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## Longitudinal Patterns of Antisocial Behaviors in Early Adolescence: A Latent Class and Latent Transition Analysis

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### ABSTRACT

Antisocial behaviors in adolescents are present and prevalent around the world and have harmful consequences for individuals and societies. The research focused on antisocial behaviors in young people has been very fruitful, but studies are usually fragmented and focused on specific problem behaviors either in school or outside of school. Although victim-offender overlap was described in many studies, most projects focused either on victims or on offenders. This prospective longitudinal study was conducted to discover patterns of antisocial behavior from a comprehensive perspective, including different problem behaviors in and out of schools, focusing on both victimization and offending. A sample of 450 early adolescents was followed-up during one school year. Latent class and latent transition analyses were performed and identified four groups of students. These groups were: low antisocial, highly antisocial and victimized, high bullying victimization, and high offending outside of school. Transition analyses showed that the low antisocial and offenders outside of school groups were relatively stable over time. Students in the high bullying victimization group transitioned to different groups, and students in the highly antisocial and victimized group either remained in the highly antisocial group or transitioned to high offending outside of school. Findings suggest that single antisocial behaviors are not common and students who display one problem behavior usually display other problem behaviors. Early adolescents who are involved in antisocial behaviors in one time period frequently remain involved one year later. It is therefore possible that the antisocial potential of some adolescents is expressed in different contexts. This has important implications for research and practice that need to adopt a more holistic and comprehensive approach.

## Patrones longitudinales de las conductas antisociales en la adolescencia temprana: un análisis de clases y de transiciones latentes

### RESUMEN

Las conductas antisociales de los adolescentes están presentes en todo el mundo y tienen consecuencias perjudiciales para individuos y sociedades. La investigación centrada en las conductas antisociales de los jóvenes ha sido muy fructífera, pero los estudios están generalmente fragmentados y se centran en comportamientos problemáticos específicos, ya sea en la escuela o fuera de la escuela. Aunque la superposición víctima-agresor se ha descrito en muchos estudios, la mayoría se ha centrado en las víctimas o en los agresores. Este estudio longitudinal prospectivo se ha realizado para descubrir patrones de conducta antisocial desde una perspectiva integral, que incluye diferentes comportamientos problemáticos dentro y fuera de la escuela, centrándose tanto en la victimización como en la agresión. Se ha seguido una muestra de 450 estudiantes durante un año escolar y se han realizado análisis de clases latentes y de transiciones latentes, identificando cuatro grupos de estudiantes: bajo antisocial, altamente antisocial y victimizado, alta victimización por *bullying* y alto en ofensas fuera de la escuela. Los análisis de transición mostraron que el grupo bajo antisocial y el grupo alto en ofensas fuera de la escuela eran relativamente estables en el tiempo. Los estudiantes del grupo alta victimización por *bullying* hicieron la transición a diferentes grupos y los estudiantes del grupo altamente antisocial y victimizado permanecieron en su grupo o pasaron al grupo alto en ofensas fuera de la escuela. Los resultados indican que no son frecuentes las conductas antisociales aisladas y que los estudiantes que muestran un comportamiento problemático, generalmente, presentan otros comportamientos problemáticos. Los adolescentes que están implicados en conductas antisociales en un momento temporal con frecuencia siguen implicados un año después. Por lo tanto, es posible que el potencial antisocial de algunos adolescentes se exprese en diferentes contextos. El estudio tiene importantes implicaciones para la investigación y la práctica, ya que tienen que adoptar un enfoque más holístico e integral.

#### Palabras clave:

Conducta antisocial  
Bullying  
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Análisis de clases latentes  
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Antisocial behaviors in adolescents are usually studied in and out of school. In the school context, bullying is one of the most frequently studied antisocial behaviors. Bullying is a complex psycho-social phenomenon that violates the norms of moral reciprocity among peers (Ortega-Ruiz & Mora-Merchán, 2008). It is an unjustified aggressive behavior, characterized by repetition and power imbalance (Olweus, 1993), that intentionally harms the victims who cannot defend themselves (Smith et al., 2002). Cyberbullying is a form of bullying carried out through electronic devices (Olweus & Limber, 2018). Cyberspace allows perpetrators to extend the scope of their antisocial behavior beyond school to victimize others (Ortega-Ruiz et al., 2008; Patchin & Hinduja, 2015). Studies have shown a strong overlap between bullying and cyberbullying (Baldry et al., 2016; Modecki et al., 2014; Waasdorp & Bradshaw, 2015). A meta-analysis by Kowalski et al. (2014) and a systematic review by Zych et al. (2015) reported that bullying is one of the strongest risk factors for cyberbullying.

Bullying and cyberbullying constitute a serious public health problem and a critical issue within schools and, therefore, many research studies have focused on their prevalence, causes, and consequences. Findings from systematic reviews and meta-analyses (see Modecki et al., 2014; Zych et al., 2015) indicate that around one-third of students are involved in school-bullying and around 15% are involved in cyberbullying. The United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2018) published a recent report indicating that bullying and other forms of violence affect approximately one-third of children and adolescents.

Meta-analytic studies showed that bullying – both victimization and perpetration – can be an important risk factor for other antisocial behaviors, such as violence and offending (see Ttofi et al., 2012), substance use (see Valdebenito et al., 2015), weapon carrying in and out of school (see Valdebenito et al., 2017), and a predictor of poor school achievement (see Nakamoto & Schwartz, 2010). Prospective longitudinal studies (e.g., Bender & Lösel, 2011; Farrington & Ttofi, 2011; Walters & Espelage, 2019) found that bullying perpetrators are at higher risk of getting involved in other antisocial behavior later in life. Similar findings were described by Renda et al. (2011), who concluded that bullying might be related to other problem behaviors that involve breaking norms and have serious consequences.

Thus, some studies found a robust correlation between bullying behaviors and other antisocial behaviors (for review see Ttofi et al., 2011), and those people who display one problem behavior usually display other problem behaviors (Jessor & Jessor, 1977). Nevertheless, previous studies focused only on the relation between bullying and some other antisocial behaviors, usually only one more antisocial behavior (e.g., cyberbullying, drug use). Although victim-offender overlap is one of the known facts in criminological research (Berg & Mulford, 2017), victimization and perpetration were rarely studied together when describing patterns of antisocial behaviors. In general, it is still necessary to discover patterns of antisocial behaviors in and out of school from a comprehensive and holistic approach.

Antisocial behaviors can be defined as a general term that describes a broad range of actions and attitudes that violate the rights of others and transgress social and moral norms (Burt, 2009). Previous studies indicated that antisocial behaviors are heterogeneous (e.g., Burt, 2012; Rutter et al., 1998), and include behaviors such as vandalism, property offenses, robbery, aggressive behaviors (e.g., hitting, pushing, bullying), truancy, running away from home, and substance use.

It is widely accepted that young people learn social behaviors from the social norms and behaviors that are conveyed to them – directly or indirectly – from their socialization sources. Some theoretical models suggested that during the socialization process strong bonds to antisocial people encourage involvement in antisocial behaviors (Catalano & Hawkins, 1996). Although Hirschi (1969) suggested that strong social bonds, especially to the family, were inhibitors of antisocial behavior, Catalano and Hawkins (1996) showed that the

family could be a facilitator of antisocial behavior if its members tend to behave in an antisocial way. In a longitudinal study, Arce et al. (2010) found that antisocial behaviors tend to increase from preadolescence to adolescence in high social risk contexts and decrease in low social risk contexts. Moreover, building strong bonds to school might inhibit behaviors inconsistent with the norms and values that school promotes. As indicated by Catalano et al. (2004), bonding to schools decreases problem behaviors in students if schools respect all the students, promote academic achievement, and are well organized.

Schools might influence students' development in both positive and negative ways, going beyond school-specific behaviors (e.g., academic performance, attendance at school) to prosocial and antisocial behavior development in general. A study by Henry et al. (2009) showed that students' own level of school adjustment and the normative level of school adjustment play an important role in predicting student antisocial behavior. Findings from their study indicated that individual and contextual school adjustment were related to adolescent substance use. Furthermore, Ortega-Ruiz et al. (2013) suggested that much of the implicit social behavior in the school-context might explain bullying involvement. Other studies also found a significant association between family socialization and bullying behaviors (as indicated by Gómez-Ortiz et al., 2015; Kokkinos, 2013), reporting that the family influences involvement in bullying perpetration and victimization.

Theories from life-course developmental criminology, more specifically, the Integrated Cognitive Antisocial Potential (ICAP) theory (Farrington, 2005), proposed an antisocial potential that influences a person's propensity to carry out problematic behaviors. This antisocial potential varies between individuals according to biological factors, life experiences or socialization, and influences a person's behavior over a relatively long period of time. Antisocial potential also has a short-term manifestation (e.g., being angry, substance use) that varies within individuals and contexts, and increases the probability to behave in an antisocial way. As suggested by Farrington (2005), the decision to carry out antisocial behaviors is a result of the interaction of these personal and situational characteristics and depends on the evaluation of the costs and benefits made by individuals. Young people with a high level of antisocial potential tend to express it in different contexts. Since many schools take measures against those antisocial behaviors, students might look for other contexts where they can behave in an antisocial way. Moreover, if students have learned that antisocial behaviors lead to desirable consequences such as approval by peers and high peer status, as suggested by Salmivalli (2010), they might decide to behave antisocially in other contexts and expect desirable outcomes.

Moreover, criminological research reported a common victim-offender overlap that is explained by several theories. Engaging in risky behaviors might increase the likelihood to be exposed to potential offenders, and that in turn might lead to an increased risk of victimization (Lauritsen & Laub, 2007). Various research studies reported the overlap between different types of perpetration and victimization in antisocial behaviors (e.g., Beckley et al., 2017; Jennings et al., 2010). For theft and violence, for example, Posick (2013) found a positive correlation between those who stole from others or were violent and those who were victims of theft or violence. In bullying research, the victim-offender overlap (namely bully/victims) has been widely substantiated and it was suggested that those who bully others are more likely to be bullied themselves (Baldry et al., 2017; Chan & Wong, 2015; Sekol & Farrington, 2010). Furthermore, studies suggested that students who perceived themselves in a risk situation among peers might turn to antisocial behaviors as a self-protection strategy (Emler, 2009), possibly due to their lack of trust in authority figures or the effectiveness of social norms (see Turner et al., 2016; Valdebenito et al., 2017).

Despite an extensive scientific literature focused on young people's antisocial behavior, there are still gaps in knowledge regarding the

development of antisocial behaviors. It is possible that students involved in face-to-face and online bullying also get involved in other antisocial behaviors, as they may not accept the general moral norms and principles of mutual respect, justice, and reciprocity. Moreover, it is possible that the influence of being involved in immoral phenomena, such as bullying and cyberbullying, on school adjustment might have an effect on both antisocial behaviors and the socialization process. It is also reasonable to suggest that the antisocial potential (Farrington, 2005) is expressed in and out of school, but research and practice in bullying prevention usually focus on school behaviors only. To address these issues, this study uses a latent transition analysis approach, as it is appropriate for studying both between-individual and within-individual differences over time. Measuring the observable indicators of victimization and perpetration in face-to-face and online bullying and other antisocial behaviors may be a fruitful approach to understand the relations among these problem behaviors over time. It is hypothesized that when perpetration and victimization of bullying/cyberbullying and other antisocial behaviors such as damage behaviors, theft, violence, status offenses, or substance use are considered in a simultaneous analysis there are several patterns that include different combinations of antisocial behaviors.

Thus, this study was conducted to fill gaps in knowledge by discovering antisocial behavioral patterns, including bullying, cyberbullying, and other antisocial behaviors. Also, it is suggested that sex, as one of the most robust predictors of antisocial behavior (Moffitt, 1993, 2018), might influence membership in different groups that show each pattern of antisocial behaviors and its stability and change one year later. In addition, students enrolled in compulsory secondary education are expected to have a higher probability of membership in highly antisocial patterns compared to primary school students. Thus, the present study focuses on bullying, cyberbullying, and other antisocial behaviors from a comprehensive perspective to find common risk and protective factors that may guide future comprehensive interventions.

## Method

### Participants

Data for the current study were drawn from a non-probabilistic sampling from eight schools located in two cities and two towns in southern Spain. The total sample ( $N = 1,483$ ) was part of a combined prospective longitudinal and experimental study. Students were enrolled in grades 4 to 6 of primary education ( $n = 612$ , approximately 9–12 years old), and grades 1 to 4 of compulsory secondary education ( $n = 871$ , approximately 12–16 years old). For longitudinal data, 212 students enrolled in grade 4 of compulsory secondary school were not included because they graduated in wave 1 and it was not possible to follow them up. Also, 601 students were not included in the current research as they were participating in an anti-bullying/cyberbullying prevention program. From the rest of the sample ( $n = 670$ ), it was possible to follow-up 450 students (in wave 1,  $M_{\text{age}} = 11.81$ ,  $SD = 1.97$ , 51.7% girls, 45.6% secondary school sample, 97.6% from the national majority group; in wave 2,  $M_{\text{age}} = 12.80$ ,  $SD = 1.96$ , 52.2% girls, 56.4% secondary school sample). Attrition was due to adolescents having moved schools or because they missed school during the day of data collection.

### Instruments

Antisocial behaviors were measured using a translated and adapted version of the Self-Reported Antisocial Behavior Questionnaire (SRA) designed by Loeber et al. (1989). The questionnaire ( $\alpha = .90$ , in the current sample) included 32 questions responded on a 4-point Likert

scale ranging from 1 (*never*) to 4 (*yes, more than 3 times*). Items referred to behaviors that have been carried out in the last six months in and out of school. The instrument had a five-factor structure: Damage Behavior ( $\alpha = .71$ ; 5 items, e. g., “Have you on purpose broken or damaged or destroyed something belonging to a school?”, “Have you purposely set fire to a building, a car, or something else or tried to do so?”), Theft ( $\alpha = .78$ ; 10 items, e. g., “Have you taken something from a store without paying for it?”, “Have you snatched someone's purse or wallet or picked someone's pocket?”), Violence ( $\alpha = .63$ ; 7 items, e. g., “Have you hit other kids or gotten into a physical fight with them?”, “Have you thrown rocks or bottles at people?”), Status Offenses ( $\alpha = .55$ ; 4 items, e. g., “Have you cheated on a school test?”, “Have you run away from home?”), and Substance Use ( $\alpha = .83$ ; 6 items, e. g., “Have you drank beer?”, “Have you smoked marijuana?”). The confirmatory factor analysis (CFA) showed an excellent fit of the current data to the original factor structure (S-B  $\chi^2 = 1243.74$ ,  $df = 454$ ,  $p < .001$ ; NFI = .97; NNFI = .98; CFI = .98; RMSEA = .036; 90% CI [.034, .039]).

School bullying was measured using the European Bullying Intervention Project Questionnaire (EBIPQ) validated by Ortega-Ruiz et al. (2016). The questionnaire ( $\alpha = .86$ , in the current sample) contains 14 items responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*more than once a week*). The instrument refers to behaviors such as hitting, insulting, threatening, stealing, excluding, or spreading rumors in the current academic year and includes two sub-scales: Victimization ( $\alpha = .85$ ; 7 items, e.g., “Someone has hit me, kicked me or pushed me”) and Perpetration ( $\alpha = .79$ ; 7 items, e.g., “I have insulted and said bad words to someone”). The CFA showed a good fit of the current data to the original model (S-B  $\chi^2 = 558.05$ ,  $df = 76$ ,  $p < .001$ ; NFI = .95; NNFI = .94; CFI = .95; RMSEA = .068; 90% CI [.062, .073]).

Cyberbullying involvement was measured with the European Cyberbullying Intervention Project Questionnaire (ECIPQ) validated by Ortega-Ruiz et al. (2016). The questionnaire ( $\alpha = .88$  in the current sample) contains 22 items responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*more than once a week*). This instrument describes different cyberbullying behaviors (such as insulting, rumor spreading, social exclusion, identity theft) and includes two sub-scales: Cybervictimization ( $\alpha = .83$ ; 11 items, e. g., “Someone has threatened me through messages on the Internet or by mobile phone”) and Cyberperpetration ( $\alpha = .81$ ; 11 items, e. g., “I have said bad words to someone or insulted him using messages on the Internet or by mobile phone”). Participants responded to each item in relation to the current academic year. The CFA showed a good fit of the current data to this model (S/B  $\chi^2 = 842.25$ ,  $df = 208$ ,  $p < .001$ ; NFI = .97; NNFI = .98; CFI = .98; RMSEA = .046; 90% CI [.043, .050]).

### Procedure

This prospective longitudinal study was carried out in compliance with the ethical standards of the Declaration of Helsinki. Approval from the Ethics Committee of University of Córdoba (Spain) was obtained prior to data collection. After an initial selection of the schools, informed consent was obtained from parents. Participation in the study was voluntary and confidential. Before filling in the questionnaires, participants were informed about the aims of the study. Student consent was obtained and they were informed that the study was anonymous and that they had the right to opt out at any moment. Students completed a paper-and-pencil self-report questionnaire and were supervised by one of the senior researchers who handed out and collected the questionnaires without any intervention from the teachers.

Data were collected in May and June 2017 (wave 1), and May and June 2018 (wave 2). Participants were matched through an anonymous code and procedure was similar in both data collection waves.

**Table 1.** Percentage of Participants Involved in Different Antisocial Behaviors and Victimization in Wave 1

Indicators of latent classes	Total (n = 1483)	Primary (n = 612)	Secondary (n = 871)	Girls (n = 709)	Boys (n = 766)
1. Bullying victimization	48.2%	52.3%	45.4%	43.3%	52.6%
2. Bullying perpetration	26.1%	26.1%	26.1%	18.1%	33.7%
3. Cybervictimization	18.7%	14.4%	21.7%	17.8%	19.5%
4. Cyberperpetration	11.5%	8.0%	14.0%	9.7%	13.1%
5. Damage	32.1%	23.5%	38.2%	25.1%	38.7%
6. Theft	54.9%	47.2%	60.3%	55.0%	54.6%
7. Violence	63.6%	65.5%	62.2%	58.1%	69.0%
8. Status offenses	51.1%	33.7%	63.5%	52.2%	50.3%
9. Substance use	42.7%	25.8%	54.5%	39.6%	45.8%

## Data Analysis

Descriptive analyses and reliability analyses of questionnaires were carried out using PASW Statistics SPSS 23. Then, observed scores for victimization and perpetration of bullying/cyberbullying and other antisocial behaviors were dichotomized into 1 (non-involved) and 2 (involved). In this regard, since the definition of bullying specifies repeated acts, to distinguish between students involved and non-involved in bullying/cyberbullying victimization and/or perpetration, the affirmative response option *one or more times a month* was used as cut-off point for being involved (Ortega-Ruiz et al., 2008). Students who indicated affirmative responses such as *once a week or more than once a week* were also considered to be involved in bullying/cyberbullying victimization and/or perpetration. The answers such as *never* and *1-2 times a year* were considered to be non-bullying/non-cyberbullying. In addition, students who reported at least one antisocial behavior in the previous six months were labeled as “involved”. Those who responded *never* to the antisocial behavior items were labeled as “non-involved”.

A latent class analysis and a latent transition analysis were conducted according to Collins and Lanza (2010). Latent class analysis (LCA) consists of assigning individual cases to a group based on similarity of responses in the measured variables (i.e., bullying victimization and perpetration, cybervictimization, cyberperpetration, damage, theft, violence, status offenses, and substance use) so individuals in each group share the same pattern of antisocial behavior (Lanza et al., 2013).

To discover the number of latent classes in a dataset, different possible models (from 2 to 8 latent class models) were tested. The identified models where at least 50% of the seeds converged to the same solution were analyzed more thoroughly. The convergence criterion  $MAD \leq .000001$  was used (Collins & Lanza, 2010). The statistics  $G^2$ , degrees of freedom, log-likelihood, Akaike information criterion (AIC; Akaike, 1974), and Bayesian information criterion (BIC; Schwarz, 1978) were used to discover an optimal model fit (see Lanza et al., 2013). Once the number of latent classes was identified, they were analyzed and labeled.

For the second step of analyses, a latent transition analysis (LTA) was performed. LTA estimates the probabilities of change over time from one latent class to another (Collins & Lanza, 2010). In this statistical model, change is represented by the probability of transitioning to a latent status at wave 2 given latent status membership at wave 1 (Lanza & Collins, 2016). Also, it explores whether the same latent status can be identified in both wave 1 and wave 2 (Lanza et al., 2013).

Next, sex and school level were included as covariates that predict wave 1 latent status membership and transition probabilities across time. All latent class and latent transition models were run using SAS 9.4 software Proc LCA and LTA macros Version 1.3.2 (Lanza et al., 2015).

## Results

Table 1 shows descriptive statistics regarding different antisocial behaviors in wave 1. Data indicate that both boys and girls enrolled in primary and compulsory secondary education engage in different antisocial behaviors and victimization.

An LCA was used to examine the pattern of relationships among bullying victimization, bullying perpetration, cybervictimization, cyberperpetration, damage, theft, violence, status offenses, and substance use. Table 2 shows different fit indices of LCA that have been considered to find the optimal model. Based on information from statistical indicators, the four-class model was selected as it was the most parsimonious.

Probabilities of giving an affirmative answer to each item at each time point in the four identified groups are shown in Table 3. As can be seen in Table 3, a group labeled “low antisocial” showed low levels of involvement in any antisocial behavior and low victimization. A group labeled “highly antisocial and victimized” showed high levels of involvement in all antisocial behaviors and victimization. A group labeled “high bullying victimization” reported high levels of bullying victimization and medium-low involvement in antisocial behaviors. A group labeled “offenders outside of school” reported high levels of involvement in vandalism, theft, physical

**Table 2.** Model Fit Statistics Used to Select the Number of Latent Classes of Antisocial Behavior

No. of latent classes	% Seeds	Log-likelihood	$G^2$	AIC	BIC	<i>df</i>
2	100	-7332.47	1126.09	1164.09	1264.83	492
3	73	-7179.42	820.00	878.00	1031.75	482
<b>4</b>	<b>79</b>	<b>-7099.98</b>	<b>661.10</b>	<b>739.10</b>	<b>945.88</b>	<b>472</b>
5	84	-7047.59	556.34	654.34	914.13	462
6	44	-7015.73	492.62	610.62	923.43	452
7	33	-6985.07	431.28	569.28	935.11	442
8	33	-6966.94	395.04	553.04	971.88	432

Note. Wave 1= 1,483 participants; % of seeds calculated with 100 random starting values. In bold, the selected model.

**Table 3.** Student Response Probabilities regarding Victimization and Perpetration of Different Antisocial Behaviors in Wave 1

Indicators of latent classes	Low antisocial % (SE)	Highly antisocial and victimized % (SE)	High bullying victimization % (SE)	Offenders outside of school % (SE)
	<b>31.3% (0.03)</b>	<b>21.8% (0.02)</b>	<b>21.3% (0.02)</b>	<b>25.4% (0.02)</b>
1. Bullying victimization	18.4% (0.04)	84.2% (0.03)	82.8% (0.04)	24.8% (0.04)
2. Bullying perpetration	0.0% (0.00)	72.5% (0.03)	38.7% (0.05)	7.6% (0.03)
3. Cybervictimization	0.3% (0.01)	50.5% (0.04)	31.2% (0.04)	3.2% (0.02)
4. Cyberperpetration	0.8% (0.01)	38.3% (0.04)	12.6% (0.03)	0.6% (0.01)
5. Damage behavior	5.0% (0.02)	78.7% (0.03)	13.1% (0.03)	48.1% (0.04)
6. Theft	20.8% (0.04)	94.3% (0.02)	34.9% (0.05)	88.0% (0.03)
7. Violence	38.4% (0.03)	96.1% (0.01)	56.8% (0.04)	78.8% (0.03)
8. Status offenses	26.6% (0.03)	82.3% (0.03)	28.4% (0.04)	79.1% (0.03)
9. Substance use	16.0% (0.03)	81.1% (0.03)	25.7% (0.04)	65.4% (0.04)

Note. Wave 1 = 1,483 participants; in bold font class membership probabilities.

violence, truancy, running away from home, and substance use, but low involvement in face-to-face and online bullying.

Sex and school level included in the latent status model as covariates were related to wave 1 latent status membership and transition probabilities across time. Boys had a higher probability of membership in the highly antisocial and victimized ( $OR = 2.93, p < .05$ ), high bullying victimization ( $OR = 1.46, p < .05$ ), and offenders outside of school ( $OR = 1.23, p < .05$ ) groups. Primary school participants had a higher probability of membership in the high bullying victimization group ( $OR = 0.86, p < .001$ ). Secondary school students had a higher probability of membership in the highly antisocial and victimized ( $OR = 4.99, p < .001$ ) and offenders outside of school ( $OR = 2.03, p < .001$ ) groups.

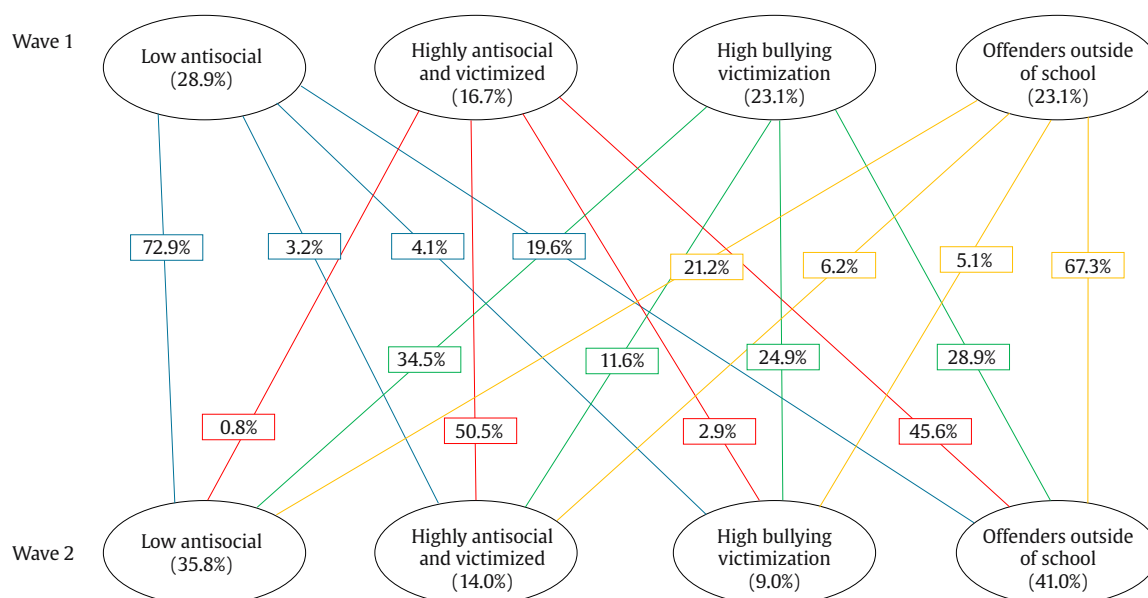
### Stability and Change among Different Patterns of Antisocial Behaviors

Using a latent transition analysis, Figure 1 shows stability and change in different patterns of antisocial behaviors. One year later, results showed increased rates of low antisocial pattern. Also, more students were classified as offenders outside of school. The rates of highly antisocial and victimized pattern were relatively stable in both waves. The percentage of students classified in the high bullying victimization group decreased.

Adolescents classified as low antisocial in wave 1 had a high probability of remaining in the low antisocial group one year later. When transitioning, they were most likely to transition to the offenders outside of school group and less likely to transition to other groups. Participants classified as highly antisocial and victimized in wave 1 had a high probability of remaining highly involved one year later or to transition to offenders outside of school in wave 2. Adolescents classified in the high bullying victimization group in wave 1 were likely to transition to low antisocial and offenders outside of school groups and less likely to transition to the highly antisocial and victimized group or remain in the high bullying victimization group. Participants classified as offenders outside of school in wave 1 usually remained in the same category one year later. When transitioning, they were likely to transition to the low antisocial group and less likely to transition to other groups.

### Discussion

Decades of psychosocial and criminological research suggest that students involved in antisocial behaviors, including school bullying and cyberbullying, are at risk of getting involved in other antisocial behaviors later in life. Notwithstanding its importance for the



**Figure 1.** Transitions among Different Patterns of Antisocial Behaviors. N = 450 participants followed-up; in parentheses, estimates of status membership probabilities.

socialization process, little is known about the association between face-to-face and online bullying and other antisocial behaviors, and if this relation changes or remains stable over time. Thus, based on a prospective longitudinal design, this study was conducted to discover patterns of antisocial behaviors by analyzing bullying, cyberbullying, and other antisocial behaviors in early adolescence.

Findings showed that students characterized by low rates of different antisocial behaviors and low victimization tend to remain low in antisocial behavior one year later. This result is coherent with the ICAP theory (Farrington, 2005) as these students seem to be low on antisocial potential and, therefore, do not usually get involved in antisocial behaviors regardless of the context. Nevertheless, some of the low antisocial group transitioned to the offenders outside of school group. These results are coherent with previous findings regarding age-crime curve (Moffitt, 1993, 2018; Rutter et al., 1998), that suggested that involvement in low levels of antisocial behaviors such as theft, violence, status offences, substance use is common in some people that were called adolescence-limited offenders. Adolescence is filled with significant individual and social changes and is also a period when people tend to experiment with different behaviors, such as substance use, violence, status offences, and other antisocial behaviors carried out in different social contexts. On the other hand, as previous studies suggested (Catalano et al., 2004; Catalano & Hawkins, 1996; Henry et al., 2009; Ortega-Ruiz et al., 2013) it might be possible that positive school adjustment and school bonding may protect students from engaging in different antisocial behaviors and victimization.

Students who reported high involvement in different antisocial behaviors and high victimization in face-to-face and online bullying either maintained their pattern of behavior or transitioned to offenders outside of school one year later. These findings are coherent with both the ICAP theory (Farrington, 2005) and the taxonomy of antisocial behaviors proposed by Moffitt (2018). Based on ICAP, this relative stability in antisocial behaviors may exist because these students are high on antisocial potential and express this potential in different contexts, in and out of school. Based on Moffitt's (2018) taxonomy, these participants may be at risk of life-course persistent antisocial behavior. This is especially important because most of the studies focused on school bullying do not focus on other antisocial behaviors. Moreover, schools in Spain have specific anti-bullying protocols (Ortega-Ruiz & Córdoba-Alcaide, 2017), so if bullying is detected, specific actions are taken to decrease it. Our findings suggest that, at least for highly antisocial students, bullying may decrease, but they still remain antisocial outside of school, probably because of their high antisocial potential. Following ICAP, it is possible that this potential becomes expressed outside of school only because schools become a safer context, and students perceive less benefits and more negative consequences and, therefore, decide not to offend in schools, but still decide to do this outside of schools.

The present research findings also showed the changing nature of the group characterized by high bullying victimization behaviors only. Students who reported high bullying victimization pattern in wave 1 transitioned to low antisocial and low victimization, offenders outside of school, highly antisocial, and victimized groups one year later, and around 25% remained to be victims of bullying only. Although bullying is defined as a long-term and relatively stable behavior (Zych et al., 2020), it is possible that the way in which it is usually measured, very similar to the measurement in the current study, includes students who were just sporadically victimized among bullying victims. Based on social learning theories (Catalano et al., 2004), it is also possible that children learn antisocial behaviors when they are victimized in school and then repeat these behaviors by becoming highly antisocial themselves. As suggested by some researchers (Ortega-Ruiz et al., 2013), bullying is an immoral behavior that can cause low social adjustment that becomes generalized to other contexts outside of school. These findings highlight the great

complexity characterizing bullying victimization and suggest that early prevention and intervention programs are needed to decrease involvement in bullying and other antisocial behaviors.

Previous meta-analytic studies that evaluated intervention programs to reduce bullying (e.g., Gaffney, Farrington, & Ttofi, 2019), and cyberbullying (e.g., Gaffney, Farrington, Espelage et al., 2019) found that, overall, school-bullying prevention programs are effective, although the impact of these programs on students' behavior can still be improved (Zych et al., 2015). Based on the results of the present study, it is reasonable to suggest that students who are high on antisocial behaviors and victimization, high on bullying victimization, and high on offending outside of school tend to continue offending and displaying their antisocial behaviors one year later. It is therefore possible that interventions against bullying and cyberbullying are not effective in reducing antisocial behaviors in general, that become expressed in different contexts or ways. Thus, our findings suggest an urgent need for comprehensive programs that target a wide range of antisocial behaviors (as suggested by Catalano et al., 1998). Although not all antisocial behaviors have the same origin and mechanisms, it would be useful to tackle the underlying common antisocial potential (Farrington, 2005) as well as specific behaviors.

The current study has important implications for policy and practice. Extensive literature reviews have shown that students' antisocial behaviors might have serious short- and long-term consequences (Farrington & Ttofi, 2011; Rutter et al., 1998). Thus, it is essential for practitioners and policy makers to recognize consequences of continued immoral and norm-breaking behaviors. Results also suggest that, for prevention and intervention strategies, researchers should consider patterns of antisocial behaviors rather than studying particular antisocial behaviors separately.

These results can also be used for educational prevention of antisocial behavior. Prevention and intervention programs in schools are frequently focused on one problem behavior such as bullying and cyberbullying (Gaffney, Farrington, & Ttofi, 2019; Gaffney, Farrington, Espelage, et al., 2019). Our results show that these prevention efforts should be focused rather on patterns of antisocial behaviors taking into account students' behaviors from a holistic and comprehensive perspective, in and out of school. A meta-analysis conducted by Durlak et al. (2011) found that promotion of social and emotional competencies in schools is a good way to decrease different problem behaviors. Moreover, Arce et al. (2011) found that low social competence was related to more antisocial behaviors and juvenile offending. Zych et al. (2018) found low level of social and emotional competencies in bully/victims. Thus, social and emotional learning programs could be useful for preventing antisocial behaviors in and out of school, and possibly interrupting their continuity or transition from milder forms to more severe forms. Other studies showed the importance of authoritative parenting full of affection, communication, and autonomy promotion (Ruiz-Hernández et al., 2019), and analyzing different personality characteristics (Alarcón et al., 2018) to prevent offending. All these variables could be included in future tailored interventions and research. Although more research is needed to confirm this, our findings suggest that early prevention and intervention may be important in supporting healthy socioemotional development across time and possibly prevent different antisocial behaviors.

The current study has some important strengths and also some limitations. Given that the sample was selected through convenience sampling, new studies should confirm the extent to which the current findings are generalizable. The study was conducted using self-reports which are the most commonly used instruments in the field, although they can sometimes be affected by response bias or social desirability. Future research could describe the patterns of antisocial behaviors using multiple-informant strategies and might identify risk and protective factors for these patterns of antisocial behaviors over time. The current findings provide support for

the theoretical model of victim-offender overlap. Additional studies about different antisocial behaviors should consider both victimization and perpetration as two sides of the same coin. This study fills gaps in knowledge using a longitudinal methodology and a novel data analysis strategy to show that bullying/cyberbullying victimization and perpetration should be studied within a broader approach of antisocial behavior. Given that this study only uses two waves of data with a one-year follow-up, future research should confirm these results with longer follow-ups. Thus, the present study addresses an important gap in the scientific literature by taking into account a holistic view of antisocial behaviors in early adolescence.

### Conflict of Interest

The authors of this article declare no conflict of interest.

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