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ABSTRACT

OBJECTIVE: High rates of psychiatric disorders and comorbidities have been reported in the juvenile justice system, and both phenomena are thought to contribute to repetitive offending. Although extensive research on the prevalence of psychiatric disorders in juvenile offenders has been conducted in European countries and the USA, epidemiological research concerning this issue is limited in Turkish population. The aim of the present study is to examine psychiatric diagnoses, comorbidity patterns, psychometric properties, and the factors related to recidivism defined as reconvictions, in juveniles under probation in Turkey.
METHODS: We conducted face-to-face interviews with volunteers. This study sample consisted of 55 individuals (Female/Male = 4/51) who were in the Istanbul Anatolian Probation Department. The participants' age ranged from 14 to 18 years (mean age = 17.22 ± 0.62). Diagnoses were established based on the Kiddie Schedule for Affective Disorders and Schizophrenia for School Age Children Present and Lifetime Version. A detailed sociodemographic form, Wechsler Intelligence Scale, Child Depression Inventory, and Beck Anxiety Inventory were used for assessment. The subjects were divided into two groups based on the number of conviction: Group 1 consisted of 65% of the sample ($n = 36$) with one conviction and Group 2 consisted of 35% of the sample ($n = 19$) with more than one conviction. We examined the psychometric properties that might predict recidivism through the logistic regression analysis.
RESULTS: We ascertained that 67.3% of the juveniles had at least one psychiatric disorder, and 45.5% had two or more comorbid psychiatric disorders. The most common diagnosis was attention deficit hyperactivity disorder (ADHD) (43.6%), and followed by depressive mood disorders (34.5%). Juveniles in Group 2 were less educated, had low levels of verbal, performance and total intelligence quotient (IQ) score, had more numbers of psychiatric diagnoses, particularly depressive mood disorders and history of substance use disorders ($p < .05$). Having a higher number of psychiatric diagnoses and having comorbidity of both externalizing (i.e. ADHD, conduct disorder) and internalizing disorders (i.e. depressive mood disorders, anxiety disorders) were significantly higher in Group 2 ($p < .05$). Total duration of education (OR = 0.470, 95% CI = 0.257–0.861, $p < .05$) and having at least one psychiatric disorder (OR = 10.64, 95% CI = 1.642–68.954, $p < .05$) were found to predict multiple convictions.
CONCLUSION: Juveniles in the justice system are faced with multiple psychiatric disorders, along with social/environmental adversities. There is a need of a holistic approach addressing multiple areas to prevent repetitive offending behaviour. Accordingly, in addition to legal sanctions, evaluation and interventions regarding mental health will contribute to improve for both psychosocial well-being of delinquent juveniles and prevention strategies for recidivism.

Introduction

Juvenile delinquency has become an important challenge in terms of social, economic and individual aspects in our country as in the world. In Turkey, more than 100,000 children are arrested by the police every year. The most common reasons for arrests are assault, theft, opposition to the law of passport, and using, selling and purchasing of substances, respectively [1].

The juvenile justice system underlines rehabilitation and prevention measures for juveniles rather than punishing them. Juveniles in the justice system suffer an excessive rate of mental health problems [2,3]. Accordingly, awareness of mental, physical, and social difficulties of delinquent juveniles by health care providers can make a significant contribution to prevention and rehabilitation efforts [2].

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A reciprocal relationship exists between delinquency and psychiatric disorders. It is known that mental health problems are observed far more frequently among delinquent juveniles than in general population. The rate at which delinquent juveniles diagnosed with a psychiatric disorder reaches up to 90%, and about half of these juveniles are diagnosed with more than one psychiatric disorder, while the rate of psychiatric disorders varies from 10% to 20% in general adolescent population [4–11]. The most frequently diagnosed psychiatric disorders among delinquent juveniles include substance use disorder (SUD), conduct disorder (CD), ADHD, and mental retardation [6,7,10,12,13]. From the other side of the frame, various studies show that adolescents had a diagnosis of at least one psychiatric disorder exhibit higher levels of problematic behaviour such as reckless driving, unprotected sex and substance abuse, a higher risk of police arrest, a higher rate of criminal involvement, and a longer duration of penalty [5,6,14,15].

Recidivism is described as repetitive criminal behaviour in general, and it is defined by different headings according to study measures (i.e. rearrest, reconvictions, reincarceration). Studies on delinquency are high in number; nevertheless, causes of recidivism in juveniles, its psychiatric background, and consequence are not highlighted sufficiently [16]. On the other hand, psychiatric disorders are considered as dynamic risk factors, and allow therapeutic intervention for risk reduction due to their modifiable nature [17–19]. Several studies did not reveal a significant linkage between recidivism and SUD, CD, and ADHD [20,21], while others have indicated a strong relationship between recidivism and these disorders [16,22]. Similarly, there is also controversial knowledge about whether depression is a risk factor or a protective factor [23–25].

Studies that employed clinical psychiatric interviews on juvenile delinquents in Turkey usually included juveniles referred to hospitals for forensic evaluation [26–33]. There is only one study that examines the prevalence of psychiatric diagnosis and related factors in non-clinical detention sample [34]. To our knowledge, the present study is the first study in Turkey that investigates the presence of possible psychiatric background for recidivism in juveniles under probation. The purpose of the current cross-sectional study is to determine the prevalence of psychiatric disorders, and developmental trajectory of risky behaviours in juveniles under probation. We also addressed related individual, social and educational factors with repetitive criminal behaviours.

Materials and methods

Setting

The sample of the study includes adolescents between the ages of 14 and 18 who are being supervised by Istanbul Anatolian Probation Office, which is operated by the Ministry of Justice (MoJ) of the Republic of Turkey.

All the interviews were conducted with the participants at their own probation sessions, in a designated interview room, on one-to-one basis, and with the assent of both participants and the probation officer.

Subjects

This study was planned voluntary based on a cross-sectional design conducted on a non-clinical sample in a total number of 55 juvenile participants. Istanbul Anatolian side has a heterogeneous population structure composed of individuals from various socioeconomic levels. Total population reaches over 5 million and population under 18 years of age is approximately 1.5 million [35]. While the size of adolescent population under ongoing probation process at Istanbul Anatolian Probation Office is constantly changing, the number is estimated to vary from 80 to 100 people per year. We aimed to interview all persons under 18 years of age with an ongoing probation process at the office in a period of 6 months of the study. Criteria for exclusion included adolescents on probation who or whose families declined participation in the study, those who had a visual or hearing impairment that may interfere with the interview.

In this study, recidivism was defined as more than one conviction by the juvenile criminal courts for any kind of delinquent offence. The subjects were divided into two groups based on this criterion: Group 1 consisted of 65% of the sample ($n = 36$) with one conviction and Group 2 consisted of 35% of the sample ($n = 19$) with more than one conviction.

Fifty-six juveniles under probation gave consent to participate in the study. One case's data were excluded from the sample because the participant and his parents declared withdrawal in the later stages of the study, and disapproved the further use of their data.

Clinical assessment and measures

1. *Sociodemographic Data Form:* Sociodemographic characteristics of adolescents were recorded in a detailed form developed by the researchers.
2. *Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) Turkish Version:* K-SADS-PL was developed by Kauffman et al. [36], and used to detect Axis I mental health disorders regarding DSM-IV diagnostic scales in participants aged 6-18 at present or for lifetime. The Turkish validity and reliability study of K-SADS-PL was performed by Gökler et al. [37].

3. *The Children's Depression Inventory (CDI):* CDI was used to determine the frequency of depression symptoms of the participants in our study. It was developed by Kovasc et al. [38] and was adapted to Turkish by Öy et al. [39].

4. *The Beck Anxiety Inventory (BAI):* BAI developed by Beck et al. [40] is a Likert type self-report inventory composed of 21 items and its Turkish validity and reliability study was performed Ulusoy et al [41]. Higher scores on the scale mean higher levels of anxiety.

5. *Wechsler Intelligence Scale for the Assessment for Children-Revised Form (WISC-R) or Wechsler Adult Intelligence Scale (WAIS):* Wechsler Intelligence Scale for Children (WISC) and Wechsler Adult Intelligence Scale (WAIS) were developed by David Wechsler. The WISC is to assess the intellectual capacity of juveniles aged 6–16 years, was revised and standardized as WISC-R in 1974 [42]. The Turkish version of the WISC-R was developed by Savaşır and Şahin [43]. The WAIS is a scale administered on persons above 16 years of age. WAIS was translated into Turkish [44]. WAIS and WISC-R provide a multidimensional intelligence assessment including verbal and performance skills.

Procedures

The study has been approved by T.C. Uskudar University Ethical Committee (B.08.6.YÖK.2.ÜS.0.05.0.06/2015/62) and the MoJ General Directorate of Prisons and Detention Houses (46985942/586/179574). The participants and their parents were informed about the study design and their right of refusal. They were reassured that denial to take part would not impact on their legal status. Written and oral informed consents were gathered from the parents and the participants. Researchers warranted that in case of identifying any psychiatric condition during the study, the participants will be addressed to a mental health care unit for the treatment process. Parents who did not accompany their children at the time were contacted by phone, informed, and were sent the consent form.

BAI and CDI were completed by the participants. Based on information from the juveniles and their parents, the sociodemographic information form was completed by the researchers. All the juveniles in the study were assessed according to the KSADS-PL for diagnostic evaluation by a child and adolescent psychiatrist. In a separate session, depending on the age of the participants (age cut-off for applying WAIS is 16) WISC-R or WAIS were applied to evaluate intellectual capacity by the clinical psychologist.

Statistical analysis

Statistical Package Program (Statistical Program for Social Sciences-SPSS for Windows 20.0) was used in data analysis. Descriptive sample analysis was presented with the related variables as frequency, percentage, mean, standard deviation. Kolmogorov–Smirnov test was used to evaluate normality of distribution. Relational analysis of categorical nominal variables was performed with the Chi-square test and the Fisher's exact test. Independent numeric variables were analysed by Student's t independent test and Mann–Whitney U test. The factors affecting recidivism were evaluated by binary logistic regression analyses. Statistical significance level for all analyses was accepted as $p < .05$.

Results

Our sample included 55 juveniles with a mean age of 17.22 ± 0.62 years (min–max = 15–18). 7.3% of the juveniles ($n = 4$) were female with single conviction. Fifty-one per cent of the juveniles ($n = 28$) were employed at a job at the time of the study. Ninety-eight per cent of the juveniles ($n = 54$) were under probation due to substance-related offences while only one individual was under probation due to a property offence.

In this study, contact with the police was defined as only involvement in a police investigation, but not required referral to court (custody, wrongful act, etc.). The mean age of contact with the police was 14.78 ± 1.94 years old (min = 10; max = 17; median = 15). Forty-two per cent of the sample contacted with the police once, 20% twice and 38% three times and more.

Of the sample, 21.8% ($n = 12$) reported to have a previous admission to a psychiatry unit. 67.3% of the juveniles ($n = 37$) had at least one psychiatric disorder, and 45.5% had two or more number of psychiatric disorders. History of self-mutilative behaviour and suicide attempt was reported as 47.3% ($n = 26$) and 14.5% ($n = 8$), respectively.

Sociodemographic variables

In our sample, a participant who was on probation due to property crime was included in Group 2 because of his previous convictions. In terms of previous crimes committed by the juveniles in Group 2, 52.6% of these ($n = 10$) were offences against the person (e.g. injury), 42.1% ($n = 8$) were offences against property (e.g. theft), and 5.2% ($n = 1$) was a sexual offence. In Group 2, 10.5% of the juveniles ($n = 2$) were imprisoned before.

The mean age of the two groups was similar (17.16 ± 0.66 years for Group 1 and 17.32 ± 0.54 years for Group 2) ($t = -.902$, $p = .371$). No statistically significant difference between the Group 1 and Group 2 was observed in terms of mean age, sex, socioeconomic level, education level and age of parents, traumatic life

experiences, suicide attempt, self-harming behaviour, seeking psychiatric consultancy, disciplinary punishment at school, and truancy between the groups ($p > .05$). The sociodemographic characteristics of the groups were presented in Table 1.

There were statistically significant differences between the groups for the age of started truant behaviour ($p < .05$), smoking ($p < .05$), substance use ($p < .05$), and first contact with the police ($p < .001$). Figure 1 shows comparing the developmental trajectory of risky behaviours between the groups.

Clinical characteristics of the groups

Statistically significant differences were found between the groups in terms of having diagnosed with at least one psychiatric disorder, having depressive mood disorder, and being in remission period after previous substance use disorder ($p < .05$) (Table 2). In the groups, the number of psychiatric diagnoses and the classification of diagnoses were presented in Table 3 in detail.

The mean BAI and CDI scores were 16.93 ± 16.37 and 10.87 ± 5.84 in Group 2, whereas they were 10.71 ± 8.38 and 8.56 ± 5.36 in Group 1, respectively. No statistically significant difference was observed between the groups according to CDI and BAI scores ($p > .05$).

In Group 1, full-scale IQ, verbal IQ and performance IQ scores were 82.72 ± 9.56; 82.96 ± 10.35 and 84.96 ± 9.18, respectively. In Group 2, full-scale IQ, verbal IQ, and performance IQ scores were 74.60 ± 6.67; 76.26 ± 7.62; 76.33 ± 7.27, respectively. Vocabulary, block design, object assembly subtests, and the verbal, performance and full-scale IQ scores were significantly higher in Group 1 ($p < .05$).
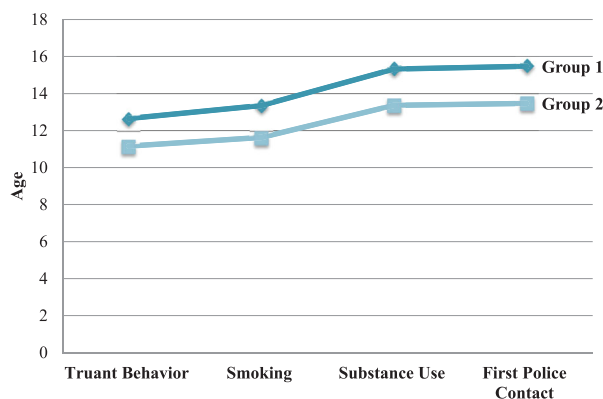
Note: Group 1, non recidivist juveniles; Group 2, recidivist juveniles.

Figure 1. Comparing the developmental trajectory of risky behaviours between the groups.

Logistic regression was performed to identify the factors on the likelihood that juveniles would have repetitive criminal acts. The model contained two independent variables (having at least one psychiatric disorder and the total duration of education). The full model containing all predictors was statistically significant, $\chi^2 (2, N = 55) = 16.73$, $p < .001$, indicating that the model was able to distinguish between the juveniles who have single criminal act and repetitive criminal acts. The model as a whole explained between 26.2% (Cox & Snell R square) and 36.2% (Nagelkerke R squared) of the variance in recidivism, and correctly classified 74.5% of cases. As shown in Table 4, both of the independent variables made a statistically significant contribution to the model. The strongest predictor of recidivism was an existence of any psychiatric disorder, recording an odds ratio of 10.64, while the odds ratio of 0.47 for education period was less than 1, indicating that every year of education decrease frequency of recidivism by half.

Table 1. Comparisons between the recidivist and the non-recidivist group, according to socio-demographic, family characteristics, and substance use.

Mean ± SD	Group 1 ($n = 36$)	Group 2 ($n = 19$)	Statistical analysis
Duration of education (year)	8.91 ± 1.71	7.68 ± 1.10	**$p = .004$, $Z = -2.866$**
Duration of smoking (year)	3.64 ± 2.28	5.52 ± 2.31	**$p = .007$, $t = -2.808$**
Duration of substance use (month) n (%)	14.81 ± 17.16	39.23 ± 29.30	**$p = .007$, $t = -2.897$**
Togetherness of parents	29 (80.6%)	12 (63.2%)	$p = .106$, $X^2 = 4.686$
Family history of psychiatric disorders	5 (15.2%)	3 (15.8%)	$p = .528$, $X^2 = 1.279$
Convicted individuals in core family	9 (25.0%)	7 (36.8%)	$p = .385$, $X^2 = 0.845$
Convicted individuals in extended family	9 (25.0%)	9 (50.0%)	$p = .142$, $X^2 = 2.154$
Substance user in core family	4 (11.4%)	4 (21.1%)	$p = .431$, $X^2 = 0.904$
Substance user in extended family	11 (35.5%)	5 (27.8%)	$p = .579$, $X^2 = 0.308$
Having friends who used substances	25 (69.4%)	18 (94.7%)	**$p = .041$, $X^2 = 4.664$**
Having friends who contact with police	23 (63.9%)	18 (94.7%)	**$p = .020$, $X^2 = 6.237$**
Cannabinoid use	22 (61.1%)	19 (100.0%)	**$p = .001$, $X^2 = 9.912$**
Amphetamine use	10 (27.8%)	13 (68.4%)	**$p = .004$, $X^2 = 8.443$**
Inhalant use	3 (8.3%)	8 (42.1%)	**$p = .005$, $X^2 = 8.865$**
Cocaine use	1 (2.8%)	4 (21.1%)	**$p = .043$, $X^2 = 5.026$**
Multiple substance use	6 (16.7%)	12 (63.2%)	**$p < .001$, $X^2 = 12.209$**
Tobacco use	31 (86.1%)	19 (100.0%)	$p = .152$, $X^2 = 2.903$

Notes: Group 1, non-recidivist juveniles; Group 2, recidivist juveniles.
Significant comparisons are denoted in bold font.

Table 2. Comparisons between the groups, according to psychiatric disorders.

	Group 1 (n = 36) n (%)	Group 2 (n = 19) n (%)	p
Depressive mood disorder	9 (25.0%)	10 (52.6%)	**p = .040**
Bipolar disorder	1 (2.8%)	1 (5.3%)	p = 1.000
Psychotic disorder	0 (0%)	1 (5.3%)	p = .345
Anxiety disorders	7 (19.4%)	5 (26.3%)	p = .733
Obsesive compulsive disorder	0 (0%)	1 (5.3%)	p = .345
Attention deficit hyperactivity disorder	13 (36.1%)	11 (57.9%)	p = .121
Oppotional defiant disorder	2 (5.6%)	0 (0%)	p = .539
Conduct disorder	2 (5.6%)	4 (21.1%)	p = .167
Tic disorder	0 (0%)	2 (10.5%)	p = .115
Alcohol use disorder	3 (8.3%)	2 (10.5%)	p = 1.000
Substance use disorder	1 (2.8%)	3 (15.8%)	p = .114
Substance use disorder, remission period	15 (41.7%)	16 (84.2%)	**p = .002**
Substance experience[a]	9 (25.0%)	0 (0.0%)	**p = .020**

Notes: Group 1, non-recidivist juveniles; Group 2, recidivist juveniles.
[a]Not to meet substance use disorder criteria according to DSM IV.
Significant comparisons are denoted in bold font.

Table 3. Frequency of comorbid diagnosis among groups.

	Group 1 n (%)	Group 2 n (%)	
No psychiatric diagnosis	16 (44.4%)	2 (10.5%)	
Only internalizing disorders	6 (16.7%)	2 (10.5%)	**p = .024**
Only externalizing disorders	7 (19.4%)	6 (31.6%)	
Both internalizing and externalizing disorders	7 (19.4%)	9 (47.4%)	
0 diagnosis	16 (44.4%)	2 (10.5%)	
1 diagnosis	9 (25.0%)	3 (15.8%)	**p = .014**
2 diagnosis	6 (16.7%)	7 (36.8%)	
>3 diagnosis	5 (13.9%)	7 (36.8%)	

Notes: Group 1, non-recidivist juveniles; Group 2, recidivist juveniles.
Significant comparisons are denoted in bold font.

Table 4. Outline of the regression model, indicating variables that affect recidivism in the juveniles.

	Wald	p	OR, Exp (B)	95% CI
Total education years	5.973	**.015**	0.470	0.257–0.861
Having at least one psychiatric diagnosis	6.150	**.013**	10.640	1.642–68.954
Constant	2.565	.109	44.614	

Cox & Snell R square = 0.262, Nagelkerke R square = 0.362

Notes: OR, odds ratio; 95%CI, 95% confidence interval.
Significant comparisons are denoted in bold font.

Discussion

This study evaluated the relationship between criminal behaviour, psychiatric disorders and sociodemographic characteristics among juveniles between 14 and 18 years of age under probation in Turkey, and indicated that recidivism is associated with particular behavioural, psychiatric, and psychometric factors.

Results of the present study indicated that two-thirds of our sample were diagnosed with at least one psychiatric disorder. The studies showed that prevalence of psychiatric disorders in delinquent juveniles varies from 40% to 90%, and the prevalence depends on where the selected sample stands at various point of the justice system (detention, prison, etc.) [5,8–11,45]. Similar to our findings, the prevalence of psychiatric disorders in juveniles was found to be accounted approximately half of the samples in the

probation-based studies [46,47], however, these juveniles have fewer psychiatric admissions [48,49]. These results indicated the necessity of interventions in this area.

The most common diagnoses in our study were ADHD, depressive mood disorder, and anxiety disorders in congruence with previous studies [13,49] when remission from substance use disorder was excluded. Almost all juveniles in our study had relatively minor offences such as substance-related offence, which may result in lower rate of CD compared to previous studies [8,10,16]. The relation between depression and delinquency appears to be controversial in the literature. First hypothesis is that depression appears secondary to adverse life events in delinquent juveniles [50,51], secondly irritability and aggressive symptoms in depressive disorder lead to delinquent behaviour [50,52], and third hypothesis is that depression and internalizing disorders are protective against delinquency [19,25]. Our study supported an implicit relationship between depression and delinquency, but direction of the relationship was not clear. The high rate of depressive disorders in the juvenile justice settings highlights the importance of diagnosing and treating mood disorders accompanying disruptive behaviour disorders.

Some differences among recidivist and non-recidivist juveniles were also revealed. Firstly, the recidivist juveniles had higher prevalence of depressive mood disorders, comorbid internalizing and externalizing disorders, more number of psychiatric diagnoses, and more frequent history of substance use than non-recidivist juveniles. Also, having at least one psychiatric diagnosis was the most prominent predictor of recidivism in our study. Several studies suggested that the use of cannabinoid lead to structural and functional brain abnormalities, and had adverse effects on executive functions [53–55]. Higher prevalence of psychiatric disorders in recidivist juveniles may be due to a cumulative effect of longer duration of substance abuse on mood and cognitive functions in the present study.

Additionally, it is thought that psychiatric disorders in juveniles lead risky behaviours through impaired self-regulation of emotional and behavioural control, such as increased aggression, impulsivity, poor decision-making [56,57]. Consequently, addressing the delinquents under probation who have previously documented psychiatric diagnoses and substance use into the treatment and rehabilitation process seems to be beneficial. This precaution may help those vulnerable adolescents not to involve in further recidivism, which is mostly seen in the cases of non-prosecution.

It was shown that a majority of individuals involved in the justice system had a "low-average" or "borderline" IQ [26,58,59]. Poor school success due to low IQ may lead to a negative attitude towards school [60,61]. Lower IQ scores and early school adaptation problems are thought to induce future problematic behaviours, substance abuse, school drop-out, and increased social interaction with peers with criminal behaviour [19,62]. Considering the occurrence of risky behaviours in our sample, it was observed that truancy, as a sign of school adaptation problem, appeared before smoking, substance abuse and contact with the police. In addition, our findings indicated that verbal, performance and full-scale IQ levels, the starting age of truant behaviour and the age of drop-out of school were lower in recidivist juveniles, and the duration of attending school one year less doubles the risk of recidivism. It was concluded that school may play a protective role against offending behaviour both by providing social control and by contributing to the development of reasoning and problem-solving skills.

Strengths and limitations

An important aspect of our study is to provide data on an under-researched population. Until recently, accumulated knowledge on etiopathogenesis of offending behaviour mainly comes from prison-oriented perspective with a serious offence. This study, however, elucidated the fact that the juveniles with relatively minor offences had also significant mental health problem comparable with prison populations.

There are some limitations to our study. This study is based on voluntary participation which requires great cooperation with probation officers. Therefore, juveniles who rejected to participate in the study may have severe psychopathology and could affect our results. The juveniles could be hesitating to answer some question about their symptoms because of their probation process, which may lead to reporting bias. Many symptoms about childhood psychiatric disorders, particularly ADHD, based on information obtained in adolescence, which introduce the possibility of recall bias. Moreover, our study has a limited sample size and skewed gender ratio with lack of

generalizability to females. While our model in logistic regression analysis seems to be both statistically and clinically significant, the wide confidence interval is a limitation for the reliability of our results.

Conclusion

Despite all this limitation, our results are substantial in a way that they point out different characteristic and early warnings signs for repetitive criminal act. These findings emphasise that mental health problems and school drop-out are the most prominent risks for recidivism, and recidivist juveniles had early onset of substance abuse, school drop-out and contact with the police. Addressing substance use which complicate and blur psychiatric conditions will improve rehabilitation process especially among recidivists. When further examined by the clinician perspective, school adaptation problem is a notable phenomenon on the delinquent pathway. Therefore, more paid attention to causes of early school adaptation problems such as ADHD which is one of the most prevalent psychiatric diagnosis in delinquent juveniles will beneficial through the reduction of criminal involvement. Strikingly, in spite of the high prevalence of psychiatric disorders, rate of service access among delinquent juveniles were very low. This highlights the importance of the screening and service referral for mental health problems in juvenile justice settings.

Disclosure statement

No potential conflict of interest was reported by the authors.

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