Psychiatric Disorders in Detained Male Adolescents: A Systematic Literature Review

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Review Paper

Psychiatric Disorders in Detained Male Adolescents: A Systematic Literature Review

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Objective: To provide a best estimate of the prevalence of psychiatric disorders among detained male adolescents, with particular emphasis on impairment, multi-informant assessment, and race or ethnicity.

Method: Computer-assisted searches were executed to identify relevant studies.

Results: Fifteen studies using adolescents as informants met inclusion criteria (*n* = 3401), of which only 2 reported within a subsample on parent-derived diagnoses. The mean prevalence of any disorder was 69.9% (95% CI 69.5% to 70.3%); with conduct disorder occurring most frequently (46.4%, 95% CI 45.6% to 47.3%), followed by substance use disorder (45.1%, 95% CI 44.6% to 45.5%), oppositional defiant disorder (19.8%, 95% CI 19.2% to 20.3%), and attention-deficit hyperactivity disorder (13.5%, 95% CI 13.2% to 13.9%). Although lower, rates for internalizing disorders were still substantial, with any anxiety disorder found in 15.9% (95% CI 15.6% to 16.1%), major depression in 12.0% (95% CI 11.7% to 12.2%), and posttraumatic stress disorder in 9.6% (95% CI 9.2% to 10.0%). Three studies reported on psychotic disorders, finding low rates (1.35%, 95% CI 1.32% to 1.39%). Estimates of prevalence were only marginally different when impairment was not required, while consistency between adolescents and parents was poor. Findings on the relations between race or ethnicity were too scarce and inconsistent to interpret.

Conclusion: Detained male adolescents bear substantial mental health needs, emphasizing the need to organize effective mental health services for this troubled group. However, our knowledge on mental disorders in detained youth should be enhanced, in particular regarding the reliability of adolescents, compared with parent report, and whether clinically relevant differences exist by race or ethnicity.

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Clinical Implications

- Across countries, detained and incarcerated adolescents have substantial mental health needs.
- Standardized mental health screening at detention intakes is warranted.
- Effective mental health services should be developed.

Limitations

- The systematic search of the literature was restricted to detained and incarcerated male adolescents only.
- The number of studies on psychiatric disorders in detained male adolescents using a standardized psychiatric interview is still small.
- Methodological differences hamper comparison and interpretation of the 15 index study results.

Key Words: mental health, forensic psychiatry, juvenile delinquents

Research on the prevalence of mental disorders in detained adolescents is still limited when compared with similar research in adults.[1] Nevertheless, because an increasing number of psychiatric prevalence studies in forensic adolescents has been published over the past years, the first review study with an explicit quantitative focus was published recently by Fazel et al.[2] In this meta-analytic study, high rates of psychotic illness (male adolescents: 3.3%, compared with female adolescents: 2.7%), major depression (10.6%, compared with 29.2%), ADHD (11.7%, compared with 18.5%), and CD (52.8%, compared with 52.8%) were described. This study further demonstrated that prevalence rates are influenced by type of instrument (that is, structured, compared with semi-structured, interview); interviewer (that is, psychiatrist, compared with nonpsychiatrist); study size; and study origin (that is, United States, compared with elsewhere). Therefore, the authors emphasized that the overall pooled prevalence rates for disorders must be interpreted with caution and suggested that reporting the range of prevalences might be an alternative and a more accurate approach.[2]

While the meta-analysis by Fazel et al[2] offered a unique picture of mental health problems in detained adolescents, some issues need further consideration. First, in line with general population studies,[3] some studies in detained adolescents[4] have identified racial or ethnic differences in the prevalence of mental disorders. This is of substantial importance, given the overrepresentation of minority adolescents in the juvenile justice system.[5] Second, specific disorders not included in the Fazel et al study[2] are of interest in forensic adolescent populations.[6,7] For example, it may be of interest to focus on disorders such as ODD, SUD, and PTSD, as they frequently occur in forensic adolescents. Third, existing studies vary about taking into account functional impairment, an issue that has received little attention. Because detained adolescents are likely to be poor reporters of impairment,[4,8] it is of interest to study whether this may have influenced prevalence rates. Studies that relied on symptom criteria only might have yielded higher prevalence rates than studies considering impairment as well. Finally, the issue of including multiple informants has been given little attention in juvenile justice populations. Multi-informant assessment is considered essential in child and adolescent psychiatry, and it is hence of importance that almost all studies on mental disorders in delinquent adolescents relied on youth self-report solely.[6] For

that reason, it bears clinical relevance to investigate whether findings derived by parents report differ from those of adolescents themselves.

Because of these considerations, our review will attempt to extend our knowledge on the mental health needs of confined adolescents by addressing some of the above-addressed clinically relevant issues. The purpose of our study was to provide a best estimate of the prevalence of a broad range of psychiatric disorders among detained male adolescents; and to address whether prevalence rates differ: when impairment is taken into account; when other informants are included; and according to race or ethnicity. We systematically reviewed the research literature published up to May 2008. As studies in detained female adolescent have remained scarce,[6,7] our review will be restricted to male adolescents only. Because substantial methodological differences between studies do not yet allow a meta-analysis to be conducted,[2] ranges of prevalence rates of disorders are presented. To allow comparison with the Fazel et al study,[2] the overall mean of disorders are presented as well.

Method

Literature Search

Computer-assisted searches (Web of Science) were executed, looking for English-language studies published between 1955 and June 2008. Combinations of key words were used relating to detention or incarceration (for example, incarc*, detention, detain*, "serious offend*," custod*), to psychiatric disorder (for example, mental, psychiatric, depress*, CD, ADHD, disorder), and to childhood (for example, child*, juven*, adolesc*). Subsequently, reference lists of the selected articles were carefully checked. Studies were included that presented prevalence rates of psychiatric disorders among detained male adolescents with a mean age of 18 years or younger, and assessed by means of a standardized (that is, structured or semi-structured) psychiatric interview for adolescents. Criteria for exclusion were studies that did not present separate prevalence rates according to sex or to juvenile justice settings, only included a selective subgroup of detained male adolescents, and combined different assessment methods resulting in unclear diagnostic decision-making. Owing to the methodological heterogeneity between the studies, no formal statistical meta-analysis could be performed. Weighted means and 95% confidence intervals for psychiatric disorders were calculated and presented only if prevalence rates for a particular disorder were presented in at least 3 studies.

A literature search was performed and papers were selected if they met the inclusion criteria.

No formal criteria other than the inclusion and exclusion criteria were applied in our study selection.

Abbreviations used in this article

ADHD	attention-deficit hyperactivity disorder
CD	conduct disorder
DISC	Diagnostic Interview Schedule for Children
DSM	Diagnostic and Statistical Manual of Mental Disorders
ODD	oppositional defiant disorder
PTSD	posttraumatic stress disorder
SUD	substance use disorder

Results

Study Selection

The search identified a total of 2128 publications whose titles and abstracts were all individually checked, resulting in a second selection of 69 papers. The references lists of these 69 papers were scanned and identified 12 additional papers. Full texts of the 81 potentially eligible articles were critically appraised. In total, 67 interview-based papers in detained or incarcerated male adolescents were retrieved. Among the papers, 11 did not use a standardized psychiatric interview for adolescents and were excluded.[9–19] The reasons for exclusion of another 26 papers were (total counts were up to a higher number because multiple exclusion criteria could apply to 1 study): 12 papers included a highly selective population, such as adolescents referred to psychiatric services,[20–22] adolescents with SUD,[23–25] patients with CD,[26] or homicidal juvenile delinquents[27–31]; 11 papers did not provide prevalence rates for male and female adolescents separately[20,21,26,31–38]; 1 paper selected participants if nursing staff found detained adolescents appropriate to collaborate[39]; 1 paper used a mixed sample of adolescents and young adults resulting in a mean age of 20 years[40]; 1 paper used a diagnostic interview that was based on a DSM-III nomenclature without providing detailed information on how the interview was keyed to DSM-IV[41]; 3 papers based diagnosis on a combination of standardized interviews and other information, which resulted in unclear diagnostic decision-making[35,42,43]; and 3 papers presented results without differentiating between juvenile justice settings (for example, including both detained and adjudicated adolescents).[20,33,44] Finally, 30 papers were eligible, referring to 15 different studies. As most studies present the same sample in different papers, our study focused specifically on the overall prevalence rate selected. Therefore, 15 papers were included in our study.[4,8,45–57] One paper[46] was replaced with a paper that had been published after May 2008[58] as this latter paper had a larger sample size and assessed a broader range of psychiatric disorders.

Sample and Study Characteristics

The 15 studies meeting all inclusion criteria sampled 3401 male adolescents from 10 different countries (United States, Canada, Japan, Russia, the Netherlands, Belgium, United Kingdom, Denmark, Austria, and Finland). Sample sizes varied from 19 to 1172, with mean ages from 14.1 to 17.1 years. All studies except 1 included both minority and nonminority adolescents, with 4 studies not providing information on race or ethnicity. Six studies included a majority of minority adolescents (50% to 82%), while 4 assessed smaller subgroups (2% to 22%). Sampling strategies consisted of consecutive sampling, random sampling (with or without stratification), or a combination of both. Four studies did not mention their sampling method. Response rates were generally high, between 79% and 96%. Across studies, 8 different interviews were used as the main instrument; 10 studies used a structured and 5 used a semi-structured interview. The structured DISC for assessing DSM-III-R or DSM-IV diagnoses was the most commonly used (7 studies), of which 1 of these studies used the DISC in combination with 2 modules of the Composite International Diagnostic Interview. One study used the structured Mini-International Neuropsychiatric Interview for children and adolescents, one the Clinician Administered PTSD Scale for DSM-IV, while another study used the new and relatively unknown structured Practical Adolescent Dual Diagnostic Instrument. Semi-structured interviews assessed DSM-IV or International Classification of Diseases, 10th Revision, disorders and were: for 1 study, the Diagnostic Interview for Children and Adolescents; for 4 studies, the Schedule for Affective Disorders and Schizophrenia for School-Age Children; and for 1 study, the Schedule for Clinical Assessment in Neuropsychiatry. Time frames for assessing disorder rates were different across studies, sometimes even within the same study, including lifetime, past year, past 6 months, past month, present, 6 months before detention, and 1 year before detention. In addition, studies differed in their definitions of impairment: 1 study reported on global functional impairment, 7 on diagnosis-specific impairment, 5 did not consider impairment, and from 2 studies it was not clear whether impairment was included. Further, the definitions of diagnosis-specific impairment varied from endorsing 1 out of 3 impairment criteria, to 1 out of 6 impairment items, while 4 studies did not provide information about how impairment was defined. The mean duration of imprisonment at the time of the interview was mostly not mentioned, but obviously differed as well (a detailed overview of the sample and study characteristics is available on request).

Prevalence of Psychiatric Disorders

Seventy percent of detained adolescents met criteria for at least one disorder (95% CI 69.9% to 70.3%). The mean prevalence for CD were 46.4% for (95% CI 45.6% to 47.3%); for SUD 45.1% (95% CI 44.6% to 45.5%); for ODD 19.8% (95% CI 19.2% to 20.3%); and for ADHD 13.5% (95% CI 13.2% to 13.9%). Most prevalent internalizing disorders were major depressive disorder (mean 12.0%; 95% CI 11.7% to 12.2%); separation anxiety disorder (mean 10.7%; 95% CI 10.5% to 10.8%); and PTSD (mean 9.6%; 95% CI 9.2% to 10.0%). Few studies presented the prevalence of psychotic disorders (mean 1.35%; 95% CI 1.32% to 1.39%) (Table 1).

Prevalence of Psychiatric Disorders: With Additional Impairment, Compared With Disorder Criteria Only

Among the 15 eligible studies, 4 studies reported prevalence rates by criteria only, 5 by criteria with impairment, and 3 studies presented prevalence rates both with and without impairment. One study assessed global functional impairment in addition to the DISC diagnoses[56] and found all participants with a disorder to be impaired. Rates therefore could be compared with studies that assessed disorder by criteria only. The 2 studies that did not provide information about whether or not impairment was taken into account were not included in the analyses.[47,55] Examination of Table 1 suggests that prevalence estimates of disorders and disorder categories

Table 1 Prevalence rates of psychiatric disorders

Psychiatric disorder	With or without impairment[a] Range; mean (95% CI); studies n^d	With impairment only[b] Range; mean (95% CI); studies n^e	Without impairment only[c] Range; mean (95% CI); studies n^f
Any of the assessed disorders	51–90; 69.9 (69.5–70.3); 7	51–76; 64.4 (64.1–64.7); 3	66–90; 72.8 (72.4–73.3); 6
Any affective disorder	6–22; 13.1 (12.9–13.3); 6	6–16; 13.5 (13.3–13.7); 4	6–22; 15.8 (15.6–16.0); 5
Major depressive episode	0–33; 12.0 (11.7–12.2); 11	0–14; 10.0 (9.8–10.1); 7	8–33; 14.4 (14.1–14.6); 6
Dysthymia	0–21; 7.5 (7.3–7.7); 6	0–11; 7.2 (7.0–7.4); 5	1–12; 8.5 (8.3–8.9); 3
Manic episode	1–28; 5.6 (5.4–5.9); 5	1–11; 3.7 (3.5–3.9); 3	<3 studies
Any anxiety disorder	2–21; 15.9 (15.6–16.1); 6	2–21; 16.5 (16.3–16.6); 5	9–21; 18.0 (17.8–18.2); 4
Panic disorder	0.1–4.0; 1.2 (1.1–1.3); 3	0.1–4.0; 1.2 (1.1–1.3); 3	<3 studies
Separation anxiety disorder	6–24; 10.7 (10.5–10.8); 5	6–14; 10.4 (10.3–10.5); 4	<3 studies
Overanxious disorder	0–40; 7.1 (6.7–7.4); 4	<3 studies	<3 studies
Generalized anxiety disorder	0–17; 7.4 (7.2–7.6); 6	0–12; 7.0 (6.8–7.1); 5	2–17; 6.7 (6.5–6.8); 3
Obsessive–compulsive disorder	1–8; 6.1 (6.0–6.2); 4	3–8; 6.4 (6.3–6.5); 3	1–8; 7.0 (6.9–7.1); 3
PTSD	1–24; 9.6 (9.2–10.0); 9	1–24; 11.7 (11.2–12.3); 6	1–15; 4.5 (4.2–4.7); 4
Specific phobia	2–6; 3.9 (3.8–4.1); 3	<3 studies	<3 studies
Any disruptive behaviour disorder	23–75; 37.8 (37.1–38.5); 5	23–60; 33.6 (33.1–34.1); 4	33–75; 46.6 (46.0–47.2); 4
ADHD	1–40; 13.5 (13.2–13.9); 10	1–40; 13.6 (13.2–14.0); 6	2–27; 13.2 (13.0–13.5); 6
ODD	2–51; 19.8 (19.2–20.3); 8	2–43; 16.7 (16.2–17.2); 5	3–51; 18.4 (17.9–19.0); 5
CD	21–95; 46.4 (45.6–47.3); 13	21–73; 38.8 (38.0–39.7);6	31–91; 49.4 (48.6–50.1); 8
Any SUD	25–69; 45.1 (44.6–45.5); 11	25–54; 43.5 (43.0–44.0); 5	41–74; 53.5 (53.1–53.8); 7
Any alcohol use disorder	16–48; 26.2 (26.0–26.5); 7	16–34; 24.7 (24.6–24.9); 4	26–54; 31.2 (30.8–31.7); 5
Any marijuana use disorder	11–45; 39.2 (38.8–39.7); 6	11–45; 39.0 (38.5–39.5); 4	33–63; 45.9 (45.6–46.2); 5
Any other SUD	2–19; 6.4 (6.1–6.7); 4	2–19; 6.0 (5.7–6.3); 3	2–32; 9.0 (8.5–9.4); 4
Psychotic disorder	1–4; 1.35 (1.32–1.39); 3	<3 studies	1–4; 1.35 (1.32–1.39); 3

Note: Means are weighted by sample size; <3 studies = not given because rates were presented in less than 3 studies

[a] The 3 studies that presented prevalence rates with and without impairment, rates with impairment were used.

[b] The 8 studies are: Duclos et al[48]; Teplin et al[4]; Wasserman et al[8]; Ruchkin et al[54]; Kuo et al[52]; Yoshinaga et al[57]; Plattner et al[53]; and Colins et al[58]

[c] The 8 studies are: Forehand et al[49]; Teplin et al[4]; Wasserman et al[8]; Gosden et al[50]; Kroll et al[51]; Vreugdenhil et al[56]; Abrantes et al[45]; and Colins et al[58]

[d] Number of studies on the total of 15 index studies

[e] Number of studies on a total of the 8 studies that reported prevalence rates with impairment for this psychiatric disorder or category

[f] Number of studies on a total of the 8 studies that reported prevalence rates without impairment for this psychiatric disorder or category

with (column 2) or without (column 3) impairment do not differ substantially. This was also found in the 3 studies reporting prevalence rates both with and without impairment,[4,8,58] with the exception of CD and SUD showing a decrease of 10% to 28% when impairment is included. A detailed overview of prevalence rates by study is available on request.

Informants

Only 2 of the 15 studies conducted a substudy, including parent information for a substantial proportion of parents; that is, the Wasserman et al[8] and Colins et al[58] studies. Ko et al[59] interviewed 122 child–parent dyads out of 569 incarcerated adolescents. When impairment was not considered, adolescents reported significantly higher rates of affective disorders and SUD, while no significant differences appeared on other diagnostic categories. When impairment was included, the relative differences were comparable with those based on criteria only (Table 2).[59] In addition, among the 35 male adolescents who did not self-report a disorder (without impairment), 57% of their parents did.[59] Colins et al[46] interviewed 115 parents out of a sample of 150 detained Belgian male adolescents on ADHD, ODD, and CD (DISC-IV). Poor parent–child agreement was found; parents reported significantly more ADHD and ODD (with and without impairment)

Table 2 Disorder prevalence rates by youth and parent report (%)

Psychiatric disorder	Ko et al[59,a]				Colins et al[46,b]			
	Youth-reported impairment		Parent-reported impairment		Youth-reported impairment		Parent-reported impairment	
	Without	With	Without	With	Without	With	Without	With
Any disorder	71	n/a	57	n/a				
Any anxiety disorder	20	11	21	17				
Any affective disorder	13	11	7	6				
Any disruptive behaviour	35[c]	30[c]	32[c]	31[c]				
ADHD	3	2	5	5	16	16	39	38
ODD					32	31	55	54
CD					62	53	47	45
Childhood-onset CD					27	25	24	24
Adolescent-onset CD					34	27	23	21
Any SUD	52	34	27	25				

[a] Past-month prevalence rates (except CD and SUD: past 6 and past 12 months, respectively)

[b] Past-year prevalence rates

[c] Any ODD or CD; ADHD excluded

n/a = not available

than adolescents, while CD was significantly more prevalent according to adolescents self-report (without impairment) (Table 2).

Psychiatric Disorders by Race or Ethnicity

While most studies included both minority and nonminority adolescents, only 2 examined race- or ethnicity-specific prevalence rates. Teplin et al[4] compared African American, non-Hispanic white, and Hispanic detainees, and found non-Hispanic white adolescents to have the highest, Hispanic whites intermediate, and African American to have the lowest rates of disorders. Further, non-Hispanic whites were significantly higher on most externalizing disorder categories but lower on anxiety disorder than Hispanic whites or African-American adolescents. The few significant differences between African American and Hispanic white detainees were relatively small or restricted to less prevalent disorders (that is, panic disorder and obsessive–compulsive disorder). No significant difference was found in PTSD across these 3 groups (The study by Abram et al[60] is a substudy of Teplin et al[4]). In a study of adolescent remand prisoners, Gosden et al[50] found that male adolescents of non-Danish ethnicity were less diagnosed with any disorder (30.0%, compared with 39.0%), which was explained by a lower level of SUD in non-Danish adolescents (that is, 12%, compared with 29%). No differences for other disorders were found between both groups.

Discussion

Findings of the Review

In 2002, a review on psychiatric disorders in imprisoned adults was published. Including only studies that used validated diagnostic instruments, a total of 62 studies could be identified, totalling 18 530 men.[1] When a similar exercise is done in detained minors, only 15 studies, totalling just 3401 or 5 times less participants, can at present be identified. Consequently, one may conclude that mental health needs of delinquent adolescents placed in juvenile justice institutions (that is, impairment, parental information, and race or ethnicity) have received little attention until now. Although this limits the possibility to draw firm conclusions, current findings emphasize the necessity to continue studying this troubled group.

Whereas Fazel et al[2] included grey literature and studies that (also) used nonstructured interviews (that is, clinical interviews), our study included merely studies using structured diagnostic interviews published in peer-reviewed journals. Despite methodological differences between both studies, overall prevalence rates for ADHD (Fazel et al[2]: 11.7%, compared with our study: 13.6% with and 13.2% without impairment), CD (52.8%, compared with 38.8% with and 49.4% without), and major depression (10.6%, compared with 10.0% with and 14.4% without) were similar. However, the prevalence of psychotic disorder in Fazel et al[2] (3.3%) was more than twice the prevalence rate reported in our review (1.3%). As psychotic disorders are very difficult to assess with highly structured interviews (that is, DISC), additional

clinical evaluation and consideration are warranted. This difficulty is demonstrated by the finding that 66% to 78% of detained adolescents reported to have at least one psychotic experience[61,62] of whom merely 7% were indicative of a psychotic disorder when an experienced child psychiatrist reviewed those psychotic experiences.[61] The inclusion of studies that allowed (additional) clinical evaluation may explain why rates for psychotic disorder are higher in Fazel et al.[2] Nevertheless, the prevalence of psychotic disorders in detained adolescents is still higher than in normal population youth.[63]

When comparing the weighted mean (70%), median (63%), and range (51% to 90%) of any disorder reported in this review, with findings from a review of 12 general population studies of adolescents (16%, 15%, 6% to 41%, respectively), one may conclude that detained male adolescents show much higher rates of psychiatric disorders than community youth.[64] Of course, this is mainly because externalizing disorders peak highly in detained adolescents, while the increase in internalizing disorders (anxiety and depression) is less pronounced. Still, it should be emphasized that between 13% and 20% of detained youth meet criteria for at least one internalizing disorder,[56,58] which is also much higher than in the general population. Also, internalizing disorders rarely appear on their own in detained male adolescents.[58] This is of clinical interest as well, as comorbidity of externalizing and internalizing disorders was shown to increase the risk of suicidality.[65] Thus, while externalizing disorders are particularly prevalent among forensic adolescents, affective and anxiety disorders should not be disregarded.

DSM-IV emphasizes that a psychiatric disorder can only be diagnosed when both symptom criteria and related functional impairment are present.[66] The reviewed studies demonstrate that, within detained settings, considering impairment does not substantially influence prevalence rates. This finding can be explained 2-fold. First, the context makes the impairment issue somewhat artificial, as being arrested and detention on itself can be interpreted as functional impairment. Adolescents with diagnoses in the externalizing field in particular may be considered impaired, as symptoms related to these conditions have resulted in detention. Second, detained adolescents may report themselves impaired because confinement restricts their daily functioning, but not because of their symptoms. For those reasons, self-report assessment of impairment may be intricate in forensic samples, and have resulted in little differences between rates with and without impairment. This may suggest that rates from each of these studies can be put together. However, when considering disorder rates of parents, compared with adolescents, some indication is given that impairment does play a role for some disorders. In particular, parents reporting adolescent SUD proportionately reported more SUD-related impairment than adolescents reporting accompanying impairment.[59] For this reason, the issue of impairment should receive further attention, specifically relating to SUD.

Because parents of detained and incarcerated adolescents are not easy to reach, adolescents themselves are mostly the main and often the only source of information in existing studies on the topic. However, as parent information is considered essential for child psychiatric assessment, one can doubt the reliability of these findings. As only 2 studies assessed psychiatric disorders in detained adolescents by including both parental and youth information, there is at present little evidence to elaborate on this issue. However, as substantial discrepancy between informants was found,[46,59] the clinical importance of these scarce findings should not be underestimated. Further study of this issue should therefore be a priority. Existing findings further emphasize that informant consistency is likely to vary by disorder. For example, the large proportion of parents uniquely reporting ADHD may support previous concerns, namely, that adolescents themselves lack knowledge on developmental information.[7] This underscores the importance of parental information for the accurate assessment of ADHD in adolescent detainees. This may well be different for other disorders, such as SUD, as parents are often unaware of a child's intake. However, unique information is not synonymous with accurate and valid information. Parental characteristics may promote a negative bias in the manner in which parents perceive their children's behaviour.[67] Prevalence rates of disorders based on parental reports are, thus, not necessarily more reliable than rates based on youth reports. For example, owing to shame as a reaction of the detention of their child or owing to poor parental monitoring and supervision, parents may underreport the CD-related behaviour of their child. As discrepancies are inherent to clinical assessment of adolescent psychopathology, future research should examine the prognostic value of unique or discrepant diagnostic information provided by detained adolescents themselves and their parents. The few studies in general population and clinical-referred samples[68] suggest that discrepancies between detained adolescents and their parents carry clinical relevance.

Despite the overrepresentation of adolescents in the juvenile justice system, studies on mental health disorders by ethnic subgroups are limited. The few studies that addressed this issue suggest that detained adolescents have less mental disorders than their white counterparts.[4,50] However, it remains to be explained how this finding must be reconciled with the finding that justice involved adolescents bear the greatest level of needs and are most at risk for underserved mental health needs.[69,70]

Methodological Issues and Limitations

When interpreting the results of the 15 index studies, the following methodological issues must be taken into account: moment of assessment, time frame used, national and regional differences in arrest patterns and quality of mental health services, and differences between forensic settings. First, because study samples were interviewed at different time points, findings may differ as a consequence of the time

spent in detention before the assessment took place. For example, because being locked up decreases the opportunity to misbehave or use substances,[51] rates of CD an SUD may be lower in studies taking place a long time after start of detention. Likewise, because juvenile justice intervention itself may exacerbate depressive or anxious symptoms,[71] rates for these disorders may be higher in studies conducted immediately after detention intake. Second, different time frames for assessing psychiatric disorder were used (for example, past-month, compared with lifetime). These different time frames hamper comparison of prevalence rates, and may at least partly explain the wide range of psychiatric disorders. Third, differences may further reflect national and regional differences in arrest patterns. For example, in areas where adolescents are frequently incarcerated because of drug-related index offences, SUD may be more prevalent than in areas where this is not so.[8] Likewise, findings between studies may differ because of differences in the quality of mental health services across countries. In countries where mental health services are widely available and people do not have to rely on the juvenile justice system for obtaining adequate mental health, the prevalence of psychiatric disorders may be lower. In contrast, prevalence rates may be higher in countries where mental health services are less accessible or where detention is often one of the first contacts with mental health services.[7] Fourth, owing to the small number of studies included in our study, we did not differentiate between detained and incarcerated samples. Consequently, we did not address the differences between detention (preadjudication) and incarceration (postadjudication) and how that might affect the comparisons between the various studies. However, as no substantial differences were found in adult male detainees and prisoners regarding the prevalence of major mental disorders, it is unlikely that this would be different in adolescent samples. Finally, our literature search strategy was based only on one, though widely used and large, electronic database. Therefore, we cannot exclude the possibility that we missed some studies that were indexed in other databases (for example, PubMed) but not in Web of Science.

Implications for Clinical Practice

Despite the above-mentioned limitations, findings of this systematic review bear both clinical and public health relevance. The high prevalence rates of psychiatric disorders underscore the need of standardized mental health screening at start of placement.[71,72] Importantly, mental health problems should not be considered a temporary phenomenon, as detained male adolescents who were reassessed 3 months after detention admission and 2 years after discharge continue to have a high rate of mental health problems.[51,73] Therefore, mental health assessment should be continued during detention and after discharge, and be followed by adequate and targeted intervention.

Discrepancies between informants make it difficult to know to what extent we can rely on diagnostic information given by adolescents themselves. Therefore, it is of clinical relevance to use parental information when possible, being aware that this information may be biased as well. This might particularly be true for ADHD as a substantial proportion of ADHD cases are missed when parental information is not included in the assessment.

Although detained adolescents are entitled to appropriate mental health care, it is doubtful whether they will actually receive it during their confinement. But also, while therapeutic programs and guidelines have been developed for numerous psychiatric conditions frequently occurring in juvenile justice populations, it is not clear whether these guidelines are effective for forensic youth.[71] Likewise, recognizing mental health needs may be of relevance for programs designed at reentering the community. While several community-based intervention programs were found to be effective in antisocial adolescents (for example, multisystemic therapy[74]), the presence of comorbid psychiatric disorders in adolescents assigned to multisystemic therapy was found to be associated with poor outcome.[75] As comorbidity occurs pervasively among detained adolescents,[76] standard intervention programs are likely to be insufficient when not adequately tailored to their needs. Finally, the high rates of low IQ and learning disabilities in detained adolescents[51] may not only complicate the assessment of psychiatric disorders (for example, poor understanding of the question) but also endeavours tailoring intervention programs to the needs of this population (for example, adjusting cognitive behaviour therapeutical guidelines to their intellectual capacities).

Implications for Future Research

Our study shows that research on psychopathology in detained adolescents is in its infancy. Undoubtedly, prevalence studies in adolescent forensic populations should continue to be conducted, both in males and in females. Particular attention should be paid to the assessment of psychotic disorders by trained physicians. Research focusing on the clinical usefulness of parental information by itself or in combination with adolescent self-report is a necessity as well. Likewise, too little studies have examined rates of psychiatric disorders relating to ethnic origin.

Conclusion

Detained male adolescents bear substantial mental health needs, emphasizing the need to organize effective mental health services for this troubled group. However, our knowledge on mental disorders in detained adolescents should be enhanced, in particular regarding the reliability of adolescents, compared with parent report, and whether clinical relevant differences exist by race or ethnicity.

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Résumé : Les troubles psychiatriques chez des détenus masculins adolescents : une revue systématique de la documentation

Objectif : Offrir la meilleure estimation de la prévalence des troubles psychiatriques chez les détenus masculins adolescents, en mettant l'accent particulièrement sur le dysfonctionnement, l'évaluation par informateurs multiples, et la race ou l'ethnicité.

Méthode : Des recherches assistées par ordinateur ont été menées pour relever les études pertinentes.

Résultats : Quinze études utilisant des adolescents comme informateurs satisfaisaient aux critères d'inclusion (n = 3401), parmi lesquelles seulement 2 rendaient compte, dans un sous-échantillon, des diagnostics dérivés des parents. La prévalence moyenne de tout trouble était de 69,9 % (IC 95 % 69,5 % à 70,3 %); le trouble des conduites étant le plus fréquent (46,4 %; IC 95 % 45,6 % à 47,3 %), suivi du trouble lié à l'utilisation d'une substance (45,1 %; IC 95 % 44,6 % à 45,5 %), du trouble oppositionnel avec provocation (19,8 %; IC 95 % 19,2 % à 20,3 %), et du trouble d'hyperactivité avec déficit de l'attention (13,5 %; IC 95 % 13,2 % à 13,9 %). Bien que plus faibles, les taux des troubles d'internalisation étaient quand même substantiels, avec un trouble anxieux observé chez 15,9 % (IC 95 % 15,6 % à 16,1 %), la dépression majeure chez 12,0 % (IC 95 % 11,7 % à 12,2 %), et le trouble de stress post-traumatique chez 9,6 % (IC 95 % 9,2 % à 10,0 %). Trois études portaient sur les troubles psychotiques, et constataient des taux faibles (1,35 %; IC 95 % 1,32 % à 1,39 %). Les estimations de la prévalence n'étaient que marginalement différentes lorsque le dysfonctionnement n'était pas requise, tandis que la cohérence entre adolescents et parents était faible. Les résultats sur les relations concernant la race ou l'ethnicité étaient trop peu nombreux et incohérents pour être interprétés.

Conclusion : Les détenus masculins adolescents ont des besoins de santé mentale substantiels, ce qui souligne la nécessité d'organiser des services de santé mentale efficaces pour ce groupe perturbé. Cependant, nous devons améliorer nos connaissances sur les troubles mentaux des jeunes détenus, en particulier à l'égard de la fiabilité des adolescents, comparée aux déclarations des parents, et déterminer s'il existe des différences cliniquement significatives selon la race ou l'ethnicité.