

# Like two peas in a pod? Explaining friendship selection processes related to victimization and offending

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## Abstract

In this paper, we examine the similarity between friends with respect to experiences with crime among a sample of Dutch individuals. We investigate the extent to which offenders, victims and victim-offenders (de)select friends differently and, subsequently, who (de)selects whom and why. We use data from the annual Dutch panel survey CrimeNL, which includes ego-centered network measures at each wave for more than 500 participants, ranging from 16 to 45 years old. Results show that offenders terminate friendships more often than non-offenders, and they have a higher likelihood of selecting new friends, regardless of prior victimization experiences. Furthermore, homophily with respect to crime involvement exists; both offenders and victims are more likely to select new friends who are similarly involved in crime. Risky lifestyles to a large extent explain why people select offenders as friends, whereas third parties (that is, parents and the pre-existing network of individuals) influence people's decision to engage in friendships with victims of crime. Nevertheless, after taking individual preferences, meeting opportunities and third parties into account, offenders and victims are still more likely to select friends with similar crime experiences.

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Friendship, offending, panel data, preferences, selection, victimization

**Introduction**

Individuals tend to associate with those similar to them. This phenomenon, usually referred to as ‘homophily’, has been found across a wide range of social relationships (for example, marriage, cohabitating, friendships) and along many different dimensions of similarity (for example, religion, ethnicity, education) (McPherson et al., 2001). Similarities between friends are also a classic subject in criminology (Miller, 2010). Delinquent peers have been shown to be a very important factor for explaining criminal behavior. Given that both criminal behavior and victimization yield negative consequences for the individuals involved as well as for society as a whole (Hanson et al., 2010), it is important to further explore the extent of and explanations for friendship similarity with respect to experiences with crime.

The association between delinquent peer affiliations and criminal behavior is one of the most replicated findings in criminology. There has been quite some debate, however, on the causal mechanisms between peer delinquency and individuals’ own involvement in crime (Matsueda and Anderson, 1998; Warr, 2002). One explanation for such homophily in delinquent peer networks is that delinquent individuals intentionally seek each other’s company (Glueck and Glueck, 1950; Hirschi, 1969). This process may be caused by the formation of friendships with similar others (selection) but also by breaking ties with dissimilar others (deselection) (Kandel, 1978). An alternative explanation is that friends influence people’s delinquent behavior (Akers, 1973; Sutherland, 1947). Research examining selection and influence suggests that both processes take place (Warr, 2002). Although victimization research has paid little attention to friendship networks, recent research on bullying in schools provides evidence that victims of bullying are more likely to engage in friendships with others who were also victimized (selection) and, once formed, they are less likely to break friendships with similar others (deselection) (Sente et al., 2013; Sijtsema et al., 2012). We will assess to what extent homophily can also be observed for offending and victimization among a sample of mainly adults.

Although several decades of research have shown a strong association between offending and victimization (Lauritsen et al., 1991; Rokven et al., 2013; Smith and Ecob, 2007), prior research on friendship selection processes among victims and offenders has entirely ignored the overlap between victims and offenders. Treating victims and offenders as essentially unrelated groups may lead to a loss of vital information on the selection processes of victim-offenders. If victim-offenders are distinct from victims-only and offenders-only, as research suggests (Zaykowski, 2015), they may also select their friends differently. Furthermore, understanding the friendship (de)selection processes of victims and offenders may help to explain the victim–offender overlap; if victims are more likely to befriend offenders (selection), and friends of offenders are more likely to become offenders themselves (influence), then understanding the friendship selection processes of victims may help to understand why they would have an elevated risk of becoming offenders.

By studying both breaking friendship relations (that is, deselection) and engaging in new friendships (selection), we are able to establish the extent to which the stability of friendship networks differs for victims, offenders, victim-offenders and those uninvolved with crime. Network instability may explain differences in network homophily; the more often people break friendship relations and the more often they engage in new friendships, the more strongly the mechanisms that lead to homophily may affect the composition of the friendship networks. Although prior research has shown that offenders generally have less stable friendships in comparison with non-offenders (Hirschi, 1969; Reiss, 1988; Warr, 1996), the stability of friendship networks has rarely been investigated for victims. So, to enhance our understanding of friendship homophily with respect to crime, we investigate the following questions in relation to crime involvement: ‘Who is (de)selecting friends?’ and, subsequently, ‘Who is (de)selecting whom and why?’.

We contribute to the literature by examining the extent to which crime involvement (as victims, offenders and victim-offenders) relates to friendship (de)selection among a sample outside the school context. We also add to the literature on the victim–offender overlap by assessing whether victim-offenders (de)select friends differently as compared with victims-only, offenders-only and those uninvolved with crime. Understanding the friendship selection processes of victims and offenders may help to explain the victim–offender overlap. Finally, this study aims to explain why people engage in friendships based on similar experiences with crime. From the sociological literature on partner selection (Kalmijn, 1998), we derive three general explanations: (1) people’s *preferences* to associate with others similar to themselves; (2) the tendency of people to select from the pool of individuals available to them, known as the *opportunity* explanation, and (3) interference of persons who are not directly involved in the relationship, known as the *third parties* explanation.

To answer our research questions we use CrimeNL panel data (Tolsma et al., 2014), a longitudinal study of victimization and offending in the Netherlands. Most previous criminological network studies have been restricted to adolescents in school contexts. CrimeNL consists of individuals aged between 16 and 45 living in the 10 largest municipalities of the Netherlands.

## Network stability

Previous research shows that friendships are critical for the well-being of individuals. Friends provide individuals with self-esteem, support and affection (Hartup and Stevens, 1999). As a result, people who have friends generally feel better about themselves than people without friends. Despite the positive developmental outcomes of friendships, people differ in their ability to maintain stable friendships. Whereas most individuals maintain friendships over a long period of time, others form and break friendship ties often (Gottfredson and Hirschi, 1990).

Previous research on delinquency and bullying among adolescents has shown that offending and victimization are strong predictors of friendship stability (Reiss, 1988; Sijtsema et al., 2012; Warr, 1996). That is, offenders and victims are more likely to break friendships than are individuals who have no experiences with crime. According to Reiss (1986), the instability in the friendship networks of offenders can be explained by high

rates of residential mobility, the incarceration of offenders, and the fact that some offenders desist from criminal activities over time. Instability in networks of victims is explained by the fact that victimized friends are less attractive as friends than non-victimized friends (Fox and Boulton, 2006). Given prior research, we thus expect that the networks of both victims and offenders are less stable than of those who are not involved in crime.

Friendship dissolution may depend not only on characteristics of the individual (ego) or of those with whom one is befriended (alter) but also on the specific combination of the two (the dyad). The principle of homophily – which we will explain in more detail below – suggests that individuals are more likely to form and maintain friendships with those who are similar to themselves. Similarities in behavior provide support and confirmation of each other's behavior, whereas dissimilarities may lead to friends growing apart and eventually to stop being friends (Noel and Nyhan, 2011). So, even though offenders and victims are expected to be more likely to break friendships, this process may be attenuated by similarities in crime experiences between the individual and his or her friend. In this contribution we will investigate whether similarity in offending and victimization outweighs the presumed impact of one's own offending and victimization experiences on breaking friendship relations.

For forming new friendships – the other side of the network stability coin – we investigate the impact of one's own experiences with crime: do offenders, victims and victim-offenders more often form new friendships than those who are uninvolved with crime? Investigating whether both alter and dyad characteristics (for example, similarity) affect friendship formation would require the use of a full network study design in which the characteristics of all potential friendship candidates are known. This is not feasible among a representative sample of respondents as used here.

The next question we turn to is 'Who is selected and why?' Addressing this question best describes how friendship network homophily arises. It is to the description of the three explanatory mechanisms (preferences, opportunities, and third parties) to which we turn next.

## **Preferences for homophily**

A first factor that may affect friendship selection are people's own preferences to interact with similar individuals (McPherson et al., 2001). In general people feel more comfortable with others who share similar characteristics and behaviors (for example, age, lifestyles, religion). Similarities in characteristics and behaviors provide trust, mutual understanding, and confirmation of each other's behaviors (Byrne, 1971). Therefore, it is likely that individuals prefer friends who are similar to themselves.

Offending and victimization could be criteria on which people purposefully select friends. Offenders could prefer friendship with others who are also involved in crime over friendships with law-abiding people, because offenders face fewer risks of exposure and a lower likelihood of arrest when they carefully select friends who will not turn them in to the police. Friends who are themselves involved in criminal activities are less likely to do so, because they face similar risks (Flashman and Gambetta, 2013). Another reason why offenders may seek each other's company is that offending networks potentially provide opportunities for exchange of both material (for example, goods) and non-material (for example, information) resources between its members

(Wasserman and Galaskiewicz, 1994). For instance, offenders may buy stolen property from each other, commit crimes together, or provide each other with tips concerning attractive targets (for example, unguarded houses with valuable goods).

Bullying research shows that pupils engage in friendships partly because of similarity in victimization (Sijtsema et al., 2012). A potential reason could be that people who are faced with a stressful situation may prefer the company of those who share similar experiences. Together they can co-ruminate on their shared experiences and emotions. In general, people want to become friends with those who are helpful and supportive. Positive support from similar others can help victims to find the strength to deal with the situation and to feel less deviant and more cared for (Rose et al., 2007). Consequently, homophily could occur because victims would seek out victimized others.

We hypothesize that the association between people's own experiences with crime (as victim, offender, or victim-offender) and their friends' experiences with crime is in part explained by individuals' preferences to interact with similar others (Hypothesis 1).

## Opportunities

Homophily in friendship networks may also result from the opportunity structure of meeting others similar to oneself. Opportunity theory assumes that friendship choice is constrained by the opportunities people have to meet and interact with others (Blau, 1977). When people meet on a regular basis, they simply have a higher chance to become friends. Opportunities for contact are in turn a by-product of the social contexts in which people spend time, such as schools, voluntary associations, workplaces, and neighborhoods (Kalmijn, 1998; Verbrugge, 1977). The individuals within these contexts are often homogeneous with respect to age, socioeconomic background, and marital status (Kalmijn and Flap, 2001). Therefore, these social contexts favor the opportunity to form friendships with similar others. For instance, workplaces lead to homogeneity with respect to education; school environments encourage homophily by grouping children of the same age together in classrooms. So, instead of individuals making more or less conscious decisions to associate with similar others, peer selection processes can also result from placement in a homogeneous pool of potential contacts (Fischer et al., 1977; McPherson et al., 2001).

A factor that influences the opportunity of meeting offenders and victims is individuals' personal lifestyle. Lifestyles are defined by routine behaviors of individuals and include both vocational and leisure activities. Research on delinquency shows that the lifestyles of individuals are related to their risk of offending (Bernburg and Thorlindsson, 2001; Müller et al., 2013). Offenders are more likely to engage in risky activities and, as a consequence, individuals who also engage in these activities are more likely to meet and interact with offenders. Lifestyle differences also provide an explanation for disparities in the likelihood of meeting and interacting with victims. People who engage in risky behavior (for example, substance use or being out late at night) are more likely to find themselves in risky situations or places where the likelihood of victimization is particularly high (Averdijk, 2011). Thus engaging in risky lifestyles also creates opportunities for contact with victims of crime. Dissimilarities in risky lifestyles, on the other hand, decrease the opportunity to form friendships with similar others. For instance, people who spend most of their time working probably have less time to be involved in potentially

risky activities, thereby decreasing the opportunities to form friendships with victims and offenders. Conversely, those who are unemployed have more time to be involved in risky activities and are more likely to engage in friendships with victims and offenders.

Another condition that influences whether people meet and interact with offenders and victims is the neighborhood context in which people reside. An individual's residential area plays a particularly important role in friendship selection as people spend large amounts of time in or nearby this area (Völker and Flap, 2007). Because offenders tend to live concentrated in certain neighborhoods (Averdijk et al., 2012), the opportunity for meeting and interacting with offenders is relatively high for people who live in such neighborhoods. It has also been established that offenders commit most of their crimes in relatively close proximity to their home (Rengert et al., 1999), so many victims have (their) offenders residing close by. Thus, for residents who live in areas where many offenders reside, the chance to befriend a victim of crime is relatively high as well. We hypothesize that the association between people's own experiences with crime (as victim, offender, or victim-offender) and their friends' experiences with crime is in part explained by the opportunity to meet crime-involved people (that is, risky lifestyles, being unemployed, and living in areas where many offenders reside) (Hypothesis 2).

### **Third parties**

Another factor that may affect friendship selection is the influence of third parties such as family and friends. Parents play an important role in managing the external world of their children by influencing the social contexts in which their children engage outside the household (Furstenberg et al., 1999; Kalmijn, 1998). Parents may influence the friendship choices of their children through monitoring and supervision, by providing their children with rules and guidelines for peer interaction, or by discipline strategies if a particular friend does not meet their approval (Hoeve et al., 2011). In doing so, they directly reduce the opportunities for their children to associate with deviant peers and possibly even stimulate friendships with approved peers. Parents are best able to directly restrict the meeting opportunities of their children when their children still live in the parental home. After they move out, monitoring, supervision and sanctioning possibilities decrease (Farber and Iversen, 1998). However, through socialization processes, parents are able to influence the friendship choices of their children more long term: through influencing the child's own engagement in specific behaviors and by influencing the child's norms and values about who to become friends with. In general, parents want to avoid that their children fall into bad company.

Based on these arguments, we expect that the association between an individual's own experiences with crime and their friends' experiences with crime can (partly) be explained by parental influence. We hypothesize that parental norm-abiding behavior is negatively related to the likelihood of selecting delinquent others (Hypothesis 3). We do not expect such parental impact on friendship selection related to victimization.

Existing friends may also play a role in the choice of new friends. People generally meet others indirectly through their existing personal network. The structure of these networks facilitates additional friendships by providing individuals with opportunities to meet new people (Schaefer et al., 2011). In the literature on friendship formation this is also known as triadic closure (Simmel, 1950). Triadic closure itself contributes to

homogeneity among friends, possibly also with respect to experiences with crime (Young et al., 2014). As such, existing friendship networks already shape the opportunities for new friendships. However, just as with parents, existing friendship networks may influence individuals' own engagement in criminal behaviors as well as their norms about who to become friends with. Delinquent peers may stimulate individuals to form friendships with criminal others, whereas conventional peers are likely to discourage individuals from forming friendships with criminal others. For selecting victims as friends, normative influence is less plausible. Nevertheless, to the extent that existing friendship networks shape the opportunities to meet others it could even influence friendship selection related to victimization. Together, these arguments lead to our hypothesis that the association between people's own experiences with crime (as victim, offender, or victim-offender) and their friends' experiences with crime is in part explained by existing friendships with delinquent or victimized others (Hypothesis 4).

## Data and methods

To answer our research questions and test our hypotheses, we use data from the CrimeNL panel survey. CrimeNL is a collaborative effort of the Department of Sociology of Radboud University Nijmegen and Statistics Netherlands and it involves an ongoing longitudinal study of individuals' experiences with crime (Tolsma et al., 2014). The sampling population consists of individuals within households living in the 10 largest municipalities in the Netherlands with a minimum age of 16 and a maximum age of 45. Statistics Netherlands used the municipal population registers to draw a random sample. Respondents were interviewed in 2012, 2013 and 2014. The survey used a mixed-mode design with interviews completed by both computer assisted web interviews (CAWI) and computer assisted telephone interviews (CATI). In total, 1830 unique respondents participated at least once in the three waves. Of those who participated in the first wave ( $N = 982$ ), 43.1 percent participated in the second and/or third wave, a satisfactory retention rate given the interview modes and the fact that no incentives were used. The sample is to a large extent representative of the target population with respect to the sampled communities, gender and age. Not surprisingly, suspects of crime – registered as such in the official police reports – are somewhat underrepresented (Tolsma et al., 2014). Our analyses are, however, based on self-reported offending (including minor offenses; see below). If homophily in friendship networks is larger among offenders who committed more serious offenses and were arrested, we will underestimate network similarity in our data, leading to conservative hypotheses testing.

In the present study, we examine friendship (de)selection and thus excluded all respondents for whom information at only one time point was available ( $N = 1287$ ). For 362 respondents we have information at two time points and for 181 respondents at all three time points. In our analyses, we treat the latter as independent cases for time T1 and T2 and for time T2 and T3, yielding a total sample of 724 cases.<sup>1</sup>

Our respondents were asked to nominate five significant network members with whom they discussed important things, using the name generator/interpreter method (McCallister and Fischer, 1978). Respondents did not have to mention the full names or even real names, they could also give a nickname or initials only. As a result, it was sometimes unclear whether alters mentioned at time  $T-1$  were also part of the network at

time  $T$  and vice versa. This concerns 71 alters (4.9 percent of 1455) nominated at time  $T-1$  and 72 alters (5.0 percent of 1432) nominated at time  $T$ . These alters were excluded from our analyses. Although the number of nominations was restricted to five, only 5 percent of the respondents nominated the maximum of five network members and on average only two alters were mentioned. For each network member, information was provided on the nature of the relationship, the educational level, the geographical distance between the places of residence, the frequency of contact, and whether, according to the respondent, the network member was involved in crime, either as victim or as offender. The network members elicited could be partners, friends, parents, other relatives, colleagues, classmates or members of the same association or club. Because we aim to assess friendship (de)selection and its relation to crime involvement, we excluded nominated parents. From here on, we use the terms 'significant network member' and 'friend' interchangeably.

### *Dependent variables*

For our de-selection analyses (on breaking friendship ties), we start with a working sample of 600 respondents who have been interviewed at least twice and who named at least one significant network member other than their parents at time  $T-1$ . In total, these 600 respondents named 1074 alters. We constructed a dependent variable that indicates whether the friendship ties at time  $T-1$  were broken at time  $T$  (1) or not (0). It turned out that 447 (41.6 percent) friendships were broken and that 627 (58.4 percent) alters were also nominated at time  $T$ .

For our selection analyses (on engaging in new friendships), our sample consists of 568 respondents who were interviewed at least twice and who nominated at least one significant network member other than their parent at time  $T$ . In total, these 568 respondents nominated 1062 alters. Here the dependent variable refers to whether an alter at time  $T$  is a new friend (1) or not (0); 442 (41.6 percent) alters were not previously nominated and thus were new friends; 620 (58.4 percent) friends were also mentioned at time  $T-1$ .

For our analyses on the characteristics of the respondents and their selected new friends (who selects whom), we start with the 295 respondents who nominated the 442 new friends at time  $T$ . We excluded six alter observations for which information on victimization and offending was missing. This resulted in a sample of 436 observations/alters nested in 292 respondents/egos. We constructed two dependent variables: one indicating whether the new friend was an offender (1 = yes) and one indicating whether the new friend was a victim of crime (1 = yes).

### *Independent variables*

To test our hypotheses, we created variables measured at time  $T-1$  indicating whether or not respondents had been involved in crime as offenders and/or as victims. For measuring offending, each survey wave contained 10 items of self-reported offending concerning the following crime types: theft, burglary, fencing, tax fraud, insurance fraud, vandalism, threat, weapon use, violence and the use of hard drugs. We coded individuals as offenders if they had been engaged in at least one form of crime in the 12 months prior to the interview. Victimization was measured by eight items and



comprises whether or not the respondent experienced any of the following incidents in the 12 months prior to the interview: attempted burglary, burglary, bicycle theft, other thefts, vandalism, threats, violence, and a category of 'other' crimes. Based on the answers to these questions, respondents were classified as offenders and/or as victims (see Tables 1 and 2 for the percentages of offenders and victims in each sample). To test whether victim-offenders score differently than victims and offenders, an interaction term was included in the models.

Individual preferences were measured by the preferred social distance to offenders. This measure was obtained by asking respondents at  $T-1$  whether they would have a problem with (1) a neighbor or (2) a colleague who had been in prison for half a year. These questions were based on the social distance scale as developed by Bogardus (1928) and they measure how closely people are willing to interact with people who possess certain characteristics (for example, ethnicity, religion). The answer categories range from (1) 'a major problem' to (4) 'not a problem at all'. We recoded the variables in such a way that a higher score indicates a stronger aversion to offenders. Once offenders are not accepted as neighbors or colleagues, other more intimate types of relationships, such as friendships, are also less likely. We used the mean score of both items (Cronbach's  $\alpha = 0.80$ ) to measure preferred social distance to offenders.

Risky lifestyles were measured by two separate items that capture if and how many times a year the respondent had visited (1) a bar, disco or club, or (2) a coffee shop or smart shop where soft drugs are being sold.<sup>2</sup> We recoded the variables in such a way that they take the value 1 for no visits at all and 0 for visits. People who had never visited these facilities could not have had the opportunity to meet those who have a risky lifestyle that includes visiting these facilities. Employment indicates whether respondents reported having a paid job. Having a job provides structured routine activities, which is inherently linked to fewer opportunities to meet and interact with victims and offenders. In total, 67 percent of the respondents reported having a paid job.

We use the proportion of offenders within a 500 meter radius around the respondent's six-digit postal code area (egohood) – the geographic scale at which most daily activities take place and within which most neighborly ties are formed (Hipp and Perrin, 2009; Hipp and Boessen, 2013) – as a measure of the opportunity to meet and interact with offenders in the living environment. The number of offenders in each postal code area were derived from the Dutch national police suspects registration system (HKS). HKS contains information about the residential location of all suspects of crime aged 12 years and older. We average the number of suspects in each six-digit postal code area for the years 2009 and 2010. The number of residents within a 500-meter radius around the six-digit postal area of the respondent was based on information obtained from Statistics Netherlands.

Parental discouragement was measured by averaging the scores on the following two Likert scale items, which refer to the time when the respondent was between 5 and 12 years of age: (1) 'My parents thought it was important that I had respect for people with authority, such as teachers and officers' and (2) 'My parents thought that I should always behave myself' (Cronbach's  $\alpha = 0.60$ ). Answers range from (1) 'entirely untrue' to (5) 'entirely true'. Higher scores thus represent parental norms that discourage deviant behavior.

Existing friendship networks were derived from information respondents provided about the crime experiences of their friends (as victims and/or offenders). Two variables

were created, counting the number of (1) victimized and (2) offending friends at  $T-1$ . On average, individuals reported 0.29 victimized and 0.24 offending friends (see Table 2).

### Control variables

Gender was measured by scoring all female respondents 1 and all males 0. Age was measured in years. We also controlled for educational similarity between our respondents and their friends in order to be more confident that similarity in crime involvement is not picking up something else; if crime experiences are associated with people's level of education, then the homophily in crime involvement between individuals and their friends may result from similarities in educational levels rather than from similarities in crime involvement. The variable educational similarity has the following categories: (1) both the respondent and the alter are low-educated, (2) the respondent is low-educated and the alter is high-educated, (3) the respondent is high-educated and the alter is low-educated, (4) both are high-educated, and (5) the educational level of the alter is unknown. Information on the educational level of the alter was provided by the respondent. Respondents and alters are considered low-educated if they completed intermediate vocational secondary education (MBO) at the highest. Those who attained a higher general secondary diploma (HAVO/VWO) or a tertiary-level diploma (HBO/WO) were categorized as high-educated.<sup>3</sup> For the breaking friendship ties analyses, information on the educational levels of the respondents and the alters were both measured at time  $T-1$ . For the analyses of who selects whom, we used the educational level of respondents at time  $T-1$  and for alters at time  $T$ . We were not able to control for similarity between friends in other (sociodemographic or socioeconomic) characteristics.

Table 1 presents descriptive statistics for all variables included in the analyses of breaking friendship ties and engaging in new friendships. Table 2 presents descriptive statistics for the analyses of who selects whom. We replaced the few missing values on interval variables with their respective means.

### Analytic strategy

Given our dichotomous dependent variables, we estimate logistic models. The data used in this study have a hierarchical structure in which the outcome variables pertain to the friendship characteristics of multiple friends of a single respondent. Scores on the dependent variables can therefore not be treated as independent observations. That is why we account for the autocorrelation among answers concerning friends of the same respondent by estimating multilevel logistic models in which observations on friends (level 1) are nested within respondents (level 2). We used Stata xtlogit to estimate all models. In order to assess how much of the variation in the dichotomous dependent variables is explained by the variables included in the models, we calculated the proportion of explained variance in the multilevel logistic models with the following formula of Snijders and Bosker (1999: 225–6), in which  $\sigma_F^2$  is the variance of the linear predictor of  $Y$ , and  $\tau_n^2$  is the intercept variance.

$$R_{dicho}^2 = \frac{\sigma_F^2}{\sigma_F^2 + \tau_0^2 + \pi^2 / 3}$$

**Table 1.** Descriptive statistics of variables used in breaking friendship ties and selection analyses.

	N	Mean	SD	Range	% missing
<b>Dependent variables</b> (Level 1, alter)					
Breaking ties (1 = yes)	1074	0.42	0.49	0/1	0
Selection of friend (1 = yes)	1062	0.42	0.49	0/1	0
<i>Variables included in breaking friendship ties analyses</i>					
<b>Independent variables</b> (Level 1 (alter/tie), T-1)					
<i>Homophily in offending</i>					
Ego non-offender and alter non-offender (ref.)	1074	0.77	0.42	0/1	0.8
Ego non-offender and alter offender	1074	0.07	0.26	0/1	0.8
Ego offender and alter non-offender	1074	0.10	0.30	0/1	0.8
Ego offender and alter offender	1074	0.06	0.23	0/1	0.8
<i>Homophily in victimization</i>					
Ego non-victim and alter non-victim (ref.)	1074	0.53	0.50	0/1	0.8
Ego non-victim and alter victim	1074	0.06	0.23	0/1	0.8
Ego victim and alter non-victim	1074	0.30	0.46	0/1	0.8
Ego victim and alter victim	1074	0.11	0.32	0/1	0.8
<i>Homophily in education</i>					
Ego low and alter low (ref.)	1074	0.13	0.34	0/1	0
Ego low and alter high	1074	0.07	0.26	0/1	0
Ego high and alter low	1074	0.10	0.30	0/1	0
Ego high and alter high	1074	0.65	0.48	0/1	0
Education alter unknown	1074	0.05	0.21	0/1	0
<b>Independent variables</b> (Level 2 (ego), T-1)					
Offender	600	0.15	0.36	0/1	0
Victim	600	0.42	0.49	0/1	0
Gender (1 = female)	600	0.53	0.50	0/1	0
Age	600	33.0	8.10	16–46	0
<i>Variables included in selection analyses</i>					
<b>Independent variables</b> (Level 2 (ego), T-1)					
Offender	568	0.15	0.36	0/1	0
Victim	568	0.44	0.50	0/1	0
Gender (1 = female)	568	0.53	0.50	0/1	0
Age	568	33.1	7.98	16–46	0

Results

Before we test our hypotheses regarding the three different explanations for homogeneity in friendships related to crime, we first show how friendship (de)selection differs among victims, offenders, victim-offenders and those uninvolved with crime.

Breaking friendship ties

In order to assess to what extent friendship deselection clusters within respondents, we started our analyses by estimating a random intercept model without covariates. The intraclass correlation of this model was 0.087 (0.312 / (0.312 + ( $\pi^2/3$ ))). This indicates

**Table 2.** Descriptive statistics of variables used in analyses for who is selecting whom.

	N	Mean	SD	Range	% missing
<b>Dependent variables</b> (Level 1 (alter), T)					
Selected friend: offender	436	0.13	0.34	0/1	0
Selected friend: victim	436	0.17	0.37	0/1	0
<b>Independent variables</b> (Level 1 (alter/tie), T)					
<i>Homophily in education</i>					
Ego low and alter low (ref.)	436	0.13	0.34	0/1	0
Ego low and alter high	436	0.12	0.32	0/1	0
Ego high and alter low	436	0.08	0.27	0/1	0
Ego high and alter high	436	0.63	0.48	0/1	0
Education alter unknown	436	0.04	0.20	0/1	0
<b>Independent variables</b> (Level 2 (ego), T-1)					
Offender	292	0.20	0.40	0/1	0
Victim	292	0.43	0.50	0/1	0
Gender (1 = female)	292	0.55	0.50	0/1	0
Age	292	32.4	8.35	16–46	0
<i>Individual preferences</i>					
Preferred social distance to offenders	292	2.35	0.69	1–4	1.4 (N = 6)
<i>Opportunities</i>					
Visits bar, disco or club (never = 1)	292	0.13	0.34	0/1	0
Visits coffee shop or smart shop (never = 1)	292	0.87	0.33	0/1	0
Employment (yes = 1)	292	0.67	0.47	0/1	0
Proportion offenders in ego-hood	292	2.13	0.95	0–6.17	0
<i>Third parties</i>					
Parental discouragement	292	4.30	0.76	1.5–5	0.2 (N = 1)
Existing network: number of offenders	292	0.24	0.63	0–4	0
Existing network: number of victims	292	0.29	0.62	0–5	0

that 8.7 percent of the variation in whether people deselect friends can be attributed to differences between individuals.

Table 3 presents the results of the multilevel logistic regression analyses for breaking friendship ties. The estimates of Model 1 show that, in comparison with non-offenders, offenders have a higher likelihood of breaking friendship ties. The odds of breaking a friendship tie are 1.47 ( $e^{0.383}$ ) higher for offenders than for non-offenders, controlling for victimization. The odds of breaking a friendship tie are 19.4 percent ( $1 - e^{-0.215}$ ) lower for victims than for non-victims. However, differences in crime involvement explain the friendship deselection differences to only a very limited extent ( $R^2 = .007$ ).

In Model 2 we include the interaction term between victimization and offending. The main effects for offender and victim now reflect how offenders who were not victims of crime (offenders-only) and victims who were not offenders (victims-only) differ from those uninvolved with crime respectively. Based upon the estimates, we calculated the probability for each group to break friendship ties. The findings indicate that victims-only have a lower probability (that is,  $e^{(-0.332-0.262)} / (1 + e^{(-0.332-0.262)}) = .36$ ) to break

**Table 3.** Multilevel logistic regression for breaking friendship ties ( $N_{level1} = 1074, N_{level2} = 600$ ).

	Model 1			Model 2			Model 3			Model 4		
	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)	B	SE	exp(B)
Intercept	-0.349***	0.095	0.705	-0.332***	0.098	0.718	-0.340***	0.100	0.712	0.819**	0.361	2.269
Offender	0.383**	0.192	1.466	0.213	0.297	1.237						
Victim	-0.215*	0.143	0.807	-0.262**	0.156	0.770						
Victim*Offender				0.291	0.388	1.338						
Homophily in offending												
Ego non-offender and alter non-offender (ref.)							-		-	-		-
Ego non-offender and alter offender							0.010	0.262	1.011	-0.026	0.258	0.975
Ego offender and alter non-offender							0.355*	0.231	1.426	0.145	0.227	1.156
Ego offender and alter offender							0.504**	0.295	1.655	0.282	0.290	1.326
Homophily in victimization												
Ego non-victim and alter non-victim (ref.)							-		-	-		-
Ego non-victim and alter victim							0.130	0.289	1.139	0.256	0.284	1.292
Ego victim and alter non-victim							-0.224*	0.157	0.799	-0.092	0.152	0.912
Ego victim and alter victim							-0.381**	0.230	0.683	-0.291*	0.223	0.748
Homophily in education												
Ego low and alter low (ref.)										-		-
Ego low and alter high										-0.197	0.296	0.821
Ego high and alter low										-0.472**	0.273	0.624
Ego high and alter high										-0.609***	0.196	0.544
Education alter unknown										1.195***	0.395	3.304
Gender (1 = female)										-0.364***	0.134	0.695
Age										-0.017**	0.009	0.983
Variance level 2	0.300			0.300			0.282			0.090		
R <sup>2</sup>	0.007			0.008			0.010			0.068		

Source: CrimeNI.  
\*\*\* $p < .01$ ; \*\* $p < .05$ ; \* $p < .1$  (one-tailed).

friendships as compared with the uninvolved (.42), offenders-only (.47) and victims-offenders (.48). The interaction effect is not statistically significant and additional analyses indicate that victim-offenders and offenders-only do not differ statistically with regard to the likelihood of breaking friendship ties. Hence, we exclude victim-offenders as a separate group in the subsequent models.

In Model 3 we investigate the impact of homophily in offending and victimization. Friendships are most often broken when both friends are offenders ( $b = 0.504$ ). Thus, the usual finding that homogeneous ties are stronger does not hold for friendship ties related to criminal behavior. The likelihood of friendship termination is lowest when both friends have been victimized ( $b = -0.381$ ). Also, victims who have non-victimized friends are less likely to break this friendship tie than non-victims ( $b = -0.224$ ). Additional analyses indicate that the two effects do not differ statistically. These results indicate that individuals' own experiences with crime (ego) and/or friends' experiences with crime (alter) more strongly determine friendship stability than similarity in crime involvement between friends (dyad).

In Model 4, educational similarity and individuals' gender and age are included. Clearly, these variables explain more of the differences in friendship deselection than the crime-related variables ( $R^2 = .068$ ). The model shows that friendships with high-educated people involved are less likely to be broken ( $b = -0.472$  for 'ego high and alter low' and  $b = -0.609$  for 'ego high and alter high') than friendships among low-educated. Furthermore, individuals are most likely to break friendship ties when they have no idea what the educational level of the involved friend is. Females ( $b = -0.364$ ) and older persons ( $b = -0.017$ ) are less likely to break friendship ties. The estimated homophily effects of crime involvement are substantially reduced after controlling for educational similarity, gender, and age. The odds for similarly involved delinquent friends are reduced by 20 percent ( $100 * (e^{0.282} - e^{0.504}) / e^{0.504}$ ) and the effect is no longer statistically significant. The odds for victimized friends are reduced by 9 percent ( $100 * (e^{-0.381} - e^{-0.291}) / e^{-0.291}$ ). We therefore conclude that offending and victimization are related to breaking friendships but that this is largely explained by the educational level of those involved as well as by gender and age. Similarities in crime experiences do not counterbalance the impact of own experiences with crime as offenders or victims on breaking friendship ties.

### Friendship selection

Table 4 presents the results of our analyses for engaging in new friendships. The intra-class correlation of the null model was 0.069 ( $0.245 / (0.245 + (\pi^2/3))$ ), which indicates that 6.9 percent of the variation in whether people engage in new friendships can be attributed to differences between individuals.

In Model 1 of Table 4 we add individual experiences with crime. The model explains only about 1 percent of the total variance. Offenders appear to be more likely to select new friends: the odds of engaging in new friendships are 1.72 ( $e^{0.539}$ ) higher for offenders than for non-offenders. The results reveal no evidence that victimization is significantly related to friendship formation ( $b = -0.018$ ).

The estimates in Model 2 show that the odds of selecting new friends are 2.1 times higher for offenders-only ( $e^{0.726}$ ) and 1.5 times higher for victim-offenders ( $e^{0.483}$ ) than

**Table 4.** Multilevel logistic regression for friendship selection ( $N_{\text{level1}} = 1062, N_{\text{level2}} = 568$ ).

	Model 1			Model 2			Model 3		
	<i>b</i>	SE	exp(B)	<i>b</i>	SE	exp(B)	<i>b</i>	SE	exp(B)
Intercept	−0.461***	0.099	0.630	−0.483***	0.102	0.617	0.093	0.330	1.097
Offender	0.539***	0.184	1.715	0.726***	0.278	2.067	0.459**	0.188	1.583
Victim	−0.018	0.138	0.982	0.038	0.151	1.039	−0.038	0.138	0.963
Victim*Offender				−0.332	0.367	0.718			
Gender (1 = female)							−0.147	0.138	0.863
Age							−0.014*	0.009	0.987
Variance level 2	0.218			0.206			0.214		
R <sup>2</sup>	.010			.011			.015		

Source: CrimeNL.  
\*\*\* $p < .01$ ; \*\* $p < .05$ ; \* $p < .1$  (one-tailed).

for people with no recent experiences with crime. Victims-only, on the other hand, do not statistically differ from the uninvolved in their likelihood of engaging in new friendships ( $b = 0.038$ ). The victim-offender interaction effect is not statistically significant and additional analyses show no statistically significant difference between offenders-only and victim-offenders with regard to friendship selection. Hence, we leave victim-offenders out of the subsequent model.

In Model 3 we find that people are less likely to engage in new friendships the older they get ( $b = -0.014$ ). We find no statistically significant gender differences. Although reduced by 15 percent ( $b = 0.459$ ), the positive effect of offending on friendship formation remains statistically significant after controlling for individuals’ gender and age. Yet note that, after including the control variables, the model explains only 1.5 percent of the variance. Combined with the results of breaking friendships, these results show that the friendship networks of offenders are the most volatile and those of victims are the most stable.

*Who selects whom and why?*

Next, we examine the extent to which people select friends on the basis of similarities in crime experiences and test our four hypotheses. Tables 5 and 6 present the results of the multilevel logistic regression analyses for delinquent and victimized friends respectively. The intraclass correlations of the null models for selecting an offender or a victim as friend were 0.781 and 0.055 respectively. This indicates that almost 80 percent of the variation in selecting an offender as friend can be attributed to differences between individuals, whereas selecting a victim as friend is more randomly distributed.

In accordance with the principle of homophily, Model 1 of Table 5 shows that people select friends based on similarities in offending. The estimate is quite substantial: the odds of choosing an offender as friend are almost 21 times larger for offenders in comparison with non-offenders ( $e^{3.029} = 20.67$ ), controlling for victimization. Victims are also more likely than non-victims to choose offenders as friends ( $b = 1.505$ ). The model explains about 18 percent of the variance. Model 1 of Table 6 shows that victimization is associated with a 1.7 increase in the odds of choosing victims as friends ( $e^{0.538}$ ). Offenders

Table 5. Multilevel logistic regression of offending friends ( $N_{level1} = 436, N_{level2} = 292$ ).

	Model 1			Model 2			Model 3		
	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)
Intercept	-5.349***	1.140	0.005	-5.197***	1.207	0.006	-0.083	1.400	0.920
Offender	3.029***	0.842	20.672	2.518**	1.143	12.399	2.467***	0.835	11.783
Victim	1.505**	0.675	4.506	1.230*	0.792	3.422	1.740***	0.719	5.698
Victim*Offender				0.856	1.298	2.354			
Gender (1 = female)							-0.038	0.628	0.963
Age							-0.131***	0.047	0.877
<i>Homophily in education</i>									
Ego low and alter low (ref)									
Ego low and alter high									0.510
Ego high and alter low							-0.673	0.977	0.381
Ego high and alter high							-0.965	1.175	0.180
Education alter unknown							-1.713**	0.889	2.074
<b>Individual preferences</b>									
Preferred social distance to offenders									
<b>Opportunities</b>									
Visits bar, disco or club (1 = never)									
Visits coffee shop or smart shop (1 = never)									
Employment (1 = yes)									
Proportion offenders in ego's hood									
<b>Third parties</b>									
Parental discouragement									
Existing network: number of offenders									
Existing network: number of victims									
Variance level 2	7.266			7.220			6.619		
R <sup>2</sup>	0.180			0.173			0.305		



Table 5. (Continued)

	Model 4			Model 5			Model 6			Model 7		
	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)
Intercept	0.173	1.736	1.188	0.599	1.699	1.820	0.924	2.259	2.520	0.669	1.582	1.953
Offender	2.442***	0.841	11.490	1.615**	0.827	5.026	1.885**	0.818	6.586	1.615**	0.836	5.029
Victim	1.738***	0.722	5.684	1.824***	0.740	6.197	1.483**	0.692	4.405	1.579**	0.734	4.850
Gender (1 = female)	-0.027	0.632	0.974	-0.152	0.656	0.859	-0.137	0.620	0.872			
Age	-0.131***	0.047	0.877	-0.083**	0.048	0.920	-0.127***	0.047	0.881	-0.096**	0.049	0.908
<i>Homophily in education</i>												
Ego low and alter low (ref.)												
Ego low and alter high	-0.680	0.980	0.507	-0.585	0.975	0.557	-0.833	0.990	0.435	-0.519	0.986	0.595
Ego high and alter low	-0.977	1.181	0.377	-1.048	1.223	0.351	-0.914	1.153	0.401	-0.863	1.222	0.422
Ego high and alter high	-1.724**	0.895	0.178	-1.980**	0.942	0.138	-1.744**	0.873	0.175	-1.767**	0.914	0.171
Education alter unknown	0.730	1.392	2.075	0.251	1.413	1.286	0.777	1.375	2.176	0.679	1.431	1.971
<b>Individual preferences</b>												
Preferred social distance to offenders	-0.114	0.453	0.892									
<b>Opportunities</b>												
Visits bar, disco or club (1 = never)				-1.597	1.325	0.202						
Visits coffee shop or smart shop (1 = never)				-1.461**	0.869	0.232				-1.493**	0.888	0.225
Employment (1 = yes)				-1.218*	0.823	0.296				-1.139*	0.804	0.320
Proportion offenders in ego's hood				0.146	0.357	1.157						
<b>Third parties</b>												
Parental discouragement							-0.238	0.396	0.788			
Existing network: number of offenders							0.372	0.440	1.451			
Existing network: number of victims							0.606*	0.457	1.833	0.734*	0.469	2.083
Variance level 2	6.697			6.574			6.116			6.954		
R <sup>2</sup>	.305			.349			.329			.344		

Source: CrimeNL.  
\*\*\*p < .01; \*\*p < .05; \*p < .1 (one-tailed).

Table 6. Multilevel logistic regression of victimized friends ( $N_{level1} = 436$ ,  $N_{level2} = 292$ ).

	Model 1			Model 2			Model 3		
	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)
Intercept	-2.014***	0.290	0.133	-1.972***	0.302	0.139	-1.652***	0.671	0.192
Offender	0.381	0.308	1.464	0.216	0.504	1.241	0.385	0.317	1.470
Victim	0.538***	0.271	1.712	0.473*	0.311	1.604	0.534***	0.266	1.706
Victim*Offender				0.264	0.633	1.303			
Gender (1 = female)							0.089	0.271	1.093
Age							-0.005	0.016	0.995
<i>Homophily in education</i>									
Ego low and alter low (ref)									
Ego low and alter high									
Ego high and alter low									
Ego high and alter high							-0.138	0.498	0.871
Education alter unknown							-0.980*	0.696	0.375
<b>Individual preferences</b>									
Preferred social distance to offenders							-0.158	0.375	0.854
<b>Opportunities</b>									
Visits bar, disco or club (1 = never)							-1.483*	1.085	0.227
Visits coffee shop or smart shop (1 = never)									
Employment (1 = yes)									
<b>Proportion offenders in egohood</b>									
<b>Third parties</b>									
Parental discouragement									
Existing network: number of offenders									
Existing network: number of victims									
Variance level 2	0.109			0.082			0.000		
R <sup>2</sup>	.030			.030			.066		

Table 6. (Continued)

	Model 4			Model 5			Model 6			Model 7		
	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)	b	SE	exp(B)
Intercept	-1.636**	0.790	0.195	-1.652**	0.817	0.192	-3.234***	1.080	0.039	-3.335***	0.936	0.036
Offender	0.383	0.322	1.467	0.464	0.365	1.591	0.207	0.356	1.229			
Victim	0.534**	0.266	1.706	0.531**	0.267	1.701	0.464**	0.275	1.590	0.457*	0.277	1.579
Gender (1 = female)	0.090	0.272	1.094	0.093	0.280	1.097	0.085	0.273	1.088			
Age	-0.005	0.016	0.995	0.005	0.019	1.005	-0.001	0.017	0.999			
<i>Homophily in education</i>												
Ego low and alter low (ref.)												
Ego low and alter high	-0.138	0.498	0.871	-0.207	0.511	0.813	-0.152	0.508	0.859			
Ego high and alter low	-0.979*	0.696	0.376	-0.999*	0.708	0.368	-1.004*	0.699	0.366			
Ego high and alter high	-0.158	0.375	0.854	-0.285	0.397	0.752	-0.232	0.382	0.793			
Education alter unknown	-1.484*	1.086	0.227	-1.633*	1.097	0.195	-1.596*	1.092	0.203			
<b>Individual preferences</b>												
Preferred social distance to offenders	-0.008	0.196	0.992									
<b>Opportunities</b>												
Visits bar, disco or club (1 = never)				-0.563	0.504	0.570						
Visits coffee shop or smart shop (1 = never)				0.279	0.437	1.322						
Employment (1 = yes)				-0.274	0.325	0.761						
Proportion offenders in egghood				-0.113	0.152	0.894						
<b>Third parties</b>												
Parental discouragement							0.336**	0.186	1.400	0.298*	0.189	1.348
Existing network: number of offenders							0.217	0.208	1.242	0.246*	0.189	1.279
Existing network: number of victims							0.225	0.194	1.253	0.280*	0.196	1.323
Variance level 2	0.000			0.000			0.000			0.044		
R <sup>2</sup>	0.066			0.079			0.091			0.056		

Source: CrimeNL.  
\*\*\*p < .01; \*\*p < .05; \*p < .1 (one-tailed).

are equally likely as non-offenders to select victims as friends. The model explains only about 3 percent of the variance.

Model 2 of Table 5 shows that the odds of choosing an offender as friend is 12.4 times larger for offenders-only ( $e^{2.518}$ ) and 3.4 times larger for victims-only ( $e^{1.230}$ ) in comparison to people with no recent experiences with crime. The probability of choosing offenders as friends is largest for those who are both victim and offender (that is,  $e^{(-5.197+2.518+1.230+0.856)} / (1 + e^{(-5.197+2.518+1.230+0.856)}) = .36$ ) and smallest for those uninvolved with crime (.01). Again, we find no statistically significant victim-offender interaction effect and additional analyses indicate that victim-offenders do not differ statistically from offenders-only with regard to choosing offenders as friends. Likewise, Table 6 shows that victimization is associated with a 1.6 increase in the odds of choosing victims as friends ( $b = 0.473$ ). The positive effect for offenders-only ( $b = 0.216$ ) is not statistically significant. Additional analyses indicate that victim-offenders do not differ from victims-only with regard to choosing victims as friends. So it seems that offenders-only, victims-only, and victim-offenders all select friends on the basis of similar experiences with crime.

In Model 3 of Tables 5 and 6, we control for gender, age, and educational similarity. Controlling for people's own involvement with crime, men and women have similar chances of selecting an offender as a new friend. Older people are less likely than younger people to befriend offenders ( $b = -0.131$ ). When both ego and alter are high-educated, the likelihood of engaging in a friendship with an offender is much lower ( $b = -1.713$ ) than that for low-educated people. We find no impact of gender or age on selecting a victim as a new friend (Table 6). The odds that a new friend is a victim decrease by 62 percent ( $1 - e^{-0.980}$ ) when ego is high-educated and the new friend is low-educated compared with when both are low-educated. Similarly, the chance of selecting a victim as a friend is lower when the respondent reported having no idea what the educational level of the new friend is ( $b = -1.483$ ).

Including the control variables in our explanatory model reduces the estimates of the effects of individuals' own involvement in crime as offender on the selection of delinquent friends. The odds for offenders to engage in a friendship with another offender are reduced by 43 percent ( $100 * (e^{2.467} - e^{3.029}) / e^{3.029}$ ). The odds for victims to engage in a friendship with another victim have hardly changed ( $b = 0.538$ , Model 1 versus  $b = 0.534$  Model 3, Table 6).

In Models 4, 5 and 6, we include individual preferences, opportunities, and third parties in the model. Contrary to our expectation (Hypothesis 1), the preferred social distance to offenders is unrelated to whether people select an offender or a victim as a new friend (Model 4, Tables 5 and 6).

Model 5 of Table 5 shows that risky lifestyles indeed affect the likelihood of selecting offenders as friends. People are less likely to select offenders if they never visit coffee shops or smart shops ( $b = -1.461$ ). The effect for visiting bars, discotheques or clubs is of similar size and in a similar direction but does not reach statistical significance. People who are employed also have a lower risk of selecting offenders ( $b = -1.218$ ). None of the risky lifestyle indicators are statistically significantly related to the likelihood of selecting victims as friends (Model 5, Table 6). The proportion of offenders in the egohood also turns out to be unrelated to selecting offenders or victims as friends.

Parental discouragement is not related to the chance of selecting an offender as a new friend (Model 6, Table 5), which refutes hypothesis 3. However, the results in Table 6 show that parental discouragement is statistically significantly related to the likelihood of selecting victimized others ( $b = 0.336$ ). Individuals whose parents discouraged deviant behavior are more likely to select victims as friends. Having victims as friends increases the likelihood that people choose offenders as friends ( $b = 0.606$ , Model 6, Table 5). Although the other effects are also in the expected direction, we cannot confirm our hypothesis that existing friendships with offenders or victims are related to the likelihood of selecting offenders or victims as new friends (Hypothesis 4).

For the final model (Model 7) a stepwise backward elimination procedure was followed, in which we started with a full model including all statistically non-significant effects. The covariates with the least statistically significant effects were removed from the model sequentially until only statistically significant effects remained. Note that Model 7 of Table 5 explains about 34.5 percent of the variance. As such, this model provides a strong explanation for selecting offenders as friends given that the  $R^2$  values in the method used here are generally much lower than the ordinary least squares  $R^2$  (Snijders and Bosker, 1999). In contrast, Model 7 of Table 6 explains about 5.6 of the variance in selecting victims as friends.

The results are in line with previous models. However, we now find that the number of offenders and victims in the existing network are both positively related to the selection of victims as friends. In this final model, the odds of offenders engaging in friendships with offenders are reduced by 57 percent ( $100 * (e^{1.615} - e^{2.467}) / e^{2.467}$ ) and the odds of victims selecting a victim as a friend are reduced by 7 percent ( $100 * (e^{0.457} - e^{0.534}) / e^{0.534}$ ). Nonetheless, both effects remain statistically significant. This implies that we cannot rule out that experiences with crime are friendship selection criteria.

## Conclusion and discussion

Peer selection and influence have received considerable attention in criminological research. Friendship networks often appear to be rather homogeneous, also with respect to crime involvement. In the current study, we examined friendship selection in relation to offending and victimization. We derived three explanations for homophily from the sociological literature on partner selection and applied these to explain homophily in crime involvement among friends. We used Dutch panel data among a sample of 16 to 45 year olds to test the explanations.

The findings of this study indicate that offenders more often break friendships than do non-offenders and at the same time have a higher likelihood of selecting new friends. These processes make their networks relatively unstable (Reiss, 1986; Warr, 1996). In contrast, victims are less likely to break friendship ties than are non-victims and, since they do not differ from non-victims with regard to the selection of new friends, their networks are relatively stable. The impact of offending and victimization on friendship termination could in part be interpreted by educational attainment, gender, and age. Homophily in crime experiences does not reduce the risk of breaking a friendship. On the contrary, offenders are quite likely to break ties with delinquent friends.

Supporting the principle of homophily, we found that offenders and victims select new friends with similar experiences with crime. Given that friendship networks of offenders are also less stable, it is likely that their networks become homogeneous over time at a faster rate than those of non-offenders. We find no evidence that victim-offenders (de)select friends differently as compared to victims-only or offenders-only. However, we did find evidence that victims more often choose offenders as friends as compared to non-victims. Given that delinquent peers are likely to influence people's criminal behaviors (influence perspective), the friendship selection processes of victims could partially explain why they have a higher risk of becoming offenders themselves.

Homophily in friendships is often taken as evidence of individuals' general preference to associate with those who are similar to them. However, the fact that people tend to associate with similar others is a statement about the structure of the network and as such it does not show which underlying mechanism is responsible (Van Mastrigt and Carrington, 2014). In the current study we therefore aimed to explain why people would have friends with similar experiences with crime using sociological explanations related to *preferences*, *opportunities* and *third parties* (Kalmijn, 1998).

The results suggest that selecting offenders as friends is more strongly related to meeting opportunities than to individual preferences or the influence of third parties. People who engage in risky lifestyles are considerably more likely to engage in friendships with offenders than those who do not. On the other hand, we found no impact for a very direct measure of offender meeting opportunities, that is, the proportion of offenders in the local living environment. Perhaps the proportion of offenders is too low to favor offender meeting opportunities. Even in egohoods with the most offenders, people still have a substantially higher chance of meeting others uninvolved with crime than meeting those who are. The egohood with the most offenders contains only 6 percent suspects of crime.

With regard to selecting victims as friends, we found that friendship selection is more strongly related to third-party influences (both parents and existing friends). The higher the number of victims and offenders in one's network, the higher the likelihood of selecting victims as new friends. This finding is in line with triadic closure, when friends of friends become friends. Friends often facilitate meeting opportunities with their other friends, who often share many of their characteristics. This way, triadic closure contributes to homophily in friendship networks (Young et al., 2014). We found little evidence for the influence of opportunities and individual preferences on friendship selection in relation to victimization.

No study is without caveats. Just like the neighborhood context, schools and workplaces may also affect opportunities to meet and interact with victims and offenders. Unfortunately, we had no information on the social composition of other social contexts than the living environment. Similarly, for determining a third-party effect of parents we would have preferred to have direct measures about whether parents attempted to influence the friendship choices of their (adult) children (Mounts, 2000). Parents could do so by limiting the meeting opportunities of their children by supervising, intervening, or monitoring peer relationships. Exploring such direct influences of parents besides their indirect normative influences may help our understanding of friendship choices of (adult) individuals. Furthermore, we knew little about the friends of our respondents besides their experiences with crime and their educational level. We assumed that victimized and

offending friends had more risky lifestyles, but we would have liked to use direct measures of their lifestyles instead.

It is likely that friendship similarity with respect to crime is more pronounced for serious types of crime and also for the same type of crime; victims of serious crimes may for instance feel a stronger need than victims of minor crimes to co-ruminate over their shared negative emotions, and a victim of a violent offense may bond more strongly with someone who was also a victim of violence than to a victim of a property crime. Unfortunately, the relatively small sample size of our study and the low prevalence of serious crimes do not allow us to distinguish between different types of crime.

Scholars in social network research have raised concerns about measuring peers' behavior indirectly by asking respondents to report on the behaviors of their peers (Weerman and Smeenk, 2005; Young et al., 2014). According to these scholars, indirect measures of peers' behavior may overestimate similarities between peers and respondents because individuals tend to project their own behavior onto that of their peers. Although we acknowledge that this is a potential disadvantage of using ego-centered network data, we would like to stress that offending and victimization levels were considerably higher among respondents than among their friends (see Tables 2 and 3). Hence, we would argue that projection effects should have been limited.

Although further research is needed, this study has four important conclusions. First, it demonstrates that the friendship networks of offenders are the most volatile and those of victims are the most stable. Second, although the friendship selection processes of individuals can partially explain the association between victimization and offending, victim-offenders do not (de)select friends differently from victims-only and offenders-only. Third, the selection of offenders as friends depends to a large extent on the individual, whereas selecting victims as friends is much more random. Fourth, even after controlling for demographic characteristics, individuals' preferences, lifestyle characteristics, parental discouragement, and the existing friendship network, the effects remain of individuals' involvement in crime (as offenders and victims) on the chance of selecting friends with similar involvement in crime. We therefore cannot rule out that experiences with crime serve as criteria for friendship selection.

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## Notes

1. Additional multilevel analyses in which an extra nesting level was introduced showed that responses do not cluster at the highest level (across the waves) once  $Y$  at  $T-1$  is controlled for. This justifies treating these cases as independent because our final conclusions stem from analyses in which we control for  $Y$  at  $T-1$ .
2. The Netherlands is known for its tolerant soft drugs policy, which allows the sale of small amounts of cannabis products in so-called 'coffee shops' and the sale of psychoactive substances in 'smart shops'.
3. Given the age-range of our study, we considered network members who completed general secondary education (HAVO or VWO) as high-educated because they are expected to complete higher professional education later in life.

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