the follow-up period.

If we turn to look at the classification errors in the prediction, we can find the following results that are not consistent with previous literature (Rembert et al., 2014;

Shepherd & Lewis-Fernandez, 2016). While the overclassification error (false positive) was similar in both groups, the underclassification error (false negative) was higher in the Arab group. A kind of "positive discrimination bias" when estimating the reoffending risk of Arab youth offenders in comparison to the non-Arab group seems to exist. This is quite paradoxical if we take into account previous studies analysing classification errors of the YLS/CMI in cultural minorities. Does it have to be with the specific minority studied? Further research is needed to clarify this issue. In spite of this bias, Arab youth offenders present the same recidivism rate as non-Arab youth. In general, the results obtained therefore support the predictive validity of the YLS/CMI for recidivism among Arab young offenders, as reported by Bhutta and Wormith (2016) in low-risk adult offenders. That is, the Inventory presented predictive fairness, contributing to the objective premise of assessment and equality before the law (Rembert et al., 2014).

Second, Arab young offenders were expected to present higher levels of recidivism, more risk factors, and fewer protective factors than the non-Arab group. This hypothesis was not supported. Arab young offenders did not present more risk factors or fewer protective factors than their non-Arab peers. Furthermore, contrary to the predictions, the differences in the recidivism rate between both groups were not significant. They reoffended to a similar extent, both in relation to presence/absence of recidivism, and in relation to number of subsequent criminal charges. In sum, regarding the disparate impact question, the answer was negative: The use of the instrument did not yield average score differences between racial groups.

In relation to risk factors, and contrary to the hypothesis posited, non-Arab young offenders presented significant higher levels of risk than the Arab group for two factors: family circumstances/parenting and peer relations. This is logical considering the

importance of the family in Arab culture, and the emphasis on preserving family honour (Al-Krenawi & Graham, 2000; Schmidt et al., 2018).

Moreover, the Arab group presented a significant protective factor compared to their non-Arab peers: substance abuse. In Arab communities, alcohol consumption is frowned upon (Baron-Epel et al., 2015). However, due to acculturation processes, descendants of Arabs are exposed to Western alcohol consumption norms (Arfken & Ahmed, 2016). In spite of the pressure to drink because of social norms, in this study they seem to choose not to drink, and the active rejection of alcohol and drugs is a protective factor for reoffending, which is not present in the non-Arab group. Even with increasing acculturation, they wish to maintain their ethnic identity (Haboush, 2007). In fact, the existence of a strong cultural identity or engagement in adult offenders has even proven to be a protective factor against violent reoffending (Shepherd, Delgado, Sherwood, & Paradies, 2018). In youth, Rojas-Gaona, Hong, and Peguero (2016) defend that the need to balance the demands of his or her original culture represented by his or her first-generation immigrant parents and the demands of the new host culture seems to protect them from criminogenic influences. Moreover, religiosity (as a general attitude to guide behaviour in life) maybe also a protective factor for reducing risk and recidivism, as found by Bhutta and Wormith (2016).

The overall results obtained for risk and protective factors are not consistent with previous studies that establish a high-risk profile for Arab young offenders in Catalonia, Spain (Capdevila et al., 2005): substance abuse, with no permanent address, living in the street, no school attendance, a traumatic family background, and so on. A possible explanation for these apparently contradictory results may be that the minors discussed in the study cited (Capdevila et al., 2005) seem to be unaccompanied minors, that is, minors coming from the Maghreb to Spain alone in search of a better future for them and

their families. However, this is not the profile of the participants in this study. The participants here are mainly second- and later-generation Arab-Spanish. They were born in Spain or moved there in very early childhood, accompanied by their families. This characteristic seems to define a clearly distinctive profile of the minors, that is consistent with the results obtained in this study and with the more common adolescent-limited trajectory of offending, as suggested by Moffitt (1993, 2006).

Finally, several limitations of this research must be outlined. The first limitation is that this study analyzed recidivism only with reference to juvenile system records. Therefore, an underestimation of recidivism rates for youth who were 18 years old at the time of the offense may have occurred. However, the results from this study are consistent with previous recidivism rates (Cuervo & Villanueva, 2015; Hilterman, Nicholls, & van Nieuwenhuizen, 2014). Second, as the sample was obtained in a Spanish province, the generalization of the data is limited by this factor. It would be advisable to extrapolate these analyses to other Spanish culture minorities (as, for example, Romanian populations), as well as to other countries with populations of Arab origin. Likewise, although both groups were mostly made up of male minor offenders, it would be advisable to have a more balanced sample of women and men, in both intragroup and intergroup terms, to compare the differences more adequately.

Despite these limitations, this study presents important implications for risk assessment professionals. Although the YLS/CMI seems to provide a good prediction of recidivism in Spanish young offenders of Arab descent, professionals must be aware of cultural differences, particularly the value of protective factors in this population, and the errors of classification that may affect the decision-taking custody process. It is our duty to translate this awareness into the provision of culturally sensitive services.

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References

Al-Krenawi, A., & Graham, J. R. (2000). Culturally sensitive social work practice with Arab clients in mental health settings. *Health & Social Work, 25*(1), 9-22. doi:10.1093/hsw/25.1.9

Anderson, S. A., Hawes, D. J., & Snow, P. C. (2016). Language impairments among youth offenders: A systematic review. *Children and Youth Services Review, 65*, 195-203. doi: 10.1016/j.childyouth.2016.04.004

Andrews, D. A., & Bonta, J. (1995). *The level of supervision inventory-revised*. Toronto: Multi-Health Systems, 106, 19-52.

Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). New Providence, NJ: LexisNexis.

Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency, 52*, 7-27. doi:10.1177/0011128705281756

Arfken, C. L., & Ahmed, S. (2016). Ten years of substance use research in Muslim populations: Where do we go from here? *Journal of Muslim Mental Health, 10*(1), 13-24. doi:10.3998/jmmh.10381607.0010.103

Awad, G. H. (2010). The impact of acculturation and religious identification on perceived discrimination for Arab/Middle Eastern Americans. *Cultural Diversity & Ethnic Minority Psychology, 16*(1), 59-67. doi:10.1037/a0016675

Barnes, A. R., Campbell, N. A., Anderson, V. R., Campbell, C. A., Onifade, E., & Davidson, W. S. (2016). Validity of initial, exit, and dynamic juvenile risk assessment: An examination across gender and race/ethnicity. *Journal of Offender Rehabilitation, 55,* 21-38. doi:10.1080/10509674.2015.1107004

Baron-Epel, O., Bord, S., Elias, W., Zarecki, C., Shiftan, Y., & Gesser-Edelsburg, A. (2015). Alcohol consumption among Arabs in Israel: A qualitative study. *Substance Use & Misuse, 50*, 268-273. doi:10.3109/10826084.2014.962051

Bersani, B. E., & Doherty, E. E. (2018). Desistance from offending in the twenty-first century. *Annual Review of Criminology, 1*, 311-334. doi:032317-092112

Bhutta, M. H., & Wormith, J. S. (2016). An examination of a risk/needs assessment instrument and its relation to religiosity and recidivism among probationers in a Muslim culture. *Criminal Justice and Behavior, 43*, 204-229. doi:10.1177/0093854815604011

Bonta, J., & Andrews, D. A. (2017). *The psychology of criminal conduct*. New York, NY: Routledge.

Bonta, J., Law, M., & Hanson, K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: A meta-analysis. *Psychological Bulletin, 123*, 123-142. doi:10.1037/0033-2909.123.2.123

Campbell, C., Papp, J., Barnes, A., Onifade, E., & Anderson, V. (2018). Risk assessment and juvenile justice: An interaction between risk, race, and gender. *Criminology & Public Policy, 17*, 525-545. doi:10.1111/1745-9133.12377

Capdevila, M., Ferrer, M., & Luque, E. (2005). *La reincidencia en el delito en la justicia de menores* [Criminal recidivism in youth justice]. Barcelona, Spain: Centre d'estudis Jurídics i Formació Especialitzada, Generalitat de Catalunya.

Cohen, M. A. (1988). Some new evidence on the seriousness of crime. *Criminology, 26*, 343-353. doi:10.1111/j.1745-91251988.tb00845.x

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334. doi:10.1007/BF02310555

Cuervo, K., & Villanueva, L. (2013). Reiteración y reincidencia delictivas en menores españoles con expediente judicial [Reiteration and criminal recidivism in Spanish youth with criminal files]. *Revista Mexicana De Psicología, 30*, 61-68.

Cuervo, K., & Villanueva, L. (2015). Analysis of risk and protective factors for recidivism in Spanish youth offenders. International *Journal of Offender Therapy and Comparative Criminology, 59*, 1149-1165. doi:10.1177/0306624X14557917

Cuervo, K., Villanueva, L., & Prado-Gascó, V. (2017). Predicción de la reincidencia juvenil mediante el inventario YLS/CMI y baremos para su valoración [Youth recidivism prediction using the YLS/CMI Inventory and norms for assessment]. *Revista Mexicana de Psicología, 34*, 24-36.

Douglas, T., Pugh, J., Singh, I., Savulescu, J., & Fazel, S. (2017). Risk assessment tools in criminal justice and forensic psychiatry: The need for better data. *European Psychiatry, 42*, 134-137. doi: 10.1016/j.eurpsy.2016.12.009

Erickson, C. D., & Al-Timimi, N. R. (2001). Providing mental health services to Arab Americans: Recommendations and considerations. *Cultural Diversity & Ethnic Minority Psychology, 7*, 308-327. doi:10.1037/1099-9809.7.4.308

Flores, A. W., Holsinger, A. M., Lowenkamp, C. T., & Cohen, T. H. (2017). Time-free effects in predicting recidivism using both fixed and variable follow-up periods: Do different methods produce different results. *Criminal Justice and Behavior, 44*, 121-137. doi:10.1177/0093854816678649

Flores, A. W., Travis, L., & Latessa, E. (2004). *Case classification for juvenile corrections: An assessment of the Youth Level of Service/Case Management Inventory (YLS/CMI), executive summary*. Washington, DC: U.S. Department of Justice.

García-España, E. (2016). De menores inmigrantes en protección a jóvenes extranjeros en prisión [From immigrant minors in protection services to young foreigners in prison]. *InDret, 3*, 1-27.

Garrido, V., López, E., Silva, T., López, M. J., & Molina, P. (2006). *El modelo de la competencia social de la ley de menores* [The social competence model in the minors law]. Valencia, Spain: Tirant Lo Blanc.

Gutiérrez, L., Wilson, H. A., Rugge, T., & Bonta, J. (2013). The prediction of recidivism with Aboriginal offenders: A theoretically informed meta-analysis. *Canadian Journal of Criminology and Criminal Justice, 55*, 55-99. doi:10.3138/cjccj.2011.E.51

Haboush, K. L. (2007). Working with Arab American families: Culturally competent practice for school psychologists. *Psychology in the Schools, 44,* 183-198. doi:10.1002/pits.20215

Hilterman, E. L., Nicholls, T. L., & van Nieuwenhuizen, C. (2014). Predictive validity of risk assessments in juvenile offenders: Comparing the SAVRY, PCL: YV, and YLS/CMI with unstructured clinical assessments. *Assessment, 21,* 324-339. doi:10.1177/1073191113498113

Hoge, R. D., & Andrews, D. A. (2006). *Youth Level of Service/Case Management Inventory (YLS/CMI). Multi-Heath Systems*. Retrieved from https://www.mhs.com/MHS-Publicsafety?prodname=yls-cmi

Informe del Instituto Nacional de Estadística. (2016). *Estadística de migraciones 2015* [Migration statistics 2015]. Madrid, Spain: Spanish Statistical Institute.

Junger-Tas, J., Ribeaud, D., & Cruyff, M. J. (2004). Juvenile delinquency and gender. *European Journal of Criminology, 1,* 333-375. doi:10.1177/1477370804044007

Liddell, M., Blake, M., & Singh, S. (2016). Over-represented and misunderstood: Pacific young people and juvenile justice in NSW. *Australian & New Zealand Journal of Criminology, 49,* 1-19. doi:10.1177/0004865816666614

Marshall, J., Egan, V., English, M., & Jones, R. M. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behaviour. *Legal and Criminological Psychology, 11,* 197-210. doi:10.1348/135532505X68719

Martel, J., Brassard, R., & Jaccoud, M. (2011). When two worlds collide: Aboriginal risk management in Canadian corrections. *The British Journal of Criminology, 51*, 235-255. doi:10.1093/bjc/azr003

Maya, M., & Puertas, S. (2008). Estereotipos, inmigración y trabajo [Stereotypes, immigration and work]. *Papeles del Psicólogo, 29*, 6-15.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701.

Moffitt, T. E. (2006). *Life-course-persistent versus adolescence-limited antisocial* behavior. In D. Cicchetti & D. J. Cohen (Eds.), Developmental psychopathology: Risk, disorder, and adaptation (pp. 570-598). Hoboken, NJ: John Wiley.

Monahan, J., & Skeem, J. L. (2016). Risk assessment in criminal sentencing. *Annual Review of Clinical Psychology, 12*, 489-513. doi:10.1146/annurev-clinpsy-021815-092945

Navas, M., Tejada, A., & Fernández, M. (2011). Concordance between acculturation attitudes and perceptions of the Spaniards toward Maghreb immigrants: Relationship to prejudice. *Anales de Psicología/Annals of Psychology, 27*(1), 186-194.

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. *Criminal Justice and Behavior, 36*, 329-353. doi:10.1177/0093854809331457

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2014). Thirty years of research on the level of service scales: A meta-analytic examination of predictive accuracy and sources of variability. *Psychological Assessment, 26*, 156-176. doi:10.1037/a0035080

Onifade, E., Davidson, W., & Campbell, C. (2009). Risk assessment: The predictive validity of the Youth Level of Service Case Management Inventory with African Americans and girls. *Journal of Ethnicity in Criminal Justice, 7*, 205-221. doi:10.1080/15377930903143544

Perrault, R. T., Vincent, G. M., & Guy, L. S. (2017). Are risk assessments racially biased? Field study of the SAVRY and YLS/CMI in probation. *Psychological Assessment, 29,* 664-678. doi:10.1037/pas0000445

Rembert, D. A., Henderson, H., & Pirtle, D. (2014). Differential racial/ethnic predictive validity. *Youth Violence and Juvenile Justice, 12,* 152-166. doi:10.1177/1541204013485606

Rennie, C. E., & Dolan, M. C. (2010). The significance of protective factors in the assessment of risk. *Criminal Behaviour and Mental Health, 20*, 8-22. doi:10.1002/cbm.750

Rojas-Gaona, C. E., Hong, J. S., & Peguero, A. A. (2016). The significance of race/ethnicity in adolescent violence: A decade of review, 2005–2015. *Journal of Criminal Justice, 46,* 137-147. doi: 10.1016/j.jcrimjus.2016.05.001

Sampson, R. J., & Laub, J. H. (2003). Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology, 41*, 555-592. doi:10.1111/j.17459125. 2003.tb00997.x

Schmidt, S., van der Meer, E., Tydecks, S., & Bliesener, T. (2018). How culture and migration affect risk assessment. *European Journal of Psychology Applied to Legal Context, 10*, 65-78. doi:10.5093/ejpalc2018a7

Schrier, A. C., Peen, J., de Wit, M. A., van Ameijden, E. J. C., Erdem, O., Verhoe, A. P., Dekker, J. M., & Beekman, A. T. F. (2014). Ethnic density is not associated with psychological distress in Turkish-Dutch, Moroccan-Dutch and Surinamese-Dutch ethnic minorities in the Netherlands. *Social Psychiatry and Psychiatric Epidemiology, 49,* 1557-1567. doi:10.1007/s00127-014-0852-x

Schwalbe, C. S. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior, 31*, 449-462. doi:10.1007/s10979-006-9071-7

Shepherd, S. M., Delgado, R. H., Sherwood, J., & Paradies, Y. (2018). The impact of indigenous cultural identity and cultural engagement on violent offending. BMC *Public Health, 18,* Article 50. doi:10.1186/s12889-017-4603-2

Shepherd, S. M., & Lewis-Fernandez, R. (2016). Forensic risk assessment and cultural diversity: Contemporary challenges and future directions. *Psychology, Public Policy, and Law*, *22*, 427-438. doi:10.1037/law0000102

Shepherd, S. M., Singh, J. P., & Fullam, R. (2015). Does the Youth Level of Service/Case Management Inventory generalize across ethnicity? *International Journal of Forensic Mental Health, 14*, 193-204. doi:10.1080/14999013.2015.1086450

Skeem, J. L., & Lowenkamp, C. T. (2016). Risk, race, and recidivism: Predictive bias and disparate impact. *Criminology, 54,* 680-712. doi:10.1111/1745-9125.12123

Soriano, R., & Santos, C. (2002). El perfil social de la mujer inmigrante marroquí en España y su incidencia en la relación intercultural [The social profile of Moroccan immigrant woman in Spain and its incidence in the intercultural relation]. *Papeles de Geografía, 36,* 171-184.

Thompson, A. P., & McGrath, A. (2012). Subgroup differences and implications for contemporary risk-need assessment with juvenile offenders. *Law and Human Behavior, 36,* 345-355. doi:10.1037/ h0093930

Weerman, F. M., & Hoeve, M. (2012). Peers and delinquency among girls and boys: Are sex differences in delinquency explained by peer factors? *European Journal of Criminology, 9,* 228-244. doi:10.1177/1477370811435736

Wilson, H. A., & Gutierrez, L. (2014). Does one size fit all? A meta-analysis examining the predictive ability of the Level of Service Inventory (LSI) with aboriginal offenders. *Criminal Justice and Behavior, 41,* 196-219. doi:10.1177/0093854813500958

Wormith, J. S., & Bonta, J. (2018). *The Level of Service (LS) instruments*. In Jay P. Singh, D. G. Kroner, J. S. Wormith, S. L. Desmarais, & Z. Hamilton (Eds.), Handbook of recidivism risk/needs assessment tools (pp. 117-145). West Sussex, UK: John Wiley.

Wormith, J. S., Hogg, S. M., & Guzzo, L. (2015). The predictive validity of the LS/CMI with Aboriginal offenders in Canada. *Criminal Justice and Behavior, 42,* 481-508. doi: 10.1177/0093854814552843

STUDY 6

THE PREDICTION OF YOUTH RECIDIVISM IN A SPANISH ROMA POPULATION BY THE YOUTH LEVEL OF SERVICE/CASE MANAGEMENT INVENTORY (YLS/CMI)

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Abstract

Despite the increasing interest in the accuracy of youth risk assessment tools, the amount of research with ethnic minorities remains relatively modest. For this reason, the main goal of this study was to assess the predictive validity and disparate impact of the Youth Level of Service/Case Management Inventory (YLS/CMI) in a Spanish ethnic minority. The participants consisted of 88 Roma youth offenders and 135 non-Roma youth offenders, aged between 14 and 17 years old. Their risk of recidivism was assessed by means of the YLS/CMI Inventory and their recidivism rate was obtained from the Juvenile Justice Department. Results showed that the Inventory presented slightly lower predictive validity for the Roma group. Moreover, Roma juveniles presented higher risk scores and lower strength scores than non-Roma juveniles. These results supported the idea that professionals must therefore be aware of these cultural differences in predictive validity and the existent potentiality for disparate impact.

Keywords: Roma population, risk assessment, youth offenders, predictive validity, recidivism.

Introduction

Despite the growth in the use and efficacy of the risk assessment instruments in recent years, the amount of research with ethnic minorities remains relatively modest (Schmidt et al., 2020; Threadcraft-Walker et al., 2018). In fact, some authors even defend that by now, we cannot explain cross-cultural differences in risk assessment; therefore, these tools should be used with caution in these settings (Schmidt et al., 2020). The inclusion of demographic, socioeconomic, family, and neighborhood variables in these tools are likely to have a racial impact (Starr, 2014). Given that most risk assessment tools have been validated in dominant White majority groups, the question about their ability to predict accurately for minority groups emerges (Olver et al., 2009; Rembert et al., 2014; Wormith & Bonta, 2018).

These previous studies in the field of risk assessment and minorities have been concerned with two different aspects: any instrument must be shown to predict recidivism with similar accuracy across different groups, avoiding test bias (predictive validity), and the use of an instrument might not yield average score differences between racial groups, avoiding the intensification of racial disparities (disparate impact), (Skeem & Lowenkamp, 2016). Even if an instrument perfectly measures risk (predictive validity), its use still may be unfair (disparate impact), as this latter concept is basically moral or social rather than empirical and psychometric (Skeem & Lowenkamp, 2016). Regarding the first aspect, predictive validity, while some studies found no support for the test bias for adult and youth offenders (Lowder et al., 2019; Skeem & Lowenkamp, 2016), others presented significantly less predictive models for recidivism in minorities (Campbell et al., 2018; Schmidt et al., 2018).

The few studies explicitly addressing the disparate impact issue also showed contradictory results. Some studies found mean differences between ethnic groups that were relevant to disparate impact (Rubino et al., 2020; Skeem & Lowenkamp, 2016), whereas others did not (Villanueva et al., 2019). Both aspects, predictive validity, and disparate impact of the Youth Level of Service/Case Management Inventory (YLS/CMI), will be addressed in this study in relation to Roma minority in Spain.

Most research on the use of risk assessment tools with minorities has been conducted in countries such as the United States, Canada, and Australia. Nevertheless, one of the largest majority ethnic minorities in some regions of Europe is the Roma population (Vazsonyi et al., 2016) and despite this, research on Roma minority remains scarce. Nowadays, Roma population, immigrants and ex-colonial citizens build up the ethnic and racial configuration in Spanish culture. In this line, it is quite paradoxical that although Roma population "has lived uninterruptedly in Spain for almost four centuries, yet they are still regarded as another, distinct from normative Spanishness" (Santaolalla, 2002, p. 58). Without a doubt, this reflects their social and representational discrimination. For instance, the Roma population accounts for 725,000 to 750,000 people, approximately 1.5% of the total Spanish population (Ministry of Health, Consumer Affairs and Social Welfare, 2020) and for 21.3% of juvenile offenders (Uceda-Maza & Alonso, 2017), being over-represented in the Spanish criminal justice system (Laparra, 2011). This fact would challenge the "fairness" component in risk assessment tools, as most of the instruments give heavy weight to the factor of criminal history (Starr, 2014). At the same time, the social conditions surrounding this population may increase their overall risk for delinquent involvement, consequently supporting that the risk assessment may be especially valid.

Despite these assumptions, no study has been found to evaluate the predictive validity of the instruments of risk assessment in Spanish Roma population. This is of critical importance for Roma minors in Spain, who have experienced historic systematic discrimination (Laparra, 2011; Vazsonyi et al., 2016). According to different reports about their living conditions, the Roma population suffers higher levels of social exclusion than the rest of the population (Janevic et al., 2012). Moreover, the Roma minority is the group that less sympathy arouses among the population (Center for Sociological Research, 2007). Despite these prejudices and discrimination in Spanish society, their ethnic identity is also a source of life satisfaction and well-being for them (Gómez Berrocal et al., 2020).

The already existing studies addressing the use of risk assessment tools in non-Roma minorities have found the following subtle nuances. In general, the YLS/CMI significantly predicts reoffending for both minority and non-minority youth (Barnes et al., 2016; Olver et al., 2014). Area under the curve (AUC) values have been shown to range from c.=.57 to c.=.75 (Schwalbe, 2007; Shepherd et al., 2015), and c.=.75 to c.=.80 in Spanish populations (Cuervo & Villanueva, 2015; Ortega-Campos et al., 2020). However, the indices for youth offenders from Aboriginal/African/Pacific origin are always weaker than for young Australians/White as a whole (Frize et al., 2008; Onifade et al., 2009). For instance, AUC values for English speaking background youth offenders was .79 versus .67 for Indigenous youth offenders (Shepherd et al., 2015).

Regarding the analysis of disparate impact of the Inventory, young offenders from minority groups (Pacific and Black origin) may present significantly higher risk scores and recidivism (Liddell et al., 2016). This is also evident for the use of the YLS/ CMI-AA (Australian Adaptation), (Frize et al., 2008). For instance, in this last study, non-Indigenous youth offenders obtained YLS/CMI mean scores of 16.28 versus 19.97 for

Indigenous youth offenders, as well as a lower number of criminal files (3.41 vs. 5.12, respectively). In relation to protective scores, very few studies have explicitly focused on differences between racial groups. Further research in protective factor differences is needed to enrich the study of the disparate impact of the Inventory.

In summary, susceptibility to culture bias is relevant to the use of all risk assessment procedures, and to any cultural minority in every country. Ignoring this issue may jeopardize the constitutional rights of people being evaluated (Hart, 2016). This is especially relevant to minorities which already suffer historic systematic discrimination in other daily areas, such as the Roma population in Spain. The purpose of this study is therefore to examine the predictive validity and disparate impact of YLS/CMI in Spanish Roma young offenders and compare it with a sample of Spanish non-Roma young offenders. We expect that the predictive validity would be more accurate for the majority sample than for the ethnic minority, that is, the Inventory would present minority ethnic predictive bias. Likewise, we hypothesize that the ethnic minority would present more risk factors and less protective factors than the non-ethnic group. Moreover, they would present more criminal recidivism than the non-ethnic group (disparate impact).

Method

Participants

Participants were 223 juveniles with a disciplinary record in the Juvenile Court of a Spanish province in the period from March 2012 to March 2017. They were aged from 14 to 17 years old (*mean*=15.87 years; *SD*=1.05), and 67% were male. They were divided into two groups based on their ethnicity (Roma or Non-Roma minor offenders). The criterion was the minor's self-identification as Roma or as belonging to the majority group, following previous studies about ethnic minorities and recidivism prediction (e.g.,

Rembert et al., 2014; Shepherd et al., 2014, 2015). In terms of nationality, all the minors were Spanish. Whereas all the parents of the youth in the Roma group were born in Spain, in the non-Roma group the ethnic origin was the following one: 82% Spanish, 12% Eastern European countries, and 6% South American. Moreover, the non-Roma group was located across a range of working to upper-middle class areas whereas the minority group (Roma minor offenders) was in rather low- medium class neighborhoods.

The Roma group consisted of 88 subjects, of whom 68.2% were male. The mean age was 15.86 years old (*SD*= 1.09). The non-ethnic minority group consisted of 135 participants, of whom 66.7% were male, with an average age of 15.88 years old (*SD*=1.03). No significant differences between the two groups could be found for the variables gender ($\chi^2(1, N=223) = .814$, $p<.05$) or age ($t=.011$, $p=.236$).

Measures

The Youth Level of Case Management Inventory (YLS/CMI) by Hoge and Andrews (2002) is an actuarial risk/needs instrument for young offenders aged 12 to 17years of age which was translated by Garrido et al. (2006). The purpose of this hetero-assessment Inventory is to evaluate the risk of a youth reoffending and it is completed by a member of the Youth Offending Assessment Team in the Juvenile Court using data from different information sources, as specified by the original authors of the Inventory. These official sources are all collected through interviews with the youth and his or her family, previous court records, and information from other social centers, such as high schools, social services, and so on.

The Inventory consists of 42 items, which can be classified according to eight static and dynamic risk factors associated with future general offending. In each factor, the evaluator marks the risk items that can be applied to the youth (1=presence;

0=absence). The factors included in the questionnaire are as follows: (1) *prior and current offenses*, (2) *family circumstances/parenting*, (3) *education/employment*, (4) *peer relations*, (5) *substance abuse*, (6) *leisure/recreation*, (7) *personality/behavior*, and (8) *attitudes, values, and beliefs*. The general risk score of the Inventory is obtained by the sum of each of the eight areas. This score gives a level of the risk for recidivism: low (0–8points), moderate (9–22points), high (23–32points), and very high (33– 42points). Due to the low number of subjects in the very-high-risk group, the high and very high groups are collapsed in this study.

The instrument also includes one possible strength factors per area (protective factors) except prior and current offenses, because the positive factor here would be normative for all participants instead of protective. Therefore, the maximum score is seven. On this Inventory, the same constructs are rated for both risks and strengths. However, strength factors are considered as not merely the absence of risk in a factor (because a necessary condition to mark the factor as protective is the absence of risk items), but the explicit presence of a positive factor. For example, actively belonging to a sport association will be a strength factor in the leisure/recreation area. Although protective factors overlap with risk factors showing moderate to large inverse correlations, they are not necessarily mirror images. That is, low risk is not necessarily the equivalent of high strength (Viljoen et al., 2020). The Spanish version of the Inventory has shown adequate psychometric properties in previous studies (Cronbach's alpha= .91), (Cuervo et al., 2017). In this study, the Cronbach's alpha for the general risk score was .84.

Procedure

The initial individual interviews to obtain a profile of the young person and information to complete the Inventory were carried out by the Justice Department in the offices of the Juvenile Court's Assessment Team. During two previous months, 2days a week, the members of staff from the Youth Offending Assessment Team were trained by an expert belonging to the research team in the administration and scoring of the tool. The participants selection procedure was the following one: First, juvenile offenders belonging to the Roma ethnic minority were selected according to the criteria mentioned above (self-identification as Roma), providing 88 subjects. This self-identification of the minor as Roma was supported by the self-identification of their parents, also interviewed by the Youth Offending Assessment Team. The non-ethnic minority group was subsequently obtained by a random selection procedure: selecting one minor out of every five of the total sample.

The outcome variables for recidivism were measured dichotomously (reoffender/ non-reoffender) and in a continuous form (the number of subsequent charges), and they were obtained from the Justice Department database. This study includes both state-based measures (recidivist or not recidivist) and event-based measures (number of recidivist acts). Although the reoffender/non-reoffender dichotomy is the measure that is routinely reported in most studies (Andersen & Skardhamar, 2017), the event-based measure is a more sensitive measure of recidivist (Farrington & Davies, 2007), providing useful data for criminal trajectories. The variable of criminal recidivism refers to charges filed after the date of the first assessment carried out on the minor by the Youth Offending Assessment Team which will be considered the baseline. Each minor therefore had a different baseline, considered from 2012 onwards. Therefore, the variable "follow-up period" was calculated. The follow-up period for youth included the period between the

index crime and age of majority (18 years old in Spain), (mean=30.12months; range=3–51). The research study was authorized within an agreement signed on 2011 between the University, the Public Prosecutor Office and the Local Council, which included all the ethical and legal procedures (14022011).

Data Analysis

First, Student's t-test for independent samples and chi-square test were conducted to compare risk and strength factors, risk levels (low, average and high) and recidivism between the Roma and the non-Roma group. Then, reliability and contingency analyses were also performed to assess the correct classification ratio of each ethnic group. The predictive validity for Roma and non-Roma offenders was assessed with point-biserial correlations, receiver operator curves (ROCs) and their area under the curve (AUC).

As commented before, the outcome variables for youth and adult recidivism were measured dichotomously (recidivist/non-recidivist) and continuously (subsequent criminal charges). Hierarchical logistic regression was carried out with the dichotomous recidivism variable in three models: model 1 only with risk factors, model 2 only with strength factors and model 3 including both types of factors (Flores et al., 2017). Meanwhile, binomial negative regression was performed in the case of continuous recidivism, due to the non-normal distribution of the dependent variable under study (Weerman & Hoeve, 2012). The follow-up period was included in the negative binomial regression as an offset variable, to control for length variation among participants. Only the tables of the third final models are included here for space reasons. Given that there is still no widespread consistency in definitions or measurements of recidivism, the use of both type of statistical analyses (linked to event-based measures and state-based measures, respectively) enhances the comparison with other studies.

Results

Risk scores and recidivism Significant differences were found in the total score and in all the subscales of the Inventory, except in substance abuse and personality/behavior (Table 1). All these differences showed higher mean risks for the Roma minor offenders than for the non-Roma group. The effect size of the significant risk factors analyzed was medium-high, ranging from .49 to .91.

For strength factors, significant differences were found in peer relations ($\chi^2(1, N=223) = 6.08$, $p<.05$), person*ality/behavior* ($\chi^2(1, N=223) = 8.95$, $p<.05$), *attitudes/orientation* ($\chi^2(1, N=223) = 7.92$, $p<.05$), and the total score ($t(221) = 3.23$,

Table 1. *Descriptive Statistics Between Roma Group and Non-Roma Group (Risk Factors).*

Inventory areas	Roma group	Non-Roma group	t	*p*	D	r
	M (SD)	M (SD)				
Prior and Current Offenses	.50 (.88)	.18 (.52)	3.43	.001*	.49	.24
Family Circumstances	2.72 (1.39)	1.77 (1.60)	4.57	.000*	.61	.39
Education	2.81 (1.06)	1.76 (1.60)	5.42	.000*	.72	.34
Peer Relation	3.05 (1.19)	2.13 (1.51)	4.79	.000*	.53	.25
Substances Abuse	.63 (1.08)	.72 (.1.16)	-.60	.546	-.12	-.06
Leisure/Recreation	2.76 (.61)	1.93 (1.11)	6.41	.000*	.91	.41
Personality/Behavior	1.41 (1.62)	1.13 (1.39)	1.40	.164	.18	1.38
Attitudes/Orientation	1.23 (1.09)	.49 (.92)	5.44	.000*	.75	.35
Total Score	15.10 (5.63)	10.10 (7.18)	5.51	.000*	.75	.35

*M=mean; SD=standard deviation; D=Cohen's D; r=correlation. * p<.05*

When classifying all participants according to their level of risk estimated by the YLS/CMI, the following distribution was obtained: In the Roma group, 83% could be assigned to the moderate risk level, 10.2% belonged to the low-risk group and only 6.8% to the high-risk level. Regarding the non-Roma group, unlike in the previous case, the majority of minors presented a low risk level (47.4%), followed by moderate risk (46.7%), and high risk (5.9%). Significant differences were found between both groups ($\chi^2(1, N=223) = 34.84, p<.001$). Subsequently, more Roma minor offenders were mainly found in the moderate risk range whereas non-Roma minor offenders were distributed between low and moderate risk range.

There were also significant differences for subsequent criminal charges ($t(221)=-3.16, p<.001$). While for the Roma group the average of recidivism was 1.44 ($SD= 2.77$), the average crime for the non-Roma group was 0.58 ($SD= 1.20$). These results indicated that Roma minor offenders reoffend more than non-Roma minor offenders. However, there were no differences between the Roma and non-Roma groups when the absence or presence of recidivism was assessed ($\chi^2(1, N=223) = 2.95, p >.05$).

Predictive Validity of Risk Scores for Recidivism

The internal consistency analyses (Cronbach's alpha) showed a reliability of .76 for the Roma sample and .85 for the non-Roma sample. A contingency table was constructed in order to practically assess the classification errors between the predicted values (the proportion of those judged to be at high risk and low/moderate risk according to the Inventory), and those obtained for recidivism in each ethnic group (Table 2). The YLS/CMI predicted the correct outcomes (true positives and true negatives) for 73.5% of minor Roma offenders and 75.9% of minor non-Roma offenders. Overclassification

errors were higher for the sample of Roma minors (12.05%) while underclassification errors were higher for Roma minors (17.05%).

Table 2. *Recidivism Classification Table*

	Predicted risk level	
	High risk score	Low/moderate risk score
Recidivist	n (%)	n (%)
Roma	25 (30.12)	12 (14.45)
Non-Roma	19 (14.72)	22 (17.05)
	False positive (Overclassification error)	True negative (Negative hit)
Non-Recidivist	n (%)	n (%)
Roma	10 (12.05)	36(43.37)
Non-Roma	9 (6.79)	79 (61.24)

An area under the curve (AUC) analysis was performed to assess the capability of the total eight-factor score in predicting recidivism. In this case, in a 6-year follow-up period, an AUC of .69 (S*E*= .06; *p*= .002) was observed for the Roma group. The confidence interval for the AUC value laid between .58 and .80. On the other hand, an AUC of .76 (*SE*= .04) was obtained for the non-Roma group (*p*< .001). In this case, the confidence interval for the AUC value ranged from .67 to .84. When z-score formula for comparing AUC values was performed, AUC differences between both groups did not reach the statistical significance (*Z*= −0.713; *p*> .05).

Next, several point-biserial correlations were run to determine the relation between recidivism and the total YLS/CMI score (*rpb*(221)= .407, *p*< .001). In the Roma sample, there was a positive and significant correlation between recidivism and the total risk score (*rpb*(221)= .351, *p*< .001). The same was true of the non-Roma sample (*rpb*(221)= .426, *p* <.001).

Regarding logistic regressions, the first and second models for Roma participants accounted for 27% of the variance in the prediction of recidivism (including risk score,

significant), and for 14% (including protective factors, non-significant). Regarding non-Roma participants, the first and second models accounted for 32% of the variance (including risk score, significant), and for 12% (including protective factors, also significant). Here, only the final models are presented below (Table 3). For Roma minors, the total risk score and the follow-up period were the variables that contributed significantly to the final model.

Table 3. *Logistic Regression Analysis of Recidivism*

MODEL 3 FOR ROMA MINORS

					95% CI (B)		
	B	*SE*	Wald	*p*	Exp (B)	*LL*	*UL*
Women(1)	-.81	.58	1.94	.163	.446	.14	1.38
Age	.21	.24	.78	.377	1.24	.77	1.99
Follow-up period	-.04	.02	4.39	.036*	.959	.92	.99
Total risk score	.64	.06	8.37	.004*	1.17	1.05	1.32
Total strength score	.73	.90	.65	.419	2.08	.35	12.38
Constant	-4.79	4.01	1.42	.232	.008		

**p<0.05; Nagelkerke R^2= .28; Log likelihood= 94.674*

MODEL 3 FOR NON-ROMA MINORS

					95% CI (B)		
	B	*SE*	Wald	*p*	Exp (B)	*LL*	*UL*
Women(1)	-.1.21	.55	4.91	.027*	.296	.10	.87
Age	-.06	.22	.10	.785	.934	.61	1.434
Follow-up period	.01	.02	.24	.620	1.01	.97	1.04
Total risk score	.15	.04	17.38	.000*	1.16	1.08	1.26
Total strength score	-.15	.35	.17	.678	.864	.43	1.72
Constant	-1.33	3.45	.15	.699	.263		

**p<0.05; Nagelkerke R^2 = .33; Log likelihood=126.847*

Lastly, the final models from negative binomial regression for both groups are presented (Table 4). When the total risk score was related to the number of subsequent criminal charges, taking into account the length of the follow-up period, the following results were found. For Roma minors, the last model showed that, despite the inclusion of strength factors, only age and gender were significant predictors of recidivism (*p= .05*, and *p< .01*, respectively). That is, boys and younger participants were related to a higher number of criminal charges. On the contrary in the case of the non-Roma group, the results showed that only risk score was a significant and valid predictor of recidivism (*p< .001*).

Table 4. *Negative Binomial Regression Analysis of Recidivism*

MODEL 3 FOR ROMA MINORS

					95% CI (B)	
	B	*SE*	χ^2 Wald	*p*	*LL*	*UL*
(Intercept)	.89	2.50	.13	.723	.02	327.37
Women(1)	-1.03	.42	6.04	.014*	.16	,81
Age	-.28	.15	3.82	.051*	.57	1.00
Follow-up period	-.001	.01	.37	.539	-003	.02
Total risk score	.06	.04	3.15	.076	.99	1.14
Total strength score	-.89	.83	1.14	.286	.08	.2.10

**p<0.05; N= 83; Log likelihood= -136.802; AIC= 283.605; BIC= 295.699*

MODEL 3 FOR NON-ROMA MINORS

					95% CI (B)	
	B	*SE*	χ^2 Wald	*p*	*LL*	*UL*
(Intercept)	-4.75	2.65	3.22	.073		1.55
Women(1)	-.69	.39	3.06	.080	.23	1.09
Age	-.03	.17	.05	.859	.70	1.34
Follow-up period	.00	.01	.01	.929	-.02	.02
Total risk score	.12	.03	23.21	.000*	1.08	1.19
Total strength score	-.21	2.75	.574	.449	.47	1.39

**p<0.05; N= 129; Log likelihood= - 122.779; AIC= 255.557; BIC= 269.856*

Discussion

The main aim of this study was to assess the predictive validity and disparate impact of the YLS/CMI for two samples of juvenile offenders belonging to different ethnic groups (Roma and non-Roma). First, we hypothesized that the YLS/CMI would predict recidivism more accurately in the majority group than in the ethnic minority. The first hypothesis was supported by all the predictive analyses performed in this study. When more subtle measures of recidivism were analyzed (event-based measure in negative binomial regression models), the variable risk score was even not a significant predictor of recidivism in the Roma group. Despite the AUC values of this study being in the upper range for both groups, the Roma group still presented slightly lower scores although differences were not significant. Regarding the alpha levels for the total YLS/CMI, they were high for both groups, although there was a slightly stronger alpha coefficient in the sample of non-Roma offenders. These results are consistent with other studies in which similar AUC values were also found (Shepherd et al., 2015).

On the other hand, the instrument presents a noticeable weakness in distinguishing between Roma recidivists and non-recidivists who are at a lower risk of future offending. This indicates a tendency to consider the Roma population as having more risk than they have, as they are classified more often as false positives than Non-Roma minors. According to other studies, false positives are more common in minority ethnic groups while false negatives are usually much lower (Berk et al., 2018; Rembert et al., 2014; Shepherd & Lewis-Fernandez, 2016). The results therefore support the proposed hypothesis, which is also consistent with previous studies (Onifade et al., 2009; Shepherd et al., 2015).

The second hypothesis stated that the ethnic minority would present more risk factors, less protective factors, and more criminal recidivism than the non-ethnic group (disparate impact). In this sense, results support the second hypothesis and are consistent with previous literature on the influence of ethnicity on risk (Liddell et al., 2016; Threadcraft-Walker et al., 2018). Roma juveniles presented a higher recidivism and higher scores for risk factors. On the other hand, non-Roma minors presented higher scores for the strength factors. Therefore, regarding the disparate impact question, we can say that the use of the instrument yielded average score differences between racial groups. As expected, this result would challenge the "fairness" component in risk assessment tools (Starr, 2014), damaging the constitutional rights of people being evaluated (Hart, 2016). This may be an aggravating circumstance in the case of a vulnerable minority with a long tradition of generalized systematic discrimination in Spain, the Roma population.

These mean differences raise the possibility of disparate impact, but do not directly confirm its presence. In fact, disparate impact was not directly examined in relation to sentences or placements in this study, and there is still a debate about what amount of disparate impact is tolerable in risk assessment (Barocas & Selbst, 2016). Nevertheless, if present, disparate impact may exacerbate racial disparities, producing negative perceptions and making citizens less likely to obey the law and cooperate (Frase et al., 2015).

According to the General Model of Criminal Behavior (Andrews & Bonta, 2010), the lack of academic training, unemployment, poor leisure time or marginality which affects a large proportion of the Roma population (Janevic et al., 2012; La Parra et al., 2013), maybe contributing to their higher means in risk factors. At the same time, the lower presence of factors that inhibit recidivism (strengths factors) may lead to young people engaging in subsequent crimes. This could explain the difference between the two

samples as shown in the data and not disparate impact. At the same time, this explanation does not necessarily support the idea that the risk assessment may be especially valid and not unfair, contrary to the hypothesis of disparate impact.

Overall, this research therefore shows that the total YLS/CMI score is an adequate predictor of general recidivism in non-Roma samples, but not the same can entirely apply to Roma samples. Moreover, the YLS/CMI presents higher AUC values for recidivism in the non-Roma group than in the Roma group (although non-statistically significant). This study with a Spanish minority group therefore lends support to previous studies which consistently showed a weaker predictive validity for the YLS/CMI in these groups (Liddell et al., 2016; Onifade et al., 2009). Moreover, a potentiality for disparate impact of the use of the Inventory has also been found. Consequently, as Skeem and Lowenkamp (2016) suggest risk assessment tools should be routinely tested for predictive bias and mean score differences by race. Being awareness of slightly lower predictive validity and potential disparate impact in specific minority groups is a first step in intervention and treatment planning. Specifically, it would be necessary to enhance general awareness of diversity issues by incorporating discussion of them into education, training, and continuing professional development programs (Hart, 2016). The validation of intercultural risk instruments is still in the process of development, and as such it is important that people working with these groups achieve this cultural competence (Shepherd et al., 2015).

Moreover, one practical implication of these findings may be focused on identifying the risk factors that contribute less to mean score differences (substance abuse and personality/behavior in this study) and weighting them more heavily in risk assessment than the rest of the risk factors (Skeem & Lowenkamp, 2016). However, other researchers note that efforts to culturally amend instruments (such as including new items

or weighting them differently) could paradoxically reduce accuracy and increase bias (Shepherd & Spivak, 2020). That is, these modifications may lower the predictive validity for this specific group, or on the contrary may increase it while decreasing the accuracy for subgroups within this cultural group (e.g., Roma females). Another possible solution may be using a particularly predictive combination of items valid across minority and even gender and even culture (Basto-Pereira et al., 2021; Villanueva et al., 2020).

Finally, it is necessary to mention some limitations of our study. The first limitation is that there were also minorities embedded in the majority sample of this study, as youth from Eastern Europe and South America. Nevertheless, they were mainly second- and second-generation Spanish, and without any relation to Roma culture. Moreover, because the sampling was carried out in a Spanish province, the generalization of the results is necessarily limited by this condition. It would be interesting to extend this study to other Spanish provinces and to Spanish-speaking countries with Roma population. In addition, future research might be expanded not only to Spanish-speaking countries but to other European countries with Roma minorities, trying to analyse the possible implications at an international level. Regarding the variable gender, the potential differences between young girls and young boys from both groups are worth analyzing in future studies. Within the general scarcity of research with (young) women offenders, cultural nuances between Roma and Non-Roman women may yield distinctive traits in relation to transgressive behaviors. Interrater reliability data on the Inventory was not available for the present study, although all the members of the Youth Offending Assessment Team completed a formation process.

Despite these limitations, the YLS/CMI has shown lower predictive validity and potential disparate impact in Roma youth offenders. Therefore, errors of precision or classification may occur if an accurate assessment is not performed in a population. This

is even more important if the minority ethnic group presents higher risk scores and recidivism rates than the majority group, as in this case. Future research should attempt to determine which underlying factors lead to a differentiated ethnic predictive validity, particularly given that predictive bias challenges the objective premise of assessment and equality before the law (Rembert et al., 2014). Forensic professionals must therefore be aware of cultural differences, trying to preserve the outstanding principle of equality. For example, we must be extremely cautious when taking custody decisions for these groups based only on YLS/CMI scores. As some authors suggest (Guay & Parent, 2018; Venner et al., 2020), downward overrides that lead to more accurate predictions, may be useful in specific groups.

References

Andersen, S. N., & Skardhamar, T. (2017). Pick a number: Mapping recidivism measures and their consequences. *Crime & Delinquency, 63*(5), 613–635. https://doi.org/10.1177/0011128715570629

Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). LexisNexis.

Basto-Pereira, M., Villanueva, L., Peterson-Badali, M., Pimentel, A., Quintas, J., Cuervo, K., Hoge, R.D., & Skilling, T. A. (2021). Is a 7-item combination from the YLS/CMI an effective screening strategy for risk to reoffend? Findings from a cross-national study. *Criminal Justice and Behavior, 48*(5), 655–670. https://doi.org/10.1177/0093854821995866.

Barnes, A. R., Campbell, N. A., Anderson, V. R., Campbell, C. A., Onifade, E., & Davidson, W. S. (2016). Validity of initial, exit, and dynamic juvenile risk assessment:

An examination across gender and race/ethnicity. *Journal of Offender Rehabilitation, 55*(1), 21–38. https://doi.org/10.1080/10509674.2015.1107004

Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *California Law Review, 104*, 671–732. https://doi.org/10.15779/Z38BG31

Berk, R., Heidari, H., Jabbari, S., Kearns, M., & Roth, A. (2018). Fairness in criminal justice risk assessments: The state of the art. *Sociological Methods & Research, 27*, 1–42. https://doi.org/10.1177/0049124118782533

Campbell, C., Papp, J., Barnes, A., Onifade, E., & Anderson, V. (2018). Risk assessment and juvenile justice: An interaction between risk, race, and gender. *Criminology & Public Policy, 17*(3), 525–545. https://doi.org/10.1111/1745-9133.12377

Center for Sociological Research (2007). *Estudio 2745. Discriminaciones y su percepción* [2745 study. Discriminations and their perception]. http://www.cis.es/cis/opencm/ES/1_encuestas/estudios/ver.jsp?estudio=8940

Cuervo, K., & Villanueva, L. (2015). Analysis of risk and protective factors for recidivism in Spanish youth offenders. *International Journal of Offender Therapy and Comparative Criminology, 59,* 1149–1165. https://doi.org/10.1177/0306624X14557917

Cuervo, K., Villanueva, L., & Prado-Gascó, V. (2017). Predicción de la reincidencia juvenil mediante el inventario YLS/CMI y baremos para su valoración [Youth recidivism prediction using the YLS/CMI and norms for assessment]. *Revista Mexicana de Psicología, 34*, 24–36.

Farrington, D. P., & Davies, D. T. (2007). *Repeated contacts with the criminal justice system and offender outcomes* (Final Report to Statistics Canada). Statistics Canada.

Flores, A. W., Holsinger, A. M., Lowenkamp, C. T., & Cohen, T. H. (2017). Time-free effects in predicting recidivism using both fixed and variable follow-up periods: Do different methods produce different results. *Criminal Justice and Behavior, 44*, 121–137. https://doi.org/10.1177/0093854816678649

Frase, R. S., Roberts, J. R., Hester, R., & Mitchell, K. L. (2015). *Criminal history enhancements sourcebook*. Robina Institute of Criminal Law and Criminal Justice. http://www.robinainstitute.org/publications/criminal-history-enhancementssourcebook/

Frize, M., Kenny, D., & Lennings, C. (2008). The relationship between intellectual disability, indigenous status and risk of reoffending in juvenile offenders on community orders. *Journal of Intellectual Disability Research, 52*(6), 510–519. https://doi.org/10.1111/j.1365-2788.2008.01058.x

Garrido, V., López, E., Silva, T., López, M. J., & Molina, P. (2006*). El modelo de la competencia social de la ley de menores* [The social competence model in the minors law]. Tirant Lo Blanc.

Gómez Berrocal, M. D. C., Porras, C., & Mata, S. (2020). The role of group identification in the well-being of Spaniards with gypsy ethnicity. *The Journal of Social Psychology, 160*(2), 204–215. https://doi.org/10.1080/00224545.2019.1634504

Guay, J. P., & Parent, G. (2018). Broken legs, clinical overrides, and recidivism risk: An analysis of decisions to adjust risk levels with the LS/CMI. *Criminal Justice and Behavior, 45*(1), 82–100. https://doi.org/10.1177/0093854817719482

Hart, S. D. (2016). Culture and violence risk assessment: The case of Ewert v. Canada. *Journal of Threat Assessment and Management, 3*(2), 76–96. https://doi.org/10.1037/tam0000068

Hoge, R. D., & Andrews, D. A. (2002). *Youth level of service/case management inventory (YLS/ CMI) user's manual*. Multi-Health Systems.

Janevic, T., Jankovic, J., & Bradley, E. (2012). Socioeconomic position, gender, and inequalities in self-rated health between Roma and non-Roma in Serbia. *International Journal of Public Health, 57*, 49–55. https://doi.org/10.1007/s00038-011-0277-1

Laparra, M. (2011). *Diagnóstico social de la comunidad gitana en España. Un análisis contrastado de la Encuesta del CIS a hogares de población gitana 2007* [Social diagnosis of Roma community in Spain. A contrasted analysis from CIS survey in Roma homes 2007]. Ministerio de Sanidad, Política Social e Igualdad.

La Parra, D., Gil-González, D., & Jiménez, A. (2013). Los procesos de exclusión social y la salud del pueblo gitano en España [Social exclusion processes and health of Roma population in Spain]. *Gaceta Sanitaria, 27*, 385–386. https://doi.org/10.1016/j.gaceta.2013.05.001

Liddell, M., Blake, M., & Singh, S. (2016). Over-represented and misunderstood: Pacific young people and juvenile justice in NSW. *Australian & New Zealand Journal of Criminology, 50*(4), 1–19. https://doi.org/10.1177/0004865816666614

Lowder, E. M., Morrison, M. M., Kroner, D. G., & Desmarais, S. L. (2019). Racial bias and LSI-R assessments in probation sentencing and outcomes. *Criminal Justice and Behavior, 46*(2), 210–233. https://doi.org/10.1177/0093854818789977

Ministry of Health, Consumer Affairs and Social Welfare (2020). *Estrategia Nacional para la Inclusión Social de la Población Gitana en España 2012–2020* [National Strategy for the Social Inclusion of the Roma Population in Spain 2012–2020]. https://www.mscbs.gob.es/ssi/familiasInfancia/PoblacionGitana/docs/WEB_POBLACION_GITANA_2012.pdf.

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. *Criminal Justice and Behavior, 36,* 329–353. https://doi.org/10.1177/0093854809331457

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2014). Thirty years of research on the level of service scales: A meta-analytic examination of predictive accuracy and sources of variability. *Psychological Assessment, 26*, 156–176. https://doi.org/10.1037/a0035080

Onifade, E., Davidson, W., & Campbell, C. (2009). Risk assessment: The predictive validity of the Youth Level of Service Case Management Inventory with African Americans and girls. *Journal of Ethnicity in Criminal Justice, 7*, 205–221. https://doi.org/10.1080/15377930903143544

Ortega-Campos, E., García-García, J., De la Fuente-Sánchez, L., & Zaldívar-Basurto, F. (2020). Predicting risk of recidivism in Spanish young offenders: Comparative analysis of the SAVRY and YLS/CMI. *Psicothema, 32*(2), 221–228. https://doi.org/10.7334/psicothema2019.275

Rembert, D. A., Henderson, H., & Pirtle, D. (2014). Differential racial/ethnic predictive validity. *Youth Violence and Juvenile Justice, 12*, 152–166. https://doi.org/10.1177/1541204013485606

Rubino, L. L., Anderson, V. R., & Campbell, C. A. (2020). An examination of racial/ethnic disparities in truancy court. *Crime & Delinquency, 66*(1), 33–58. https://doi.org/10.1177/0011128719847456

Santaolalla, I. (2002). Ethnic and racial configurations in contemporary Spanish culture. In J. Labanyi (Ed.), *Constructing identity in contemporary Spain: Theoretical debates and cultural practice* (pp. 55–71). Oxford University Press.

Schwalbe, C. S. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior, 31,* 449–462. https://doi.org/10.1007/s10979-006-9071-7

Shepherd, S. M., & Lewis-Fernandez, R. (2016). Forensic risk assessment and cultural diversity: Contemporary challenges and future directions. *Psychology, Public Policy, and Law, 22,* 427–438. https://doi.org/10.1037/law0000102

Shepherd, S. M., Luebbers, S., Ferguson, M., Ogloff, J. R., & Dolan, M. (2014). The utility of the SAVRY across ethnicity in Australian young offenders. *Psychology, Public Policy, and Law, 20*(1), 31–45. https://doi.org/10.1037/a0033972

Shepherd, S. M., Singh, J. P., & Fullam, R. (2015). Does the Youth Level of Service/Case Management Inventory generalize across ethnicity? *International Journal of Forensic Mental Health, 14*, 193–204. https://doi.org/10.1080/14999013.2015.1086450

Shepherd, S. M., & Spivak, B. L. (2020). Finding colour in conformity part II—Reflections on structured professional judgement and cross-cultural risk assessment. *International Journal of Offender Therapy and Comparative Criminology, 65*(1), 92–99. https://doi.org/10.1177/0306624X20928025

Schmidt, S., Heffernan, R., & Ward, T. (2020). Why we cannot explain cross-cultural differences in risk assessment. *Aggression and Violent Behavior, 50*, 101346. https://doi.org/10.1016/j.avb.2019.101346

Schmidt, S., van der Meer, E., Tydecks, S., & Bliesener, T. (2018). How culture and migration affect risk assessment. *European Journal of Psychology Applied to Legal Context, 10*(2), 65–78. https://doi.org/10.5093/ejpalc2018a7

Skeem, J. L., & Lowenkamp, C. T. (2016). Risk, race, and recidivism: Predictive bias and disparate impact. *Criminology: An Interdisciplinary Journal, 54*(4), 680–712. https://doi.org/10.1111/1745-9125.12123

Starr, S. B. (2014). Evidence-based sentencing and the scientific rationalization of discrimination. *Stanford Law Review, 66*, 803–872.

Threadcraft-Walker, W., Threadcraft, M. M., Henderson, H., & Rembert, D. (2018). Gender, race/ethnicity and prediction: Risk in behavioral assessment. *Journal of Criminal Justice, 54*, 12–19. https://doi.org/10.1016/j.jcrimjus.2017.11.001

Uceda-Maza, F. X., & Alonso, J. D. (2017). Vinculación entre la vulnerabilidad y la exclusión social y las trayectorias delictivas. Un estudio de asociación [Link between vulnerability and social exclusion and criminal trajectories. An association study]. *Psychosocial Intervention, 26*, 29–37. https://doi.org/10.1016/j.psi.2016.07.003

Vazsonyi, A. T., Jiskrova, G. K., Ksinan, A. J., & Blatný, M. (2016). An empirical test of selfcontrol theory in Roma adolescents. *Journal of Criminal Justice, 44*, 66–76. https://doi.org/10.1016/j.jcrimjus.2015.12.004

Venner, S., Sivasubramaniam, D., Luebbers, S., & Shepherd, S. M. (2020). Cross-cultural reliability and rater bias in forensic risk assessment: A review of the literature. *Psychology, Crime & Law, 27*(2), 105–121. https://doi.org/10.1080/1068316X.2020.1775829

Viljoen, J. L., Bhanwer, A. K., Shaffer, C. S., & Douglas, K. S. (2020). Assessing protective factors for adolescent offending: A conceptually informed examination of the SAVRY and YLS/CMI. *Assessment, 27*(5), 959–975. https://doi.org/10.1177/1073191118768435

Villanueva, L., Basto-Pereira, M., & Cuervo, K. (2020). How to improve the YLS/CMI? Exploring a particularly predictive combination of items. *International Journal of Offender Therapy and Comparative Criminology, 64*(9), 922–937. https://doi.org/10.1177/0306624X19881926

Villanueva, L., Gomis-Pomares, A., & Adrián, J. E. (2019). Predictive validity of the YLS/CMI in a sample of Spanish young offenders of Arab descent. *International Journal of Offender Therapy and Comparative Criminology, 63*(10), 1914–1930. https://doi.org/10.1177/0306624X19834403

Weerman, F., & Hoeve, M. (2012). Peers and delinquency among girls and boys: Are sex differences in delinquency explained by peer factors? *European Journal of Criminology, 9*, 228–244. https://doi.org/10.1177/1477370811435736

Wormith, S. J., & Bonta, J. (2018). The level of service (LS) instruments. In P. Jay, J. P. Singh, D. G. Kroner, J. S. Wormith, S. L. Desmarais, & Z. Hamilton (Eds.), *Handbook of recidivism risk/needs assessment tools* (pp. 117–145). John Wiley & Sons.

CHAPTER 3

GENERAL CONCLUSIONS

Conclusions

The main objective of this thesis was to analyse the relationship between adverse childhood and adolescent experiences and the development of negative outcomes during emerging adulthood. This objective has resulted in the establishment of several research questions related to the knowledge gaps detected in the literature. To address these questions, the different studies of this thesis have been conducted.

One of the most relevant findings has been the differential impact that ACEs have on the development of negatives outcomes, as well as their cumulative effect. In this sense, it has been proved that having experienced ACEs during childhood appeared to be a good predictor of deviant behaviour. However, physical abuse is the main significant predictor. This result is in line with previous findings where it was demonstrated that the experience of physical abuse was related to externalizing problems in middle childhood (Akers, 2009; Braga et al., 2017; Margolin & Gordis, 2000). Additionally, emotional neglect has been related to a lack of altruism. In other words, neglected children presented more internalizing problems accompanied by more social withdrawal and limited peer interactions (Hildyard & Wolfe, 2002). Furthermore, the findings of the present thesis have made it possible to demonstrate that the total number of ACEs was a significant predictor of drug consumption in emerging adulthood, but in particular, it was substance abuse in the household the significant predictor for future substance consumption.

In relation to objective 1, all these findings undoubtedly reinforce the need to study both types of impact of ACEs, cumulative and differential impact, with the aim of providing a more realistic overview of the real situation. Therefore, it appears that the social learning process is at work underlying these forms of abuse, and as discussed in previous sections, we learn through modelling mechanisms based on what we experience in our homes when we were children. So, if I am a victim of aggressive acts, I will tend

to repeat that violent pattern when I grow up, if I have had no support figures and have never been taught how to love others, it would be very difficult for me to do so, and finally, if I have witnessed substance use at home, I will think that this is a normal behaviour and therefore, I will repeat it.

In the same vein and in reference to objective 2, we found the so-called intergenerational transmission phenomenon, which supported previous results. In this respect, household substance abuse predicted drugs consumption in the following generation as a clearly maladjusted coping mechanism to deal with the suffering of the adverse experience. Deviant behaviour was also related to witnessing substance use in the household probably because drug use tends to produce brain changes which manifests itself in behavioural changes, usually of an aggressive nature. In turn, when children observe this violent behaviour associated with parental substance consumption, they repeat it. Additionally, incarcerated household members were linked to a higher rate of detentions and a higher rate of deviant behaviours in the next generation, and living with a family member with mental illness predicted a higher presence of psychological distress indicators in emerging adulthood (such as depression, anxiety, or stress). These results suggested that one of the most long-term consequences of negative experiences in childhood and adolescence is intergenerational transmission and, in addition, this transmission occurs not only in direct victimisation (such as abuse or neglect) but also in indirect victimisation (such as household dysfunctions). Thus, given that this transmission may affect until three generations (Neppl et al., 2020; Tiberio et al., 2020), inevitably fostering family dependence on child protection services, urgent prevention strategies should be implemented.

In this line, it is urgent to promote primary, secondary, and tertiary prevention strategies. These strategies include prevention of the occurrence of ACEs, their early

detection and avoidance in the adoption of harmful strategies to health, and finally, the use of measures to reduce the impairment, sequelae or disability resulting from the adoption of such risk strategies. Accordingly, once a child who has been exposed to trauma and suffering from the consequences has been identified, there must be a strong network of coordinated care to provide appropriate referrals to individual or family services. For example, through support at home, at school and support for situations where students might experience triggers, or stimuli that bring up memories of traumatic experiences (Soleimanpour et al., 2017). In this sense, not all the professionals who work with children should be specialists in trauma, but they should be trained to be able to identify children in need and know how to appropriately refer them to trauma services.

In line with this idea, in different locations around the world, the number of programs aimed at early detection of ACEs by paediatric doctors, nurses, teachers and all those professionals involved with children are on increase. Two examples of training programs for the early detection of ACEs are "*ACEs Aware*" and "*Let's Get Healthy California*" created by the State of California Department of Health Care Services. These kinds of programs can, therefore, improve clinical assessment, patient education, and treatment planning for children who suffer or have suffered adverse experiences. Another innovative and respected resource for trauma prevention is psychological first aid (PFA) created by the National Child Traumatic Stress Network (NCTSN). Through the web NCTSN.org, different trainings and practices to help providers identify children's and families' needs early in the process and to tailor services to meet those needs are offered. This approach can aid children in developing healthy strategies for coping with ACEs which may prevent these experiences from translating into criminal behaviours in adolescence and later into adulthood. Additionally, a promising area would be the inclusion of "*Bright Futures*" recommendations, a national health promotion and

prevention initiative by the American Academy of Paediatrics. This initiative provides a guide for screening for mental health disorders coupled with emotional and behavioural problems as part of an annual check-up.

Apart from that, it is worth mentioning that some results obtained were contrary to expectations. As mentioned, it is logical and reasonable to think that we tend to repeat the behaviours we have seen during our childhood and therefore, to be passed on from generation to generation. However, we found counterintuitive results for specific ACEs. In this line, mental illness in the household was a significant negative predictor for both alcohol and drug consumption just as exposure to domestic violence which was a significant negative predictor of alcohol consumption. Thus, not all negative experiences seem to lead to negative outcomes; literature is emerging on the countereffects of resilience and protective factors. Strengths that individuals possess internally (such as coping skills) and externally (such as family and community support) can help them overcome risk exposure or traumatic experiences (Annunziata et al., 2006).

In this sense, collectivist cultures such as the Spanish one could be exerting some effect on these results. According to Hofstede (1984, 2011), in collectivist cultures, people tend to define themselves more in terms of their ties within the group than by the personal characteristics they possess, and a sense of community is valued. For example, there is concern for the welfare of others, concern for social justice, commitment to cultural traditions and customs, and a sense of belonging to a group (Gouveia et al., 2011). This strong group cohesion could be perceived by individuals as a source of strength and support, and it would act as a protective factor in the face of adversity. However, the following question emerges: is this result a reflection of collectivist cultures traits or is a general pattern (Sharp et al., 2012) present in an overall assortment of cultures?

Thereby, adverse experience may foster negative, neutral, or even positive consequences, depending on the culture. Aside from that, individual characteristics of children can be also playing a crucial role in this relationship. Possibly, children who have experienced mental illness or domestic violence at home may try to act more cautiously so as not to aggravate the situation at home. In these cases, an early maturity appears even reversing roles with their primary caregiver. In fact, this personal characteristic of precocious maturity is one of the proposed features that may foster resilience in maltreated children (Mrazek & Mrazek, 1987).

In this connection, it would be very interesting to study in depth which characteristics or qualities act as protectors. The results could be used to develop interventions based on the enhancement of these factors that reduce the likelihood of adopting risky strategies in adulthood. Thus, prevention programs that promote strengths of children, may entail multiple positive outcomes over time such as a reduction in mental health problems, substance abuse or deviant behaviours (Weisz et al., 2005). One example of this is the training program called "*Road to Resilience*" developed by the American Psychological Association which trains students to develop resilience. Additionally, the efficacy of different kind of programs has been proved, focusing not only on the negative aspects, but also on enhancing children's individual strengths such as child abuse prevention programs (Davis & Gidycz, 2000), prevent negative consequences of divorce in parents and children or positive behaviour support among others (Lee et al., 1994).

On the other hand, as discussed above, one of the most frequently encountered negative outcomes of adverse experiences is deviant behaviour. In consequence, we consider that useful and validated instruments in assessing the deviant behaviour construct among Spanish young adults (population studied in this thesis) were necessary

due to the serious personal, economic, and social consequences that span national boundaries.

It has been proved that ACEs, and specially some kind of ACEs such as physical abuse, increase the likelihood of deviant behaviours. At the same time, however, this deviant behaviour has been linked to a broad range of negative results as drug consumption (Dube et al., 2003; Valdebenito et al., 2015), psychiatric disorders (Hughes et al., 2017), official crime records and recidivism (Farrington et al., 2013). This is the reason that led us to analyse the psychometric properties of the Deviant Behavior Variety Scale (DBVS) among Spanish-speaking young adults, obtaining very promising results.

The results obtained showed that the *Deviant Behavior Variety Scale (DBVS)* can be an important tool to identify deviant behaviours in Spanish emerging adults. Additionally, convergent validity between deviant behaviour in the past year and lifetime and between deviant behaviour in the past year and psychopathy was high. This is linked with the idea that ACEs predispose to the development of psychopathic traits and in turn, this is a well-known risk factor for deviant behaviour to occur (Blair & Lee, 2013). Therefore, this study contributes to the body of global research on the deviant behaviour with the aim to understand the development and maintenance of deviant behaviours around the world to improve prevention programs.

In accordance with this, recidivism studies present in this thesis have, in part, allowed us to demonstrate that cultural differences exist and here lies the importance of an appropriate assessment and validation according to the population we are working with. The results demonstrated that, despite the fact that risk assessment tools are used in the same way regardless of the population being assessed, there is an evident influence of culture on youth risk assessment. Some authors have defended that risk factors are subject

to social norms and cultural variations (Schmidt et al., 2020), thus they cannot explain cross-cultural differences. This is exactly what it has been found in the studies on recidivism carried out with the *Youth Level of Service/Case Management Inventory (YLS/CMI)*. Risk items content may reflect stereotypes, preconceptions, prejudices and expectations of the society and the evaluators themselves and therefore, risk assessment may be culturally biased, leading to less accurate risk assessment.

Consequently, the *Risk-Needs-Responsivity (RNR)* model (Andrews & Bonta, 2010) may be a useful and recommended practice in reducing differential treatment due to the disproportionate contact that minorities have in judicial custody (Ayres & Borowsky, 2008; Cook et al., 2012; Hoge, 2002). Risk assessment objectively classifies youth based on dynamic risks and, therefore, assigns the appropriate educational measure based on the youth's level of risk (Andrews et al., 2006). To the extent that disproportionate juvenile justice contact is a product of differential treatment rather than differential ethnic minority behaviour, youth with low levels of risk who should be diverted from extensive contact with the system appear overrepresented (Campbell et al., 2017; Onifade et al., 2019).

In Spain, Arab minor offenders account for between 6 and 11% of the total youth offender population and, in turn, Roma minor offenders account for 21% of juvenile offenders (Capdevila et al., 2005; Ministry of Health, Consumer Affairs and Social Welfare, 2020). Additionally, both groups still maintain some key features of their cultures, and both suffer high levels of perceived discrimination and yet, the assessment is not completely accurate in either case (Navas et al., 2011). Whereas in the Arab group there was a greater underclassification error (false negative), in the Roma group there was a tendency to consider them as having more risk than they really had, i.e., there was a higher overclassification error (false positive).

In contrast to the Roma minority, the results obtained with the Arab minority indicated a lower false positive rate in the judicial system compared to the majority group (Spanish minors). These results which were not consistent with previous literature, may be due to the fact that the studied population are a third-generation group in Spain, with deep roots in this culture and more adapted than Roma minors. Forty per cent of Arabs settled in Spain before 1990, which means that successive generations have been born and raised in Spain (Ioé, 2003). The legal situation has also contributed to giving the Arab minority a more or less stable role in Spanish society. Arabs are in a better situation than other minorities, with only 4% lacking documentation and another 3% in the process of obtaining it. Moreover, 17% of Arabs have obtained Spanish nationality (Ioé, 2003). This defines a differentiated profile of Arab minors in line with the results obtained, results that fit with the most common offending trajectory defined by Moffit (1993, 2006): the offending trajectory limited to adolescence.

Thus, important practical implications for risk assessment professionals emerge from these findings. Although the YLS/CMI seems to provide a good prediction of recidivism in Roma and Arab young offenders in general, practitioners need to take cultural differences into account, especially with regard to risk and protective factors as well as errors of classification that may affect the decision-taking custody process. It is our duty to translate this awareness into the provision of culturally sensitive services.

Finally, this thesis is not without some limitations. First of all, the data collection has been based mainly on self-report questionnaires which involve retrospective designs. The evocation of past memories can lead to some problems related to the precision of memory and some biases such as false memories can emerge (Colman et al., 2016). However, the participants of this thesis belonged to a younger age range (18-20 years old) what made them easier to remember events that occurred during their childhood. Previous

studies with young adults have shown good reliability for retrospective reports of Adverse Childhood Experiences (Pinto et al., 2014). Additionally, data has also been obtained by means of objective indicators as in the case of recidivism of juvenile offenders. Although an underestimation of recidivism rates for youth who were 18 years old or more may occur, the results obtained in this thesis are consistent with previous recidivism rates (Cuervo & Villanueva, 2015; Hilterman et al., 2014).

Secondly, because the management of stress caused by ACEs varies from person to person according to the variety of ACEs they experience, when they experience these ACEs, the length of exposure to ACEs and the frequency in which these ACEs occur, it would be interesting to obtain additional information about ACEs related to age of onset, frequency, severity, or chronicity of exposure.

Third, the sample was collected using a non-probabilistic sampling methodology and exclusively in the Spanish context. This could also be considered a limitation because the generalization of the data is limited by this factor. It would be advisable to extrapolate the different analysis performed in the studies to other countries as well as to other Spanish or European culture minorities.

To conclude, the main highlights on ACEs and recidivism of this thesis are as follows:

- Physical abuse predicts a higher probability to develop deviant behaviour during emerging adulthood.
- Emotional neglect predicts a reduced likelihood of developing altruistic behaviours during emerging adulthood.
- Having experienced 4 or more ACEs was the major turning point in the probability of developing negative effects, especially deviant behaviour.

- There is an intergenerational transmission of witnessing substance use in the household that promotes substance use in the next generation.
- Having incarcerated relatives is connected to the development of deviant behaviours in the following generation.
- Having family members with mental illness predicted a higher presence of psychological distress in future generations.
- There are counterintuitive results in the intergenerational transmission analysis: mental illness in the household was a significant negative predictor for both alcohol and drug consumption and exposure to domestic violence was a significant negative predictor of alcohol consumption.
- The DBVS presents promising psychometric proprieties resulting in an adequate tool to identify deviant behaviours in Spanish emerging adults.
- The accuracy of the YLS/CMI in assessing the likelihood of future recidivism in ethnic minorities is not as accurate as it is in majority groups.
- There are more classification errors in Roma and Arab minor offenders compared with non-ethnic minor offenders.
- Practitioners should take cultural differences into account when assessing the risk of recidivism with the YLS/CMI inventory.

As a future goal, we would like to continue contributing to scientific findings in this area of knowledge through longitudinal studies and by carrying out the Spanish validation of the ACEs questionnaire. Through longitudinal study we could see whether the negative consequences of adverse experiences go through developmental changes and therefore, sequence of events can be established. We consider that this contribution would be of great relevance.

References

Akers, R. L. (2009*). Social learning and social structure: A general theory of crime and deviance*. Transaction Publishers.

Akers, R. L. (2017). *Social learning and social structure: A general theory of crime and deviance.* Routledge.

Allem, J. P., Soto, D. W., Baezconde-Garbanati, L., & Unger, J. B. (2015). Adverse childhood experiences and substance use among Hispanic emerging adults in Southern California. *Addictive Behaviors, 50,* 199-204. https://doi.org/10.1016/j.addbeh.2015.06.038

Andrews, D. A., & Bonta, J. (1995*). Level of Service Inventory—Revised.* Multi-Health Systems.

Andrews, D. A. & Bonta, J. (1998). *The Psychology of Criminal Conduct*. Anderson Publishing Co.

Andrews, D. A. & Bonta, J. (2003). A commentary on Ward and Stewart's model of human needs. *Psychology Crime and Law, 9*(3), 215-218.

Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct*. Routledge.

Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency, 52*(1), 7-27. https://doi.org/10.1177/0011128705281756

Andrews, D. A., Bonta, J., Wormith, J. S., Guzzo, L., Brews, A., Rettinger, J., & Rowe, R. (2011). Sources of variability in estimates of predictive validity: A specification with level of service general risk and need. *Criminal Justice and Behavior, 38,* 413–432. https://doi.org/10.1177/0093854811401990

Annunziata, D., Hogue, A., Faw, L., & Liddle, H. A. (2006). Family functioning and school success in at-risk, inner-city adolescents. *Journal of Youth and Adolescence, 35*(1), 100-108.

Arata, C. M., Langhinrichsen-Rohling, J., Bowers, D., & O'Brien, N. (2007). Differential correlates of multi-type maltreatment among urban youth. *Child Abuse & Neglect, 31*(4), 393–415. doi:10.1016/j.chiabu.2006.09.006

Baglivio, M. T., Epps, N., Swartz, K., Huq, M. S., Sheer, A., & Hardt, N. S. (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice, 3*(2), 1-17.

Basto-Pereira, M., & Maia, Â. (2018). Persistence in crime in young adults with a history of juvenile delinquency: The role of mental health and psychosocial problems. *International Journal of Mental Health and Addiction, 16*(2), 496-506. https://doi.org/10.1007/s11469-017-9847-7

Basto-Pereira, M., Começanha, R., Ribeiro, S., & Maia, Â. (2015). Long-term predictors of crime desistance in juvenile delinquents: A systematic review of longitudinal studies. *Aggression and Violent Behavior, 25*, 332-342. https://doi.org/10.1016/j.avb.2015.09.012

Basto-Pereira, M., Gouveia-Pereira, M., Pereira, C. R., Barrett, E. L., Lawler, S., Newton, N., Stapinski, L., Prior, K., Suely, M., Medeiros, J., Sousa, A., Michel, G., Garcia, M., Rouchy, E., Al Shawi, A., Sarhan, Y., Fulano, C., Magaia J., El-Astal, ... & Sakulku, J. (2022). The global impact of adverse childhood experiences on criminal behavior: a cross-continental study. *Child Abuse & Neglect, 124*, 105459. https://doi.org/10.1016/j.chiabu.2021.105459

Bellis, M. A., Hughes, K., Leckenby, N., Jones, L., Baban, A., Kachaeva, M., Povilaitis, R., Pudule, I., Qirkajo, G., Ulukol, B., Raleva, M. & Terzic, N. (2014). Adverse childhood experiences and associations with health-harming behaviours in young adults: surveys in eight eastern European countries. *Bulletin of the World Health Organization*, *92*, 641-655.

Bellis, M. A., Hughes, K., Ford, K., Rodriguez, G. R., Sethi, D., & Passmore, J. (2019). Life course health consequences and associated annual costs of adverse childhood experiences across Europe and North America: a systematic review and meta-analysis. *The Lancet Public Health, 4*(10), e517-e528. https://doi.org/10.1016/S2468-2667(19)30145-8

Berg, M. T., & Schreck, C. J. (2022). The meaning of the victim–offender overlap for criminological theory and crime prevention policy. *Annual Review of Criminology*, *5*, 277-297.

Blair, R. J., & Lee, T. M. (2013). The social cognitive neuroscience of aggression, violence, and psychopathy. *Social Neuroscience, 8,* 108-111, https://doi.org/10.1080/17470919.2012.757869

Braga, T., Gonçalves, L. C., Basto-Pereira, M., & Maia, Â. (2017). Unraveling the link between maltreatment and juvenile antisocial behavior: A meta-analysis of prospective longitudinal studies. *Aggression and Violent Behavior*, *33*(1), 37-50. https://doi.org/10.1016/j. avb.2017.01.006

Brown, D. W., Anda, R. F., Tiemeier, H., Felitti, V. J., Edwards, V. J., Croft, J. B., & Giles, W. H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine, 37*(5), 389-396. https://doi.org/10.1016/j.amepre.2009.06.021

Campbell, N., Barnes, A. R., Mandalari, A., Onifade, E., Campbell, C. A., Anderson, V. R., Kashy, A. D, & Davidson, W. S. (2017). Disproportionate minority contact in the juvenile justice system: An investigation of ethnic disparity in program referral at disposition. *Journal of Ethnicity in Criminal Justice, 16*(2), 77–98. https://doi.org/10.1080/15377938.2017.1347544

Campbell, C., Papp, J., Barnes, A., Onifade, E., & Anderson, V. (2018). Risk assessment and juvenile justice: An interaction between risk, race, and gender. *Criminology & Public Policy, 17*(3), 525–545. https://doi.org/10.1111/1745-9133.12377

Capdevila, M., Ferrer, M., & Luque, E. (2005). *La reincidencia en el delito en la justicia de menores [Criminal recidivism in youth justice]*. Barcelona, Spain: Centre d'estudis Jurídics i Formació Especialitzada, Generalitat de Catalunya.

Carr, A., Duff, H., & Craddock, F. (2020). A systematic review of the outcome of child abuse in long-term care. *Trauma, Violence, & Abuse, 21*(4), 660-677. https://doi.org/10.1177/1524838018789154

Carrasco, N., García, J., & Zaldívar, F. (2014). Estimación y caracterización de los antecedentes de protección de los menores infractores. *Anuario de Psicología Jurídica, 24*(1), 31-35. https://doi.org/10.1016/j.apj.2014.06.003

Centers for Disease Control and Prevention (CDC). (2021). *Adverse Childhood Experiences (ACEs).* Retrieved from https://www.cdc.gov/violenceprevention/aces/

Chapman, D. P., Whitfield, C. L., Felitti, V. J., Dube, S. R., Edwards, V. J., & Anda, R. F. (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. *Journal of Affective Disorders, 82*(2), 217-225. https://doi.org/10.1016/j.jad.2003.12.013

Chu, C. M., Lee, Y., Zeng, G., Yim, G., Tan, C. Y., Ang, Y., ... & Ruby, K. (2015). Assessing youth offenders in a non-Western context: The predictive validity of the YLS/CMI ratings. *Psychological Assessment*, *27*(3), 1013. http://dx.doi.org/10.1037/a0038670

Cuervo, K., & Villanueva, L. (2013). Reiteración y reincidencia delictivas en menores españoles con expediente judicial [Reiteration and recidivism in Spanish minors with a criminal record]. *Revista Mexicana de Psicología, 30*(1), 61-68.

Cuervo, K., & Villanueva, L. (2015). Analysis of risk and protective factors for recidivism in Spanish youth offenders. International *Journal of Offender Therapy and Comparative Criminology, 59*, 1149-1165. https://doi.org/10.1177/0306624X14557917

Colman, I., Kingsbury, M., Garad, Y., Zeng, Y., Naicker, K., Patten, S., Jones, P. B., Wild, T. C., & Thompson, A. H. (2016). Consistency in adult reporting of adverse childhood experiences. *Psychological Medicine*, *46*(3), 543-549. https://doi.org/10.1017/S0033291715002032.

Davis, M. K., & Gidycz, C. A. (2000). Child sexual abuse prevention programs: A meta-analysis. *Journal of Clinical Child Psychology*, *29*(2), 257-265. https://doi.org/10.1207/S15374424jccp2902_11

Davis, J., & Sorensen, J. R. (2013). Disproportionate minority confinement of juveniles: A national examination of Black-White disparity in placements, 1997-2006. *Crime & Delinquency, 59*(1), 115–139. https://doi.org/10.1177/0011128709359653

Dierkhising, C. B., Ko, S. J., Woods-Jaeger, B., Briggs, E. C., Lee, R., & Pynoos, R. S. (2013). Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network. *European Journal of Psychotraumatology, 4*(1), 1-12. https://doi.org/10.3402/ejpt.v4i0.20274

Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *Jama*, *286*(24), 3089-3096. doi:10.1001/jama.286.24.3089

Dube, S. R., Felitti, V. J., Dong, M., Giles, W. H., & Anda, R. F. (2003). The impact of adverse childhood experiences on health problems: evidence from four birth cohorts dating back to 1900. *Preventive Medicine, 37*(3), 268-277. https://doi.org/10.1016/S0091-7435(03)00123-3

Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). Adolescent violence perpetration: associations with multiple types of adverse childhood experiences. *Pediatrics, 125*(4), e778-e786. https://doi.org/10.1542/peds.2009-0597

Erdmann, A. (2021). The impact of peer groups and routine activities on the victim-offender overlap: evidence from a German study on youth crime. *International Criminal Justice Review*, 10575677211038617. https://doi.org/10.1177/10575677211038617

Farrington, D. P. (1986). Age and crime. *Crime and Justice, 7*, 189-250.

Farrington, D. P. (2003). Key results from the first 40 years of the Cambridge study in delinquent development. In T. P. Thornberry & M. D. Krohn (Eds.), *Taking stock of*

delinquency: An overview of findings from contemporary longitudinal studies (pp. 137– 183). Kluwer/Plenum.

Farrington, D. P., Piquero, A. R., & Jennings, W. G. (2013). *Offending from childhood to late middle age: Recent results from the Cambridge study in delinquent development*. Springer.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245-258. https://doi.org/10.1016/S0749-3797(98)00017-8

Felitti, V. J., & Anda, R. F. (2010). The relationship of adverse childhood experiences to adult medical disease, psychiatric disorders, and sexual behavior: implications for healthcare. In Lanius, R., Vermetten, E. (Eds). *The Hidden Epidemic: The Impact of Early Life Trauma on Health and Disease* (pp. 77–87). Cambridge University Press.

Felson, R. B., & Lane, K. J. (2009). Social learning, sexual and physical abuse, and adult crime. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 35*(6), 489-501. https://doi.org/10.1002/ab.20322

Fernández, E., Bartolomé, R., Rechea, C., & Megías, A. (2009). Evolución y tendencias de la delincuencia juvenil en España [Evolution and trends of juvenile delinquency in Spain]. *Revista Española de Investigación Criminológica, 7,* 1-29. https://doi.org/10.46381/reic.v7i0.42

Finkelhor, D., Cross, T. P., & Cantor, E. N. (2005). The justice system for juvenile victims: A comprehensive model of case flow. *Trauma, Violence, & Abuse, 6*(2), 83-102. http://doi.org/10.1177/1524838005275090

Fitton, L., Yu, R., & Fazel, S. (2020). Childhood maltreatment and violent outcomes: A systematic review and meta-analysis of prospective studies. *Trauma, Violence, & Abuse, 21*(4), 754-768. https://doi.org/10.1177/1524838018795269

Gomis-Pomares, A., & Villanueva, L. (2020). The effect of adverse childhood experiences on deviant and altruistic behavior during emerging adulthood. *Psicothema, 32*(1), 33-39. http://doi.org/10.7334/psicothema2019.142

Gomis-Pomares, A., Villanueva, L., & Prado-Gascó, V. (2021). Does It Run in the Family? Intergenerational Transmission of Household Dysfunctions. *Child and Adolescent Social Work Journal*, 1-14. https://doi.org/10.1007/s10560-021-00766-9

Gouveia, V. V. (2011). Individualism-collectivism as predictors of prejudice toward Gypsies in Spain. *Interamerican Journal of Psychology*, *45*(2) 223–234. https://doi.org/10.30849/rip/ijp.v45i2.152

Hildyard, K. L., & Wolfe, D. A. (2002). Child neglect: developmental issues and outcomes. *Child Abuse & Neglect, 26*(6-7), 679-695. https://doi.org/10.1016/S0145-2134(02)00341-1

Hillis, S., Mercy, J., Amobi, A., & Kress, H. (2016). Global prevalence of past-year violence against children: a systematic review and minimum estimates. *Pediatrics*, *137*(3) e20154079. https://doi.org/10.1542/peds.2015-4079

Hilterman, E. L., Nicholls, T. L., & Van Nieuwenhuizen, C. (2014). Predictive validity of risk assessments in juvenile offenders: Comparing the SAVRY, PCL: YV, and YLS/CMI with unstructured clinical assessments. *Assessment, 21,* 324-339. https://doi.org/10.1177/1073191113498113

Hoffman-Plotkin, D., & Twentyman, C. T. (1984). A multimodal assessment of behavioral and cognitive deficits in abused and neglected preschoolers. *Child Development, 55*(3), 794-802. https://doi.org/1130130

Hofstede, G. (1984). *Culture's consequences: International differences in work-related values*. Sage Publications.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1), 2307-0919.

Howell, J. C. (2003). *Preventing and reducing juvenile delinquency.* Thousand Oaks Sage Publications.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., Michael, P., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356-e366. https://doi.org/10.1016/S2468-2667(17)30118-4

Informe del Instituto Nacional de Estadística (2021). *Estadística de Condenados: Adultos/Menores. Año 2019 [Convicted Statistics: Adults/Minors. Year 2020]*. Spanish Statistical Institute.

Ioé, C. (2003). Experiencias de discriminación de minorías étnicas en España—Contra Inmigrantes no-comunitarios y el colectivo gitano [Experiences of discrimination against ethnic minorities in Spain-Contra Non-EU immigrants and the Roma community]. *European Monitoring Centre on Racism and Xenophobia.*

Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., Aguilar-Gaxiola, S., Obaid, A., Alonso, J., Angermeyer, M., Beniet, C., Bromet, E., Chatterji, S., De Girolamo, G., Demyttenaere, K., Fayyad, J., Florescu, S., Gal, G., Gureje, O… & Williams, D. R. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry, 197*(5), 378-385. https://doi.org/10.1192/bjp.bp.110.080499

Lee, C. M., Picard, M., & Blain, M. D. (1994). A methodological and substantive review of intervention outcome studies for families undergoing divorce. *Journal of Family Psychology, 8*(1), 3. https://doi.org/10.1037/0893-3200.8.1.3

Loxton, D., Townsend, N., Dolja-Gore, X., Forder, P., & Coles, J. (2019). Adverse childhood experiences and healthcare costs in adult life. *Journal of Child Sexual Abuse, 28*(5), 511-525. https://doi.org/10.1080/10538712.2018.1523814

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology*, *51*(1), 445-479. https://doi.org/10.1146/annurev.psych.51.1.445

Marshall, J., Egan, V., English, M., & Jones, R. M. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behavior. *Legal and Criminological Psychology, 11*, 197–210. https://doi.org/10.1348/135532505X68719

Martel, J., Brassard, R., & Jaccoud, M. (2011). When two worlds collide: Aboriginal risk management in Canadian corrections. *The British Journal of Criminology*, *51*(2), 235-255. https://doi.org/10.1093/bjc/azr003

Ministry of Health, Consumer Affairs and Social Welfare (2020). *Estrategia Nacional para la Inclusión Social de la Población Gitana en España 2012–2020 [National Strategy for the Social Inclusion of the Roma Population in Spain 2012–2020]*. https://www.mscbs.gob.es/ssi/familiasInfancia/PoblacionGitana/docs/WEB_POBLACION_GITANA_2012.pdf.

Moffitt, T. E. (1993). Adolescence-limited and life-coursepersistent antisocial behavior: A developmental taxonomy. *Psychology Review, 100,* 674-701. https://doi.org/10.1037/0033-295X.100.4.674

Moffitt, T.E. (2003). Life-course persistent and adolescence-limited antisocial behavior. In B. B. Lahey, T. E. Moffitt, A. Caspi (Eds.), *Causes of conduct disorder and juvenile delinquency* (pp. 49–75). Guilford.

Moffitt, T. E. (2006). Life-course persistent versus adolescence-limited antisocial behavior. In D. Cicchetti, & D. J. Cohen (Eds.), *Developmental Psychopathology: Risk, Disorder, and Adaptation* (pp. 570–598). Wiley.

Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology*, *13*(2), 355-375. https://doi.org/10.1017/S0954579401002097

Mrazek, P. J., & Mrazek, D. A. (1987). Resilience in child maltreatment victims: A conceptual exploration. *Child Abuse & Neglect*, *11*(3), 357-366. https://doi.org/10.1016/0145-2134(87)90009-3

Muir, N. M., & Viljoen, J. L. (2022). Adverse childhood experiences and recidivism in Indigenous and white female and male adolescents on probation. *Child Abuse & Neglect*, *126*, 105512. https://doi.org/10.1016/j.chiabu.2022.105512

Mulder, E., Brand, E., Bullens, R., & Van Marle, H. (2011). Risk factors for overall recidivism and severity of recidivism in serious juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology*, *55*(1), 118-135. https://doi.org/10.1177/0306624X09356683

Navas, M., Tejada, A., & Fernández, M. (2011). Concordance between acculturation attitudes and perceptions of the Spaniards toward Maghreb immigrants: Relationship to prejudice. *Anales de Psicología/Annals of Psychology*, *27*(1), 186-194.

Neppl, T. K., Diggs, O. N., & Cleveland, M. J. (2020). The intergenerational transmission of harsh parenting, substance use, and emotional distress: Impact on the third-generation child. *Psychology of Addictive Behaviors, 34*(8), 852-863. http://dx.doi.org/10.1037/adb0000551

Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. *Criminal Justice and Behavior, 36,* 329–353. https://doi.org/10.1177/0093854809331457

Onifade, E., Barnes, A., Campbell, C., & Mandalari, A. (2019). Risk assessment as a mechanism for reducing differential treatment of minorities by a juvenile justice system. *Journal of Ethnicity in Criminal Justice*, *17*(3), 203-227. https://doi.org/10.1080/15377938.2019.1619647

Palacios, J., Jiménez, J., Oliva, A., & Saldaña, D. (1998). Malos tratos a los niños en la familia. In M. J. Rodrigo y J. Palacios (eds.): *Familia y desarrollo humano* (pp. 399-421). Alianza.

Pereda, N., Guilera, G., & Abad, J. (2014). Victimización infanto-juvenil en España: una revisión sistemática de estudios epidemiológicos [Child and adolescent victimization in Spain: a systematic review of epidemiological studies]. *Papeles del Psicólogo*, *35*(1), 66-77. https://www.redalyc.org/pdf/778/77830184009.pdf

Pinto, R., Correia, L., & Maia, Â. (2014). Assessing the reliability of retrospective reports of adverse childhood experiences among adolescents with documented childhood maltreatment. *Journal of Family Violence*, *29*(4), 431-438. https://doi.org/10.1007/s10896-014-9602-9

Piquero, A. R., Jennings, W. G., Diamond, B., & Reingle, J. M. (2015). A systematic review of age, sex, ethnicity, and race as predictors of violent recidivism. *International Journal of Offender Therapy and Comparative Criminology*, *59*(1), 5-26. https://doi.org/10.1177/0306624X13514733

Rembert, D. A., Henderson, H., & Pirtle, D. (2014). Differential racial/ethnic predictive validity. *Youth Violence and Juvenile Justice*, *12*(2), 152-166. https://doi.org/10.1177/1541204013485606

Sanabria, A. M., & Uribe, A. F. (2009). Conductas antisociales y delictivas en adolescentes infractores y no infractores [Antisocial and delinquent behavior in adolescent offenders and non-offenders]. *Pensamiento Psicológico, 6*(13), 203-217. https://www.redalyc.org/pdf/801/80112469014.pdf

Schmidt, F., Campbell, M. A., & Houlding, C. (2011). Comparative analyses of the YLS/CMI, SAVRY, and PCL: YV in adolescent offenders: A 10-year follow-up into adulthood. *Youth Violence and Juvenile Justice, 9*(1), 23-42. https://doi.org/10.1177/1541204010371793

Schmidt, S., Heffernan, R., & Ward, T. (2020). Why we cannot explain cross-cultural differences in risk assessment. *Aggression and Violent Behavior, 50,* 101346. https://doi.org/10.1016/j.avb.2019.101346

Soleimanpour, S., Geierstanger, S., & Brindis, C. D. (2017). Adverse childhood experiences and resilience: addressing the unique needs of adolescents. *Academic Pediatrics, 17*(7), S108-S114. https://doi.org/10.1016/j.acap.2017.01.008

Stolzenberg, L., & D'Alessio, S. J. (2008). Co-offending and the age-crime curve. *Journal of Research in Crime and Delinquency, 45*(1), 65-86. https://doi.org/10.1177/0022427807309441

Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R., & Van Ijzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review, 24*(1), 37-50. https://doi.org/10.1002/car.2353

Takahashi, M., Mori, T., & Kroner, D. G. (2013). A cross-validation of the Youth Level of Service/Case Management Inventory (YLS/CMI) among Japanese juvenile offenders. *Law and Human Behavior, 37,* 389–400. https://doi.org/10.1037/lhb0000029

Tarolla, S. M., Wagner, E. F., Rabinowitz, J., & Tubman, J. G. (2002). Understanding and treating juvenile offenders: A review of current knowledge and future directions. *Aggression and Violent Behavior*, *7*(2), 125-143. https://doi.org/10.1016/S1359-1789(00)00041-0

Threadcraft-Walker, W., Threadcraft, M. M., Henderson, H., Rembert, D. (2018). Gender, race/ethnicity and prediction*:* Risk in behavioral assessment. *Journal of Criminal Justice, 54*, 12–19. https://doi.org/10.1016/j.jcrimjus.2017.11.001

Tiberio, S. S., Kerr, D. C., Bailey, J. A., Henry, K. L., & Capaldi, D. M. (2020). Intergenerational associations in onset of cannabis use during adolescence: A data synthesis approach. *Psychology of Addictive Behaviors*, *34*(8), 877. https://doi.org/10.1037/adb0000625

Trulson, C. R., Marquart, J. W., Mullings, J. L., & Caeti, T. J. (2005). In between adolescence and adulthood: Recidivism outcomes of a cohort of state delinquents. *Youth Violence and Juvenile Justice, 3*(4), 355-387. https://doi.org/10.1177/1541204005278802

Valdebenito, S., Ttofi, M., & Eisner, M. (2015). Prevalence rates of drug use among school bullies and victims: A systematic review and meta-analysis of cross-sectional studies. *Aggression and Violent Behavior*, *23*, 137-146. https://doi.org/10.1016/j.avb.2015.05.004

Volkert, J., Gablonski, T. C., & Rabung, S. (2018). Prevalence of personality disorders in the general adult population in Western countries: systematic review and meta-analysis. *The British Journal of Psychiatry*, *213*(6), 709-715. https://doi.org/10.1192/bjp.2018.202

Weisz, J. R., Sandler, I. N., Durlak, J. A., & Anton, B. S. (2005). Promoting and protecting youth mental health through evidence-based prevention and treatment. *American Psychologist*, *60*(6), 628-648. https://doi.org/10.1037/0003-066X.60.6.628

Widom, C. S. (1989). Child abuse, neglect, and adult behavior: Research design and findings on criminality, violence, and child abuse. *American Journal of Orthopsychiatry*, *59*(3), 355-367. https://doi.org/10.1111/j.19390025.1989.tb01671.x

Widom, C. S., & Maxfield, M. G. (2001). *An Update on the" Cycle of Violence".* Research Brief NCJ184894. Office of Justice Programs, U.S. Department of Justice.

Wilson, H. A., & Gutierrez, L. (2014). Does one size fit all? A meta-analysis examining the predictive ability of the Level of Service Inventory (LSI) with Aboriginal offenders. *Criminal Justice and Behavior*, *41*(2), 196-219. https://doi.org/10.1177/0093854813500958

World Health Organization. (2020). *International classification of diseases for mortality and morbidity statistics (11th Revision).* https://icd.who.int/browse11/l-m/enhttps://www.who.int/standards/classifications/classification-of-disease

Wormith, S. J., & Bonta, J. (2018). The Level of Service (LS) instruments. In J. P. Singh, D. G. Kroner, J. S. Wormith, S. L. Desmarais, & Z. Hamilton (Eds.), *Recidivism risk assessment: a handbook for practitioners* (pp. 117–145). Wiley.