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Normative Legitimacy and Youth Delinquency: Partial Confirmation of the Procedural Justice Model of Legal Socialization in Portugal

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Abstract

Objective: Legal socialization research highlights that youth compliance is shaped by institutional legitimacy and legitimacy of the law, often fostered by fair treatment from authorities. However, less evidence exists concerning the influence of non-legal actors and indirect experiences with the police. We expand on these gaps by testing the procedural justice model of legal socialization across Portuguese adolescents, examining (a) how perceptions of procedural justice from police, parents and teachers, and negative vicarious experiences with police shape police legitimacy, and (b) how legitimacy and procedural justice relate to delinquent behavior. ***Hypotheses:*** We expected higher procedural justice across all authorities and fewer negative vicarious experiences with the police to predict higher perceptions of police legitimacy, and both police legitimacy and procedural justice to negatively impact delinquency. ***Method:*** Self-report surveys were administered to 340 adolescents (age range: 15–21 years old; 34% male; 25.3% immigrants) attending four high schools in northern Portugal. ***Results:*** Police legitimacy was primarily predicted by procedural justice judgments of police (β = .280, p <.001) and parents (β = .154, p = .006), and by immigrant status (β = -.170, p = .002). Normative legitimacy did not significantly explain delinquency (IRR = .709, p = .144), which was predicted by deviant group behavior (IRR = 3.034, p = .002), male gender (IRR = 2.431, p <.001), variety of police contacts (IRR = 1.235, p = .003), and parental procedural justice (IRR = .727, p = .049). ***Conclusions***: Findings provide partial support for the procedural justice model of legal socialization in Portugal and highlight the role of fair treatment by parents in shaping legal attitudes. Effects of legal attitudes on behavior may be contingent on specific social contexts and developmental factors.

*Keywords***:** legal socialization; procedural justice; police legitimacy; delinquency

Public Significance Statement

This study lends support to the proposition that fostering legitimacy of legal institutions among young people should be part of a collective action of a variety of actors who are part of youth's daily lives, such as parents, rather than only police officers. Moreover, it highlights that delinquent behavior may not always be preceded by a rejection of conventional values – in this case, moral obligation to obey the police.

Normative Legitimacy and Youth Delinquency: Partial Confirmation of the Procedural Justice Model of Legal Socialization in Portugal

Overall, legal socialization refers to the process through which individuals develop their understanding of their relationship with the law and legal institutions (Fagan & Tyler, 2005; Tapp & Levine, 1974; Tyler & Trinkner, 2017), covering aspects such as how an individual perceives and interacts with legal authorities and legal norms (Trinkner & Cohn, 2014; Trinkner & Reisig, 2021). Across the past two decades, research has increasingly drawn on Tyler's (2006, 2009) process-based model of regulation and underscored the importance of social interactions with legal authorities in promoting legal orientations and compliance (Cavanagh et al., 2020; Fagan & Tyler, 2005; Trinkner & Cohn, 2014).

The adolescence period is particularly critical for legal socialization, considering youth's orientations are still malleable and that first direct encounters with legal institutions typically occur during this period (Fagan & Tyler, 2005). Encounters with law enforcement during adolescence usually act as "teachable moments" concerning their position within the superordinate group and how they are to expect legal authorities to operate (Tyler et al., 2014, p. 752). Thus, they provide socially relevant information regarding their self-identity and may shape orientations regarding how the legal system works (Murphy, 2015).

However, despite overall expansion of the field, more research is needed to comprehensively assess: (a) how perceptions of procedural justice amongst other (non-legal) actors translate to perceptions about legal authorities, namely the police; and (b) the role of indirect experiences in shaping perceptions of police legitimacy. Given this, our study investigates the relationships between procedural justice judgments of legal and extralegal authorities and police normative legitimacy perceptions, while also examining the impact of vicarious experiences on the same outcome. Lastly, we analyze the impact of procedural justice, vicarious experiences and police legitimacy on delinquency. We investigate these

relationships among a youth community sample in Portugal, where evidence on legal socialization remains limited. Thus, this study also contributes to the examination of the cultural sensitivity and contextual applicability of the procedural justice model of legal socialization.

The Procedural Justice Model of Legal Socialization

Legal socialization refers to the process through which individuals develop their understanding of their relationship with the law and legal authorities (Fagan & Tyler, 2005; Tapp & Levine, 1974; Tyler & Trinkner, 2017). Thus, it embraces two core processes: the development of perceptions about legal norms (typically operationalized as legal cynicism) and legal institutions, including beliefs about their legitimacy (institutional legitimacy) (Sampson & Bartusch, 1998; Trinkner & Cohn, 2014; Trinkner & Reisig, 2021). In this way, legal socialization is a "legitimation process", during which individuals form beliefs regarding whether legal institutions and legal norms possess the right to dictate adequate and inadequate behavior and, ultimately, to shape individuals' behavior (Fagan & Tyler, 2005, p. 220; Tapp & Levine, 1974; Trinkner & Reisig, 2021).

Building on prior work theoretically grounded in cognitive developmental approaches (e.g., Cohn & White, 1990; Tapp & Levine, 1974), a significant body of legal socialization research began to incorporate Tyler's (2006, 2009) process-based model of regulation into their studies to examine whether procedural justice judgments could explain individuals' orientations toward the legal system (e.g., Fagan & Tyler, 2005; Piquero et al., 2005; Trinkner & Cohn, 2014). This theoretical shift is notable in contemporary research that focuses on the role of experiences with authorities in shaping people's orientations toward the law through judgments of procedural fairness (Fagan & Tyler, 2005; Trinkner & Cohn, 2014; Trinkner et al., 2020).

Procedural justice theory argues that citizens base their evaluations of legal institutions on the procedures adopted by their representatives (Sunshine & Tyler, 2003; Tyler, 2006) and is built on prior work by Thibaut and Walker (1975). For instance, police officers represent the police institution through their daily actions and interactions with the population. Therefore, perceptions of the police institution tend to result from how someone perceives police officers to conduct themselves daily, both through direct and vicarious experiences. In this sense, the model identifies procedural justice as pivotal in promoting internalization of legal norms and values, such as a moral obligation to obey authority's directives. Procedural justice includes four core elements of treatment and decision-making: (i) opportunities to participate in decision-making; (ii) respectful and dignified treatment, (iii) trustworthy motives that signal concern for people's needs and well-being, and (iv) neutrality in decision-making (Tyler, 2004, 2009; Tyler & Lind, 1992).

Importantly, this model suggests that voluntary compliance can be fostered by relational approaches based on fair treatment, although the relative influence of procedural justice and instrumental considerations (e.g., fear of getting caught) may vary depending on contextual factors, group relations, and individuals' prior experiences with authorities (Sunshine & Tyler, 2003; Tyler, 1997, 2006, 2009; Tyler & Blader, 2003). By strengthening ties with the superordinate group and legal norms (e.g., Bradford, Murphy & Jackson, 2014; Lind & Tyler, 1988), procedural justice promotes the belief that legal authorities have the right to power and that the law has the right to guide people's behavior, thereby promoting normative and cooperative behavior (Sunshine & Tyler, 2003; Tyler, 2006; Tyler & Huo, 2002). Thus, these orientations operate as self-regulatory mechanisms, fostering a felt obligation to obey the law and legal authorities, and promoting proactive behaviors in favor of the collective group by cooperating with legal authorities (Sunshine & Tyler, 2003; Tyler, 2006, 2009). Thus, relational approaches surpass deterrence-based approaches by promoting

self-regulatory behavior without the need of a society to be in possession of large-scale surveillance systems, effective apprehension strategies, and enforcement of punishment for rule-violating individuals (Trinkner & Tyler, 2016).

In their influential study, Fagan and Tyler (2005) tested the procedural justice model of legal socialization across a sample of 215 US children and adolescents aged 10-16, finding that higher procedural justice judgments regarding the police were linked to the belief that legal authorities should be willingly deferred to (institutional legitimacy) and to the internalization of legal norms (reversely, legal cynicism). In turn, institutional legitimacy was negatively associated with delinquency, while legal cynicism was found to positively influence delinquent behavior.

The Importance of Adolescence in Legal Socialization

Experiences during adolescence can be especially pivotal to legal socialization. On the one hand, youths' legal attitudes are still malleable to social experiences (Fagan & Tyler, 2005) and interactions with law enforcement could act as "teachable moments" regarding how representatives of legal institutions tend to conduct themselves and what youth can expect from their relationships with legal authority (Tyler et al., 2014, p. 752). Indeed, police officers often serve as youths' first formal representatives of the legal system, and how they present themselves and interact with youth may shape broader attitudes toward authority and norms (Bradford, Murphy & Jackson, 2014; Trinkner et al., 2018; Tyler et al., 2014). Moreover, because youth are often uncertain about their self-identity and seek social approval and integration within a group, procedurally fair treatment can signal that they are valued members of the superordinate group (Lind & Tyler, 1988; Murphy, 2015).

Having this considered, particular legal socialization patterns during adolescence may emerge. For example, Trinkner and Cohn (2014) reported that perceptions of police legitimacy did not predict youths' rule-violating behavior in their younger cohort, arguing

that "although legitimacy and cynicism were being shaped by procedural justice, they [the participants] were not yet at the point where they would eliminate the direct effect of procedural justice" (Trinkner & Cohn, 2014, p. 608). In this sense, rule violating behavior was not being shaped by legal orientations but rather directly by interpersonal treatment with legal representatives.

Moreover, the age-crime curve has systematically observed peaks of antisocial behavior during adolescence and developmental criminological theories have argued that antisocial behavior during adolescence may present distinct causal mechanisms, compared to criminal behavior during adulthood (Moffitt, 1993; Thornberry, 2005). For example, Moffitt (1993) demonstrated that the peak in the age-crime curve reflected differences in the prevalence of antisocial behavior, considering that more individuals were offending during this time. However, they tended to naturally desist once they entered adulthood and gained social independence and status. Unfortunately, evidence regarding legal socialization variations across the life span is mixed. While some longitudinal research has found that legal orientations tend to be relatively stable across samples of youth offenders (Piquero et al., 2005), others have found that police legitimacy perceptions tend to decrease over time during adolescence (Fagan & Tyler, 2005; Fine et al., 2016; Piccirillo et al., 2021) or that increase as youth progress through adolescence before stabilizing in early adulthood (McLean et al., 2018). Recently, Fine et al. (2020) found that obligation to obey the law exhibited a curvilinear trend, declining during adolescence before increasing into adulthood, paralleling the age-crime curve.

While criminological foundational theories have underscored the centrality of attitudes and morality on predicting behavior (e.g., Hirschi, 1969), some studies have found that the effect of youth's attitudes on delinquency is small or even non-significant (Engels et al., 2004; Megens & Weerman, 2010; Menard & Huizinga, 1994). Other have found that

behavior shapes attitudes more strongly than vice-versa (Rebellon et al., 2014). Thus, an inconsistency between attitudes and behavior can eventually be found during adolescence. This hypothesis is well-established in social psychology studies and is tendentially linked to particularities in the normative and situational environment, which can either reinforce or inhibit the influence of attitudes on behavior (Megens & Weerman, 2010).

Considering youths' developmental particularities, peers may play an important role in this equation. For instance, drawing on the theoretical framework described above, Megens and Weerman (2010) found that almost half of the participants did not act in accordance with their previously measured attitudes on delinquency and that the social norms of their peer group could explain whether they behaved consistently with their own beliefs or not. Laboratory studies have also demonstrated that youth tend to adopt riskier choices when they're being observed by a peer than those completing tasks alone (Gardner & Steinberg, 2005). Indeed, while adolescents tend to perform similarly to adults in cognitive tasks under neutral settings, their cognitive abilities show some deficiencies when performing tasks under affectively charged situations. Moreover, they tend to present deficits in their self-regulatory capacities (self-control) and have greater reward sensitivity, thus precipitating them to sensation-seeking behaviors, like antisocial behavior (Steinberg, 2010). Usually, they tend to commit these antisocial behaviors in companion of their peers in order to acquire social approval and status (Akers, 1977; Haynie & Osgood, 2005; Warr, 2002). However, legal socialization studies integrating peer influences are limited (e.g., Fine et al., 2016) and theoretical incorporating of these processes in the legal socialization models is also limited (Fine et al., 2020; McLean et al., 2018).

Spheres of Authority in Legal Socialization

Despite the centrality of research analyzing the role of legal practices and legal authorities in legal socialization, these orientations are the result of accumulated experiences

throughout childhood and adolescence with legal actors and other representatives of informal social control institutions also governed by rules and hierarchically structured, such as the family and school (Tapp & Levine, 1974; Trinkner & Reisig, 2021). Therefore, legal socialization is a dynamic and multidimensional process which results from a multitude of interactions throughout individuals' life-course, including interactions with legal but also extralegal actors. Given the aim of this paper, we will focus on three types of authorities below: police, parents and teachers.

Socializing Experiences with the Police

A large body of evidence demonstrates that fair treatment during police encounters enhances perceptions of police legitimacy across a great variety of countries such as the United States (Fagan & Tyler, 2005; Ferdik et al., 2014; Gau et al., 2012), the United Kingdom (Bradford, Murphy & Jackson, 2014), Spain (Cores & Fernández-Molina, 2022), Brazil (Piccirillo et al., 2021; Trinkner et al., 2020), and Australia (Hinds, 2007; Mazerolle et al., 2013). In turn, extensive legal socialization research links perceptions of police legitimacy to compliance (e.g., Cores & Fernández-Molina, 2022; Fagan & Tyler, 2005; Kaiser & Reisig, 2019). Indeed, longitudinal research has documented that legitimacy mediates the effects of procedural justice on offending trajectories (Kaiser & Reisig, 2019). Vignette-based designs show similar effects when fairness is experimentally manipulated (Trinkner & Cohn, 2014; Trinkner et al., 2019) and randomized controlled field trials also provide causal evidence that procedurally just policing practices can improve legitimacy and cooperation (Murphy et al., 2014; Sargeant et al., 2016).

It is important to note, however, that some empirical findings suggest contextual variability. For example, Sargeant et al. (2013) found that procedural justice was less effective in promoting trust among minority groups in Australia, while in Ghana and South Africa, police effectiveness appeared more influential than fairness in shaping legitimacy

(Bradford, Huq et al., 2014; Tankebe, 2009). Moreover, Reisig and Lloyd (2009) found a non-significant link between felt obligation to obey the police and willingness to cooperate amongst Jamaican adolescents. The same was found in a study conducted among 683 Slovenian young adults: while trust in the police predicted cooperation, obligation to obey did not (Reisig et al., 2014). These findings raise important questions about the extent to which the model fully generalizes across sociocultural settings, as well as potentially distinct interactions between variables considering the adoption of distinct measures of legitimacy and behavior (e.g., compliance and cooperation) (Nagin & Telep, 2020).

Importantly, legal socialization is most likely not shaped by direct encounters alone. Vicarious experiences - learning about others' interactions with police through peers, family, and community members – may also influence perceptions of fairness and legitimacy (Fine et al., 2016; Rosenbaum et al., 2005). For instance, using longitudinal data from the São Paulo Legal Socialization Study, Oliveira and Jackson (2025) showed that both direct and indirect exposure to police brutality eroded legitimacy beliefs and increased the probability of offending among Brazilian adolescents. Fine et al. (2016) also demonstrated through a longitudinal study that experiencing a peer's arrest for the first time may be particularly detrimental to youth's perceptions of the legal system. Despite these acknowledgments, substantial evidence on the impact of vicarious experiences, especially concerning different types of sources (e.g., family and peers) in legal socialization remains limited.

Socializing Experiences with Parents

Beyond encounters with legal actors, the family is one of the earliest and most influential spheres of legal socialization. Children first learn about rules, norms, and the meaning of authority relationships in domestic contexts (Cohn & White, 1990; Tapp & Kohlberg, 1971). Despite this, research explicitly linking parental practices to legal socialization remains relatively scarce compared to studies of police (for exceptions, see

McLean et al., 2018; Thomas et al., 2018; Trinkner et al., 2012; Wolfe et al., 2017). Studies that explore the impact of parental procedural justice on legitimacy of legal institutions are also scant.

Nevertheless, existing work suggests that when parents resolve conflicts using fair procedures - listening, respecting children's viewpoints, and fostering open communication - youth are more likely to be open to parental socialization and, therefore, to internalize norms and to view the family authority as legitimate (Darling & Steinberg, 1993; Thomas et al., 2018; Trinkner et al., 2012). In this regard, when parents treat children and teenagers as procedurally just, they may also be strengthening links to the superordinate group by signaling that they are valued members of the group and may be acquainting youth to relationships with authority characterized by consensual practices that highlight the children's needs and voices. By contrast, coercive parenting styles, which emphasize compliance through fear or punishment, tend to undermine self-regulation and increase deviance (Fondacaro et al., 1998; Thomas et al., 2018).

Thus, procedurally just parenting practices may induce a moral internalization of values that foster self-regulation and compliance to laws and authorities' directives. For instance, Pickett et al. (2018) argue that individuals generalize expectations of authority treatment from early interactions with close figures of socialization, such as parents, shaping how they later interpret encounters with police. When parents are perceived as procedurally just, children develop schemas that others in authority will also treat them fairly, fostering trust and legitimacy. As Brubacher et al. (2009, p. 163) have stated, "attitudes and values displayed by parents during family conflict resolution may be internalized by the child and carried over into other ecological domains".

Socializing Experiences with Teachers

Schools are yet another key environment for legal socialization, representing the first formal institution where young people are required to follow structured rules and hierarchies (Tapp & Levine, 1974; Theiman, 2015). The potential impact of school disciplinary practices on youth development outside school facilities has been well established, highlighting the well-known "school-to-prison pipeline" (e.g., Jackson et al., 2022). However, the role of teachers for legal development persists as a dimension in need of further empirical development.

Some recent studies investigated the role of teachers' procedural justice on youths' legal socialization and observed that when teachers are perceived as fair and respectful, students are more likely to view them as legitimate (Antrobus et al., 2019; Rodrigues & Medina, 2021; Trinkner & Cohn, 2014). Importantly, and through similar mechanisms as in the parental domain, these perceptions may generalize to the legal system more broadly as indicators of the quality of treatment they will receive by legal authorities (Nivette et al., 2022; Pickett et al., 2018; Tyler & Trinkner, 2017). For instance, Rodrigues and Medina (2021) found that Brazilian early teens (11-13 years old) who found their teachers more procedurally just and legitimate were also more likely to perceive the police similarly. In Portugal, Sanches and Gouveia-Pereira (2010) showed that students' attitudes toward the police and courts partially mediated the relationship between teachers' relational and procedural justice and deviant behavior. Nivette et al. (2022) empirically tested two theoretical mechanisms that could explain these associations and found that when young people felt they were being treated fairly by teachers, they were more likely to distinguish right and wrong behaviors and to exhibit higher self-control, which in turn were associated with more positive perceptions of police legitimacy. Thus, they may be more likely to internalize the values enforced by the legal system and feel a duty to comply with those values and with the authorities that enforce them.

The Current Study

Building on prior research, the present study tests the procedural justice model of legal socialization in a Portuguese context. We focus on the institutional legitimacy component of legal socialization by concentrating on police legitimacy perceptions (Fagan & Tyler, 2005). Notably, research on legal socialization is still mainly conducted in countries such as the US and the UK (for exceptions, see Cores & Fernández-Molina, 2022; Piccirillo et al., 2021; Trinkner et al., 2020). Considering studies in Portugal are particularly limited (see Sanches & Gouveia-Pereira, 2010, for an exception), testing this model in a Portuguese sample will also contribute to testing the generalizability and cultural sensitivity of the procedural justice model of legal socialization. Moreover, Portuguese official statistics have reported a continuous rise in delinquent behavior among youth aged 12–16 since the COVID pandemic (RASI, 2025). These numbers have prompted governmental initiatives such as the creation of the Commission of Integrated Analysis on Juvenile Delinquency and Violent Criminality in 2022, and public discourse on antisocial behavior by deviant juvenile groups has also been steadily rising. This political and social scenery underscores the importance of researching youths' orientations toward the law and legal institutions and how these orientations are constructed.

The study has three primary aims. First, we analyze the relationships between procedural justice judgments of legal and extralegal authorities and police normative legitimacy perceptions. Based on existing evidence, we expect that youth who perceive these authorities as procedurally just will report higher police legitimacy perceptions. Second, we examine the impact of vicarious experiences on the same outcome, and we expect more negative vicarious experiences to be associated with lower perceptions of legitimacy. Lastly, we analyze the impact of procedural justice, vicarious experiences and police legitimacy on delinquency. Here, we expect both police legitimacy and procedural justice across all three

authorities to be negatively associated with delinquency and more negative vicarious experiences to be positively associated with the same outcome.

Therefore, this study contributes to the field in several important ways. By situating the analysis in Portugal, it extends the legal socialization research, offering insights into the cross-cultural generalizability of the procedural justice model in a Southern European setting. It also moves beyond a narrow focus on police-youth interactions by incorporating parents and teachers as additional socializing authorities, thereby recognizing that legal attitudes can be shaped not only in encounters with law enforcement but also in everyday relationships within the family and school. Furthermore, by considering both direct and vicarious experiences with police, the study captures multiple pathways through which adolescents form judgments about authority, assessing the importance of indirect experiences in shaping legal orientations. To account for developmental particularities during the adolescence period, particularly regarding the influence of peers, we also measured the frequency of deviant behavior within participants' peer group.

Method

Sample and Procedure

Due to data sharing restrictions and participant confidentiality agreements, the dataset used in this study cannot be made publicly available. However, the data may be provided by the corresponding author upon request.

This study received approval from the Ethical Board of the Faculty of Law of University of Porto and the National General Board of Education. Data were collected between February and May 2024. Schools were eligible if they included grades 10th through 12th and were willing to participate. To maximize diversity, we sought variation in geographical context (urban/rural), school type (public/private), and educational curriculum

(regular/vocational). Of the 26 schools invited from the Porto and Aveiro regions, four agreed to participate (6.5%).

In each school, the principal appointed a staff member to coordinate logistics with the research team. Six classes were then selected based on availability and subject diversity (e.g., natural and social sciences). Teachers distributed and collected informed consent forms. Written informed consent was required from all participants. Under-aged participants had written consent provided by their parents or legal guardians.

Surveys were administered in classroom settings by a member of the research team. Teachers were usually present but did not have access to students' responses. Before administrating the questionnaire, participants were given instructions on how to complete it and were reminded of confidentiality and anonymity safeguards. Most participants (n = 205) completed the survey online; the remainder (n = 137) used paper-and-pencil questionnaires due to limited computer availability. Participants could skip or return to previous questions, though online responses could not be altered after submission. Paper surveys were sealed in envelopes immediately after completion. The survey took 15–25 minutes, with no time restrictions.

A total of 342 students agreed to participate. Two cases were excluded due to incomplete data, leaving a final sample of 340 students (grades 10 to 12) from three high-schools in Porto and one in Aveiro. While in Portugal secondary education is typically attended by students aged 15 to 18, in this sample ages range from 15 and 21 (M = 16.70, SD = 1.12), with 19 participants older than 18. Most of these older participants were enrolled in vocational programs, which often include young people with non-linear educational trajectories and consequently a higher-than-expected age for their grade level. This age discrepancy may be explained by previous grade retention (associated with academic failure or truancy) in either regular or vocational tracks, or by a delayed transition to vocational

education following prior enrollment in regular education. Additionally, two participants were first-generation immigrants, and their older age may reflect later entry into the Portuguese educational system due to prior interruptions in schooling related to migration and integration challenges. About one third of participants were male (34.0%). A quarter were immigrants (25.3%) and 83.5% reported sufficient or comfortable family income.

Descriptive sample statistics for study variables are presented in Table 1.

[TABLE 1 ABOUT HERE]

Measures

A full description of the items used in each scale is available within the appendix (Table 1A).

Procedural Justice. Perceptions of procedural justice were measured separately for parents, teachers, and police. Scales for teachers and police were adapted from Sunshine and Tyler (2003) and the fifth wave of the European Social Survey (ESS-5), each tapping four dimensions: voice, neutrality, respect/dignity, and trustworthy motives (e.g., "treat young people equally"). Parental procedural justice was measured with items adapted from Thomas et al. (2018), asking how parents would react if the participant had done something wrong (e.g., "they would give me the opportunity to tell my side of the story"). Items were rated on 4-point Likert scales (1 = completely disagree, 4 = completely agree). All items loaded on their intended constructs (all factor loadings > 0.60), and Cronbach's alpha indicated good reliability (Parents: α = .88; Teachers: α = .81; Police: α = .86).

Normative Legitimacy. Conceptualization and operationalization of police legitimacy have been objects of continuous scholarly debate, often being measured with dimensions such as trust, confidence, moral alignment and felt obligation to obey the police. In this study, police legitimacy was measured with four items adapted from Mazerolle et al. (2013) (e.g., "In general, the police are a legitimate authority, and people should obey their

decisions"). Responses were rated on a 4-point Likert scale (1 = strongly disagree; 4 = strongly agree) and averaged, with higher scores indicating higher perceived legitimacy (α = .72).

Considering the nature of these items and following the valuable suggestion of an anonymous reviewer, we labeled this variable "normative legitimacy", drawing on normative felt obligation to obey recent operationalizations, often considered the most direct measure of police legitimacy (Pósch et al., 2021; Reisig et al., 2023; Tyler, 2006, 2009). *Normative legitimacy* of the police reflects the moral value that one has internalized that the police have the right to the claim of power and that the police should be obeyed because it is the right thing to do, rather than out of dull compulsion and instrumental concerns such as fear of consequences of non-obedience (Bottoms & Tankebe, 2012; Pósch et al., 2021; Tyler, 2006). Therefore, we measured the extent to which young people felt a moral duty to obey police directives and orders out of a "truly free consent" (Pósch et al., 2021, p. 566).

Delinquency. Self-reported delinquency was measured by asking participants whether they had engaged in 18 types of offenses (e.g., vandalism, assault, cyber-offenses) in the past year. A variety index was created, ranging from 0 to 18, with higher scores indicating greater engagement in different delinquent behaviors (M = 0.83, SD = 1.53). 40.5% of the sample reported having committed at least one delinquent act in the past year (n = 128). Among these, 52.34% (n = 67) reported having committed only one delinquent act.

This approach is widely used in criminological and legal socialization research to measure self-reported delinquency as a proxy of overall engagement in delinquent behavior (e.g., Fagan & Tyler, 2005; Trinkner & Cohn, 2014; see Trinkner et al., 2012 for a discussion), reflecting the breadth of involvement across different forms of rule-breaking. Variety indices are commonly preferred in the literature due to their ease of construction,

strong psychometric properties, and reduced sensitivity to skewness driven by high-frequency endorsement of minor offenses (Bendixen et al., 2003; Sweeten, 2012).

Variety of Police Contacts. Participants reported any police contact in the previous 12 months, including both assistive (citizen-initiated) (e.g., "I asked the police for information and/or help") and compulsive (police-initiated) (e.g., "The police told me to stop and searched me") encounters, adapted from ESS-5. Given that the aim of the study was not to distinguish between types of police contact (i.e., assistive vs. compulsive), a summated variety index, ranging from 0 to 6, was created (M = 0.73; SD = 1.27). This approach was adopted to maintain model parsimony and reduce the number of estimated parameters. To ensure this aggregation did not influence results, sensitivity analyses were conducted with assistive and compulsive contacts entered separately. Results suggested that the aggregated measure did not mask substantively distinct effects on normative legitimacy, as neither coefficient reached statistical significance (p >.05).

Negative Vicarious Experiences with the Police. To capture indirect experiences, participants were also asked to report how often their family members or peers had negative experiences with police, ranging from "1 = Never" to "4 = Always". This variable was measured with two items, adapted from Dan-Irabor et al. (2023). Family and peer experiences were analyzed separately, as they may influence adolescents' perceptions of police and behavior differently (Family: M = 1.26; SD = 0.55; Peers: M = 1.40; SD = 0.66).

Deviant Group Behavior. Participants rated the frequency with which their peer group engaged in five deviant activities (e.g., "we disturb people"), on a 4-point scale ('1 = Never'; '4 = Always'). These items were adapted from the first version of the second wave of the International Self-Reported Delinquency's study in Portugal (M = 1.19; SD = 0.29). Responses were averaged, with higher scores indicating more frequent deviant behavior within the peer group.

Control Variables. Demographic controls included gender (0 = female, 1 = male) and age. Additionally, immigrant status was determined by asking participants their own and their parents' country of birth (0 = native, 1 = first- or second-generation immigrant). Perceived family income was reported on a 4-point scale ranging from '1 = I consider to be very difficult to live with our current income' to '4 = I live comfortably with our current income' and then dichotomized (0 = Low; 1 = High).

Results

All analyses were conducted using IBM SPSS Statistics v.30 software. Cases with missing data on our latent variables were relatively low, ranging from 0.3% (n = 1; teachers' and police procedural justice) to 1.2% (n = 4; normative legitimacy) of participants with incomplete cells in each variable. Considering the low number of incomplete cells, missing data were substituted with the mean value of the individual's completed items (person-mean imputation) for each latent construct (procedural justice and police legitimacy). This method was only applied when participants had completed at least 75% of the items for that scale. Data were not imputed for variables where reliable estimation was not possible (e.g., deviant group behavior, delinquency and direct contacts with police). Despite the possibility of producing biased estimates of the variances and covariances, this method has been shown to provide good estimates of reliability of measures when the number of persons with missing cells are low (e.g., Bono et al., 2007). To ensure this approach did not influence results, all regression models were re-estimated without participants with incomplete data on our latent variables before imputation. The overall pattern of coefficients and statistical significance were unchanged.

Correlational analyses used Pearson coefficients for two continuous variables and Point-Biserial coefficients when one variable was dichotomous. A full correlation matrix is available within the appendix (Table 2A). Multiple linear ordinary least squares (OLS)

regression was used to predict normative legitimacy. Negative binomial regression was used to predict delinquency, accounting for overdispersion and skew in count data (Cameron & Trivedi, 1998). Collinearity diagnostics were within appropriate limits for all independent variables across both models (tolerance > .64; variance inflation factor: 1.090 - 1.574).

Independent sample *t tests* were conducted to assess differences in study variables by data collection format (paper-and-pencil vs. online). Results are presented within the Appendix (Table 3A for continuous variables; Table 4A for categorical variables). Participants who completed the online survey tended to be older and native, whereas those who completed the paper-and-pencil version were younger, and more likely to be first- or second-generation immigrants. Significant group differences also emerged for perceived procedural justice of teachers and parents, as well as for deviant group behavior. Participants who completed the online version reported higher perceived procedural justice from teachers and parents, and lower deviant group behavior.

To account for these differences, survey administration mode was included as a covariate in all regression models. We note that differences between survey modes may reflect contextual or demographic characteristics of participants, such as school resources or technological access, rather than the mode itself. Nevertheless, including survey administration mode as a covariate ensures that the analyses account for potential confounding effects.

Finally, we conducted a post hoc sensitivity power analysis using G*Power 3.1. With a sample size of $n = 306$ (the effective sample size included in the regression models), $\alpha = .05$ and power = .80, regression models including 12-13 predictors were sufficiently powered to detect minimum effect sizes of $f^2 = 0.058$ and $f^2 = 0.060$, respectively. These correspond to approximately 5-6% explained variance ($R^2 \approx .06$), reflecting small-to-moderate effects. To contextualize this threshold, prior research in this area has typically reported small-to-

moderate bivariate associations between key variables and the outcomes (e.g., pooled *r* values ranging approximately from .14 to .45 [Walters & Bolger, 2019], corresponding to approximately $R^2 \approx .02$ to .20). Importantly, these estimates reflect bivariate effects and therefore likely represented upper-bound estimates of unique contributions in multivariate models with intercorrelated predictors. Taken together, the present sample size was sufficient to detect effects within the range most consistently reported in prior literature, although very small incremental effects may fall below the study's detection threshold. This should be taken into consideration when interpreting our results.

Bivariate Correlations Between Variables (Table 2)

Normative Legitimacy

Normative legitimacy was unrelated to gender or age but was lower among immigrant and lower-income youth. Positive correlations were observed with procedural justice of teachers, parents, and police. Negative vicarious experiences with police (peers and family) were associated with reduced felt obligation to obey. Greater deviant group behavior corresponded to lower obligation to obey the police.

Delinquency

A broader variety of delinquent acts was more likely to be reported by males and immigrant youth. Higher perceived procedural justice across all authorities was associated with lower delinquency. Negative vicarious police experiences through family or peers were correlated with greater delinquency. Participants with more direct police contacts also reported higher delinquency. Deviant group behavior showed the strongest association with delinquency. Finally, lower scores on the normative legitimacy scale were linked to higher delinquency.

[TABLE 2 ABOUT HERE]

Predictors of Normative Legitimacy

Multiple linear OLS regression analyses examined the predictors of normative police legitimacy. Results are presented on Table 3.

[TABLE 3 ABOUT HERE]

First, the model was significant. Police procedural justice was the strongest predictor of normative legitimacy, showing that higher judgments of police procedural justice contribute to shaping perceptions of police legitimacy. This effect was followed by immigrant status and parents' procedural justice, revealing that immigrant youth and participants who found their parents less procedurally just tended to report lower perceptions of police legitimacy. Family income and variety of contacts with the police approached statistical significance.

Predictors of Delinquency

A negative binomial regression model was estimated to analyze the predictors of delinquency. Results are presented in Table 4.

[TABLE 4 ABOUT HERE]

The model was significant and McFadden's pseudo R^2 suggests that it presented a good fit to the data. Deviant group behavior was the strongest predictor, indicating that each unit increase in deviant group behavior tripled the likelihood of engaging in additional delinquent acts. Males were about 2.5 times more likely to report higher delinquency, and greater direct police contacts predicted higher delinquency. In turn, parents' procedural justice predicted lower delinquency. Peers' negative experiences with the police approached statistical significance. Despite the expected direction of the coefficient, normative legitimacy was not significantly associated with delinquency, as the effect did not reach statistical significance ($p > .05$).

Discussion

This study examined the procedural justice model of legal socialization in a Portuguese adolescent sample. While testing the procedural justice model of legal socialization in a context where evidence remains limited, we also expanded the literature by analyzing: (1) how indirect experiences with the police through family members and friends impact perceptions of legitimacy and delinquency; and (2) how judgments of parents' and teachers' procedural justice, additionally to police, shape the same outcomes.

Our findings largely support the central tenets of the model while offering nuanced insights into cross-contextual applicability and the roles of multiple socializing agents. First, consistent with prior work in both procedural justice and legal socialization research across a variety of international settings (e.g., Fagan & Tyler, 2005; Mazerolle et al., 2013; Piccirillo et al., 2021), police procedural justice emerged as the strongest predictor of normative legitimacy, conceptualized as the level of felt obligation to obey the police. This finding corroborates the premise that youths' sentiments of fairness and respect promote the belief that the police have the right to power and to guide people's behavior and activate a corresponding moral obligation to obey authority's directives (Fagan & Tyler, 2005; Sunshine & Tyler, 2003; Tyler, 2006, 2009).

Beyond legal authorities, procedural justice judgments regarding parents positively predicted normative legitimacy, albeit with a smaller effect size than police procedural justice. This finding aligns with broader legal socialization literature emphasizing the formative influence of the family in shaping orientations toward authority (Trinkner et al., 2012; Tyler & Trinkner, 2017). Adolescents who perceive their parents as fair in decision-making may develop generalized expectations about how authority figures operate, which can extend beyond the family to external institutions such as the police (Brubacher et al., 2009; Pickett et al., 2018).

Conversely, procedural justice judgments of teachers were not statistically significant predictors, suggesting that school authorities may have a weaker influence on adolescents' perceptions of police legitimacy, or that their influence is more indirect than parental effects. This contrasts with previous findings from Portugal (Sanches & Gouveia-Pereira, 2010) and Brazil (Rodrigues & Medina, 2021) suggesting that procedural fairness by teachers can shape students' attitudes toward legal authorities. This discrepancy may reflect differences in school environments, student populations, or measurement approaches across studies and thus this finding should be interpreted with caution. Moreover, the association of negative vicarious experiences with police legitimacy was also not statistically significant when controlling for other variables. A similar pattern of results was found in Dan-Irabor et al.'s (2023) study. Importantly, we did not include other sets of potentially important indirect experiences in shaping police legitimacy (e.g., police brutality or experiencing a peers' arrest; Fine et al., 2016; Oliveira & Jackson, 2025), limiting our analyses to the reports of participants about whether their peers or family members had frequent negative encounters with the police. Moreover, vicarious police experiences may be more salient in high-policing contexts, like Brazil (Oliveira & Jackson, 2025; Piccirillo et al., 2021), where police violence exposure is more salient.

Importantly, despite expectations grounded in prior studies (Cores & Fernández-Molina, 2022; Fagan & Tyler, 2005; Kaiser & Reisig, 2019), normative legitimacy was not significantly correlated to self-reported delinquency when controlling for other relevant variables. Instead, delinquent behavior was better predicted by deviant group behavior, followed by male gender, parents' procedural justice and direct police contacts.

Trinkner and Cohn (2014, p. 608) have reported similar findings in their younger cohort, finding that perceptions of police legitimacy were not statistically predictive of rule-violating behavior, and argued that this cohort's behavior could have still been shaped

directly by procedural justice rather than normative orientations. Importantly, parental procedural justice also predicted lower delinquency in our study, providing support for this hypothesis. This pattern is consistent with prior developmental research suggesting that when parents resolve conflicts using fair procedures, they promote children's self-regulation and internalization of norms (Brubacher et al., 2009; Darling & Steinberg, 1993; Thomas et al., 2018). Unlike police encounters, which may be sporadic and context-bound during adolescence, parental authority represents a continuous and proximal influence in young people's lives. As such, procedural fairness may shape behavioral regulation more directly.

We also complement this argument by reflecting on a potential inconsistency between attitudes and behavior documented in prior studies (e.g. Megens & Weerman, 2010). For instance, among participants who reported one or more delinquent acts during the previous year, feelings of obligation to obey the police were still, on average, positive ($M = 3.09$; $SD = 0.49$). Therefore, despite engaging in deviant activities, most youth still reported positive legal orientations. While criminological literature has foundationally underscored the importance of moral foundations and orientations in shaping behavior (e.g., Hirschi, 1969), some research has found small and even non-significant effects of attitudes on delinquency (see Eisner & Nivette, 2013 for a review; Engels et al., 2004; Menard & Huizinga, 1994; Rebellon et al., 2014).

While we are not arguing that morality and normative orientations cannot influence behavior (and thus, that police legitimacy cannot influence delinquency), the translation of attitudes to behavior is better understood in its embedment in a particular context, rather than a contextual vacuum, where social and situational forces may also operate (Cohn & White, 1990). While relational factors are pivotal in procedural justice theory, instrumental motives are also an important dimension in legitimation and behavior (Tankebe, 2009; Tyler, 1997; Tyler & Blader, 2003). For instance, respectful treatment can carry different psychological

meanings depending on the social context in which interactions occur, particularly whether authorities are perceived as ingroup or outgroup actors (Heuer & Stroessner, 2011; Tyler, 1997). In Heuer and Stroessner's (2011) study, disrespectful treatment was interpreted as a message about within group standing when it was issued in an ingroup encounter, but as a message about one's group standing vis-à-vis when issued in an outgroup encounter.

Relatedly, because legitimacy is closely tied to perceptions of group standing, relational cues may carry important identity-based meanings. These effects may be particularly influential in interactions involving ingroup authorities, while instrumental factors can be more important depending on the relationship between individuals, as well as accumulated life experiences with authorities (Trinkner & Tyler, 2016; Tyler, 1997). This aligns with procedural justice theory, which posits that there is an instrumental domain of legitimation and behavior (Tankebe, 2009; Tyler, 1997; Tyler & Blader, 2003).

Further, adolescence is a developmental stage characterized by ongoing identity formation and heightened sensitivity to peer influence (Moffitt, 1993; Murphy, 2015; Steinberg, 2010). As such, identification with broader legal and societal institutions may still be relatively unstable during this period (Murphy, 2015). Consequently, although adolescents may recognize police authority as legitimate at an attitudinal level, these normative orientations may not yet be sufficiently integrated into their developing social identity to consistently regulate behavior across situations (Trinkner & Cohn, 2014). Importantly, these forms of limit testing are common among adolescents and the decisions made throughout this developmental stage shape their legal orientations (Tyler et al., 2014) and their understandings of the boundaries of personal autonomy (Trinkner & Tyler, 2016).

Adolescence is also a period of heightened susceptibility to peer influence and lower self-regulation (Moffitt, 1993; Steinberg, 2010) and youth tend to understand peers' reinforcement as socially relevant in providing social status (Haynie & Osgood, 2005;

Moffitt, 1993; Warr, 2002). Thus, peers may be one of the prominent social forces operating. This may be the reason why some studies have found that adolescents are more likely to behave according to their own normative beliefs when their peers' social norms are also consistent with their beliefs (Megens & Weerman, 2010).

While our deviant group behavior measure does not capture peers' social norms, our results emphasize that, during adolescence, what one does with their peer group is important in understanding delinquency and suggest that it may present a stronger statistical influence on this outcome, compared to perceptions of normative legitimacy. When individuals are involved in groups where deviant behavior is frequent and common, they will likely be associated with peers who positively reinforce delinquent behavior and express support for these deviant activities, making youth believe that this type of behavior will provide them social status and other social rewards (Akers, 1977; Haynie & Osgood, 2005; Warr, 2002).

These findings align with a substantial body of research underscoring the importance of peers in understanding adolescents' behavior. Moffitt (1993) argued that most youth offenders commit delinquency during adolescence as part of a social mimicry process inspired by their peers. Warr (2002) argued that youth delinquency is group-based in nature, and that adolescents tend to commit delinquent behavior in companion with others, rather than alone. In their situational perspective of peer influences, Osgood et al. (1996) argued that delinquency is part of a performance and that peers serve as the appreciative audience for adolescents' deviance. Additionally, they can also encourage and assist in carrying out those acts (Haynie & Osgood, 2005; Osgood et al., 1996). Being around a group of friends that frequently engage in risky behaviors and antisocial acts may thus provide illicit opportunities by supplying an audience that is receptive and accepting of that kind of behavior and may even provide social reinforcement for committing similar behaviors, despite individuals' own orientations (Osgood et al., 1996). Importantly, this finding should not be interpreted as

evidence that legitimacy is unimportant during adolescence, but rather as preliminary evidence that its effects on behavior may be contingent on specific social contexts and developmental factors. Moreover, legitimacy may remain central to long-term legal socialization trajectories (Trinkner & Tyler, 2016), even if the present cross-sectional design captures a developmental stage in which other contextual influences are comparatively more salient.

Importantly, our measure captures participants' *own* behavior *within* the group ("When you go out with your friends, do you usually do any of the following things?"). This raises a potential concern as to what extent do our measures of individual and group behavior represent distinct constructs, rather than individual behavior simply reflecting a redundant indicator of deviant group behavior. Although this limitation should be acknowledged, the magnitude of the correlation between these variables (r = .552) suggests that they are related but not empirically redundant, as they share approximately 30% of their variance, leaving substantial unique variance. Moreover, some degree of association between individual behavior and behavior of the peer group is theoretically expected. Additionally, sensitivity analyses excluding perceived deviant group behavior produced substantively similar findings, indicating that the primary conclusions were not driven by the inclusion of this measure.

Nevertheless, this overlap highlights a clear limitation of the present data and suggests that caution is warranted when interpreting the role of deviant group behavior. This limitation can be addressed in future studies by using social network data (e.g., Haynie & Osgood, 2005), increasingly adopted in peer influence research. For instance, by asking respondents to report on their close group of friends, researchers would be able to connect between peer groups and analyze to what extent peer domains (e.g., social norms and delinquency) may moderate the influence of attitudes on behavior. While the legal system and authority figures are central, most youth contact the justice system only later in life and their experiences are

circumscribed to singular and time-limited contexts. On the other hand, peers form one of (if not the most) important influences for decision-making among adolescents. Thus, exploring peer influences on legal socialization and legal attitudinal development should be an important avenue for legal socialization researchers (Fine et al., 2016).

Additionally, studies have also found evidence that rather than predicting behavior, attitudes are shaped by the behavior adopted by young people (Rebellon et al., 2014), suggesting that behavior precedes attitudes in the sense that non-conformist behavior causes an attitudinal shift that promotes further behavior (e.g., cognitive dissonance theory, Festinger, 1957). Sykes and Matza's (1957) work on neutralization techniques can also provide additional research on how justification techniques, which can relate to obligation to obey the police (e.g., condemnation of the condemner) can follow antisocial behavior. Unfortunately, our cross-sectional design does not allow testing of this hypothesis and proper temporal ordering of these variables.

This study has several limitations that should be acknowledged. First, the study relied on a convenience sample from a small subset of schools, limiting generalizability. Only 6.5% of invited schools participated, which may introduce selection bias. This challenge is not unique to this study and has been noted in other European and international projects, such as the ISRD project (Van der Gaag et al., 2019). Second, the cross-sectional design precludes temporal or causal inferences, particularly regarding the ordering of deviant group behavior, police contact, and delinquency. Third, our variable of deviant group behavior may conflate group behavior with respondents' own behavior, raising the possibility of conceptual overlap with the outcome measure of delinquency. This overlap may have inflated associations and thus these should be interpreted carefully. Fourth, we did not include legal cynicism in our models, a central component of legal socialization, which would have allowed us to compare whether participants' delinquency was influenced more strongly by their views of the law,

rather than of the police (Reisig et al., 2011). Relatedly, our study did not measure cooperation with the police, which could be more strongly associated to legitimacy judgments compared to measures of antisocial behavior (Reisig et al., 2023).

Finally, we did not include ethnicity as a study variable, which may capture cultural norms, experiences of discrimination, and differential police contact that may not be fully reflected by immigrant status alone (Cole et al., 2023; Weitzer, 2010). However, our findings suggested that immigrant youth perceived lower police legitimacy, which is consistent with prior research showing that minority and immigrant populations may face structural barriers and social exclusion that undermine moral alignment and trust in authorities (Bradford, Murphy & Jackson, 2014; Weitzer, 2010). These patterns suggest that legal socialization processes may vary across demographic groups, highlighting the importance of further research to address how structural factors influence the development of legal attitudes and behavior.

Overall, this study contributes to legal socialization research in several important ways. First, it expands legal socialization research to a context where evidence remained limited. Second, it reinforces the central role of police procedural justice in fostering police legitimacy, corroborating various international research on legal socialization. Third, it highlights the broader social mechanisms of legal socialization by demonstrating that parental fairness - not just police behavior - can influence adolescents' legitimacy beliefs. These findings underscore that legal socialization is not solely a product of interactions with legal actors but develops though broader relational experiences across multiple authority domains (Cohn & White, 1990; Tapp & Levine, 1974; Trinkner & Reisig, 2021). Thus, it also lends support to the importance of including the family in youth interventions and of recognizing the importance of consensual parenting practices in forming more positive legal orientations and promoting youths' self-regulation. Fourth, it suggests that attitudes may not always

directly translate to behavior and that peers dynamics can be an important situational mechanism to explore in moderating these relationships. Given that legal socialization is a longitudinal age-graded process (Fagan & Tyler, 2005; Fine et al., 2020; McLean et al., 2018), developmental variations in cognitive and affective functioning, as well as social influences, may play an important role in the attitude-behavior relationship (McLean et al., 2018; Steinberg, 2010). However, empirical evidence on how sources of legal attitudes and behavior change across the life course remains limited (e.g., Fine et al., 2020).

Importantly, we should note that the importance of legitimacy perceptions is not conditional on whether they translate to compliance and/or cooperation. Legitimacy is an end in itself (Nagin & Telep, 2020), feeding into democratic principles of acceptance of the institutions in power, and strengthening adolescents' views of authorities and shaping normative attitudes toward law. Thus, these findings provide important implications for policymakers, educators, and law enforcement agencies seeking to promote positive youth development and governance by consent.

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Tables

Table 1

Sample descriptive statistics

Variables	*N*	*M (SD)*	*Mdn*	*F*	%	Min.-Max.
Dependent variables						
Normative legitimacy (α = .72)	337	3.14 (0.46)	3	-	-	1 – 4
Delinquency	340	0.83 (1.53)	0	-	-	0 – 17
Independent variables						
Age	336	16.70 (1.12)	17	-	-	15 – 21
Male	338	-	-	115	34.0	-
Immigrant	336	-	-	85	25.3	-
High family income	340	-	-	284	83.5	-
Teachers' procedural justice (α = .81)	339	2.95 (0.55)	3	-	-	1 – 4
Parents' procedural justice (α = .88)	338	3.08 (0.66)	3	-	-	1 – 4
Police's procedural justice (α = .86)	340	2.70 (0.61)	2.75	-	-	1 – 4
Variety of police contacts	318	0.73 (1.27)	0	-	-	0 - 6
Family's negative experiences with police	340	1.26 (0.55)	1	-	-	1 – 4
Peers' negative experiences with police	339	1.40 (0.66)	1	-	-	1 - 4
Deviant group behavior	340	1.19 (0.29)	1	-	-	1 - 3

Note: N = Number of subjects; *M(SD)* = Mean(Standard deviation); *Mdn* = Median; *F* = Absolute frequency; % = Percentage; Min-Max = Minimum – Maximum; Dummy variables are labeled by their target categories. Gender: 0 = female, 1 = male; Immigrant status: 0 = native; 1 = first- and second-generation immigrants; Family income: 0 = Low family income; 1 = High family income.

Table 2

Correlations between independent and dependent variables

	Normative legitimacy	**Delinquency**
	Coefficient (*p*)	Coefficient (*p*)
Age	-.018 (.737)	.013 (.818)
Male	.079 (.150)	**.239 (<.001)**
Immigrant	**-.191 (<.001)**	**.138 (.012)**
High family income	**.145 (.008)**	-.069 (.207)
Teachers' procedural justice	**.254 (<.001)**	**-.124 (.022)**
Parents' procedural justice	**.257 (<.001)**	**-.125 (.022)**
Police's procedural justice	**.385 (<.001)**	**-.143 (.008)**
Variety of police contacts	.010 (.858)	**.373 (<.001)**
Family's negative experiences with police	**-.147(.007)**	**.125 (.021)**
Peers' negative experiences with police	**-.157 (.004)**	**.339 (<.001)**
Deviant group behavior	**-.111 (.041)**	**.552 (<.001)**
Normative legitimacy	-	**-.113 (.039)**

Note: Significant values are presented in bold. Dummy variables are labeled by their target categories. Gender: 0 = female, 1 = male; Immigrant status: 0 = native; 1 = first- and second-generation immigrants; Family income: 0 = Low family income; 1 = High family income.

Table 3

Regression model on police legitimacy

	Normative legitimacy			
	B	***SE***	***β***	***p***
(Constant)	1.414	0.466		.003
Paper and pencil administration	0.061	0.052	0.065	.242
Age	0.031	0.022	0.074	.172
Male	-0.003	0.051	-0.003	.951
Native	-0.179	0.057	**-0.170**	**.002**
High family income	0.125	0.067	0.101	.061
Teachers' procedural justice	0.054	0.052	0.064	.298
Parents' procedural justice	0.107	0.039	**0.154**	**.006**
Police's procedural justice	0.215	0.048	**0.280**	**<.001**
Variety of police contacts	0.033	0.019	0.092	.094
Family's negative experiences with police	-0.062	0.047	-0.072	.188
Peers' negative experiences with police	0.010	0.042	0.014	.817
Deviant group behavior	-0.074	0.100	-0.045	.457
R^2	.198			
F-test	7.265***			
p	<.001			

Note: Significant values are presented in bold; *B* = non-standardized beta; *SE* = standard error; *β* = beta; *N* = 306. Dummy variables are labeled by their target categories. Survey administration mode: 0 = Online; 1 = Paper and pencil; Gender: 0 = female, 1 = male; Immigrant status: 0 = native; 1 = first- and second-generation immigrants; Family income: 0 = Low family income; 1 = High family income.

Table 4

Negative binomial regression model on delinquency

	Delinquency			
	B	***SE***	**IRR**	***p***
Intercept	-0.974	1.944		.617
Paper and pencil administration	0.215	0.214	1.240	.315
Age	0.024	0.093	1.024	.797
Male	0.888	0.203	**2.431**	**<.001**
Immigrant	0.131	0.231	1.140	.571
High family income	-0.278	0.268	0.758	.301
Teachers' procedural justice	-0.079	0.214	0.924	.711
Parents' procedural justice	-0.319	0.162	**0.727**	**.049**
Police's procedural justice	0.100	0.206	1.105	.628
Deviant group behavior	1.110	0.358	**3.034**	**.002**
Variety of police contacts	0.211	0.073	**1.235**	**.003**
Family's negative experiences with police	0.038	0.191	1.039	.842
Peers' negative experiences with police	0.262	0.144	1.300	.068
Normative legitimacy	-0.344	0.235	0.709	.144
AIC		676.179		
BIC		728.309		
McFadden's pseudo R^2		.245		
		$\chi^2(13) = 115.350, p < .001$		

Note: Significant values are presented in bold; *B* = unstandardized regression coefficient; *SE* = standard error; IRR = incidence rate ratio; AIC = Akaike Information Criteria; BIC = Bayesian Information Criterion; *N* = 306. Dummy variables are labeled by their target categories. Survey administration mode: 0 = Online; 1 = Paper and pencil; Gender: 0 = female, 1 = male; Immigrant status: 0 = native; 1 = first- and second-generation immigrants; Family income: 0 = Low family income; 1 = High family income.

Appendix A.

Table 1A

Item description for each scale

	Response options
Normative legitimacy *("On what level do you agree or disagree with the following statements?")*	
In general, the police are a legitimate authority, and people should obey their decisions.	1 = Completely disagree; 4 = Completely agree
In general, there is no justification to disobey the police.	
I feel a moral obligation to obey the police.	
In general, I obey the police willingly.	
Delinquency (*"Have you ever done any of the following? If so, how many times in the last year?"*)	
Deliberately damaged or destroyed something that did not belong to you	Yes / No
Took something from a commercial establishment (shop/supermarket) without paying	
Received, bought, or sold something you knew had been stolen	
Drove a car, motorcycle, or moped without having a driving license (do not include driving lessons)	
Stole a part or accessory from a car, or something inside it	
Entered a building with the intention of stealing something	
Stole a motorcycle or moped	
Sold drugs or act as an intermediary in the sale of drugs	
Carried a weapon, for example a club/stick, knife, or other weapons	
Took part in a group fight, at school, in a sports stadium, on the street, or in a public space	
Deliberately hit, kicked, or punched someone	
Threatened to hit someone with a weapon in order to obtain money or something else	

Intentionally injured or hurt someone with a stick, knife or other weapon	
Took money or something else worth more than 5 euros belonging to another person without them noticing at the time	
Shared an intimate photo or video online of someone who did not want others to see it	
Sent offensive messages or comments on social media about someone's ethnicity or nationality, religion, gender identity, sexual orientation, or for another similar reason	
Used the internet, email, or other social networks to deceive others	
Hacked into a computer or private account to obtain or destroy data or to control the account	
Teachers' procedural justice ("*Considering your teachers, indicate whether you agree or disagree with the following statements…")*	
They treat students with respect and courtesy	1 = Completely
They treat all students equally	disagree; 4 =
They genuinely try to help students	Completely agree
They allow students to express their points of view and explain their situation before making decisions	
Parents' procedural justice (*"Imagine that your parents thought you had done something wrong. How do you think they would react?"*)	
They would give me the opportunity to tell my side of the story	1 = Completely
They would explain why they were reprimanding me	disagree; 4 =
They would listen to all sides of the story before making a decision	Completely agree
They would speak to me in a polite and respectful manner	
Police's procedural justice *("In general, on what level do you agree or disagree with the following statements regarding the police?...")*	
They treat young people with respect and courtesy	1 = Completely
They allow young people to express their points of view and explain the situation before making decisions	disagree; 4 = Completely agree
They genuinely try to help young people	

They treat everyone equally	
Variety of police contacts *("In the last twelve months, have you had contact with a police officer in any of the following situations?...")*	
I asked the police officer for help	
I contacted the police to report an incident/crime	No/Yes
I contacted the police because I was a victim of a crime	
The police officer asked me for information	
The police officer warned me about my behavior	
The police officers stopped and searched me	
Deviant group behavior *("When you go out with your friends, do you usually do any of the following things?...")*	
We drink a lot of beer and other alcoholic beverages	
We use drugs	1 = Never; 4 =
We cause disturbances	Always
We destroy/damage things (buildings, containers, etc.)	
We take things from shops without paying	
We bother or frighten people	
Family's negative experiences with police	1 = Never; 4 =
How frequently does someone from your family have bad experiences with the police?	Always
Peers' negative experiences with police	1 = Never; 4 =
How frequently does one of your friends have bad experiences with the police?	Always

Table 2A

Correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Normative legitimacy	***1***												
2. Delinquency	**-.113 (.039)**	***1***											
3. Male	.079 (.150)	**.239 (<.001)**	***1***										
4. Age	-.018 (.737)	.013 (.818)	-.048 (.380)	***1***									
5. High family income	**.145 (.008)**	-.069 (.207)	**.135 (.013)**	**-.132 (.016)**	***1***								
6. Immigrant	**-.191 (<.001)**	**.138 (.012)**	-.021 (.706)	**.191 (<.001)**	-.094 (.085)	***1***							
7. Teachers' procedural justice	**.254 (<.001)**	**-.124 (.022)**	-.016 (.773)	.040 (.470)	.091 (.094)	-.008 (.878)	***1***						
8. Parents' procedural justice	**.257 (<.001)**	**-.125 (.022)**	**.116 (.033)**	-.032 (.565)	.083 (.127)	-.054 (.325)	**.302 (<.001)**	***1***					
9. Deviant group behavior	**-.111 (.041)**	**.552 (<.001)**	**.185 (<.001)**	.027 (.617)	.032 (.555)	.096 (.080)	**-.292 (<.001)**	**-.116 (.032)**	***1***				
10. Police's procedural justice	**.385 (<.001)**	**-.143 (.008)**	**.148 (.006)**	**-.114 (.037)**	**.205 (<.001)**	-.090 (.100)	**.430 (<.001)**	**.229 (<.001)**	**-.192 (<.001)**	***1***			
11. Variety of police contacts	.010 (.858)	**.373 (<.001)**	-.003 (.964)	-.006 (.908)	-.107 (.057)	.067 (.234)	-.097 (.086)	-.087 (.121)	**.263 (<.001)**	-.056 (.316)	***1***		

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
12. Family's negative experiences with police	**-.147 (.007)**	**.125 (.021)**	.028 (.604)	.025 (.643)	-.075 (.168)	**.118 (.030)**	-.101 (.062)	-.074 (.174)	**.198 (<.001)**	**-.162 (.003)**	.078 (.164)	***1***	
13. Peers' negative experiences with police	**-.157 (.004)**	**.339 (<.001)**	.061 (.262)	**.105 (.054)**	-.080 (.141)	**.121 (.027)**	**-.309 (<.001)**	**-.130 (.017)**	**.456 (<.001)**	**-.313 (<.001)**	**.232 (<.001)**	**.328 (<.001)**	***1***

Note: Significant values are presented in bold. *P-values* are presented in parenthesis. Dummy variables are labeled by their target categories. Gender: 0 = female, 1 = male;

Immigrant status: 0 = native; 1 = first- and second-generation immigrants; Family income: 0 = Low family income; 1 = High family income.

Table 3A

Mean differences between groups based on format of instrument administration (continuous variables)

	Online (n = 203)	**Paper and pencil** (n = 137)	***t***	***p***
	M* ± *SD	***M* ± *SD***		
Age	16.83 ± 1.19	16.50 ± 0.98	**2.65**	**.008**
Normative legitimacy	3.16 ± 0.49	3.11 ± 0.41	1.06	.291
Variety of delinquency	0.77 ± 1.69	0.93 ± 1.25	-0.97	.331
Teachers' procedural justice	3.00 ± 0.54	2.85 ± 0.56	**2.56**	**.011**
Parents' procedural justice	3.15 ± 0.65	2.99 ± 0.66	**2.13**	**.034**
Police's procedural justice	2.73 ± 0.62	2.67 ± 0.59	0.82	.414
Direct contacts with police	0.81 ± 1.39	0.59 ± 1.02	1.66	.098
Family's negative experiences with police	1.24 ± 0.52	1.31 ± 0.59	-1.13	.260
Peers' negative experiences with police	1.35 ± 0.65	1.47 ± 0.69	-1.745	.082
Deviant group behavior	1.14 ± 0.24	1.25 ± 0.34	**-3.199**	**.002**

Note: *M* = Mean; *SD* = Standard deviation; *t* = result of the *t-student* test; Significant values are presented in bold.

Table 4A

Mean differences between groups based on format of instrument administration (categorical variables)

		Online		**Paper and pencil**		**Total**		**χ^2**
		n	**%**	***n***	**%**	***n***	**%**	
Gender	Female	138	40.5	85	25.1	223	66	χ^2 (1) = 0.91, p = .340
	Male	65	19.2	50	14.8	115	34	
	Total	203	60.1	135	39.9	338	100	
Immigrant status	Native	164	48.8	87	25.9	251	74.7	**χ^2 (1) = 15.35, p <.001**
	Immigrant	35	10.4	50	14.9	85	25.3	
	Total	199	59.2	137	40.8	336	100	
Family income	Low	34	10	22	6.5	56	16.5	χ^2 (1) = 0.03, p = .866
	High	169	49.7	115	33.8	284	83.5	
	Total	203	59.7	137	40.3	340	100	

Note: n = Number of subjects; % = percentage; χ^2 = chi-square test result; Significant values are presented in bold.