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Intergenerational continuity of crime among children of organized crime offenders in the Netherlands

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Children resemble their parents in many different ways. Research confirms that a wide range of characteristics and behaviors are continued across generations, such as socioeconomic status (e.g. [18]), educational attainment (e.g. [16]), and parenting behavior [1]. This continuity is also observed for criminal behavior: studies show a substantial correlation between criminal behavior of parents and their children (e.g. [6, 13, 19, 32, 35, 38]).

Besemer and colleagues [3] recently conducted a meta-analysis on intergenerational continuity of offending. Besemer included and combined 23 independent samples containing crime data on multiple generations and showed that on average, children of offenders have a 2.4 times higher risk of offending, compared to children with non-criminal parents. As this overview of studies also clearly shows, most research on intergenerational continuity of offending makes use of samples of 'petty crime' or 'general' offenders, while there is relatively little attention for intergenerational continuity among children of organized crime offenders.[1] Given the highly specific characteristics to organized crime and its perpetrators, such as the persistence of the offenders, the seriousness of the offenses, their often violent character, as well as the involvement of a broader social (familial) network (e.g. [24, 25]) there is an urgent need to study intergenerational continuity of crime among children of these offenders.

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[1] Organized crime comprises criminal groups engaging in e.g. drug trafficking, human smuggling, human trafficking, firearms trading, trafficking stolen vehicles, organized fraud, and money laundering. The defining characteristics of organized crime groups are their profit-driven nature and the seriousness of the offenses they commit.

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Previous explorative research shows that children of organized crime offenders seem to grow up in very different environments than children of 'general' offenders, for example: because of the availability of weapons; the 'closed' family systems; the use of drugs; and the potential exposure to aggression, violence and contract killings [9]. Therefore, current interventions to prevent these children from intergenerational continuity of crime might not be effective when based on knowledge of 'general' offenders. The results of a case study on 25 Amsterdam-based organized crime offenders: 81 percent of sons and 48 percent of daughters had a criminal record [9] are worrying, but we do not know whether these results are generalizable to a national level. Therefore, the present study aims to address intergenerational continuity of criminal behavior among a national sample of children of organized crime offenders. To our knowledge, this is the first large scale national research project considering intergenerational continuity of crime in this particular group. First, we will explore offspring's engagement in criminal behavior, as well as to what extent their involvement in crime is dependent on factors such as age, gender, and the timing and frequency of parental crime. Second, we will examine the relative risk of criminal involvement, by comparing children of organized crime offenders to a comparison group of children in the general population.

Previous research on intergenerational continuity of crime

Over the last decades, there has been an increased and renewed interest in intergenerational continuity of criminal behavior. A potential reason for this increased attention is the availability of intergenerational datasets [3]. One of the most prominent intergenerational studies is the *Cambridge Study in Delinquent Development* (CSDD). The study follows 411 boys who were born in London in 1953, and their families, by means of interviews and official record data. Intergenerational results stemming from CSDD data show that boys with convicted parents have a 2.50 to 2.97 times higher odds of conviction, compared to boys with non-convicted parents (e.g. [2, 13]). The most relevant studies in the Netherlands are the *Criminal Career and Lifecourse Study* (CCLS) and the *Transfive* study. The CCLS is a longitudinal study into the development of criminal behavior, using criminal record data of a group of over 5,000 individuals (and their families) who were convicted in 1977. Publications on this dataset show that children of convicted parents have a 3.14 times higher odds of a criminal record compared to children of non-convicted parents (e.g. [31, 32]). The *Transfive* study is unique, as it captures criminal record data of five successive generations (e.g. [6, 38]): 198 (high-risk) boys who lived in a Catholic reform school between 1911 and 1914, their 367 parents, 621 children, 1,315 grandchildren and 1,982 great-grandchildren. It was found that between all five generations crime is transmitted from parents to children: children with a criminal parent have a 1.52 to 1.90 times higher odds of becoming a criminal in comparison to children who do not have a criminal parent. In contrast to the CCLS and the *Transfive* study, which both use judicial documentation to study intergenerational continuity among a selected high-risk sample, Besjes and Van Gaalen [5] performed a population-based study on police registration data (HKS), which contains

a selection of police detection system variables that detect all *suspects* against whom a criminal report has been made. The authors studied 939,600 young adults and their parents living in the Netherlands in 2005. It turned out that children of crime suspects have a 2.88 times higher odds of becoming a suspect of crime compared to children of non-crime suspects [5].

Although these and other intergenerational studies are relatively consistent in showing that children of offenders are at increased risk of offending themselves, the strength of the association seems to be dependent on specific characteristics of parents and children, as well as on offending characteristics (e.g. gender of parents and children, timing and frequency of parental offending, and offense types).

With regard to the gender of parents and children, existing multigenerational studies show that intergenerational continuity of crime is strongest from mothers to daughters, followed by mothers to sons, fathers to daughters, and fathers to sons [3]. A possible explanation for the higher risk of continuity from mothers to children is that criminal behavior is less common for women, which may imply that women engaging in such behavior might be more deviant. Another explanation could be that mothers are more often the main caretakers of their children and, therefore, maternal incarceration following conviction would be significantly more disruptive for children than paternal incarceration.

Some multigenerational studies also paid attention to different dimensions of the parent's criminal career and examined how timing and frequency of parental crime affected offspring offending. Research shows that with increasing numbers of parental crimes, the risk of intergenerational continuity of crime in the next generation(s) increases consistently (e.g. [32, 38]). With regard to the timing of offenses over the life-course, several studies have shown that parental crime and violence before the birth of the child does not lead to an increased risk of offspring offending, while parental crime after the child's birth does (e.g. [6, 32, 37]). These results seem to suggest that *exposure* to violence or criminal behavior plays an important role in the intergenerational transmission of criminal behavior. In addition, Van de Rakt and colleagues [32] found, based on CCLS data, that the risk of intergenerational continuity is highest among children of which their father still commits crime after their 18th birthday.

Although results are mixed, continuity from parents to children may also be dependent on the types of offenses committed by parents. For example, Van de Rakt and colleagues [32] found in the CCLS study that the number of violent crimes committed by the father is not significantly related to offspring violence. However, they did find a noteworthy intergenerational relationship for property crimes [32]. In contrast, Farrington and colleagues [12] found, in the CSDD data, a significant relationship for both violence and serious theft committed by parents and children. This is in line with research by Van de Weijer and colleagues [37] who concluded, based on *Transfive* data, that intergenerational continuity is stronger for violent than nonviolent offending.

Finally, a Swedish population-based study of Kendler and colleagues [21], exploring intergenerational continuity both within and across subtypes of criminal behavior (violent, property, and white-collar crime), showed significant hazard ratios for all the within and across subtypes of criminal behavior. The results imply that

the continuity of criminal behavior is not specific to individual criminal subtypes. However, the results for violent behavior were consistently higher within-subtype versus cross-subtype parent–offspring continuity. As potential explanations, scholars mention that the interplay between genetic and social learning mechanisms may be stronger for aggressive and violent behavior than for other types of offending [21].

Characteristics of organized crime and its perpetrators

Large multigenerational datasets previously used to study intergenerational continuity of criminal behavior, are mostly based on 'general' offenders and do not include more serious offenders, such as organized crime offenders and their children. However, organized crime is expected to be substantively different from 'general' crime in various ways [24].

First, unlike general (and more individual) criminal behavior, organized crime relies on social networks. Social networks may provide access to suppliers, co-offenders, and profitable criminal opportunities. Consequently, children of organized crime offenders may grow up in a social network environment that provides easy access into the world of organized crime. This network can also influence and encourage children into abnormal patterns of criminal behavior, as was found in an Irish study on the influence of criminal networks on children's offending behavior [8]. Second, organized crime often involves more structured planning, preparation, and coordination of criminal activities. This also implies that organized crime is typically a long-term process, which often requires months of preparation time and multiple activities that are scattered temporally as well as geographically, making coordination necessary. Third, the transnational character of many organized crime activities – and networks—is unique [24]. This feature makes finding suitable co-offenders and cooperation even more complex, and logistic procedures even more difficult (see, for a review, [22]). Fourth, many scholars point at the use of violence, but this is a contested issue since others deny the necessity of violence as part of the definition of organized crime, and claim that the use of violence is overstated. Nevertheless, many authors view the use of (threats of) violence as a critical aspect of organized crime (e.g. [14, 15, 27]). Empirically, it is also hard to deny the prevalence of threats and the actual use of violence in organized crime cases [26].

In sum, there are certain highly specific characteristics to organized crime and its perpetrators. The seriousness of the offenses, their potentially violent character, as well as the involvement of a broader social (familial) network may all indicate that children of these offenders are at high risk of intergenerational continuity of crime. After all, in previous studies the association between parent and offspring criminality was shown to be higher for more violent crimes (e.g. [12, 37]).

In addition, we argue that organized crime may be more "visible" in the sense that children may be more exposed to parental criminal behavior, since offenders engaging in organized crime at a particular moment in their lives are more often persistent offenders with more serious criminal history, compared to general offenders [25]. The Dutch Organized Crime Monitor shows that organized crime is usually committed by older adults: 34 percent of the offenders of organized

crime in the Netherlands are older than 30 when they are arrested for the first time [24]. This is in contrast with criminological research regarding the age of general offenders, which peaks at about age 17 and drops fast in young adulthood [28].

Furthermore, descriptive research suggests that children of organized crime offenders seem to grow up in very different, problematic environments e.g. 'closed' family systems, where money, drugs, and weapons are available and where the use of aggression and violence is common [9]. There are some small-scale qualitative studies available that seem to suggest that children of organized crime offenders may be at high risk of criminal involvement [9, 17, 29, 34]. For example, Moors and Spapens [29] studied seven criminal families in the south of the Netherlands and found that very few family members seemed able to escape the continuity of crime. Van Dijk and colleagues (2018) found similar results in their case study on 25 Amsterdam-based organized crime offenders. Solid evidence, based on large-scale studies, is however lacking and urgently required to examine the extent of intergenerational continuity of crime among children of organized crime offenders on a national level.

Current study

The current study aims to improve empirical knowledge by specifically exploring the extent of intergenerational continuity of crime among children of organized crime offenders. The main research questions addressed in this paper are:

1. How many children of organized crime offenders have a criminal record?
2. To what extent is their criminal involvement dependent on age, gender, timing and frequency of parental crime, and types of offenses parents commit?
3. What is the relative risk of engagement in crime among children of organized crime offenders, compared to children in the general population?

First, we explore the criminal behavior of a national sample of children of convicted organized crime offenders in the Netherlands by describing how many of them are registered for criminal offenses, and to what extent their engagement in criminal behavior seems dependent on factors such as age, gender, timing and frequency of parental crime, and types of offenses parents commit. Second, we examine the relative risk of criminal behavior for children of organized crime offenders, by comparing them to a comparison group of children from the general population (with parents of the same gender, age and ethnic background as the organized crime offender population). Based on the existing literature, we expect that children of organized crime offenders are at much greater risk of engaging in criminal behavior compared to children in the general population, because of the high levels of violence in organized crime, the criminal persistence of organized crime offenders, and the problematic socialization environments these children seem to grow up in.

Data and methods

Sample and data sources

The National Organized Crime Squad of the Dutch Police provided us with a database of all reported suspects of organized crime, investigated in the period 2008–2014. The National Organized Crime Squad of the Dutch Police carries out investigations into serious, organized crime with a national or international character.

First, all individuals of 36 years or older[2] who had been sentenced by a court were selected from this database. These individuals had been convicted of the production and/or trafficking of hard-drugs (69%), soft-drugs/cannabis (4%), firearms (9%), and money laundering (19%). Next, we identified all their children (> 16 years old)[3] in the Dutch population register. This resulted in a national sample of 1,198 individuals; 478 convicted suspects of organized crime (of which 345 were parents of children of 16 years or older) and 720 children older than 16 years. In the next phase, we requested and obtained judicial documentation (JD-data) from the Research and Documentation Centre of the Dutch Ministry of Justice and Security of all convicted suspects and – if applicable—also their children. The JD-data incorporate complete criminal records, with detailed information on the total number, types, seriousness, and timing of crimes a person is registered for in the judicial documentation, and the imposed sanctions. A case is registered in JD when it is sent to the prosecutor's office. As a consequence, JD not only contains information on convictions but also on ongoing cases. Therefore, when we use terms like 'criminal record' or 'committed a crime', we mean that someone is registered in this judicial documentation for one or more offenses/criminal acts.

In order to examine whether children of organized crime offenders are at higher risk of engaging in criminal behavior, compared to children in the general population, we additionally selected a comparison group from the entire population in the Netherlands, based on an anonymized population register file provided through Statistics Netherlands. By means of case control matching, each organized crime offender was randomly matched to a person with exactly the same year of birth, gender, and ethnic background.[4] For example, a Dutch male organized crime offender

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[2] We opted for 36 years because younger suspects were less likely to have children in our age range.

[3] In the Netherlands, official criminal records start at age 12. Although they are minors, adolescents of 16 and 17 years old, in specific (serious) cases, can also be prosecuted by the criminal justice system for adults in the Netherlands.

[4] The standard ethnic background variable of Statistics Netherlands was used. This variable is defined as: the country a person is connected to, based on the country of birth of his/her parents or themselves. An additional explanation would be: Individuals of which both parents are born in the Netherlands have a Dutch background. For a person with a so called 'first generation' migration background (i.e. not born in the Netherlands with at least one parent born abroad) his/her country of birth is used as ethnic background. The background of people with a 'second generation' migration background (born in the Netherlands with at least one parent born abroad) is determined by the country of birth of their mother, unless this is the Netherlands. In that case their ethnic background is based on/ coded as the country of birth of their father.": https://www.cbs.nl/nl-nl/onze-diensten/maatwerk-en-microdata/microdata-zelf-onderzoek-doen/microdatabestanden/gbapersoontab-persoonskenmerken-van-personen-in-de-brp

of 40 years old was matched with a randomly selected Dutch man of 40 years old. After the (case control) matching, we identified all children (> 16 years old) of the selected comparison group and incorporated them in the sample. This resulted in a comparison group of 478 people (305 of them are parents with children > 16 years old) and a total number of 610 children. Our initial plan was to also incorporate and analyze the more elaborate JD-data of the comparison group and their children. However, combining these datasets was not allowed, due to strict privacy regulations of Statistics Netherlands. Alternatively, we decided to use police registration data (HKS), which is part of the microdata sets of Statistics Netherlands, to compare the risk of criminal involvement for children of organized crime offenders to children in the general population. The police registration data contain information on the (number and types of) crimes a person is suspected of in the period 1996 – 2014,[5] in contrast to the judicial data which comprise complete criminal records. A flow chart of the study is presented in Fig. 1.

Table 1 shows the background characteristics of the total sample of included parents and children. The 478 organized crime offenders were, on average, registered for 13.1 crimes in the judicial data and 4.7 crimes in the available police data (1996–2014). In total, they had 720 children (i.e. older than 16 years were taken into account here) that were on average 29.4 years old and 44.3 percent of the children had a criminal record, whereas 32.1 percent had a police registration in the period 1996–2014. Regarding the comparison group and their children (for which only the police data was available), the table shows that roughly one fifth of the people in the comparison group had a police registration (22%) and 12.5 percent of their children was registered for one or more crimes.

Measurements

Background information. Background information for each sample member was obtained through Statistics Netherlands. These data included date of birth, ethnic background, and gender.

Offending and criminal career information. In the description of children of organized crime offenders' engagement in criminal behavior, information on offending was obtained from Judicial Documentation (JD). Children's involvement in *criminal behavior*, was measured by whether or not they were registered in JD. In addition, we also studied children's involvement in *serious crime*, defined as crimes with a punishment threat over eight years of detention. Furthermore, we explored the *starting age* of parents and children, which was defined as the age at first registration in the judicial data. *Parental crime* was defined as the number of cases a parent has on his/her criminal record. *Timing* of parental crime was defined as the age of the child when the parent was last registered for a crime. Finally, we explored *offense specific*

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[5] It is possible that organized crime cases do not appear in general police registration statistics. This can potentially be explained by the fact that these specific cases are registered in different information management systems, as they often are the result of long-term or shielded investigation operations.
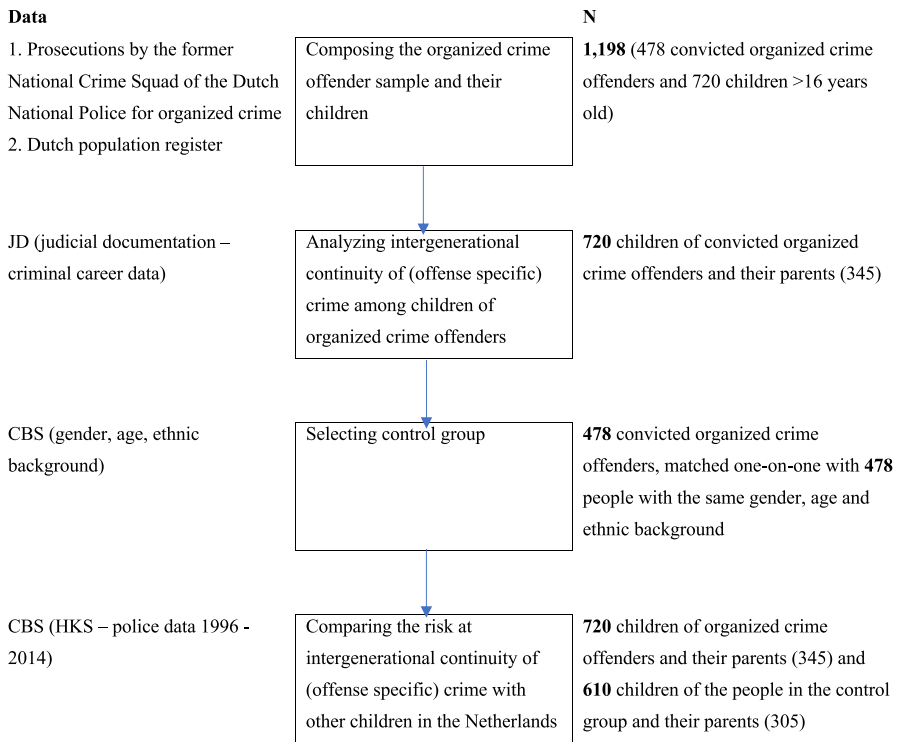
Data		N
1. Prosecutions by the former National Crime Squad of the Dutch National Police for organized crime	Composing the organized crime offender sample and their children	**1,198** (478 convicted organized crime offenders and 720 children >16 years old)
2. Dutch population register		
JD (judicial documentation – criminal career data)	Analyzing intergenerational continuity of (offense specific) crime among children of organized crime offenders	**720** children of convicted organized crime offenders and their parents (345)
CBS (gender, age, ethnic background)	Selecting control group	**478** convicted organized crime offenders, matched one-on-one with **478** people with the same gender, age and ethnic background
CBS (HKS – police data 1996 - 2014)	Comparing the risk at intergenerational continuity of (offense specific) crime with other children in the Netherlands	**720** children of organized crime offenders and their parents (345) and **610** children of the people in the control group and their parents (305)

Fig. 1 Flow chart of data collection and inclusion

continuity, which was defined as the child's involvement in the same type of crime as his/her parent. This was studied for violent, property, and drug-related crimes. Judicial Documentation classifies types of crimes based on the Statistics Netherlands standard classification for offenses [10]. Violent crimes include crimes against life, assault, physical injury, threat, and violent property offenses (robbery and extortion). Property offenses include all non-violent property crimes, from minor and serious theft to fraud, money laundering, and embezzlement. Drug-related crimes include all offenses against the Netherlands Opium Act, which defines drug trafficking, cultivation, production and dealing in and possession[6] of drugs as criminal acts. As most offenders are versatile and have multiple types of offenses on their criminal record, the three categories were not mutually exclusive. For example, when a parent had both drug- and violent offenses, such a parent and his or her children were included in both the drug-related transmission analysis and the violent analysis.

The analysis of the relative risk of criminal involvement for children of organized crime offenders compared to children in the general population (of which 22 percent had a parent that also turned out to be a police suspect), was based on police data.

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[6] It is important to note that drug use is not defined as an offense in the Netherlands. Also the possession of small amounts of drugs is to a certain extent tolerated [30]. As a consequence, the offense category, drugs, is to a large extent compiled of production, trade, and trafficking of drugs.

Table 1 Characteristics organized crime population and comparison group

	Organized crime population	Comparison group
Parents		
Total	478	478
% female	10.9%	10.9%
% Dutch	48.3%	48.3%
Average age in 2018 (in years)	55	55
% with a criminal record (JD-data)	100%	*Not available*
Average number of crimes in JD-data	13.1	*Not available*
% with a police registration 1996–2014	80.3%	22.0%
Average number of crimes in police data (1996–2014)	4.7	1.3
% sample members with children > 16 years old	72.2%	63.8%
Children		
Total > 16 years old	720	610
% female	50.8%	49.2%
% Dutch	45.6%	55.4%
Average age in 2018 (in years)	29.4	29.0
% with a criminal record (JD-data)	44.3%	*Not available*
% with a police registration 1996–2014	32.1%	12.5%

Offspring crime was defined as 'child has a police registration' and *parental crime* was defined as the number of crimes a parent was registered for in the police data (1996–2014). Both the relative risk of offending in general and of particular types of offenses were studied. Police data use the same classification of types of crime as Judicial Documentation.

Data analysis strategy

The data analysis was divided into two parts. First, the judicial data of the offender population and their children were analyzed, to study how many children of organized crime offenders have a criminal record (research question 1) and to what extent their engagement in crime is dependent on age, gender, timing and frequency of parental crime, and types of offenses parents commit (research question 2). Descriptive statistics and bivariate analyses were used to explore offspring's engagement in criminal behavior and factors that might influence their engagement in crime. In addition, logistic regression models were computed to study the offspring offending effect of the number of crimes a parent commits, and to what extent the types of offenses parents commit are related to the types of crimes committed by children.

The available police data were then used to study the relative risk of involvement in crime, equated to children in the comparison group (research question 3). The relative risk of engagement in crime in general, as well as in certain subtypes of crimes were analyzed by means of logistic regression analyses. As a result of the use of police data in the comparison (which is only available for the years 1996–2014), not all convicted organized crime offenders in our sample had a police registration (80%). This was controlled for by adding a dummy variable on parental conviction for organized crime (yes or no) in the regression models. To be able to examine whether there is an extra effect of having an organized crime offender as parent, *on top of* the number of crimes a parent is registered for, all parents of the comparison group who were registered for one or more crimes (22%) were also incorporated in the analyses. In the logistic regression models regarding the risk of intergenerational continuity of crime in general, the number of crimes a parent is registered for in the police data and whether a parent is convicted of organized crime were used as predictor variables and offspring criminal behavior as outcome variable, defined by having a police registration (yes/no). Regarding the risk of violent, property, and drug-related crimes, the number of the particular subtype of crime a parent is registered for and whether a parent is convicted of organized crime, were used as predictor variables. In all the analyses based on police data, we controlled for gender and age of the child, which is important because the ages between the children differ, so the probability of offending also differs. To clarify, an adolescent child (16–18 years old) has had a much shorter time span in which crimes could have been committed (and could have been caught) than an adult 'child' of 30 years old. Age was included as a continuous variable. With regard to the risk of specific subtypes of crimes, we also controlled for the number of other crimes a parent is registered for. Finally, robust standard errors were estimated in order to correct for clustering of observations within families.

Results

Offspring engagement in criminal behavior

Results showed that almost half of the children of organized crime offenders had a criminal record themselves (44%), as is presented in Table 1. However, descriptive statistics showed that this was almost twice as high for sons (59.3%), compared to daughters (29.8%). This difference was found to be significant ($OR = 0.29$, $p < 0.01$). On top of that, sons did commit significantly more crimes, were more often convicted of serious crimes (carrying a potential penalty of eight years of detention), and more often faced a prison sentence (see Table 2). Furthermore, sons were found to be younger when registered for their first crime in the judicial data (18.3), compared to daughters (21.2). This difference was, however, relatively small. Compared to the age when their criminal parents were first registered for a crime (27), the results indicated that children of organized crime offenders were much younger when they started offending.

Figure 2 shows the proportion of children with a criminal record, split into different age categories. The percentages were lower among younger children than among

Table 2 Descriptive statistics children of organized crime offenders

	Sons	Daughters
% with a criminal record	59.3%	29.8%[a]**
% with crime 'punishment threat' > 8 years of detention	21.2%	2.2%[a]**
% with prison sentence	22.3%	3.6%[a]**
Starting age	18.3	21.2[b]**
Average number of crimes until 2018	4.3	0.8[b]**
N	354	366

A was measured with odds ratios; b was measured with *T*-tests

[*] $p < 0.05$, ** $p < 0.01$

older children: six percent of the children between 16 and 17 years old were found to be registered for a crime, which increased to 60 percent of the 'children' older than 35 (76% of the sons and 42% of the daughters). The strongest increase was in the age category 22 to 25: almost half of the children between 22 and 25 years old (46%) already had a criminal record.

Taking parent–child gender differences into account, results showed that children of *female* organized crime offenders more often had a criminal record, compared to children of *male* organized crime offenders, as can be seen in Table 3.[7] When odds ratios were calculated to test whether children of female organized crime offenders were significantly more at risk of criminal behavior, compared to children of male organized crime offenders, it was found that children of female offenders were twice as likely to have a criminal record. When the gender of children was also taken into account, results showed that sons with convicted mothers were three times more at risk of offending, compared to their male counterparts with convicted fathers ($OR = 3.2$, $p < 0.01$). In contrast, among daughters, the gender of the convicted parent was not a significant predictor of their offending. We also computed logistic regression models to test to what extent the number of crimes committed by convicted fathers and mothers were related to offspring's risk of having a criminal record. These models, in which we controlled for age and gender of the child, showed that the number of crimes committed by the father was significantly related to offspring offending. The odds ratio of 1.08 ($p < 0.01$) indicates that the offspring's risk of having a criminal record increases by 8 percent with each additional paternal crime.[8] In contrast, the number of crimes committed by the mother was not significantly related to her offspring's criminal behavior ($OR = 1.05$, $p = 0.77$).

Potential effects of the timing and persistence of parental crime were explored in Table 4. We studied differences in offspring offending with parents in the following four categories: (1) no criminal registration after the birth of the child; (2) last registration between birth and 12th birthday of child; (3) last registration between 12 and 18th birthday of child; and (4) last registration after the child's 18th

[7] Of seven children both parents were convicted organized crime offenders, so these children are included in both groups.

[8] A quadratic term was also added to this model to examine a possible non-linear relationship, but the squared number of crimes committed by the father was not significantly related to offspring offending ($OR = 0.99$; $p = 0.06$).
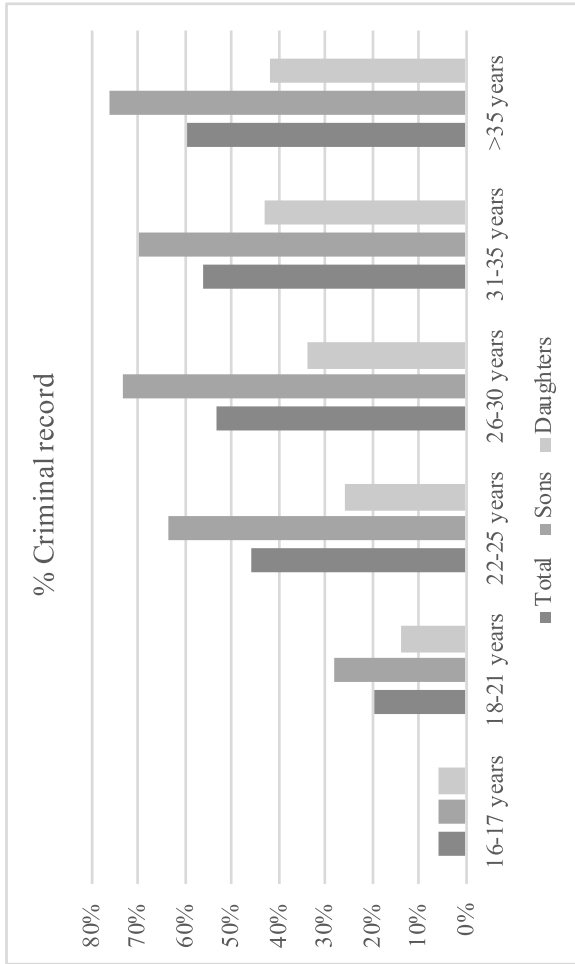
Fig. 2 Proportion of children with a criminal record in different age categories

Table 3 Proportion of children with a criminal record by gender of convicted parent

	Father convicted of organized crime		Mother convicted of organized crime	OR
All children				
Criminal record (yes)	42.7%	59.5%		2.0**
N	653	74		
Sons				
Criminal record (yes)	57.3%	82.9%		3.2**
N	323	35		
Daughters				
Criminal record (yes)	28.5%	38.5%		1.8
N	330	39		

*$p < 0.05$, ** $p < 0.01$

birthday. As can be seen in Table 4, all convicted organized crime offenders with children were still criminally active after the birth of their children. As a result, we were only able to study effects of the timing of parental crime during the life of the child. The results showed that the proportion of children with a criminal record was highest among offenders who still commit crime(s) after the child's 18th birthday. When odds ratios were computed to compare between categories, it was found that children of offenders who still committed crime(s) after the child's 18th birthday were almost nine times more at risk of offending, compared to children of offenders who committed their last crime before the child turned 12 years old ($OR = 8.8$, $p < 0.01$).

Table 5 shows the odds ratios for offense specific continuity of violent, property, and drug-related crime. For all three subtypes of crimes, the intergenerational relationship was shown to be significant ($OR_{\text{violent crimes}} = 1.88$, $OR_{\text{drug-related crimes}} = 1.15$, and $OR_{\text{property crimes}} = 1.09$), indicating that the types of offenses committed by parents predicted the types of crimes committed by children. Violent crimes were shown to have the highest risk of continuity from parents to children. For every violent offense a parent is registered for, the relative risk of offspring violence

Table 4 Proportion of children with a criminal record by timing of parental crime

	Last registration before birth child	Last registration child 0-12	Last registration child 12—18	Last registration child > 18
Criminal record (yes)	0	11.9%	28.2%	54.4%
N (710)	0	67	163	480

Table 5 Logistic regression models predicting children's involvement in subtypes of crime

	Model I Violent crime		Model II Property crime		Model III Drug-related crime	
	OR	SE	*OR*	SE	*OR*	SE
Individual characteristics						
Gender child (male)	6.09**	0.26	3.50**	0.2	5.47**	0.3
Age child	1.07**	0.01	1.07**	0.01	1.10**	0.01
Delinquency parent						
Number of violent crimes parent	1.88**	0.25				
Number of non-violent crimes parent	1.02*	0.01				
Number of property crimes parent			1.09**	0.02		
Number of non-property crimes parent			1.02	0.01		
Number of drug-related crimes parent					1.15*	0.06
Number of non-drug-related crimes parent					1.02	0.01

Models I, II and III, N = 720

* p < 0.05, ** p < 0.01

increased significantly by 88 percent ($OR = 1.88$, $p < 0.01$). In addition, the number of other types of crimes committed by parents also increased the odds of violent offending among children, although this increase is much smaller: 2 percent for each additional offense ($OR = 1.02$, $p < 0.05$). The number of other types of crimes committed by parents was not significantly related to offspring property and drug-related offending. Furthermore, the age and gender of the child were found to be significant predictors for all three subtypes of crimes. Not surprisingly, sons of organized crime offenders were significantly more at risk for all three types of crimes, compared to daughters, in particular regarding violent crimes ($OR = 6.09$, $p < 0.01$).

The relative risk of involvement in crime

In order to examine the *relative* risk of involvement in crime, we analyzed and compared the police registration data of children of organized crime offenders to the data of the children in the selected comparison group. The results (see Table 6) showed that the number of crimes a parent was registered for in the police data was significantly related to offspring offending, as for each police registration of the parent, the relative risk of offspring offending increased by 6 percent ($OR = 1.06$, $p < 0.01$). Furthermore, having an organized crime offender as parent was found to be a strong and significant predictor of children's involvement in crime, *on top of* the number of parental crimes ($OR = 3.32$, $p < 0.01$). In addition, consistent with the findings based on judicial data, the age and gender of the child were found to be significantly correlated with children's risk of criminal behavior. Model II and III present the effects, separately for sons and

Table 6 Logistic regression models predicting children's risk of involvement in crime

	Model I All children		Model II Sons		Model III Daughters	
	OR	SE	OR	SE	OR	SE
Individual characteristics						
Gender child (male)	4.01**	.04	-		-	
Age child	1.05**	.01	1.06**	.01	1.04*	.01
Delinquency parent						
Number of PR parent	1.06**	.01	1.07**	.02	1.04*	.02
OCO as parent	3.32**	.60	2.50**	.53	6.90**	2.50

Model I, N=1,330, Model II, N=664, Model III, N=666

PR Police registrations, *OCO* Organized crime offender

* $p < 0.05$, ** $p < 0.01$

daughters. As can be seen in model III, daughters of organized crime offenders were almost seven times more at risk of engaging in criminal behavior ($OR=6.90$) compared to daughters in the comparison group, while sons of organized crime offenders had 2.5 times the odds of being involved in crime.

With regard to the risk for specific subtypes of crimes (violent, property, and drug-related offenses), the results of the logistic regression models are shown in Table 7. Having an organized crime offender as parent was a strong and significant predictor of all three types of offenses, even after controlling for the number of parental crimes. Children of organized crime offenders were found to be almost three times more at risk of property crime ($OR=2.90$), four and a half times more at risk of violent crime ($OR=4.51$), and even ten times more at risk of drug-related crime ($OR=10.03$), compared to children in the comparison group. This means that the effect of having an organized crime offender as parent might not be limited to a certain subtype of crime, although the relative risk for drug-related crime was remarkably higher, compared to the risk for violent and property crime.

Discussion

There are certain highly specific characteristics to organized crime and its perpetrators (e.g. the seriousness of the offenses, their often violent character, as well as the involvement of a broader social (familial) network), which may indicate that children of these offenders are at high risk of intergenerational continuity of crime. As existing literature on intergenerational continuity of criminal behavior was mainly based on data on 'general' offenders and their children, the current study aimed to improve empirical knowledge by specifically exploring the extent of intergenerational continuity of crime among a national sample of children of organized crime offenders. Judicial and police data on 478 convicted organized crime offenders in the Netherlands and their children were used to study (1)

Table 7 Logistic regression predicting children's involvement in subtypes of crime

Predictors of crimes children

	Model I Violent crime		Model II Property crime		Model III Drug-related crime	
	OR	SE	OR	SE	OR	SE
Individual characteristics						
Gender child (male)	5.03**	0.04	3.62**	0.05	4.15**	0.08
Age child	1.04**	0.01	1.03**	0.01	1.09**	0.01
Delinquency parent						
Number of violent crimes parent	1.17*	0.06				
Number of non-violent crimes parent	1.02	0.02				
Number of property crimes parent			1.07	0.03		
Number of non-property crimes parent			1.06*	0.02		
Number of drug-related crimes parent					1.06	0.08
Number of non-drug-related crimes parent					1.07*	0.02
OCO as parent	4.51**	1.33	2.90**	0.65	10.03**	5.96

Model I, II and *III, N*=1,330

OCO Organized crime offender

* $p < 0.05$, ** $p < 0.01$

offspring's involvement in criminal behavior, (2) factors that might influence their involvement in crime, and (3) the relative risk of offending compared to children in the general population (with parents with the same background characteristics as the organized crime offender population).

In terms of involvement in criminal behavior, the results showed that almost half of the children of organized crime offenders had a criminal record. Sons were significantly more at risk of offending, compared to daughters, and also committed more serious crimes. This is in line with pilot research on 25 Amsterdam-based organized crime offenders [9], although the prevalence of children with a criminal record was slightly lower in the current sample. This might be the due to the fact that the study on children of Amsterdam-based organized crime offenders was focused on children of 19 years and older, while in the current sample we also incorporated younger children (> 16 years). Considering the result of the present study that the risk of offending increased strongly by age, this might be an explanation for the slightly lower rate of children with a criminal record.

Another factor that seemed to affect the criminal involvement of the child is the gender of the convicted parent. Children of female organized crime offenders were at significantly higher risk of offending (regardless the number of crimes their mother committed), as compared to children of male organized crime offenders. This is in line with research on 'general' criminals, showing that criminal behavior is less common for women, so women who engage in such behavior might be more deviant, compared to criminal men [3]. Another explanation might be that female organized crime offenders often have a partner who is also engaged in criminal activities [23] and research shows that children are at higher risk of offending when *both* parents are convicted (e.g. [5]). Therefore, in cases where the mother is convicted of serious crimes, such as organized crime, this may in fact be an indicator of serious underlying family problems and problematic family dynamics. However, further research into mechanisms of transmission of female offenders is needed to unravel the processes underlying this phenomenon.

Furthermore, results seemed to suggest a potential effect of timing or persistency of parental crime after the birth of children, as indicated by the finding that the proportion of children who had a criminal record was substantially higher among those parents who persisted in offending even after the 18th birthday of their children. In line with Van de Rakt and colleagues [32], this seems to indicate that continued exposure to criminal (violent) behavior increases the odds for offending. With regard to different subtypes of crime, the results showed, in line with research on general offenders (e.g. [12, 37]), the strongest intergenerational relation for violent crimes. This may suggest that exposure to aggressive or violent behavior – potentially through social learning – is important in explaining criminal behavior among children of organized crime offenders. However, more in-depth research is needed into how children of organized crime offenders grow up and how they are exposed to the criminal behavior of their parents.

In order to examine the *relative* risk of involvement in crime, we used data of a randomly selected comparison group of children in the general population with parents with the same background characteristics (age, gender, and ethnic background) as our research sample of organized crime offenders. The results showed that having an organized crime offender as a parent was a strong and significant predictor of offspring offending. Although almost one fifth of the parents in the comparison group also turned out to be police suspects, children of convicted organized crime offenders were still three times more at risk of criminal behavior in general, and even ten times more at risk of drug-related crime *after* controlling for the number of parental crimes. Besjes and Van Gaalen [5] already showed in their Dutch population study that police registrations are transmitted from parents to children. Our study adds to that knowledge that having an organized crime offender as parent strongly increases the risk of criminal involvement, *on top of* the continuity of police registrations.

At this point, unfortunately, the available data did not allow us to explore the role of potential mediating or moderating (explanatory) mechanisms. However, some of the explanatory mechanisms that have often been used to explain intergenerational continuity of criminal behavior in general (see for example: [11] might also be able to explain the high risk of intergenerational continuity of crime among children of organized crime offenders. First, the problematic socialization

environment characterized by violent role models, violent conflict resolution styles, and exposure to (domestic) violence, may explain the increased relative risk of intergenerational continuity in this particular group [9]. Moreover, also processes of *assortative mating* may explain why criminal behavior is likely to be continued in these families. As shown before, one of the major components of organized crime specifically, is the complex network structure in which criminal activities are carried out. As several more anecdotal or qualitative studies showed, sons and also daughters are potentially more likely to marry someone within the (criminal) network of their parents, which subsequently poses additional risk of continued offending in the generations to come [9, 20, 29, 34, 33, 36]. In addition, particularly in this group of more serious offenders, we cannot rule out the possibility that *official record biases* may lead to an overestimation of intergenerational continuity [4]. Especially given the fact that these families are often subject to long-term and frequent police investigations, the family members may be at higher risk of "getting caught". On the other hand, the use of official record data can also lead to an *underestimation* of children's criminal involvement, as it depends on "getting caught" and children of organized crime offenders might have learned to stay out of sight. Organized crime is by definition well shielded from the authorities [14] and may therefore be less likely to come to light. If indeed, the dark number is larger for children involved in organized crime, the high risk of criminal involvement would only be amplified.

While the results of this study add to the empirical knowledge that having a parent involved in organized crime strongly increases the risk of criminal involvement, on top of the continuity of police registrations, it also revealed several opportunities for future research. First, it would be interesting to investigate whether children of these convicted offenders also engage in organized crime themselves. Since there was no specific measure for 'organized crimes' in the data, it was not possible to capture this in the present study, although the finding that children of organized crime offenders are ten times more at risk of drug-related crime might be an indicator. One of the related problems of organized crime, however, is that offenders often start engaging in these crimes only at a later age. Therefore, future work in this area would benefit from following the lives of children of organized crime offenders over a larger time span, with more detailed data on their involvement in organized crime.

Second, due to the small population of female organized crime offenders in our sample ($N = 38$), we were not able to measure all effects on offspring offending separately for male and female offenders, neither for children of which both parents are convicted for organized crime ($N = 7$). Subsequent research should further explore intergenerational continuity of crime among children of which both parents have been convicted for organized crime and the role of the mother in intergenerational continuity.

Third, besides criminal behavior, this study did not assess other potential, negative outcomes of having a convicted organized crime offender as parent. This is an important omission, as boys generally exhibit more externalizing problems, such as delinquency, whereas girls display more internalizing problems, such

as anxiety and depression [7]. Therefore, more research is needed into broader effects of growing up with an organized crime offender as parent.

Fourth, systematic research into mechanisms underlying intergenerational continuity of crime in families of organized crime offenders is necessary to better understand why these children develop criminal behavior. On top of that, the mechanisms promoting intergenerational discontinuity should also be identified. In the end, there is no denying that children of organized crime offenders are at extremely high risk of intergenerational continuity of crime. Therefore, future work would benefit from focusing not only on why children follow in their criminal parents' footsteps, but also on how to counteract the risks these children face.

To conclude, the current study shows there is a substantial risk of intergenerational continuity of criminal behavior for children of organized crime offenders. We cautiously also suggest that this risk may be higher than for children of 'general' offenders, and the mechanisms through which intergenerational continuity occurs may be gendered. We hope that future research will benefit from the results of the present study and build upon these results by focusing on the role of mothers in organized crime families and *how* criminal behavior in these families is transmitted to future generations.

References

1. Bailey, J. A., Hill, K. G., Oesterle, S., & Hawkinsm, J. D. (2009). Parenting practices and problem behavior across three generations: Monitoring, harsh discipline and drug use in the intergenerational transmission of externalizing behavior. *Developmental Psychology, 45*(5), 1214–1226.
2. Besemer, S. (2012). *Intergenerational transmission of criminal and violent behavior (Doctoral dissertation University of Cambridge)*. Leiden: Sidestone Press.
3. Besemer, S., Ahmad, S. I., Hinshaw, S. P., & Farrington, D. P. (2017). A systematic review and meta-analysis of the intergenerational transmission of criminal behavior. *Aggression and violent behavior, 37*, 161–178.
4. Besemer, S., Farrington, D. P., & Bijleveld, C. C. J. H. (2013). Official bias in intergenerational transmission of criminal behaviour. *British Journal of Criminology, 53*(3), 438–455.
5. Besjes, G., & Gaalen, R. V. (2008). Jong geleerd, fout gedaan? [Learned young, done wrong?]. *Bevolkingstrends [Population Trends], 2*, 23–31.
6. Bijleveld, C. C. J. H., & Wijkman, M. (2009). Intergenerational continuity in convictions: A five-generation study. *Criminal Behavior and Mental Health, 19*(2), 142–155.
7. Capaldi, D. M., DeGarmo, D., Patterson, G. R., & Forgatch, M. (2002). Contextual risk across the early life span and association with antisocial behavior. In J. B. Reid, G. R. Patterson, & J. J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 123–145). Washington, DC: American Psychological Association.
8. Department of Children and Youth Affairs. (2016). *Lifting the Lid on Greentown - Why we should be concerned about the influence criminal networks have on children's offending behavior in Ireland*. Dublin: Government Publications.
9. Dijk, A. M. M. van Kleemans, E. R. & Eichelsheim, V. E. (2018). Children of organized crime offenders: like father like child? An Explorative and Qualitative Study Into Mechanisms of Intergenerational (Dis)Continuity in Organized Crime Families. *European Journal on Criminal Policy and Research,* 1–19.
10. Eggen, A. T. J., & Heide, W. van (2005). *Criminaliteit en rechtshandhaving 2004*. Den Haag: WODC/Boom Juridische uitgevers.
11. Farrington, D. P. (2002). Developmental criminology and risk-focused prevention. In M. Maguire, R. Morgan, & R. Reiner (Eds.), *The Oxford handbook of criminology* (pp. 657–701). Oxford: Oxford University Press.

12. Farrington, D. P., Ttofi, M. M. & Crago, R. V. (2017). Intergenerational Transmission of Conviction for Different Types of Offenses. *Victims & Offenders, 12*(1).

13. Farrington, D. P., Ttofi, M. M., Crago, R. V., & Coid, J. W. (2015). Intergenerational similarities in risk factors for offending. *Journal of Developmental and Life-Course Criminology, 1*(1), 48–62. https://doi.org/10.1007/s40865-015-0005-2

14. Fijnaut, C., Bovenkerk, F., Bruinsma, G., & van Bunt, H. (1998). *Organized Crime in the Netherlands*. Den Haag: Kluwer.

15. Finckenauer, J. O. (2005). Problems of Definition: What is Organized Crime? *Trends in Organized Crime, 8*(3), 63–83.

16. Fleury, N., & Gilles, F. (2017). The intergenerational transmission of education. A meta-regression analysis. *Discussion paper LEM 2018–10.* Retrieved from: https://lem.univ-lille.fr/filea dmin/user_upload/laboratoires/lem/DocTravail2018/dp2018-10.pdf.

17. Follain, J. (2009). *The Last Godfather: Inside the Mafia's Most Infamous Family*. New York: St. Martin's Press.

18. Gibbons, S., & Blanden, J. (2006). *The persistence of poverty across generations: a view from two British cohorts*. Bristol: The Policy Press on behalf of the Joseph Rowntree Foundation.

19. Junger, M., Greene, J., Schipper, R., Hesper, F., & Estourgie, V. (2013). Parental criminality, family violence and intergenerational transmission of crime within a birth cohort. *European journal on criminal policy and research, 19*(2), 117–133.

20. Kendler, K., Lönn, S., Sundquist, J., & Sundquist, K. (2017). The role of marriage in criminal recidivism: a longitudinal and co-relative analysis. *Epidemiology and psychiatric sciences, 26*(6), 655–663.

21. Kendler, K. S., Ohlsson, H., Morris, N. A., Sundquist, J., & Sundquist, K. (2015). A Swedish population-based study of the mechanisms of parent–offspring transmission of criminal behavior. *Psychological medicine, 45*(5), 1093–1102.

22. Kleemans, E. R., & van Koppen, M. V. (2014). Careers in organized crime. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of Criminology and Criminal Justice* (pp. 285–295). New York: Springer.

23. Kleemans, E. R., Kruisbergen, E. W., & Kouwenberg, R. F. (2014). Women, brokerage and transnational organized crime. Empirical results from the Dutch Organized Crime Monitor. *Trends in Organized Crime, 17*(1–2), 16–30.

24. Kleemans, E. R., & de Poot, C. J. (2008). Criminal Careers in Organized Crime and Social Opportunity Structure. *European Journal of Criminology, 5*, 69–98.

25. van Koppen, M. V., de Poot, C. J., & Blokland, A. A. J. (2010). Comparing Criminal Careers of Organized Crime Offenders and General Offenders. *European Journal of Criminology, 7*(5), 356–374.

26. Kruisbergen, E. W., Van de Bunt, H. G., & Kleemans, E. R. (2012). *Georganiseerde criminaliteit in Nederland. Vierde rapportage op basis van de Monitor Georganiseerde Criminaliteit.* Reeks Onderzoek en Beleid 252. Den Haag: WODC / Boom Juridische Uitgevers.

27. von Lampe, K. (2015). *Definitions of Organised Crime.* Retrieved from: http://www.organizedc rime.de/organizedcrimedefinitions.htm

28. Moffit, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behaviour: A developmental taxonomy. *Psychological Review, 100*(4), 674–701.

29. Moors, H., & Spapens, T. (2017). *Criminele families in Noord-Brabant. Een verkenning van generatie-effecten in de georganiseerde misdaad*. Amsterdam: Reed Business.

30. van Ooijen-Houben, M. M. J., & Kleemans, E. R. (2015). Drug Policy: the "Dutch Model." *Crime and Justice, 44*, 165–220.

31. van de Rakt, M. G. A. (2011). *Two generations of crime: The intergenerational transmission of criminal convictions over the life course (Doctoral dissertation).* Nijmegen, The Netherlands: Radboud University.

32. van de Rakt, M. G. A., Nieuwbeerta, P., & de Graaf, N. D. (2006). Zo vader, zo zoon? De intergenerationele overdracht van crimineel gedrag. *Tijdschrift voor Criminologie, 4*(48), 345–360.

33. Rhule-Louie, D. M., & McMahon, R. J. (2007). Problem behavior and romantic relationships: Assortative mating, behavior contagion, and desistance. *Clinical child and family psychology review, 10*(1), 53–100.

34. Sergi, A. (forthcoming). *Local 'ndrangheta. Discussing mafia behaviours, cultural transmission and children protection in Calabria.* Retrieved from: http://www.dsps.unict.it/sites/default/files/Slides% 202%20prof.ssa%20Sergi.pdf

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

36. van de Weijer, S. G. A., & Beaver, K. M. (2017). An exploration of mate similarity for criminal offending behaviors: Results from a multi-generation sample of Dutch spouses. *Psychiatric Quarterly, 88*(3), 523–533.

37. van de Weijer, S. G. A., Bijleveld, C. C., & Blokland, A. A. (2014). The intergenerational transmission of violent offending. *Journal of Family Violence, 29*(2), 109–118.

38. Weijer, S.G.A. van de, Augustyn, M. B., & Besemer, S. (2017). Intergenerational transmission of crime. *The Routledge International Handbook of Life-Course Criminology*, 279–297.