Psychopathology and Age at Onset of Conduct Problems in Juvenile Delinquents

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Background: This study aimed to assess psychopathology among incarcerated Russian juvenile delinquents in relation to the onset of conduct problems.

Method: 358 male juvenile delinquents were interviewed from January to September 1999, using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version. Early behavior problems, current antisocial behavior, and psychopathology were also assessed through self-reports. The presence of conduct disorder (CD) and other diagnoses was determined according to DSM-IV criteria.

Results: 73.2% of the incarcerated youths met criteria for CD. 23.5% of the total sample reported at least 1 criterion for CD being present before the age of 10 years. All participants from this early-onset group fulfilled the criteria for CD. This group also had significantly higher rates of psychopathology, and particularly of externalizing behaviors, as compared with youths whose conduct problems began at or after the age of 10 years.

Conclusion: Poor psychosocial adaptation and future prognosis in juvenile delinquents with early-onset conduct problems may be related to their greater degree of psychiatric disturbance compared with later-onset delinquent youths. Need for psychiatric treatment should be carefully considered in prevention and rehabilitation efforts for troubled youths.

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Several decades of research on juvenile delinquency have yielded considerable progress in our understanding of this phenomenon. From early studies,[1] it was recognized that persistent delinquency is associated with a number of individual and social factors. Also, numerous psychopathologic characteristics, such as depression, have been identified in relation to antisocial behavior. Recently, however, high rates of psychopathology among juvenile delinquents have attracted increasing attention, both as potential risk factors for the early development of severe conduct problems[2–4] and as factors potentially related to poor long-term outcome.[5]

Conduct problems themselves, especially when they develop early, have significant implications for later outcomes and often are related to poor future functioning in numerous domains, including social relationships, education, and work.[6] Childhood conduct problems increase the probability of later mental health problems and criminal lifestyle during adulthood, as demonstrated both prospectively[2,3,7] and retrospectively.[6,8]

Moffitt[9] has suggested that antisocial adolescents comprise 2 major subgroups: a "life-course-persistent" and an "adolescence-limited" group. The first, smaller subgroup consists of youths with early-onset conduct problems who reveal rather stable patterns of antisocial behavior that continue into adulthood, often merging into the development of antisocial personality.[10,11] Early-onset conduct problems were also considered to be a subtype of conduct disorder (CD) in DSM-IV, with age at onset set prior to 10 years. Nagin and Tremblay[12] similarly suggest that most severe disruptive behaviors begin early in childhood and are characterized by a stable longitudinal pattern.

The second, larger subgroup of delinquents[9] demonstrates later onset of antisocial behavior, usually during adolescence, and is thought to represent an exaggerated pattern of the rebellious behavior commonly observed during this phase of development. This pattern of conduct problems tends to end during late adolescence or early adulthood and is largely contingent on environmental influences, mainly involvement with delinquent peers.[9]

Although a controversial issue, it has been suggested that the adolescence-limited subgroup tends to have greater levels of internalizing problems during adolescence,[13] whereas the rates of externalizing disorders and

substance use in both groups tend to be similar.[11] However, disorders with earlier onset tend to produce more dysfunction over the course of development. Also, a number of studies of detained and incarcerated juveniles have found that the prevalence of psychiatric disorders in the delinquent population is 3 to 5 times higher than in the general population.[14–19] While a large proportion of delinquents have received psychiatric inpatient treatment in the past,[20] youths with early-onset CD are twice as likely as those with late-onset CD to have had professional psychiatric help.[11] Thus, the group with early-onset conduct problems would be expected to be more disturbed and to have more associated psychopathology than the late-onset group.

For clinical purposes, it is important to understand whether we can differentiate antisocial youths by their age at onset of their conduct problems, based on their levels of psychopathology. Although this question is of significant clinical importance, there has been no study that specifically addresses this issue.

The present study sought to assess levels of psychopathology among incarcerated juvenile delinquents from Russia and to investigate whether youths with early-onset conduct problems differ from those with late-onset problems on measures of psychopathology, as assessed by clinical interview and self-reports. It was expected that subjects with early-onset CD would exhibit a greater number of psychiatric diagnoses and higher symptom levels on self-reports than those with late-onset CD.

METHOD

Participants

The study took place from January to September 1999 and was approved by the appropriate ethical committees, including the Institutional Review Board of the Northern State Medical University (Arkhangelsk, Russia). The delinquent subjects were recruited voluntarily from the approximately 300 male adolescents who were inmates in the only juvenile detention center in the Arkhangelsk region of Northern Russia, a catchment area with a population of 1.5 million. The population of the region is homogenous ethnically, i.e., 98% Russian. All delinquents were referred to this institution by court decision. Most delinquents had multiple convictions that included property crimes (e.g., theft, car theft: 51%), violence-related crimes (e.g., fighting, robbery: 38%), and in some cases rape/sexual violence (6%) or murder (5%). Generally, those institutionalized for theft had shown a repetitive pattern of stealing with multiple convictions, and referral to this facility occurred only after committing theft during parole. The mean length of sentence at the time of the study was 4.3 years. Ages of the participants ranged from 14 to 19 years (mean ± SD age = 16.4 ± 0.9 years).

Classic measures of socioeconomic status such as the Hollingshead Four-Factor Index of Social Status[21] cannot currently be used in Russia as the country is in economic upheaval and it is questionable whether that index would apply. The gross domestic product of Russia has decreased by approximately 50% since 1990 or 1991, resulting in a sharp increase in unemployment. Although official estimates put the unemployment rate between 5.7% and 8.0%, some experts suggest that in the Arkhangelsk region it could be as high as 15% to 18% (additional information about the economic situation in the region is available at: http://finnbarents.urova.fi/barentsinfo/intro/index.htm). In general, most of the subjects in the present study came from impoverished economic backgrounds and have unemployed parents with both low levels of education and high financial distress including debt. This situation, however, is common given the current economic situation.

Psychopathology was assessed through a semistructured psychiatric interview (Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version [K-SADS-PL])[22] that was conducted with 370 delinquent youths. During the study, some youths were released, whereas others entered the facility, thus the interviewed group appears to be larger than the total population of the institution at any one time. A subsample of 265 subjects also completed a set of self-reports. The psychiatric assessment was conducted individually, and self-report data were obtained during small group sessions (5–8 participants) with each participant seated at a separate table. The information about age at onset of conduct problems was collected as a part of the psychiatric interview, but the interviewers were not aware of the possible comparisons based on this parameter.

In a classroom setting, all potential participants were provided with descriptive information about the study, followed by the opportunity to ask questions and comment. Eight subjects refused to participate, referring to their unwillingness to provide personal information. Those who agreed to participate were then invited to a separate classroom for administration of the self-report measures.

Instruments

Combined psychiatric diagnoses. The K-SADS-PL, a widely used semistructured psychiatric interview that has high interrater diagnostic reliability and has been validated in extensive testing,[22] was used to yield current and past diagnoses. To assign a psychiatric diagnosis, clinically significant diagnosis-specific impairment had to be present. The interview was conducted by 2 psychiatrists (V.R., R.K.), blind to the results of self-reports, who received standard K-SADS training from the author of the instrument and determined the presence of diagnoses according to DSM-IV criteria.[23] Interrater reliability for this measure is high, with interrater agreement in scoring screens and diagnoses ranging from 94% to 100%.[22]

Although some of the previous studies have suggested that the age of 12 years represents a meaningful cutoff point for the discrimination between the early and the late onset of conduct problems in boys,[24,25] we used a more conservative cutoff point (age of 10 years) suggested by DSM-IV.[23] As the purpose of the present study was to assess the relationships between the early onset of conduct problems and lifetime prevalence of psychopathology, lifetime rates of all psychiatric diagnoses were used in the analyses. Subjects who reported having at least 1 conduct problem prior to the age of 10 years from the list of CD criteria in DSM-IV will be called here the "early-onset" group. All other subjects denied conduct problems prior to the age of 10 years. Of those, participants who fulfilled the criteria for CD will be referred to as the "late-onset CD" group, while those who did not fulfill the criteria for CD will be referred to as the "late-onset non-CD" group.

Other measures of psychopathology. In addition to the K-SADS-PL, several widely used self-rating scales of psychopathology were administered, including the Youth Self-Report (YSR),[26] a 112-item self-report questionnaire assessing internalizing (e.g., anxiety, depression) and externalizing (e.g., aggression, delinquent behavior) symptomatology, which was previously validated in a Russian general population sample[27] (in the present study, Cronbach α range, .60 for social problems to .89 for externalizing and internalizing problems); the Beck Depression Inventory (BDI),[28] to address current symptoms of depression (Cronbach α = .89); the Beck Hopelessness Scale (BHS),[29] to assess hopelessness about the future (Cronbach α = .80); and the Child Posttraumatic Stress-Reaction Index (CPTS-RI),[30,31] a 20-item scale designed to assess posttraumatic stress reactions of school-age children and adolescents and used in previous studies of Russian youths[32] (in the present study, Cronbach α = .81).

Behavior problems were assessed by the Retrospective Assessment of Problem Behaviors (RETROPROB), a 25-item retrospective measure of childhood behavior problems[33] that asks the respondent to rate, on a 3-point scale, how characteristic for him were the symptoms of attention-deficit/hyperactivity disorder (ADHD), oppositional disorder, and CD in childhood (Cronbach α range, .62 for ADHD to .80 for conduct problems). A slightly modified form (44-item) of the Antisocial Behavior Checklist (ABC)[34,35] self-report measure was also used. It asks respondents to report the frequency of lifetime participation in a variety of antisocial activities on a 4-point scale, ranging from 1 (never) to 4 (often, more than 10 times in your life) (Cronbach α = .93).

Translation

Translation of these scales into Russian followed established guidelines, including appropriate use of independent back translations.[36] Russian translations made by the first author (V.R.) were followed by discussion with monolingual colleagues. Finally, an official interpreter made independent back translations. The versions obtained were compared with originals, and inconsistencies were analyzed and corrected. The translation of the K-SADS-PL was made at the Department of Psychology, Moscow State University, following the above-mentioned procedure.

Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, version 10.0). In order to investigate the relationship between psychopathology and type of conduct problems (early-onset, late-onset CD, and late-onset non-CD groups), a series of binary logistic regression analyses was conducted with psychiatric diagnoses as dependent variables, and the type of onset, defined as a categorical variable (late-onset non-CD versus late-onset CD, late-onset CD versus early-onset, and late-onset non-CD versus e`dly-onset), was used as an independent variable. We expected that the group without CD and with the late onset of conduct problems would have the lowest risk to develop any psychiatric diagnosis, whereas the group with early onset of conduct problems and the diagnosis of CD would have the highest risk. Odds ratios (ORs) and 95% confidence intervals (CIs) are reported in Table 1 as indicators of associations. Multivariate analysis of variance (MANOVA) tests were used to examine the differences in self-reported psychopathology between the age-at-onset groups, with the scores on the RETROPROB, ABC, YSR, CPTS-RI, BDI, and BHS used as dependent variables.

RESULTS

Results of the Psychiatric Interview

According to the results of the psychiatric interview, 73.2% of the incarcerated youths met criteria for CD. Of those, 84 delinquents (22.7%) fulfilled the criteria for the early-onset group. The other 286 participants (77.3%) denied conduct problems prior to the age of 10 years. Of those, 187 participants (50.5%) fulfilled the criteria for the late-onset CD group, and 99 participants (26.8%) fulfilled the criteria for the late-onset non-CD group.

In order to investigate the relationship between psychopathology and type of conduct problems (early-onset, late-onset CD, and late-onset non-CD groups), a series of binary logistic regression analyses was conducted with psychiatric diagnoses as dependent variables. The type of onset, defined as a continuous variable (late-onset non-CD, late-onset CD, and early-onset groups coded as 1, 2, and 3 correspondingly), was used as an independent variable. Based on the prevalences of psychiatric disorders in the 3 groups of delinquents, presented in Table 1, it was assumed that the variable representing the earliness of onset of CD (no, late, early) would also repre-

Table 1. Prevalence of Psychopathology in Early-Onset Group (N = 84) Compared With Late-Onset CD (N = 187) and Late-Onset Non-CD (N = 99) Groups

Lifetime Psychiatric Diagnosis	Total N (%)	Late-Onset Non-CD N (%)	Late-Onset CD N (%)	Early-Onset N (%)	OR (95% CI)	Nagelkerke R^2 Value
Conduct disorder (CD)	271 (73.2)	N/A	187 (100.0)	84 (100.0)	N/A	N/A
Major depressive disorder	42 (11.4)	10 (10.1)	18 (9.6)	14 (16.7)	1.37 (0.86 to 2.17)	0.009
Mania	39 (10.5)	10 (10.1)	16 (8.6)	13 (15.5)	1.31 (0.81 to 2.10)	0.007
Anxiety disorder[a]	55 (14.9)	9 (9.1)	27 (14.4)	19 (22.6)	1.71 (1.13 to 2.61)	0.03
Separation anxiety	34 (9.2)	8 (8.1)	16 (8.6)	10 (11.9)	1.25 (0.76 to 2.07)	0.004
Posttraumatic stress disorder	87 (23.5)	15 (15.2)	47 (25.1)	25 (29.8)	1.52 (1.07 to 2.15)	0.02
Attention-deficit/hyperactivity disorder	65 (17.6)	8 (8.1)	34 (18.2)	23 (27.4)	1.99 (1.33 to 2.97)	0.05
Alcohol abuse	207 (55.8)	33 (33.3)	117 (62.6)	57 (67.9)	2.13 (1.56 to 2.91)	0.08
Substance abuse (other than alcohol)	94 (25.3)	10 (10.1)	52 (27.8)	32 (38.1)	2.18 (1.53 to 3.11)	0.08
Comorbidity (2 diagnoses excluding CD)	162 (43.8)	23 (23.2)	87 (46.5)	52 (61.9)	2.31 (1.68 to 3.17)	0.10

[a]Anxiety disorder includes generalized anxiety, specific phobias, and panic disorder.
Abbreviations: CI = confidence interval, N/A = not applicable, OR = odds ratio.

sent a variable of risk for the development of psychiatric disorder. Odds ratios, 95% CIs, and Nagelkerke R^2 values are reported in Table 1 as indicators of associations.

As presented in Table 1, incarcerated juvenile delinquents had relatively high rates of psychiatric disorders, especially of externalizing psychopathology, such as CD, alcohol and substance abuse, and ADHD. Rates of internalizing psychopathology in the late-onset non-CD and late-onset CD groups were similar to each other and lower than those for the early-onset group. For externalizing psychopathology (ADHD, alcohol and substance abuse) and posttraumatic stress disorder (PTSD), rates were highest for the early-onset group, followed by the late-onset CD and by the late-onset non-CD groups. Also, the number of psychiatric diagnoses (excluding diagnosis of CD) was tallied for each subject, producing 2 major groups: (1) subjects with no or only 1 comorbid psychiatric diagnosis and (2) subjects with 2 or more comorbid diagnoses. The early-onset group had the highest rate of overall comorbid psychopathology as compared with the other groups (Table 1).

Finally, 48.8% (N = 41) of delinquents in the early-onset group, as compared with 30.5% (N = 57) in the late-onset CD group and 21.2% (N = 21) in the late-onset non-CD group, reported having had psychiatric treatment in the past ($\chi^2 = 16.35$; p = .000). Youths from the early-onset group were also more commonly referred for a forensic psychiatric evaluation (39.3% [N = 33] versus 31.0% [N = 58] in the late-onset CD group and 18.2% [N = 18] in the late-onset non-CD group; $\chi^2 = 10.18$; p = .006).

Self-Reported Psychopathology

MANOVA tests were used to examine the differences in self-reported psychopathology between the groups (Wilks $\Lambda = 0.71$; $F = 3.10$, df = 30,496; p = .000). The early-onset group reported significantly greater numbers of conduct problems and greater levels of oppositional defiant behavior prior to the age of 12 years (RETROPROB) as well as greater numbers of attention problems (Table 2).

Similar to the results from the psychiatric interview, the early-onset group reported higher frequencies of antisocial behaviors, as assessed by the ABC, and greater numbers of externalizing problems on the YSR, as well as higher levels of posttraumatic stress, depression, and hopelessness (Table 2).

DISCUSSION

The present study compared rates of psychopathology in 3 groups of incarcerated delinquents according to the age at onset of conduct problems. The study found significantly higher rates of psychopathology among delinquents from the early-onset group. The major differences were obtained for externalizing psychopathology, such as CD, ADHD, and substance abuse; higher rates of posttraumatic stress and anxiety disorders were also found. Higher levels of externalizing and internalizing psychopathology in the early-onset group were similarly obtained on self-reports.

This is one of the few studies conducted outside the United States and the first study from Russia that reports the levels of psychopathology among incarcerated juvenile delinquents. To our knowledge, this is also the first study that assesses in a systematic, structured way the lifetime prevalence of psychopathology in relation to the age at onset of conduct problems using structured psychiatric assessments. High levels of psychopathology in youths with early onset of conduct problems demand greater clinical attention to this population. This is an issue of both theoretical and clinical importance for understanding the phenomenon of antisocial behavior and for developing a repertoire of successful interventions in delinquent youths.

According to recent reports, the prevalence of comorbid psychopathology in adjudicated delinquent adolescents varies between 70% and 100%,[15,16,18,19] with the majority showing both externalizing and internalizing disorders. In the present study, high rates of psycho-

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Table 2. Self-Reported Psychopathology in Late-Onset Non-CD (N = 71), Late-Onset CD (N = 137), and Early-Onset (N = 57) Groups

Measure	Late-Onset Non-CD	Late-Onset CD	Early-Onset	F Value (df = 2,262)	p Value
RETROPROB, mean (SD)					
Conduct disorder[a,b,c]	4.86 (3.10)	6.62 (3.24)	8.42 (2.78)	20.82	.000
Oppositional disorder[a,b]	4.18 (2.15)	5.25 (2.42)	6.14 (2.71)	10.55	.000
ADHD[a,b]	5.00 (2.56)	6.18 (2.70)	7.23 (3.52)	9.73	.000
ABC, mean (SD)[a,b,c]	55.77 (13.35)	65.29 (15.66)	71.72 (16.44)	18.10	.000
Youth Self-Report, mean (SD)					
Withdrawn	4.94 (2.65)	4.85 (2.45)	5.54 (2.73)	1.54	.217
Somatic complaints	3.69 (3.16)	4.53 (3.62)	4.07 (3.23)	1.45	.237
Anxious/depressed	9.30 (6.02)	9.42 (6.08)	11.09 (6.59)	1.72	.181
Social problems	4.59 (2.33)	4.64 (2.59)	5.26 (2.70)	1.41	.245
Thought problems[b]	3.38 (2.58)	4.07 (3.31)	4.91 (2.75)	4.09	.018
Attention problems	6.39 (3.08)	7.27 (3.30)	7.65 (3.07)	2.77	.064
Delinquent behavior[a,b,c]	6.80 (3.50)	8.38 (3.74	9.93 (3.92)	11.28	.000
Aggressive behavior[a,b]	10.59 (5.46)	13.55 (6.75)	15.44 (6.83)	9.45	.000
CPTS-RI, mean (SD)[b,c]	23.59 (10.56)	24.48 (12.10)	29.96 (13.55)	5.30	.006
Beck Depression Inventory, mean (SD)[c]	16.80 (9.38)	16.15 (10.12)	21.12 (13.33)	4.49	.012
Beck Hopelessness Scale, mean (SD)[b,c]	5.20 (3.06)	5.71 (3.69)	7.70 (4.10)	8.45	.000

[a]Significant differences on post-hoc Bonferroni tests between late-onset non-CD and late-onset CD groups.
[b]Significant differences on post-hoc Bonferroni tests between late-onset non-CD and early-onset groups.
[c]Significant differences on post-hoc Bonferroni tests between late-onset CD and early-onset groups.
Abbreviations: ABC = Antisocial Behavior Checklist, ADHD = attention-deficit/hyperactivity disorder, CD = conduct disorder, CPTS-RI = Child Posttraumatic Stress-Reaction Index, RETROPROB = Retrospective Assessment of Problem Behaviors.

pathology are generally comparable to those observed in the previous studies of incarcerated delinquents, both in the United States and in Europe.

Population-based surveys have shown that the small proportion of adolescents with early-onset conduct problems accounts for the majority of violent acts and arrests.[37,38] It has been suggested that individuals in this group often have specific neuropsychological deficits associated with high levels of impulsivity and attention problems.[9] Other studies[39,40] have linked serious forms of conduct problems in youths and early onset of criminal activities with psychopathic personality traits. Furthermore, the particularly maladaptive characteristics, stability over time, and presumably biological predisposition of early-onset persistent conduct problems have led Moffitt[9] to posit that they represent a specific type of psychopathology that is often associated with other mental conditions supporting long-term continuity. Especially high rates of comorbid psychopathology observed in the present study in the early-onset group suggest that these youths are the most severely disordered within the delinquent population and that a large proportion are in need of well-informed psychiatric intervention.

As demonstrated by previous research,[41,42] the early-onset group has a pattern of conduct problems that is suggestive of onset at early school age, with oppositional and defiant behavior increasing steadily over time, culminating in severe conduct problems in early adolescence. This is supported by the present finding of significantly higher levels of self-reported oppositional problems in childhood in the early-onset group. Delinquents from the early-onset group also reported higher rates of other externalizing problems (conduct, attentional) prior to the age of 12 years, suggesting a continuum of externalizing problems in this early-onset group. Several studies have also shown that the youths with early onset of conduct problems are characterized by a number of risk factors such as social and familial disadvantages, poor parenting, and impulsivity and attentional problems.[43–46] Presumably, the higher rates of psychopathology in the early-onset group result from a wide range of cumulative, dysfunctional interactions between intrinsic vulnerabilities of these youths and their environments,[9] leading to a stable and persistent pattern of offending that can continue into adulthood.

In general, since the vast majority of delinquent adolescents carry diagnoses of CD,[15,47–50] it may seem rather surprising that some studies have failed to identify CD in 30% to 70% of delinquent adolescents.[14,16,18,19] Several possible explanations can be given for the lack of the required number of criteria in these delinquent adolescents, even when there are sufficient reasons for their adjudication and incarceration.[51] First, an individual may face a legal intervention for a single critical act such as a homicide or a sexual assault, which is severe enough to warrant legal sentence but is not sufficient for a diagnosis of CD. Second, adolescents may get in trouble for behaviors that are not listed in DSM-IV, such as drug dealing. Finally, most studies use delinquent adolescents as a single source of information, although it is quite likely that delinquents would be particularly reluctant to report severe antisocial acts, even when confidentiality is assured. The fact that youths in detention in general tend to be more distrusting may further explain the lower than expected prevalence of

CD, and hence, an underestimation of the true prevalence of CD in this population is possible.

Previous studies reported rates of anxiety disorders in incarcerated youths ranging from 24%[47] to 30%[18] and have suggested that the surprisingly high levels of anxiety disorders in these delinquents may be a function of the state of incarceration itself and/or the result of numerous out-of-home placements that typically precede incarceration. This conclusion receives some support from the study of unincarcerated delinquent youths by Doreleijers et al.,[14] in which anxiety disorder was detected in only 3% of youths. The present study reports somewhat lower rates of anxiety disorders compared with rates reported in previous studies, which, however, are considerably higher than those in the study by Doreleijers et al.[14] As the rates of anxiety disorders differed significantly between the early-onset and the late-onset groups, it may be that incarceration itself is not the main cause for the development of anxiety disorder, but could be related, for example, to differences in histories of previous traumatization.

Our results are in accord with previous findings of high rates of PTSD in juvenile delinquents.[17] It is not surprising that youths with early conduct problems would be more traumatized, both as a result of their earlier and more frequent involvement in antisocial activities and as a result of residing in "criminogenic" environments. The role of traumatization in the continuation of offending has been suggested both by theoretical models of the relationships between trauma and violence and by clinical evidence. The trauma model of violence,[52,53] according to which traumatic experiences lead to specific physiologic changes, posits that these changes potentiate the development of violent behavior. Clinical evidence from the study by Steiner et al.[17] has shown that PTSD-positive delinquents are the most troubled delinquents in terms of impulse control and control of aggression.

High rates of comorbid externalizing psychopathology have been noted in youths with conduct problems, varying widely from ADHD to substance use. The present findings support a large body of research on high rates of ADHD among incarcerated youths,[54–57] with prevalences commonly reported in the range of 20% to 25%.[16,18,49,50] With respect to age at onset, attention problems and hyperactivity have been described mainly in the early-onset group, suggesting that inattention and hyperactivity often lead to early academic failure, affiliation with less successful peers, and a more stable pattern of conduct problems.[9] By contrast, the late-onset group has a relatively lower level of ADHD and becomes involved in antisocial activity only during adolescence. Recent longitudinal findings by Moffitt and Caspi[45] from the Dunedin Study further support this distinction by demonstrating that hyperactivity is the strongest predictor of early-onset but not late-onset conduct problems. This unequal distribution of ADHD rates between early-onset and late-onset groups is well reflected in the results from the current study.

Retrospective differentiation between early-onset and late-onset groups, important for clinical purposes, has been considered to be extremely complicated since both groups generally report similar levels of delinquent behavior at age 18 years and only marginally different levels at age 15 years.[11] Multi-informant retrospective reports on the age at onset of antisocial behavior also have not enhanced the prediction of future behavior problems.[58] The present study, however, demonstrates that a self-reported history of conduct problems may have some discriminative validity and suggests that the early-onset group is significantly more psychiatrically disturbed. It should be noted, however, that this study represents a tentative look at the problem and that further investigation and clarification are needed. Future studies should also assess whether specific types of psychopathology within each group can help predict reoffending.

Some limitations of this study should be noted. First, the assessment of early- versus late-onset delinquency was based on the reports of participants during the interview. Such reports are sensitive to recall bias and may also depend on current levels of antisocial behavior and psychopathology. Second, the study is cross-sectional, which does not allow for examination of causal relationships. Longitudinal studies assessing psychopathology in relation to the onset of conduct problems (considered as a continuum, rather than taxonomic division of onset being earlier versus later than 10 years of age) would be an asset for clarifying this issue. Such longitudinal approaches would be particularly useful because the early- versus late-onset taxonomy has been recently questioned, with some researchers noting problems in defining early/late categories and others suggesting that the taxonomy is much too simplistic.[45,59–61]

Finally, the study was conducted with incarcerated delinquents with relatively severe offenses and does not include those having the most severe psychopathology, who are generally referred for compulsory treatment in a psychiatric hospital. According to the new Russian Penal Code (1997), those youths who reveal signs of lag in development unrelated to psychiatric disorder are considered not criminally responsible.[62] This policy has resulted in increased numbers of youths referred for psychiatric examination "just in case," which, however, potentially reduces the levels of the most severe psychopathology among those who are incarcerated. As shown by the present study, a larger proportion of the early-onset group had been referred for forensic psychiatric evaluation, implying suspicions about their mental status even on the part of the judicial system.

Since a large proportion of the early-onset group from the study by Moffitt et al.[11] did not exhibit serious delin-

quency on follow-up, it could be argued that the present sample is biased by not considering remitting early-onset cases and assessing psychopathology only in those early-onset delinquents who are incarcerated. However, this is the population that represents a major risk from both judicial and public health perspectives, and thus, an assessment of psychopathology in juveniles with legal problems is of utmost importance, especially for the purpose of prevention. In addition, the study group was recruited from the only facility for young offenders in a very large geographic region, which includes youths from both metropolitan and rural areas, and thus, was highly representative of juvenile delinquents in this area (especially considering the very low refusal rate, a continuous data collection over 6 months, and the large number of delinquents assessed).

Recent economic upheaval in Russia has been associated not only with sharp economic and cultural changes but also with higher criminality rates, especially for property crimes. Recent data cite similarities between juvenile delinquents in Russia and those in other European, and particularly Eastern European, countries,[63] including an increase in criminal involvement, the types of crimes committed (largely property offences), a tendency toward more organized criminal activities, and involvement in violence. Considering these data, the issue of whether these findings are generalizable to other cultures seems to be particularly important and requires further research efforts.

CLINICAL IMPLICATIONS

To prevent youth crime and violence, it is important to understand both normal child development and the developmental psychopathology associated with problem behaviors. Because attention to developmental differences is a crucial component of many successful programs, a strong emphasis should be put on the developmental issues in conduct disorder while planning rehabilitation and prevention measures. Findings from this study imply the need for more intensive rehabilitation efforts for the early-onset group of juvenile delinquents in whom high levels of antisocial behavior may be related, at least in part, to high rates of psychopathology. Successful treatment of psychopathology will potentially improve long-term prognosis in this group, which so far remains rather poor. In addition, better knowledge of the prevalence and the significance of psychopathology in delinquent youths may inform policy efforts as well as prevention and intervention initiatives.

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