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I got a bottle of whatever, but it’s gotten us drunk
Singing here’s to never growing up

Avril Lavigne, Here’s to Never Growing Up
Risk factors for self-reported delinquency in emerging adulthood

3.1 Abstract

The goal of this study is to examine risk factors for delinquency in emerging adulthood, highlighting any differences between those generally found for adolescent delinquency. The importance of examining risk factors for this age-group is discussed, given recent changes in the nature of the early adult years. Risk effects for self-reported delinquency were examined in a general population sample of emerging adults (age 18-24). A range of measures, such as peer delinquency, parental support, and substance use, were used to predict reporting of at least one arrestable offence in a six-month period beginning a year later. In the full model parental social support, alcohol use, and a measure of self-control, aggression, and criminal attitude all significantly predicted delinquency. We conclude that a good relationship with parents continues to be an important protective factor and that alcohol use continues to indicate problems with delinquency during emerging adulthood, similarly to during adolescence.

Keywords
risk factors; delinquency; emerging adulthood; parental support; alcohol use
3.2 Introduction

There is a wealth of literature on the risk effects for delinquent behavior in adolescence. These longitudinal studies generally follow individuals for an extended number of years, using risk factors from either childhood or early adolescence to predict delinquent behavior later in adolescence. This focus on adolescence is understandable, since this is the age at which delinquent behavior increases rapidly (Farrington, Loeber, and Jolliffe 2008). Given that the majority of offenders desist as they become adult, the analysis of risk effects for delinquent behavior in early adulthood is justifiably less common. Yet, for many young people the nature of the early years of adulthood has changed dramatically over the last decades. This time of life, labeled by developmental psychologists as ‘emerging adulthood’, is now characterized by delaying of traditional adult roles and increased freedom to explore and experiment (Arnett 2015). These changes may lead to a continuation of the risk factors associated with adolescent offending or the emergence of risk factors particular to this age group.

We explore this question using data from a longitudinal, prospective study on delinquency in emerging adulthood. Using a contemporary, general population, ethnically diverse, urban sample of 970 emerging adults living in the Netherlands, aged between 18 and 24 years, we examine possible risk factors for self-reported delinquency. Specifically, we research whether a range of factors all measured in emerging adulthood predict delinquent behavior for a six-month period beginning one year later. Based on previous research (e.g., Asscher, Wissink, Dekovic, Prinzie, and Stams 2013; Elliott et al. 1996; Janssen, Dekovic, and Bruinsma 2014; Loeber, Pardini, Stouthamer-Loeber, and Raine 2007), risk factors were selected for their probable importance to the emerging adulthood period and the changes that may or may no longer occur as young people leave adolescence.

3.2.1 Emerging adulthood

A search of the risk effects literature reveals many studies that have examined which factors predict delinquent and anti-social behavior in adolescence (Murray and Farrington 2010). This focus on adolescents is understandable given the emergence of and high rate of delinquent behavior in this age group. Furthermore, the average age-crime curve for western populations, which reflects this pattern, also indicates that prevalence of delinquent behavior starts to decrease sharply as young people enter adulthood. Many theories address reasons for this decline (e.g., Moffitt 1993; Sampson and Laub 1993; Warr 1998). For example, Moffitt (1993) makes the distinction between adolescence-limited offenders and life-course persistent offenders. She argues that adolescence-limited offenders, who stop offending as they reach adulthood, are displaying behavior normative for their age group. In
contrast, life-course persistent offenders have more a problematic history, reaching back into young childhood and indicative of more serious underlying problems such as psychopathy. Based on routine activity theory, Osgood and colleagues (1996) argue that much of adolescent offending is a result of situational factors arising from unstructured socializing. As this phenomenon drops off during adulthood so too does offending. Warr (1998) argues the drop off is explained by a decline in the influence of delinquent peers. What all these theories collectively suggest is that continued delinquent behavior into young adulthood is increasingly non-normative. We might therefore expect the risk factors associated with delinquency for this age-group to differ from those of adolescents.

Evidence from self-report studies on delinquency in young adulthood, however, show that the prevalence of delinquency and crime remains high and even increases for this age group (Donker, 2004; Fagan and Western 2005). Furthermore, age-crime curves based on official statistics do not generally show a return to early adolescent levels of offending until several years into adulthood (Loeber and Farrington 2014; Piquero, Brame, Mazerolle, and Haapanen 2002). Recent research from Scotland, for example, found the peak age of official offending statistics to have shifted to 22 years (Matthews 2014). Apart from the fact that prevalence remains high in the early adult years, there are other theoretical reasons for wanting to examine delinquency in the early adult years.

The lives of many today’s young adults living in the Western world look very different to those of previous generations (Côté and Bynner 2008). Moffitt’s (1993) argument for adolescents’ delinquency motivation, that ‘they remain financially and socially dependent on their family of origin’ (p.687), could just as well refer to many young people during the early years of emerging adulthood. Rather than progressing swiftly into the adult roles of marriage, parenthood, and a stable job, young people today tend to delay these roles, or not have access to them, until later in life. Due to the increasing need for post-secondary education qualifications, the majority of young people in western European countries spend at least some of their early adult years in education (Eurostat 2014). In the Netherlands the average age for getting married is now well into the thirties for both men and women and the average age of becoming a parent for first time is 29 for Dutch women and 32 for Dutch men (United Nations 2016). Furthermore, the average age for leaving the parental home in the Netherlands is 23 years. These demographic changes reflect the more subjective changes researchers have found recent generations of young people to associate with this time of life.

The early years of adulthood are now considered by many to be a time of freedom from responsibilities and commitments, of experimentation and exploration, and of instability (Arnett 2015; Hill, Lalji, van Rossum, van der Geest, and Blokland 2015). In general for those living in Western cultures traditional markers of
adulthood are deemed less important indicators of having achieved adult status than individualistic criteria, such as having a sense of autonomy or establishing a relationship with parents as an equal (Shanahan, Porfeli, Mortimer, and Erickson 2005). Nevertheless, whilst markers of adulthood have shifted, emerging adults’ lives are different to those of adolescents. They clearly experience increased freedom and responsibilities for the self that come with being an adult. At the same time, however, they are not bound by responsibilities and commitments to others or to social institutions that earlier generations experienced. Previous work has found that some of these increased freedoms can increase the likelihood that emerging adults engage in delinquency (Blokland 2014; Lustig and Liem 2010). It is therefore important to examine which factors specific to emerging adulthood increase the risk that young people are involved in delinquent behavior.

3.2.2 Risk factors for delinquency in emerging adulthood

In this paper, we choose several possible risk factors to examine in our general population sample of Dutch emerging adults. Within the limits of the available data we focus on factors derived from theories and empirical research on adolescent delinquency and that specifically relate to changes that occur as people leave adolescence and enter adulthood, the relevance of which may have shifted given recent changes in the nature of the emerging adult years. We also consider, arguably more stable antisocial tendency measures, such as self-control, to determine their predictive power above and beyond these other more dynamic factors, as well as looking at demographic characteristics and previous delinquent behavior.

The negative influence of delinquent peers during adolescence has been widely demonstrated (Asscher et al., 2013; Haynie and Osgood 2005; Weerman, Bernasco, Bruinsma, and Pauwels 2013). However, we know that as young people age into adulthood the effect of delinquent peers gradually lessens (Monahan, Steinberg, and Cauffman 2009). Researchers argue that this is a consequence of spending less time in their company (Warr 1998) or of a shift in routine activities away from unstructured socializing (Osgood et al. 1996). Studies have indeed found that delinquent peers are less of a risk factor explaining delinquent behavior during adulthood (Stouthamer-Loeber, Wei, Loeber, and Masten 2004). Monahan and colleagues (2009) find that by the age of 20 the negative effect of peers on delinquent behavior disappears, as young adults become resistant to peers’ influence. However, young people today increasingly spend their early adult years in education and not in full time employment. Consequently, they remain in daily contact with same age peers and recent research carried out with a contemporary college student sample has found delinquent peers are a risk factor for persistent delinquency (Haffejee, Yoder, and Bender 2013). Furthermore, present day emerging adults are less likely to be exposed to the prosocial peer networks associated with employment, which
have been found contribute to the decreased risk of delinquent peers (Wright and Cullen 2006). We therefore examine whether having delinquent peers increases risk of delinquent behavior during the early emerging adult years, similarly to in adolescence, or whether in our sample of young Dutch emerging adults their effect has also diminished, as several previous studies have found.

Living in a disadvantaged neighborhood has been found to have a negative effect on adolescent delinquent behavior (Elliott et al. 1996; Herrenkohl, Lee, and Hawkins 2012; Leventhal and Brooks-Gunn 2003), with some studies finding the effect works indirectly, through peer delinquency and/or parenting (Chung and Steinberg 2006; Cuellar, Jones, and Sterrett 2015). However, not all studies find a negative effect for neighborhood disadvantage in adolescence at the individual level (McBride Murry, Berkel, Gaylord-Harden, Copeland-Linder, and Nation 2011), and studying an adult sample, Stouthamer-Loeber and colleagues (2004) found no effect of perceived neighborhood disadvantage on persistent delinquency in young adulthood. Here we therefore examine whether our sample of emerging adults living in neighborhoods across Amsterdam are similarly invulnerable to the negative effect of living in a disadvantaged neighborhood.

The relationship between parents, parenting, and delinquency during adolescence has been repeatedly examined and confirmed (Hoeve et al. 2009; Janssen et al., 2014). Poor family relations have often been identified as risk factors for adolescent anti-social behavior (Farrington, Loeber, Jolliffe, and Pardini 2008; van der Laan et al. 2010). It might be expected, however, that as young people become adults and gain more independence, relationships with parents becomes less predictive of these youths’ delinquent behavior. Yet, as the nature of the early adult years has changed, so too has the nature of the parent-child relationship during these years (Sanson and Wise 2001). Warmth, responsiveness, and control remain important features of successful parenting in emerging adulthood, as they are in adolescence (Nelson, Padilla-Walker, Christensen, Evans, and Carroll 2011). A recent study has pointed to the continuing importance of parents for delinquency in emerging adulthood, with ongoing support associated with lower rates of young adult offending (Johnson, Giordano, Manning, and Longmore 2011). Schroeder and colleagues (Schroeder, Giordano, and Cernkovich 2010) also found that having a strong relationship with parents predicted desistance in adult children. In this study we therefore examine whether experiencing social support from parents still protects emerging adults against delinquent behavior during this time of life.

Another important risk factor for adolescent delinquency, notably identified in Moffitt’s dual taxonomy theory (1993) and Agnew’s general strain theory (1992), is adolescents’ need for autonomy. During adolescence young people feel adult, but are not yet accorded the freedoms associated with adulthood. This mismatch motivates delinquency as a means to attain a sense of autonomy, according to
Moffitt, or to cope with the strain of not having the desired autonomy, according to Agnew. Empirical research has indeed found an association between need for autonomy and delinquency in adolescence (Brezina 2008; Chen 2010; Galambos, Barker, and Tilton-Weaver 2003). The importance of this risk factor is, for most young people, likely to diminish as young people transition out of adolescence and increasingly experience the privileges and freedoms of adulthood. However, given the changed nature of the early adult years, such as increased length of time spent in education or prolonged financial dependence on parents due to education and/or unstable employment (Schoeni & Ross 2005), for modern day emerging adults the need for autonomy may continue to represent an important risk factor for delinquent behavior in emerging adulthood.

Substance use is generally considered to be a risky behavior and it is frequently associated with delinquent behavior during adolescence (Assink et al. 2015). However, for adults, alcohol use is legal, as, in the Netherlands, is the recreational use of marijuana. Furthermore, substance use peaks during the emerging adult years (Arnett 2015), indicating wider prevalence and greater acceptance. One might therefore expect the relationship between substance use and delinquency to weaken during this period of life. However, previous research in the USA has found that weekly marijuana and heavy alcohol use continue to be associated with delinquency during the early adult years (Loeber, et al. 2007). We explore whether this is also true for our sample of Dutch emerging adults.

In addition to the possible risk factors outlined above, we also examine more general measures found to predict delinquent behavior across the life course, namely self-control, aggression, and criminal attitude. The relationship between low self-control and delinquent behavior is prominent in criminology (Gottfredson and Hirschi 1990), and its predictive power has been demonstrated across all ages (Pratt 2015; Pratt and Cullen 2000). Similarly, aggression and delinquency often go hand in hand (Loeber and Hay 1997). Measures of trait aggression have been identified as a risk factor for delinquent behavior in adolescence (Assink et al. 2015) and adulthood (Pulkkinen, Lyyra, and Kokko 2009). Likewise, a criminal attitude is a strong predictor of delinquent behavior throughout the life course (Mills, Kroner, and Hemmati 2004; Walters 2012), reflecting an individual’s thoughts, intentions, and norms concerning criminal behavior (Loeber and Hay 1997). We include these constructs in our study largely to test whether the other risk factors, named above, continue to have predictive power above and beyond these three strong predictors of delinquency. Whilst the influence of the above factors may change as young people age into adulthood, although as we posit for emerging adults this might not yet be true, the relationship between low self-control, aggression, criminal attitude, and delinquency is unlikely to diminish; hence their importance in any examination of risk factors for delinquency.
All of the above risk factors are theoretically dynamic, i.e., they can change over time. We also include several static risk factors, i.e., factors that cannot change, in our models. These are gender, ethnicity, namely Dutch-Moroccan and Dutch Caribbean, and previous delinquent behavior. Males are typically found to be overrepresented in crime and delinquency statistics compared to females (FBI 2012). In the Netherlands both Dutch Moroccan and Dutch Caribbean youths are over represented in official crime statistics during the adolescent years (Blokland, Grimbergen, Bernasco, and Nieuwbeerta 2010; Jennissen 2009) Finally, adolescent delinquent behavior is consistently one of the best predictors of adult criminal behavior (Rhoades, Leve, Eddy, and Chamberlain 2015) and is therefore included as an important control variable.

3.3 Method

3.3.2 Participants
Data are from the Transitions in Amsterdam Study, a prospective longitudinal study of emerging adults living in Amsterdam, the Netherlands, carried out by the Netherlands Institute for the Study of Crime and Law Enforcement (NSCR) between 2010 and 2014 (Blokland 2014). Participants for the study were emerging adults of Dutch, Dutch-Moroccan, and Dutch-Caribbean descent, operationalized as having two parents born in the Netherlands (Dutch) or at least one parent born in Morocco or the Dutch-Caribbean. Participants were randomly selected from the municipal registry for Amsterdam, with an oversampling of Dutch-Moroccan and Dutch-Caribbean ethnicities, and young people with a police record before their 17th birthday. Equal proportions of males and females were selected. Potential participants were first contacted by mail followed by home visits. Of the 3,408 reached, 970 (28%) agreed to participate and completed the first interview. Prior to the first interview informed consent was obtained from all individual participants included in the study. Sampled participants came from all seven of Amsterdam’s city districts and from 84 of 89 possible residential neighborhoods, excluding only some very small neighborhoods (neighborhood population < 2,000). Comparing the final sample to the total population of Dutch, Dutch-Moroccan, and Dutch-Caribbean emerging adults in Amsterdam, 10.0% of the total population had a police record

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6 Ethical approval for the study was sought and granted from CERCO (Commissie Ethiek van Rechtswetenschappelijk & Criminologisch Onderzoek [Ethics Committee of Legal and Criminological Research]) at the VU University, Amsterdam.

7 These two ethnicities are most over-represented in the crime figures, hence their inclusion and oversampling in the study (Blokland et al. 2010)
prior to age 17 compared to 19.2% of the final sample. The information available therefore suggests that the project succeeded in its aim to gather a representative sample of emerging adults, with a deliberate oversampling of those of with previous police records. Of the final sample 414 (43%) were of Dutch descent, 367 (39%) were of Moroccan descent, and 181 (19%) were of Dutch-Caribbean descent; 527 (54%) were female. All analyses were weighted by gender, ethnicity, and adolescent police record to ensure our sample was representative of the Amsterdam population for this cohort. Four waves of interviews were carried out at roughly 6 monthly intervals. The data used in this study are taken from the first and fourth interview waves. There was on average an interval of 20 months between the first and fourth interview (SD=2.4). Average participants age at wave one was 20 years (SD=1.35).

3.3.3 Measures

**Delinquent peers.** Participants reported whether any of their five closest friends had, to their knowledge, committed a criminal offence. For each friend a score of 1 indicated one or two offences, a score of 2 indicated more than two offences. The variable scores ranged from 0 to 9; 103 participants reported that at least one their five closest friends had committed at least one offence.

**Neighborhood.** During wave 1 interviews participants reported their street name and neighborhood. The municipal area of Amsterdam is split into 99 neighborhoods, of which 89 are residential. In order to calculate a measure of neighborhood socioeconomic status (SES) for each of these a factor analysis was carried out on three variables retrieved from the Dutch Bureau of Statistics (CBS) data for all residential neighborhoods in Amsterdam in 2013. These variables, proportion of population from ethnic minorities, proportion of population receiving welfare payments, and proportion of households with annual income lower than €18,000, all loaded onto one factor. Factor scores were saved as a variable indicating neighborhood SES, where a higher score indicates lower SES, i.e., more disadvantage. Factors scores ranged from -0.07 to 0.33 (M=0.14, SD=0.08).

**Parental social support.** Participants completed the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, and Farley 1988). A sum variable was made from the four items relating to family (Cronbach’s alpha .90). This included the items ‘my family really tries to help me’ and ‘I can talk to my family about my problems’. Scores on this variable ranged from 1 to 6 (M=5.58, SD=1.07).

**Substance use.** Participants indicated, on average, how often in the previous year they had had five drinks or more in one session. Scores ranged from 0 (never) to five (near daily) (M=1.17, SD=1.3) and 37% of participants reported drinking five drinks

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8 Non-residential neighborhoods are those with such a small number of residents that demographic information on residents is not published for reasons of privacy.
or more at least once a month. Participants were asked to list up to five drugs they had used in the past year, and how often they had done so, ranging from 1 (less than once a month) to five (near daily). Drugs listed included marijuana (decriminalized in the Netherlands), illegal drugs such as cocaine, as well as legal highs such as magic mushrooms and laughing gas. Scores ranged from 0 to 15 (M=1.22, SD=2.1).

Need for autonomy. Participants completed the Need for Autonomy scale (Agnew 1984). A sum variable was made from the five items (Cronbach’s alpha .66). Examples of the five items include ‘I demand freedom and independence above all else’ and ‘I like to be on my own and be my own boss’. Answers ranged from 1 (strongly disagree) to 5 (strongly agree) (M=3.57, SD=0.6).

Self-control, aggression, criminal attitude. Participants completed the Grasmick self-control scale (Grasmick, Tittle, Bursik, and Arneklev 1993). Examples of the 24 items are ‘I often act on the spur of the moment’ and ‘sometimes I will take a risk just for the fun of it’. Answers ranged from 1 (strongly disagree) to 4 (strongly agree). Participants completed the Aggression Questionnaire (Buss and Perry 1992). Examples of the 29 items are ‘I am sometimes eaten up with jealousy’ and ‘if somebody hits me I hit them back’. Answers ranged from 1 (extremely unlike me) to 5 (extremely like me). Participants completed the Measures of Criminal Attitudes and Associates questionnaire (Mills, Kroner, and Forth 2002). Examples of the 25 items are ‘stealing to survive is understandable’ and ‘I would be happy to fool the police’. Answers ranged from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alphas for these scales were acceptable .83, .91, and .86. These three scales were strongly correlated (.44-.52), suggesting that in a regression model multicollinearity might be an issue. We therefore decided to run a factor analysis on all the scale items, extracting one factor, and using the saved factor score as variable ‘antisocial tendency’, indicating self-control, aggression, and criminal attitude. The factor score was normally distributed and scores ranged from -2.11 to 5.75.

Static factors. Gender (54% female), dummy variables for ethnicity (38% Dutch-Moroccan, 19% Dutch-Caribbean), and a dichotomous variable indicating a police record prior to age 17 years (N=187) were included in all models as control variables. Age (wave 1: M=20, SD=1.35) was also included in all models.
3.3.4 Delinquency
At each interview wave participants indicated whether they had committed any of 48 offences during the last six-month period and, if so, how many times they had committed the offence. The delinquency scale was adapted from the Self-Reported Delinquency study (Junger-Tas, Terlouw, and Klein 1994) and the South Holland study (Hofstra, van der Ende, and Verhulst 2001). From the 48 self-reported offences, we created a dichotomous measure indicating participants who had reported committing at least one arrestable offence; 30 of the original 48 offences were arrestable offences. See Appendix A for offences and offence frequencies. Self-reported delinquency from wave 4 interviews was used as a dependent variable in our analyses. Self-reported delinquency from wave 1 interviews was used in the final model as a control variable.

3.3.5 Missing data
Rate of participation at the fourth interview wave, from which our delinquency measure is taken, was 70%. In order to include the entire sample and to avoid possible bias that would result from complete case analysis, missing values on the delinquency measure from wave four were imputed, using a multiple imputation technique carried out in R. Scores on the 48 original offences were imputed using previously reported delinquency, as well as demographic variables such as gender, and a number of psychological measures. Five imputed datasets were created which were used for the analyses where self-reported delinquency is the dependent variable. See Appendix B for more details on the imputation procedure and the variables used. The results presented are the pooled results from analyses carried out on each of the five datasets. 10

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9 These are offences for which individual can be detained under Dutch law. The wording of several offences in the self-report questionnaire provided two options for which one was arrestable the other not; these offences were not included in the arrestable offence measure.

10 Analyses were also run on non-imputed data to examine any potential differences.
Table 1. Bivariate correlations between all variables.

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* p<.05, ** p<.01, *** p<.001
3.4 Results

Table 1 shows the bivariate correlations between all variables included in the analyses. Correlations larger than .3 are reported in the text. Native Dutch ethnicity was negatively correlated with low neighborhood SES (-.36) and Dutch-Caribbean ethnicity was positively correlated with low neighborhood SES (.39). Native Dutch ethnicity was positively correlated with alcohol use (.55) and Dutch-Moroccan ethnicity was negatively correlated with alcohol use (-.53). Alcohol and drug use were positively correlated (.42), need for autonomy and the antisocial tendency measure were positively correlated (.37), and self-reported delinquency and antisocial tendency were positively correlated (.34). Despite these moderately high correlations between variables results of our test for multicollinearity indicated this was not an issue: Tolerance statistics were all well above .2 (.54-.92) and variance inflation factors (VIF) were all well below 5 (1.11-1.86). The weighted and pooled data from five imputed datasets show that 211 (22%) participants reported committing at least one of the arrestable offences in the six-month period prior to the fourth interview.

We first ran a series of hierarchical logistic regression models with self-reported delinquency as dependent variable. We used the Stata command *khb* in order to correctly compare the results of our nested non-linear models (Karlson, Holm and Breen 2010; Kohler, Karlson and Holm 2011). The results in odds ratios are shown in Table 2. From model 1, which includes only background controls, we can see that, as expected, being male more than doubled the likelihood, and having an adolescent police record nearly doubled the likelihood of reporting an arrestable offence. Contrary to expectations however having a Dutch-Moroccan ethnicity was a protective factor in our data; Dutch-Moroccans were more than 40% less likely to report committing an arrestable offence than the Dutch and Dutch-Caribbean emerging adults in our sample. Model 2 added the measure for delinquent peers. We see that for every one additional score on the delinquent peer measure the likelihood of reporting delinquency increased by 43%. Adding an indicator of neighborhood SES to model 3 indicated that the effect of living in disadvantaged neighborhoods did not significantly predict delinquency for emerging adults. Model 4 indicates

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11 Multicollinearity tests cannot be carried out with logistic regression. We therefore ran a linear regression of the entire model. As when exploring collinearity we are interested in examining the independent rather than dependent variables the use of linear rather than logistic regression does not affect the conclusion.

12 In the non-imputed data 145 (21%) of participants reported committing an arrestable offence.

13 In a model with Neighborhood SES entered before peer delinquency it did not significantly predict delinquency.
Table 2. Logistic regression models with self-reported delinquency as dependent variable.

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>OR (CI)</td>
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<td>OR (CI)</td>
<td>OR (CI)</td>
<td>OR (CI)</td>
</tr>
<tr>
<td>Gender</td>
<td>2.433*** (1.737 – 3.404)</td>
<td>2.228*** (1.583 – 3.311)</td>
<td>2.166*** (1.508 – 3.121)</td>
<td>2.166*** (1.505 – 3.121)</td>
<td>2.121*** (1.471 – 3.062)</td>
<td>1.709*** (1.155 – 2.532)</td>
<td>1.370 (0.899 – 2.090)</td>
<td>1.318 (0.827 – 2.098)</td>
</tr>
<tr>
<td>Age</td>
<td>3.404** (3.133)</td>
<td>3.057** (2.826)</td>
<td>2.665** (2.374)</td>
<td>2.565** (2.283)</td>
<td>2.228*** (1.737 – 3.404)</td>
<td>1.957 (1.471 – 2.632)</td>
<td>1.576 (1.179 – 2.115)</td>
<td>1.497 (1.096 – 2.054)</td>
</tr>
<tr>
<td>Dutch-Moroccan</td>
<td>0.957 (0.840 – 1.091)</td>
<td>-0.031 (0.970 – 1.033)</td>
<td>0.957 (0.832 – 1.092)</td>
<td>0.957 (0.832 – 1.092)</td>
<td>0.957 (0.832 – 1.092)</td>
<td>0.957 (0.832 – 1.092)</td>
<td>0.957 (0.832 – 1.092)</td>
<td>0.957 (0.832 – 1.092)</td>
</tr>
<tr>
<td>Dutch-Caribbean</td>
<td>0.540” (0.408 – 0.702)</td>
<td>-0.569” (-0.948 – 0.399)</td>
<td>-0.569” (-0.948 – 0.399)</td>
<td>-0.569” (-0.948 – 0.399)</td>
<td>0.820 (0.472 – 1.426)</td>
<td>1.343 (1.008 – 1.790)</td>
<td>1.250 (0.928 – 1.684)</td>
<td>1.112 (0.820 – 1.507)</td>
</tr>
<tr>
<td>Adolescent police record</td>
<td>0.914 (0.579 – 1.441)</td>
<td>0.911 (0.576 – 1.439)</td>
<td>0.916 (1.073 – 1.870)</td>
<td>0.916 (1.141 – 1.783)</td>
<td>1.426*** (1.141 – 1.783)</td>
<td>1.405* (1.103 – 1.790)</td>
<td>1.365* (1.069 – 1.740)</td>
<td>1.264* (0.987 – 1.618)</td>
</tr>
<tr>
<td>Delinquent friends</td>
<td>1.426** (1.141 – 1.783)</td>
<td>1.431” (1.119 – 1.826)</td>
<td>1.431” (1.119 – 1.826)</td>
<td>1.405* (1.103 – 1.790)</td>
<td>1.405* (1.103 – 1.790)</td>
<td>1.365* (1.069 – 1.740)</td>
<td>1.264* (0.987 – 1.618)</td>
<td>1.104 (0.855 – 1.428)</td>
</tr>
<tr>
<td>Neighborhood SES</td>
<td>1.490 (0.105 – 21.115)</td>
<td>1.490 (0.105 – 21.115)</td>
<td>1.490 (0.105 – 21.115)</td>
<td>1.490 (0.105 – 21.115)</td>
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<td>1.490 (0.105 – 21.115)</td>
</tr>
<tr>
<td>Parental social support</td>
<td>0.761” (0.653 – 0.886)</td>
<td>0.771” (0.661 – 0.899)</td>
<td>0.781” (0.668 – 0.913)</td>
<td>0.815* (0.691 – 0.960)</td>
<td>0.815* (0.691 – 0.960)</td>
<td>0.815* (0.691 – 0.960)</td>
<td>0.815* (0.691 – 0.960)</td>
<td>0.815* (0.691 – 0.960)</td>
</tr>
<tr>
<td>Need for Autonomy</td>
<td>1.381” (1.001 – 1.908)</td>
<td>1.327 (0.940 – 1.874)</td>
<td>0.979 (0.669 – 1.433)</td>
<td>0.981 (0.649 – 1.463)</td>
<td>0.981 (0.649 – 1.463)</td>
<td>0.981 (0.649 – 1.463)</td>
<td>0.981 (0.649 – 1.463)</td>
<td>0.981 (0.649 – 1.463)</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>1.576” (1.249 – 1.990)</td>
<td>1.498” (1.179 – 1.904)</td>
<td>1.335” (1.024 – 1.739)</td>
<td>1.335” (1.024 – 1.739)</td>
<td>1.335” (1.024 – 1.739)</td>
<td>1.335” (1.024 – 1.739)</td>
<td>1.335” (1.024 – 1.739)</td>
<td>1.335” (1.024 – 1.739)</td>
</tr>
<tr>
<td>Drug use</td>
<td>1.096* (0.998 – 1.203)</td>
<td>1.050 (0.955 – 1.150)</td>
<td>1.106 (0.998 – 1.203)</td>
<td>1.106 (0.998 – 1.203)</td>
<td>1.106 (0.998 – 1.203)</td>
<td>1.106 (0.998 – 1.203)</td>
<td>1.106 (0.998 – 1.203)</td>
<td>1.106 (0.998 – 1.203)</td>
</tr>
<tr>
<td>Antisocial tendency</td>
<td>2.028*** (1.519 – 2.423)</td>
<td>2.028*** (1.519 – 2.423)</td>
<td>2.028*** (1.519 – 2.423)</td>
<td>2.028*** (1.519 – 2.423)</td>
<td>2.028*** (1.519 – 2.423)</td>
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<td>2.028*** (1.519 – 2.423)</td>
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<tr>
<td>Intercept</td>
<td>0.487</td>
<td>0.368</td>
<td>0.435</td>
<td>2.542</td>
<td>0.800</td>
<td>0.888</td>
<td>0.923</td>
<td>0.578</td>
</tr>
</tbody>
</table>

† p<.1, * p<.05, ** p<.01, ***p<.001
that parental social support was a significant protective factor: For every one-point increase in parental social support the likelihood of delinquency decreased by 24%. Model 5 subsequently indicates that for every one-point increase in need for autonomy the likelihood of reporting delinquency increased by 38%. In these first five models the significant effects did not change considerably when new variables were added to the model. In model 6 we see that alcohol use significantly predicted delinquency. Every one-point increase in the alcohol measure increased the likelihood of reporting delinquency by over 50%. When these variables were added to the model the effects of need for autonomy, adolescent police record, and Dutch-Moroccan ethnicity were no longer significant, and the effect size of other significant variables decreased. In model 7 we see that for every one-point increase in the antisocial tendency score the likelihood of a participant reporting delinquency more than doubled. When the antisocial tendency variable was added delinquent peers and gender were no longer significant predictors. In this model parental social support remained a significant protective factor (OR=0.82) and alcohol use remained a significant risk factor (OR=1.50). In the final model we added a dichotomous measure for self-reported delinquency in wave 1, to examine which effects remained controlling for this. Delinquency at wave 1 was a very strong predictor of delinquency at wave 4 (OR=4.74). The effect of parental social support remained a significant protective factor (OR=0.83), the antisocial tendency measure (OR=1.79) remained a significant risk factor, and the effect of alcohol use (OR=1.34) also remained a significant risk factor for delinquency at wave 4 controlling for previous delinquency reported at wave 1.14

14 Results of analyses run on non-imputed data were very similar to those of the pooled results on imputed data. Differences were that delinquent friends did not significantly predict delinquency in any model, and in model 7, whilst remaining significant, the effect of alcohol use and antisocial tendency was slightly stronger and that of parental social support slightly weaker.
3.5 Discussion

The current study aimed to examine a number of risk factors for delinquency in emerging adulthood, using a general population sample of Dutch emerging adults. We tested several risk factors whose relevance is generally considered to shift as young people move out of adolescence into adulthood, as well as risk factors known to predict delinquency throughout the life course, and a series of demographic controls. We examined whether these factors predicted self-reported arrestable offences in a six-month period beginning a year after measurement of the risk factors.

Our measure of antisocial tendency, indicating low self-control, aggression, and criminal attitudes, more than doubled the likelihood that Dutch emerging adults would report delinquent behavior. These results suggest, unsurprisingly, that having low self-control, being aggressive, and having a criminal attitude are all robust and strong risk factors for delinquency in emerging adulthood and are in line with previous research (Assink et al. 2015). Furthermore, delinquency measured at wave 1 was a strong predictor of delinquency measured at wave 4. Next, we turn to the risk factors whose relevance we particularly wanted to explore given changes to the early adult years.

We speculated in the introduction that having delinquent peers, whilst previously found not to be a risk factor during adulthood, might, given changes in the nature of the early adult years, continue to increase the risk of delinquent behavior in emerging adulthood, particularly in the early years. This appeared to be partly supported: Having delinquent peers did significantly increase the likelihood of our participants engaging in delinquency in emerging adulthood. This would, therefore, have been in line with Haffejee and colleagues’ work (2015), but then for a more diverse sample, not solely college students. However, it appeared that this effect was entirely explained by differences in alcohol use and differences in self-control, aggression, and criminal attitude, as the significance and effect size for delinquent peers fell away when these factors were added to the model. This may partially be due to the surprisingly low prevalence of peer delinquency: 11% of participants reported peer delinquency, whereas 22% self-reported delinquency. It is possible that less serious offences committed by peers were underreported. Nevertheless, for practitioners, monitoring the peer network may continue to be a useful indication that young people are at risk of delinquent behavior in emerging adulthood as in adolescence.

In contrast, we found no effect for living in disadvantaged neighborhoods on delinquent behavior. It is hard to come to conclusions as to why we found no effect. It is possible that the non-effect was due to our sample having transitioned into emerging adulthood, i.e., no longer being adolescents and liable to the bad influence
living in a disadvantaged neighborhood may have, as previous research has found (Stouthamer-Loeber et al. 2004). On the other hand, it is also possible that the non-effect is peculiar to characteristics of Dutch, and in particular Amsterdam’s, neighborhoods. Much of the work on the delinquent effect of neighborhoods has been carried out in the USA. It is possible that, whilst urban areas in the Netherlands are clearly not homogenous, the extremes evident in the USA are not seen in the Netherlands\textsuperscript{15}. Another point to consider is that Amsterdam is a small city with an extensive public transport network, allowing high mobility between neighborhoods. Consequently, young people from more disadvantaged neighborhoods may be able to escape the negative influences of their residential neighborhood. Combine this with the fact that we have measured neighborhood disadvantage for the neighborhoods our participants live in, rather than where they spend most of their time. Studies with adolescents have found that they spend many hours a day out of their residential area (Basta, Richmond, and Wiebe 2010). Furthermore, Hoeben (in press) has found that for adolescents, disadvantage in neighborhoods where they spend their time is predictive of delinquency, whereas disadvantage in residential neighborhoods is not. Examining the neighborhoods where emerging adults spend their time is therefore necessary and further longitudinal research following Dutch young people from adolescence into adulthood is needed to clarify the reasons for our non-effect of neighborhood SES.

Parental social support, as per our hypothesis, proved to be a relevant and robust factor for emerging adulthood delinquency. For our self-report measure of arrestable offenses, in the full model, reporting more parental social support decreased the likelihood of engaging in delinquency. This highlights the continued significance of the parent-child relationship in predicting delinquency in the early adult years and suggests further research, with practitioners in the field, would be useful, to examine whether parental support is actually, not just theoretically, dynamic. For example, as and when parental support increases for a given individual does their delinquent behavior decrease?

The predictive power of need for autonomy, however, was not as conclusive. The initial significance of this factor fell away when substance use was added to the model, indicating that the effect was partly explained by substance use. Alcohol

\textsuperscript{15} As a rough comparison, average household income for Amsterdam neighborhoods in 2008 ranges from €18,400 to €54,000 and average for the city is €30,700 (CBS, 2016); in Chicago median household income ranges from $16,430 to 109,419 and median for the city is $46,195 (City Data, 2016). In Amsterdam the lowest average neighborhood income is 60% of the overall average; in Chicago the lowest median neighborhood income is 36% of the overall median. Comparing average and median incomes is not ideal. However, in the absence of directly comparative statistics, we feel that this comparison is illustrative.
use, however, did remain a risk factor for emerging adulthood delinquency, over and above other factors. We speculated that this might no longer have been the case in emerging adulthood, as it is in adolescence, given the prevailing social norms and practice of adult drinking. Nevertheless, it seems that alcohol use remains an indication of problem behavior, and one that would certainly appear suitable for interventions in the field.

3.5.1 Strengths and limitations
One of the strengths of our study was the use of self-reported delinquency. Much of the literature on adult offending relies on official conviction statistics, which inevitably underestimate offending. On the other hand, as Junger-Tas and Marshall (1999) point out, self-report studies are generally skewed towards less serious delinquency. Whilst we tried to mitigate this somewhat by using a score of arrestable offences, this inevitably remains true. Looking at the frequencies of the different offences reported (Appendix A) the three most prevalent offences were driving under the influence of alcohol (N=71) or under the influence of drugs (N=44), and selling party drugs, such as ecstasy or magic mushrooms (N=40). This suggests that the majority of offenders were committing substance misuse offences, rather than more serious criminal or violent offences. Whilst these offences do have the potential to cause grave personal harm, as well as injury to others, we have to question whether the risk factors we have found would also be applicable to more serious offenders.

A further strength was that we have a non-adolescent sample. Much of the risk factor literature using self-reported delinquency has been carried out on convenience samples of school attending adolescents. As we highlighted in the introduction, early adult delinquency remains a problem, and as Cullen (2011) pointed out delinquent behavior for groups other than adolescents should not be ignored.

Another issue with using self-report data, which clearly needs to be mentioned in light of our results, is the reliability of participants’ self-reporting. One of the most notable findings of our study that ethnicity was not a risk factor for delinquency, and that in the model with just demographic variables in, being Dutch-Moroccan was even a protective factor. The correlation between an adolescent police record and Dutch-Moroccan ethnicity was, however, positive and significant indicating that this effect is not a result of a particularly non-delinquent sample of Dutch-Moroccans taking part in the study. Self-report studies in other countries have also found that ethnicity was not a risk factor for delinquency, where official statistics suggest it is (Junger-Tas, Terlouw, and Klein 1994; Tonry 1997). It is possible that our sample of Dutch-Moroccans desist from their adolescent delinquent ways as they reach adulthood, a possibility previous studies on this group suggest likely
(Jennissen 2009). In this case we could conclude that having a Dutch-Moroccan ethnicity may be a protective factor for delinquency during emerging adulthood.

In addition to the ethnic differences, the effect of gender on self-reported delinquency fell away on the full model, suggesting that delinquent behavior by females is higher than we might expect. Age is also not predictive of criminal behavior, suggesting that older emerging adults (our sample ranged in age at wave 4 from 20-24 years) are as likely to report delinquency as younger. These findings suggest that delinquency among native Dutch, among females, and among older emerging adults, is higher than official criminal justice statistics would suggest.

Two possible explanations for these results are selectivity in police practices and the nature of the self-report measure itself. These explanations are not mutually exclusive. As already mentioned, self-report studies are generally skewed towards less serious delinquency (Junger-Tas and Marshall 1999). Serious offences are more likely to be detected by the police, taken more seriously by the police, or reported to the police, explaining this skew. This explanation has in the past been put forward for discrepancies between self-report and official crime statistics on ethnic minorities, i.e., that ethnic differences do not exist for minor delinquency, but only for serious delinquency (Junger-Tas and Marshall 1999; Siennick and Osgood 2008). However, in 1989 Junger also found a discrepancy for self-reports of official police contacts, with ethnic minorities under reporting their police contacts (Junger 1989). Possible solutions to the suggested lack of validity of the self-report measure are examining both self-report and official statistics, an area for future research, as well as employing a within-person analysis approach. If under reporting occurs systematically looking at change within individuals can still inform us on what predicts changes in delinquent behavior for all ethnicities.

In highlighting the advantages of looking at within individual change, another limitation of this study comes to light. We have several times described our risk factors as dynamic. However, as Serin and colleagues (Serin, Chadwick, and Lloyd 2015) point out in order to call a factor dynamic one needs to demonstrate that it does actually change over time. One way to do this is to examine within-person changes in, for example, alcohol use, and relate these changes in delinquent behavior. This is certainly an important area for future research on delinquent behavior in emerging adulthood.

Despite these limitations, we believe that examining risk factors for delinquency in the way we have done here remains a useful exercise. Firstly, our findings raise theoretical questions. For example, life-course and developmental theories of delinquency, notably Moffitt’s dual taxonomy (1993), suggest that less serious delinquency and antisocial behavior is limited to adolescence, with young people maturing out of this as they enter adulthood. Given our use of a general population sample, we can assume that the majority of the delinquents in our
study are not the more serious or chronic offenders. Yet, we have demonstrated that not only is delinquent behavior prevalent during this time of life, but also that some of the factors that predict adolescent delinquency continue to predict emerging adult delinquency. Identifying factors that distinguish individuals who have a higher likelihood of engaging in delinquency during emerging adulthood may help recognize those individuals in danger of becoming ‘ensnared’ (McGee, Hayatbakhsh, Bor, Aird, Dean, and Najman 2015; Moffitt, Caspi, Harrington, and Milne 2002) in a protracted pattern of delinquent behavior. This information is of particular interest to practitioners designing interventions for young people at risk of delinquency. On the basis of our results, we have learnt that parental relations and alcohol use during emerging adulthood are areas on which these interventions could focus.