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Delinquency Abstainers in Adolescence and Educational and Labor Market Outcomes in Midlife: A Population-Based 25-year Longitudinal Study

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Research has suggested that adolescent delinquency abstainers might have unfavorable characteristics, impeding their access to peer networks. However, recent studies have emphasized the possible heterogeneity of abstainers. We know little about the long-term adaption of delinquency abstainers. We identify subtypes of delinquency abstainers and investigate subsequent adult academic careers, income levels, and possible marginalization in the labor market. We use the population-based Young in Norway Longitudinal study, where participants ($N = 2,494$) are followed up by surveys and registers from their teens until their mid-30s. By means of latent class analysis, abstainers were divided in three groups according to degree of social integration. Results showed that delinquency abstainers performed as well or better in adulthood than those with moderate delinquency involvement and markedly better than the highly delinquent. Lonely abstainers performed just as well as all other groups when it comes to higher education and earnings. However, they had a higher probability of marginalization in the labor market than the social abstainers. We conclude that no group fared better than delinquency abstainers with strong social ties. The outcomes of the lonely abstainers were close to those of the majority. Thus, in this cohort who came of age in the 1990s, delinquency abstainers are not particularly vulnerable, and theory about abstainers needs to be modernized.




Keywords: delinquency, delinquency abstainers, antisocial behavior, adolescence, latent class analysis

Most adolescents take part in minor delinquent and rule-breaking behaviors. Moreover, such behaviors may be valued social activities among peers, making them a normative part of adolescence. Hence, total abstinence from delinquent acts may be

considered deviant, literally a kind of antisociality (Emler & Reicher, 1995; Leifman, Kühlnhorn, Allebeck, Andréasson, & Romelsjö, 1995). In his classic study, Erik H. Erikson (1968) argued that adolescents usually explore new roles and identities, and that most—in this process—test rules and personal boundaries in the context of the peer group.

Such reasoning echoes research showing that the peer group is a driving force for initiating delinquent behavior (Haynie & Osgood, 2005; Monahan, Rhew, Hawkins, & Brown, 2014). In the peer context, adolescents may give each other rewards for committing delinquent acts and also learn techniques of neutralization (cognitive techniques used to neutralize values which usually prohibit such acts; Maruna & Copes, 2005; Osgood, Wilson, Omalley, Bachman, & Johnston, 1996). Thus, minor delinquency may be linked to social skills, intimate relations, and interpersonal trust, whereas delinquency abstainers may lack occasions for developing such characteristics (Hendrix, 2016). Also, abstainers often are latecomers to puberty (Barnes, Beaver, & Piquero, 2011) and comparably shy and socially anxious (Mercer, Crocetti, Meeus, & Branje, 2017; Owens & Slocum, 2015).

However, we know little about the long-term prospects of youth who persistently abstain from delinquent behavior. As suggested above, one could hypothesize that they tend to lack social skills and will miss occasions with potential to accumulate so-called

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social capital, which later may be important in education and the labor market (Kwon & Adler, 2014). Alternatively, one may hypothesize that the benefits of being part of peer groups where delinquency develops may be outweighed by the long-term costs of involvement with such peer groups. For instance, involvement in even minor acts of delinquency has been shown to be related to increased school absence and decreased school attainment, which may, in the long run, have negative impact on future education and labor market success (Fergusson & Horwood, 1995; Fergusson, Horwood, & Ridder, 2005).

There are, however, few population-based studies tracking the development of delinquency abstainers into adulthood. Thus, it is not clear whether they fare better or worse in different life domains than people who are involved in minor forms for delinquency. We aim to provide more information on this issue by using data from a large-scale long-term population-based study following Norwegian girls and boys from adolescence into adulthood.

Groups of Delinquency Abstainers

In her influential taxonomy, Moffitt (1993) differentiated between life-course-persistent (LCP) and adolescent-limited (AL) antisocial behavior among males, which she conceptualized as two distinct categories with unique etiology and developmental histories. LCP delinquency is persistent and pervasive, thought to originate early in life, and comprises only a small proportion of the population. In contrast, most adolescents engage in some kind of AL delinquency, which typically emerges alongside puberty. AL is suggested to be a result of the so-called “maturity-gap”, when adolescents are biologically matured but do not yet have a clearly defined role and no access to adult privileges and responsibilities. Thus, although psychobiological theories seem to apply best to LCP offenders, who consistently behave in antisocial ways during childhood, adolescence and adulthood, more context-based and sociological theories may be well suited for understanding AL delinquency (Moffitt & Caspi, 2001). Although being in this “maturity gap,” teens may consider forms of delinquency as suitable means to show their autonomy and to bond with peers. Given that AL delinquency can be conceptualized as normative social behavior, adolescent boys who consistently refrain from such acts may have personal characteristics that make them unpopular among peers, and thereby decrease their risk for being involved in antisocial behavior based in the peer group. The available research at the time when the abstainer hypothesis was first formulated (in particular research from the Cambridge Study of Delinquent Development from South London, U.K.), indicated that boys from criminogenic circumstances who did not become delinquent seemed nervous and withdrawn and had few or no friends (Farrington & West, 1990). Reflecting these hypotheses, the abstainer boys in Moffitt’s (2003) Dunedin study (from New Zealand) described themselves as overcontrolled, fearful, interpersonally timid and latecomers to sexual relations while teenagers. However, a restrictive definition of “abstainer” was used, implying that they had not engaged in any antisocial behaviors from age 5 to 18 years according to parent, teacher, and self-reports (characterizing 5% of the boys). Most research in the wake of the hypothesis has focused on these possible unappealing characteristics of the delinquency abstainers. However, in a later follow-up of the Dunedin study, male abstainers, who had been overcontrolled and socially inept as

teens, had become more successful as adults. At age 26, they retained their self-constrained personality and still abstained virtually completely from crime, but they showed low levels of mental disorders, were likely to have settled into marriage, were delaying getting children (a desirable strategy for a generation needing prolonged education to succeed), were likely to be university-educated, held high-status jobs, and expressed optimism about their own futures (Moffitt, Caspi, Harrington, & Milne, 2002). In a similar vein, findings from a follow-up of participants in the Cambridge Study of Delinquent Development at age 56 suggested that the abstainers showed the most successful and problem-free lives throughout the follow-up period (Jennings, Rocque, Fox, Piquero, & Farrington, 2016, p. 541). In this study, abstaining was defined by the much less restrictive criteria of absence of any official convictions, including as much as 73% of the sample. Thus, reports based on these two key data sets, albeit using rather different criteria of abstaining and being restricted to males, question whether abstainers’ unappealing personality traits and lack of access to certain social arenas in fact have negative long-term consequences.

Two other studies, both from the Nordic countries, point in the same direction. A sample of men and women from a Swedish city was followed up from childhood to their late 40s, comparing those who were not registered for crime (75% of the sample) to different offender groups. In adulthood the nonoffending group performed better than all other groups on adult outcomes such as educational level, employment, and income (Bergman & Andershed, 2009). Similar findings were reported from a longitudinal study from Finland, combining register data and self-reports on delinquency. In this study, adolescent male nonoffenders (28% of the sample) showed more favorable occupational status and employment situation than persistent offenders, whereas they did not differ from participants with adolescent-limited delinquent behavior (Pulkkinen, Lyyra, & Kokko, 2009).

Moreover, since the abstainer hypothesis was first voiced, cross-sectional studies have only presented limited support of weaker networks ties and unfavorable personality traits among abstainers (Brezina & Piquero, 2007; Chen & Adams, 2010; Piquero, Brezina, & Turner, 2005). A recent study assessed the development of peer acceptance in the delinquency abstainer group throughout early adolescence, and found that although abstainers were somewhat less accepted than others at the start of the teenage years, they became more accepted over time (Rulison, Kreager, & Osgood, 2014). Further, researchers have argued that abstainers probably should be divided into subgroups. For example, Hendrix (2016) identified two groups of abstainers. The majority did not report loneliness or wished they had more friends, while a minority of abstainers reported high levels of conflicts with parents during their upbringing, poor peer integration, and psycho-emotional instability.

In a recent study based on the Cambridge Study of Delinquent Development, Mercer et al. (2016) compared male delinquency abstainers with different types of delinquents. In this study, both self-reports and register data of convictions were used, and 12.5% (49 out of 389 participants) were classified as delinquency abstainers between ages 10 to 18. In this study, both abstainers and convicted delinquents reported lower levels of popularity and lower school achievement, compared to those with less serious delinquency, identified by self-report. This latter group typically

reported perpetration of rather mild delinquent acts. Moreover, using latent class analysis (LCA), two groups of abstainers were identified: one maladaptive group characterized by low social integration and low popularity and one adaptive group showing no signs of deficits in social integration. A follow-up of these two groups into adulthood showed that adaptive abstainers clearly outperformed other adolescents in areas such as employment, intimate relationships, and positive mental health. The maladaptive group of abstainers had similar life outcomes compared to delinquent adolescents. However, they fared better than delinquent adolescents in terms of lower substance use and delinquency in adulthood.

In Moffitt's (1993) original model, delinquency abstaining was conceptualized as a symptom of poor interpersonal skills. Such characteristics are likely to display at least some continuity over time. Previous research show that interpersonal skills and social networks are central to educational and labor market success (Gubbins & Garavan, 2016; Letki & Mierina, 2015; Roth, 2013). Thus, one could hypothesize that at least lonely and poorly integrated delinquency abstainers would have poor educational and labor market outcomes. However, to the best of our knowledge, there are no population-representative studies including both genders where individuals are tracked from early adolescence, when AL delinquency is first manifested, into their mid-30s with regard to educational outcomes, income, and possible marginalization in the labor market.

The Current Study

We aim to identify different types of delinquency abstainers in adolescence and investigate their subsequent educational careers, income levels, and possible marginalization in the labor market. Self-reports are used to assess a broad range of adolescent delinquent behaviors which are not covered sufficiently by official crime registers. Data from registers are used as measures of education, labor market integration and marginalization, as such measures are reliable and are not hampered by attrition (Lyngstad & Skardhamar, 2011). We ask

1. What is the prevalence of delinquency abstainers in both genders throughout adolescence?
2. What are the long-term outcomes of abstaining from delinquencies, in the arenas of education, income, and labor market marginalization?
3. Do abstainers with weak social ties show less beneficial long-term outcomes than abstainers with strong social ties and the majority population of adolescents?

Method

Procedure and Participants

We use the Young in Norway Study, which has been described in more detail previously (von Soest, Luhmann, & Gerstorff, 2020; von Soest, Wichstrøm, & Kvaalem, 2016). In short, survey data were collected from a nationally representative sample of students at four time points: 1992 (T1), 1994 (T2), 1999 (T3), and 2005 (T4). These data were then linked to register data from Statistics

Norway. The initial sample at T1 was drawn from 67 representative junior and senior high schools in Norway, with a response rate of 97%. Students were mainly born between 1973 and 1980 and were 12 to 19 years of age at T1. Response rates were 92%, 84%, and 82% at T2, T3, and T4, respectively. At T4, the respondents were asked for their consent to link the data to several registers, to which 90% agreed. The most recent linkage provided register data for all respondents from birth up to the year 2014. The overall participation rate of the final sample who had consented to register linkage based on all eligible students at T1 was 60%, resulting in a sample of $N = 2,494$ individuals. Informed consent was obtained from all participants. The study was approved by the Norwegian Data Inspectorate and the Regional Committee for Medical Research Ethics (Reference no.: S-05030; project name: "Young in Norway").

Attrition analysis showed that a high level of delinquency ($OR = 1.67$; 95% CI [1.46, 1.90]; $p < .001$) significantly predicted attrition, whereas close friendship predicted less likelihood of attrition ($OR = 0.77$; 95% CI [0.70, 0.84]; $p < .001$). Moreover, older age ($OR = 1.36$; 95% CI [1.32, 1.40]; $p < .001$), male gender ($OR = 1.17$; 95% CI [1.06, 1.29]; $p = .002$), having at least one parent with immigrant background ($OR = 1.67$; 95% CI [1.22, 2.20]; $p < .001$), not living in a city ($OR = 0.59$; 95% CI [0.53, 0.66]; $p < .001$), low grades ($OR = 0.86$; 95% CI [0.81, 0.90]; $p < .001$), and not growing up with both biological parents ($OR = 0.72$; 95% CI [0.65, 0.80]; $p < .001$), were significantly related to drop-out. Social acceptance, loneliness, religiosity, and parental socioeconomic status (SES) were not significantly related to drop-out ($p > .05$). In analyses, we used sample weights to adjust estimates for variables at T1 that significantly predicted drop-out (i.e., age, gender, immigrant background, urbanity, school grades and growing up with both biological parents). Weights were computed by the inverse probability weighting method and parameters were estimated by maximizing a weighted log-likelihood function.

Measures

Delinquency abstinence. Most offenders evade detection; thus an official record is not very useful for studying delinquency abstainers. Self-reports are necessary, and standard instruments have developed over time, such as National Youth Longitudinal Study in United States (Windle, 1990) and the inventories used in Dunedin Longitudinal Study from New Zealand (Moffitt & Caspi, 2001). The questions on delinquency used in the present study were based on such inventories (for details, see Pedersen & Wichstrøm, 1995), at the same time as they closely approached *DSM-III-R* criteria for conduct disorder (American Psychiatric Association, 1987). With a total of 16 items, a variety of behaviors were surveyed, spanning from those that are usually not problematic when low in frequency (e.g., "had a violent quarrel with a teacher", "avoided paying for such things as movies, bus or train rides"), to behaviors that are serious even when infrequent (e.g., "stolen a car or a motorcycle", "been in a fight using a weapon"). The respondents were asked to report their behavior within the last 12 months, with response options ranging from 0 (*never*) to 5 (*more than 50 times*).

Following Moffitt's (1993) original postulate, we assume that abstainers are defined by persistently abstaining from delinquency. Mean scores for all items across T1 and T2 were computed, with

possible values ranging from 0 to 5. Those who reported no form for delinquency at T1 as well as at T2 (i.e., mean score of 0) were defined as “abstainers,” a similar approach to that of Mercer et al. (2016). As a result, 8.2% ($n = 204$) of the sample were categorized as abstainers. We then constructed a similar sized group with the highest delinquency scores (8.8% of the sample, $n = 219$), which were labeled “highly delinquent.” Delinquency scores for this group were 0.84 or higher. The remaining participants with a moderate level of delinquency (“majority”; 83.0%, $n = 2,071$) had delinquency scores that were higher than 0 and lower than 0.84.

Integration, social accept, loneliness. Analogous to the measurement of delinquency, we assessed social inclusion variables by pooling across T1 and T2. To capture integration and social accept, we used the two subscales Social Acceptance and Close Friendship from a modified version of Harter’s Self-Perception Profile for Adolescents (Harter, 1988). The favorable psychometric properties of the scales are documented in more detail elsewhere (Wichstrøm, 1995). Each of the two subscales is measured by five items (e.g., Social Acceptance: “I am popular with others my age”; Close Friendship: “I am able to make really close friends”), where each statement was followed by four response options, ranging from 1 (*describes me poorly*) to 4 (*describes me very well*). Internal consistency for Social Acceptance was $\alpha = .77$ and $\alpha = .80$ at T1 and T2, respectively. For Close Friendship, internal consistency was $\alpha = .78$ at T1 and $\alpha = .79$ at T2. Mean scores for T1 and T2 were computed and averaged across the two time points. Loneliness was measured by a four-item version of the UCLA Loneliness Scale, each item having response options ranging from 1 (*never*) to 4 (*often*; Russell, Peplau, & Cutrona, 1980), with α values of .54 and .63 at T1 and T2. Again, mean scores were averaged across T1 and T2, and higher mean scores reflected greater loneliness. We also assessed at T1 whether adolescents reported to have at least one close friend or no close friends.

Outcome variables. Data from national administrative registers were used to measure educational career and labor market success. To avoid confounding from age and/or cohort, outcomes were measured at the same age, that is, the year each participant turned 34 (and hence in different calendar years, from 2007 to 2014). This is the latest age to which we can observe the full study sample. We assessed whether or not respondents had at age 34 completed higher education, either lower or higher degree. We used labor market earnings in the year each respondent turned 34. This measure of income was recoded into 10 equally sized groups and the groups were given values from 1 to 10, with 1 representing 10% of respondents with the lowest incomes and 10 representing 10% of respondents with the highest incomes; other groups received values in between. Moreover, two dummy variables were constructed to indicate whether respondents at least once up to age 34 had received unemployment benefits and welfare benefits, respectively. These three labor market measures capture slightly different aspects of economic success: Income is an indicator of labor market inclusion and success. Receiving unemployment benefits is conditional on previous labor market earnings. Hence, it indicates a vulnerable—but not nonexistent—relationship to the labor market. Receiving welfare benefits is a distinct measure of economic marginalization, as such benefits are only provided to individuals with no other means of subsistence. Receiving welfare benefits indicates as such a particular strong labor market marginalization.

Control variables. We controlled for potential confounders, that is, variables that may influence both delinquency level and the outcomes in question. Such variables included respondents’ gender, age, and a dummy variable where respondents with at least one foreign-born parent from a non-Western country were contrasted to other respondents. As a measure of parental SES, register data on the highest parental education level when the respondent was 16 years old was used, ranging from 1 (*junior high school or lower education*) to 4 (*higher university degree*). Respondents were also asked to describe their parents’ work in their own words. Parental SES was coded according to the ISCO manual (International Labor Organization, 1990). A five-level categorization was used, ranging from 1 (*workers*) to 5 (*higher administrative professions*) for the parent with the highest score. We also assessed whether respondents lived at T1 with both biological parents or not. Degree of urbanity at T1 was included by a dummy indicator for living in a city or not. Respondents’ reported grades at T2 in Norwegian, mathematics and English were assessed, and a mean score was calculated. A dummy for being religious was also included, where respondents who reported that they either were “personally Christian” or stated they belong to another religion at T1 or T2 were contrasted with those who did not reported being religious.

Analyses

For binary outcomes, we present *ORs* with 95% CIs from logistic regression models. For the graded income variable, linear regression analyses were conducted. We build all models in a stepwise fashion, starting with the basic relationship between delinquency group and each outcome, and then adding all control variables. We used LCA of data from T1 and T2 during adolescence to distinguish between abstainers with weak and strong social networks. In the LCA, we included four predictors: loneliness, scores for close friendship and social acceptance, and the dummy for having no friends. The Bayesian information criterion (BIC), the Akaike information criterion (AIC), the conditional Akaike information criterion (cAIC), and entropy were used to guide model selection. Individuals were assigned to the group they had the highest posterior probability to belong to and we again used regression analyses to examine the relationship between group membership (abstainer groups and delinquency groups) and outcomes. In additional analyses, we used the latent categorical class variable to predict the auxiliary outcomes in adulthood by using the DCAT and BCH commands in Mplus for categorical and continuous outcomes, respectively. This approach has the advantage to account for uncertainty in class membership (Asparouhov & Muthen, 2014). However, in this approach, it was not possible to weight the sample to adjust estimates for selective attrition. Mplus 7.4 was used for all analyses and missing data were handled by means of the full information maximum likelihood estimation method.

Results

Descriptive Results

In Table 1, we present the prevalence of the three different delinquency groups—abstainers, majority, and highly delinquent—by

Table 1
Prevalence of Abstainers and Delinquency Groups by Gender

Group	Men (n = 1,049)		Women (n = 1,445)		Total (n = 2,494)	
	n	%	n	%	n	%
Abstainers	64	6.1	140	9.7	204	8.2
Majority	844	80.5	1,227	84.9	2,071	83.0
Highly delinquent	141	13.4	78	5.4	219	8.8

gender. Overall, 8.2% of the sample were abstainers, with more girls (9.7%) than boys (6.1%) reporting no form for delinquent behavior. The highly delinquent group consisted of 8.8% of the sample; however, a much higher proportion of males (13.4%) than females (5.4%) were categorized in this group.

In Table 2, we present descriptive statistics for the three delinquency groups with regard to delinquency level, integration variables and subsequent educational and labor market outcomes. In the first row, mean delinquency scores are reported for each group for women and men combined. By definition, abstainers had 0 on all delinquency items, as they reported to never have taken part in any delinquent behaviors during adolescence. In the majority group, the mean delinquency score was 0.31. Detailed analysis of the delinquency variables showed that most delinquent acts in the majority group tended to be of less serious character (e.g., quarreled with a teacher, stolen at home or skipped school). The highly delinquent group had an average delinquency score of 1.16. Detailed analysis showed that the more serious delinquent acts (fought with weapons, taken part in vandalism or vehicle theft) were nearly solely concentrated in this group. However, most group members in the highly delinquent group had taken part in

Table 2
Means and Standard Deviations for Delinquency, Social Integration Variables, and Educational and Labor Market Outcomes by Delinquency Group and Gender

Variable	Abstainers		Majority		Highly delinquent		Group comparison ^a		Total sample		
	M	SD	M	SD	M	SD	F/ χ^2	p	M	SD	
Women and men combined											
Delinquency in adolescence	0.00	0.00	0.31	0.21	1.16	0.36			0.36	0.34	
Social integration in adolescence											
Social acceptance	3.07	0.51	3.13	0.44	3.19	0.44	7.78	<.001	3.13	0.45	
Close friendships	3.18	0.60	3.24	0.51	3.26	0.50	1.37	.25	3.24	0.51	
No friendships, %		2.2		2.0		1.5		.42		2.0	
Loneliness	1.82	0.57	1.84	0.48	1.87	0.52	0.39	.68	1.84	0.49	
Educational and labor market outcomes at age 34											
No higher education, %		25.5		36.6		61.2		83.29	<.001		37.8
Income (in 1,000 NOK)	425.34	256.88	431.57	864.51	412.97	398.19	0.44	.65	429.43	799.89	
Unemployed, %		22.1		40.2		50.2		31.69	<.001		39.6
On social welfare, %		5.9		14.1		33.8		83.73	<.001		15.2
n		204		2,071		219					2,494
Men only											
Delinquency in adolescence	0.00	0.00	0.34	0.21	1.20	0.39			0.43	0.39	
Social integration in adolescence											
Social acceptance	3.09	0.53	3.10	0.45	3.21	0.41	7.03	<.01	3.12	0.45	
Close friendships	3.12	0.58	3.08	0.50	3.21	0.50	1.91	.15	3.10	0.50	
No friendships, %		1.7		2.6		1.5		.38		2.4	
Loneliness	1.72	0.53	1.82	0.48	1.78	0.49	0.49	.61	1.81	0.49	
Educational and labor market outcomes at age 34											
No higher education, %		28.1		43.5		65.3		47.89	<.001		45.5
Income (in 1,000 NOK)	538.59	306.30	539.54	1322.08	460.80	453.97	7.05	<.01	528.90	1,199.95	
Unemployed, %		21.9		45.0		48.2		11.77	<.01		36.3
On social welfare, %		6.3		12.6		27.7		31.38	<.001		14.2
n		64		844		141					1,049
Women only											
Delinquency in adolescence	0.00	0.00	0.29	0.20	1.10	0.31		0.30		0.29	
Social integration in adolescence											
Social acceptance	3.06	0.51	3.15	0.44	3.15	0.49	2.95	.05	3.14	0.45	
Close friendships	3.21	0.62	3.35	0.49	3.35	0.48	3.69	.03	3.34	0.50	
No friendships, %		2.5		1.6		1.5		.57		1.7	
Loneliness	1.87	0.58	1.85	0.48	2.02	0.54	5.11	<.01	1.86	0.49	
Educational and labor market outcomes at age 34											
No higher education, %		24.3		31.8		53.9		19.08	<.001		32.3
Income (in 1,000 NOK)	373.57	212.70	357.31	215.61	326.50	249.83	2.01	.14	357.22	217.32	
Unemployed, %		22.1		36.8		53.9		20.39	<.001		36.3
On social welfare, %		5.7		15.1		44.9		64.41	<.001		15.9
n		140		1,227		78					1,445

Note. NOK = Norwegian kroner.

^a F values from analysis of variance are reported for continuous variables whereas χ^2 values are reported for dichotomous variables.

most minor offenses, whereas serious offenses remained a minority also in this group. In Table 2, we also present figures for both genders separately, showing slightly lower delinquency mean scores for girls than boys in both the majority and highly delinquent group.

In the next group of variables, we report results for social integration variables assessed during adolescence. No significant differences were observed across groups for close friendship, loneliness, and whether respondents had at least one close friend when data from boys and girls were combined ($p > .05$; see Table 2). However, analysis of variance (ANOVA) results showed significant differences between groups for social acceptance, where scores were lowest for abstainers and highest for the highly delinquent group. We found similar results when analyzing boys separately, with higher scores for both close friendship and social acceptance among the highly delinquent group than other groups, whereas no significant differences were found for close friendship and loneliness. For girls, close friendship scores were higher in the highly delinquent group than the other groups; however, interestingly, highly delinquent girls reported higher loneliness than the majority and abstainers.

For educational and labor market outcomes, assessed at age 34, all measures except for income showed significant differences between delinquency groups, with most favorable results for abstainers, and least favorable results for the highly delinquent group ($p < .05$). These results were consistently observed, both in gender-specific analyses and when data from men and women were combined. For men only, we also found significantly lower income in the highly delinquent group, compared to the two other groups.

Delinquency Abstention and Outcomes in Adulthood: Regression Results

Next, we assessed associations between the three adolescent delinquency groups and outcomes in adulthood by means of a series of regression analyses. In Table 3, abstainers were chosen as reference category, and we display results from both a basic model

without controls (Model 1) and a model with full controls, including gender, age, parents' immigrant status, urbanity, school grades, grown up with both biological parents, religiousness and parental education (Model 2).

We first estimated the relationship between delinquency and the risk of not having obtained higher education. In the model with control for covariates, the abstainers had better educational outcome than the majority as well as a clearly better educational outcome than the highly delinquent group. Table 3 further shows that abstainers did not differ significantly in income from neither the majority nor the highly delinquent. Finally, Table 3 shows that abstainers were significantly less likely to experience spells of unemployment and were less likely to receive social welfare benefits than both the majority and the highly delinquent, even when controlling for covariates.

Because more abstainers were female and a higher proportion in the highly delinquent group were male, we tested whether the link between delinquency abstinence in adolescence and adulthood outcomes varied by gender by way of interaction terms. None of the interaction terms were statistically significant (all $p > .10$).

Subgroups of Abstainers

Several previous studies have suggested that not delinquency abstinence per se, but rather abstinence driven by weak social integration is linked to poor outcomes. Thus, we conducted an LCA to divide abstainers ($n = 204$) into groups based on indicators of social accept, friendship ties and perceived loneliness, fitting LCA models for two to five classes. BIC/AIC was 160.73/74.46 for a three-class solution, and higher both for two (174.51/118.10), four (193.24/77.11), and five (238.49/92.50) classes. The three-class solution was therefore chosen as it displayed the lowest AIC and BIC. CAIC values followed the same pattern with the lowest value for three classes. Entropy as well peaked at three classes (0.79) indicating good class separation.

Table 4 provides descriptive statistics for all three LCA classes. The table shows that a group of "lonely abstainers" ($n = 37$, 18% of all abstainers) scored lowest on both social acceptance and close

Table 3

Logistic and Linear Regression Results for the Associations Between Delinquency Groups in Adolescence and Socioeconomic Outcomes in Adulthood (N = 2,494)

Model	No higher education		Income			Unemployment		On social welfare	
	OR	95% CI	<i>b</i>	β	95% CI	OR	95% CI	OR	95% CI
Model 1: Without control for covariates									
Delinquency ^a									
Majority	1.90**	[1.34, 2.71]	-0.16	-0.02	[-0.61, 0.29]	2.78***	[1.94, 4.00]	3.18***	[1.71, 5.89]
Highly delinquent	5.24***	[3.33, 8.26]	-0.24	-0.03	[-0.85, 0.38]	3.57***	[2.26, 5.66]	9.03***	[4.57, 17.83]
Model 2: With control for covariates ^b									
Delinquency ^a									
Majority	1.49*	[1.03, 2.16]	0.02	0.00	[-0.39, 0.43]	2.36***	[1.52, 3.05]	2.94**	[1.52, 5.71]
Highly delinquent	3.07***	[1.87, 5.05]	-0.39	-0.05	[-0.96, 0.18]	2.58***	[1.73, 4.18]	7.73***	[3.65, 16.39]

Note. OR = odds ratio from logistic regression analyses; *b* and β = unstandardized and standardized linear regression coefficient; 95% CI = 95% confidence interval of OR or β .

^a Reference: Delinquency abstainer. ^b Control for gender, age, parents' immigrant status, urbanity, school grades, grown up with both biological parents, religiousness, parental education, and parental occupational status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Means and Standard Deviations for Delinquency, Social Integration Variables, and Educational and Labor Market Outcomes Among Lonely, Quite Social, and Highly Social Abstainers

Variable	Lonely abstainers		Quite social abstainers		Highly social abstainers		Group comparison ^a		All abstainers	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F/χ</i> ²	<i>p</i>	<i>M</i>	<i>SD</i>
Social integration										
Social acceptance	2.29	0.41	3.06	0.25	3.55	0.27	175.39	<.001	3.07	0.51
Close friendships	2.41	0.59	3.18	0.41	3.67	0.34	84.75	<.001	3.18	0.60
No friendships, %	12.1		0.0		0.0		14.85	<.001	2.2	
Loneliness	2.68	0.31	1.82	0.34	1.29	0.28	176.03	<.001	1.82	0.57
Educational and labor market outcomes										
No higher education, %	37.8		17.8		31.7		4.76	.09	37.8	
Income (in 1,000 NOK)	408.90	279.51	420.42	211.70	444.65	313.44	0.10	.91	425.34	425.34
Unemployed, %	29.7		21.5		18.3		2.07	.36	22.1	
On social welfare, %	21.6		1.9		3.3		14.69	<.001	5.9	
Total <i>N</i>	37		107		60				204	
<i>n</i> men	11		33		20				64	
<i>n</i> women	26		74		40				140	

Note. NOK = Norwegian kroner.

^a *F* values from analysis of variance are reported for continuous variables whereas χ^2 values are reported for dichotomous variables.

friendship and showed highest loneliness scores. Moreover, 12% in this group reported having no close friends. A second class with the majority of all abstainers (*n* = 107, 52%) could be classified as “quite social abstainers,” showing medium levels for all network variables while no person reported having no friends. The third class (*n* = 60, 29%), showed highest scores on social acceptance and close friendship and lowest scores on loneliness and could be classified as “highly social abstainers.” ANOVA and χ^2 tests confirmed that group differences for all social integration variables were statistically significant (*p* < .05). The average posterior probabilities of 1.00 (lonely abstainers), 0.92 (quite social abstainers) and 0.86 (highly social abstainers) indicated good class separation. Table 4 also shows that women were overrepresented in all

abstainer groups; however, χ^2 tests showed that there was no significant difference in the gender composition across the three abstainer groups (χ^2 = 0.17, *p* = .920).

Outcomes for Lonely Abstainers

To examine longitudinal outcomes of the three abstinence groups in more detail, with a special emphasis on the lonely abstainers, we further conducted a series of regression analyses. We used dummy variables categorizing the sample into five groups: lonely abstainers (reference category), quite social abstainers, highly social abstainers, as well as majority, and highly delinquent. Results, as depicted in Table 5, show that lonely abstainers performed similar to or better

Table 5
Logistic and Linear Regression Results for the Associations Between Delinquency Groups in Adolescence and Socioeconomic Outcomes in Adulthood (N = 2,494). Abstainers Are Categorized in Three Subgroups

Model	No higher education		Income			Unemployment		On social welfare	
	<i>OR</i>	95% CI	<i>b</i>	β	95% CI	<i>OR</i>	95% CI	<i>OR</i>	95% CI
Model 1: Without control for covariates									
Delinquency^a									
Quite social abstainers	0.44	[0.18, 1.06]	0.12	0.01	[-1.18, 1.41]	0.65	[0.27, 1.59]	0.07***	[0.01, 0.35]
Highly social abstainers	1.03	[0.31, 2.58]	0.05	0.03	[-1.37, 1.48]	0.48	[0.18, 1.32]	0.13*	[0.02, 0.66]
Majority	1.30	[0.64, 2.65]	-0.09	-0.01	[-1.28, 1.11]	1.86	[0.88, 3.95]	0.81	[0.35, 1.84]
Highly delinquent	3.59**	[1.67, 7.72]	-0.16	-0.02	[-1.43, 1.11]	2.40*	[1.07, 5.35]	2.30	[0.96, 5.49]
Model 2: With control for covariates ^b									
Delinquency^a									
Quite social abstainers	0.53	[0.21, 1.39]	-0.08	-0.01	[-1.28, 1.12]	0.71	[0.28, 1.85]	0.08***	[0.01, 0.43]
Highly social abstainers	1.17	[0.44, 3.08]	0.13	0.01	[-1.15, 1.41]	0.49	[0.16, 1.46]	0.10*	[0.02, 0.59]
Majority	1.17	[0.53, 2.60]	0.01	0.00	[-1.10, 1.12]	1.66	[0.73, 3.78]	0.74	[0.29, 1.89]
Highly delinquent	2.42*	[1.02, 5.72]	-0.39	-0.05	[-1.57, 0.78]	1.81	[0.76, 4.35]	1.94	[0.71, 5.29]

Note. *OR* = odds ratio from logistic regression analyses; *b* and β = unstandardized and standardized linear regression coefficient; 95% CI = 95% confidence interval of *OR* or *b*.

^a Reference: Lonely abstainers. ^b Control for gender, age, parents’ immigrant status, urbanity, school grades, grown up with both biological parents, religiousness, parental education, and parental occupational status.

* *p* < .05. ** *p* < .01. *** *p* < .001.

than the majority and the highly delinquent groups in all four outcomes. However, they showed slightly poorer outcomes than the more social abstainers when it comes to education and labor market marginalization. In additional analyses, we used the latent categorical class variable to predict outcomes in adulthood by using an unweighted sample of the abstainers ($n = 204$), thereby accounting for uncertainty in latent class membership. Results were similar to results obtained when not accounting for uncertainty, and estimates differed only slightly.

We also tested if the relationship between delinquency group and adult outcomes varied by gender by including an interaction term. None of the interaction terms were significant (all $p > .10$). Finally, because participants at the start of the study varied in age, it was possible that some defined as abstainers at age 12–15 may have later become offenders, whereas the participants recruited from schools when they were 16–19 may have already lost individuals who left school early, a potentially poor-functioning group. Thus, we reran all analyses to examine whether associations differed according to at which age intervals delinquency and abstinence were measured. Thus, we investigated whether there were differences between the impact of abstinence measured in the age period 12–15 years and 16–19 years in all ANOVA and regression analyses. However, no substantial differences in the size of the relationships across age were observed.

Discussion

We followed a population-based sample, including both genders, from their teens to their mid30s and we examined how abstaining from delinquency in adolescence, as measured by means of self-reports, was related to subsequent education, income and possible marginalization in the labor market. We found that the delinquency abstainers as a group performed as well or better in adulthood than those with moderate delinquency involvement. Abstainers performed markedly better than those with high delinquency involvement. A small subgroup of socially isolated abstainers—less than one in five of all abstainers—had outcomes close to the majority with moderate delinquency involvement. However, even this small group of isolated and lonely abstainers, hypothesized to be particularly vulnerable, fared much better than the highly delinquent. Delinquency abstainers with strong social ties performed better than all other groups in our sample. The present study is, to our knowledge, the first using a population-based data set, with a sample consisting of both genders and with longitudinal follow up from adolescence into the mid-30s, where the abstainer hypothesis has been put to a rigorous empirical test.

The backdrop of our research was Moffitt's (1993) milestone study suggesting that AL delinquency typically is a group social activity that is so prevalent as to be normative. Thus, abstaining from delinquency requires explanation, and three potential causes were proposed: (a) abstainers may experience barriers that prevent them learning delinquency; (b) they may have easy access to adult roles and thus not experience any maturity gap; or (c) they may have personal characteristics unappealing to other teens that bar them from other risk-taking groups. Research in the wake of this hypothesis has predominantly concentrated on the third explanation. In Moffitt's own empirical work, male abstainers were throughout their teens described as overcontrolled and lacking self-confidence (Moffitt, 2003; Moffitt & Caspi, 2001), even

though these characteristics did not prevent them from getting a university education, high status jobs, and getting married when they had reached their mid-20s (Moffitt et al., 2002). A few later studies in this field provide mixed findings: On the one hand, two studies, inspired by Moffitt's research, have described abstainers as less involved with peers and less accepted by others in early adolescence (Barnes et al., 2011; Chen & Adams, 2010). Such characteristics are typically linked to poor psychological (Baumeister & Leary, 1995) and poor physical health (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006). On the other hand, one study did not support the hypothesis that delinquency abstinence was correlated with lack of popularity and social isolation (Chen & Adams, 2010) and another study revealed that early adolescent abstainers were less socially accepted but that they became gradually more accepted throughout adolescence (Rulison et al., 2014).

Such inconclusive findings may indicate that different studies have utilized varying criteria of delinquency abstainers, with some studies relying on crime registers, often resulting in an abstainer group of more than 70% of the sample (Bergman & Andershed, 2009; Jennings et al., 2016), whereas other studies relied on self-reports (plus often parent and teacher reports) with much lower shares of abstainers. For example, in the Dunedin study, only 5% of the males were classified as abstainers, defined as those who not, from age 5 to 18, had engaged in antisocial behaviors according to parent, teacher or self-reports (Moffitt et al., 2002). As only a tiny minority of delinquency ends up in official registers, we suggest that self-reports are better suited for such studies. However, there is also much to indicate that abstainers may be a heterogeneous group and that it is necessary to divide between adaptive and nonadaptive abstainers (Hendrix, 2016). Thus, we divided the abstainers into groups with varying levels of social integration, where "lonely abstainers" were hypothesized to be a possible risk group. However, even this subsegment of abstainers with weak social bonds to the peer group did not fare worse than the majority with moderate delinquency involvement. Thus, abstainers with weak social ties do not stand out as unsuccessful; it is rather their social counterparts, the socially integrated abstainers, which do particularly well. In some respects, our findings echo those reported in the Mercer et al.'s (2016) paper, showing that adaptive abstainers outperformed all other adolescents in adulthood, in important adult life domains such as education and employment. However, in their study, only two categories of abstainers were identified. Moreover, differences between the adaptive and the maladaptive abstainers were greater and maladaptive abstainers showed more similarities to the delinquent groups than in the present study. Such differences across the two studies may be due to substantial differences between the samples, as Mercer et al.'s study was based a selected sample of boys from inner city London from low socioeconomic strata, while the present sample was based on a nationwide population sample of both genders. Mercer et al. (2016, p. 621) concluded that maladaptive abstainers under such circumstances easily could be "excluded from or unable to join their peers in [delinquent] activities due to social, cognitive or other impairments." In our study, with more variation regarding living conditions and youth behaviors, such exclusion processes may be more unusual.

There are advantages in our design and data: We use a population-based, longitudinal study with a long follow-up. We

use a comprehensive set of 16 indicators of delinquency, spanning from mild norm violations to serious crime, completed at two time points. The longitudinal component of the measure is crucial, as Moffitt underlines that the unfavorable abstainer group stands out in being consistently well behaved (Moffitt, 2003). We use well-established measures of social inclusion and acceptance, such as Harter's social acceptance and close friendship scores, as well as a short version of the UCLA Loneliness Scale. Moreover, the use of register data when examining education and labor market outcomes is an additional strength. Finally, the original analyses of the abstainer hypothesis was based on male samples, whereas we have also included females in our analyses.

However, there are also limitations: First, even with favorable response rates, the attrition was selective, with higher attrition among those with high delinquency involvement. Second, even though more than 2,000 participants were included in the study, the relatively small number of participants in subgroups among abstainers reduces statistical power for some of the analyses. Moreover, no childhood data about the respondents before adolescence were available. Such data could have revealed even greater heterogeneity in the abstainer groups than we observed in the LCA. Such information would also enable to differentiate between LCP and AL antisocial behavior. Third, even though we conducted moderator analyses with gender, detailed analyses of potential complex interplays between gender, delinquency and social factors on negative consequences of delinquency are still needed. Fourth, our study is limited by not providing information about why abstainers fare better than the majority of adolescents. An important future research focus may therefore be to examine through which pathways abstaining from delinquency is related to positive long-term outcomes in the arenas of education and work.

Some of the research on the abstainer hypothesis has been based on the Cambridge Study in Delinquent Development with a sample of boys born in 1953 and entering their teens in the 1960s. Moffitt's research is based on the Dunedin study, with participants born in the early 1970s, entering their teens in 1980s and 1990s. Our own sample was born in the mid- to late 1970s in Norway, entering their teens a few years after the Dunedin sample. However, several studies suggest that what is conceptualized and coined as delinquency may differ between social contexts and may undergo major changes over time (Bradley, 2012; Pinto & Ericsson, 2019). Thus, we do not know whether our own findings may be generalized to other social contexts and to younger samples. For example, Norwegian crime policy has been regarded as part of the Scandinavian "penal exceptionalism pattern," with an unusual soft approach and low rates of imprisonment (Pratt, 2007). Thus, the consequences of serious delinquency may be smaller than in other countries with a tougher crime policy, such as the United States. Moreover, over the recent decade, new forms of Internet- and cyber-based delinquency have emerged (Barboza, 2015; McCuddy & Esbensen, 2017), and one may hypothesize that traditional links between delinquency and integration in a deviant peer group may undergo substantial changes as a result of such developments. Thus, the abstainer hypothesis should be investigated in new samples from diverse social contexts and born later than those investigated in our own and in previous studies.

Conclusion

It has been suggested that the abstainer hypothesis may have contributed to linking well-behaving adolescents to metaphors of "characterological abnormality" as well as producing social stigma (Brezina & Piquero, 2007). Our findings do not lend support to the proposition that adolescent delinquency abstainers are an isolated and vulnerable group with poor life prospects. On the contrary, our study results indicate that delinquency abstainers fare well in adulthood. Thus, there seems to be little reason to be concerned for the long-term future prospects for those who abstain from delinquency in adolescence.

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