Mental Disorder Profiles in Justice-Involved Youth

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
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Abstract

As a population, justice-involved youth are characterized by high rates of comorbid mental disorders. However, past research has generally considered disorders singly. It is unclear whether disorders cluster together in a way that has implications for intervention and case management of justice-involved youth. To begin to explore this issue, cluster analysis was used to identify common diagnostic profiles in a sample of 195 youth who received court-ordered assessments. Six mental disorder clusters emerged, which were then examined in relation to youths’ risk to reoffend, criminogenic needs, interventions received during probation, and recidivism. Two clusters were characterized by relatively higher reoffense rates: youth with disruptive behavior disorders alone, and youth with the profile of disruptive behavior disorders, learning disability, and ADHD. These clusters also significantly predicted odds of reoffense even after accounting for youths’ static risk and criminogenic needs treatment. Implications for risk assessment and rehabilitation of justice-involved youth are discussed.
Acknowledgments

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INTRODUCTION

Youth with mental illnesses are significantly overrepresented in the criminal justice system (Teplin et al., 2007). Research results suggest that more than 65% of justice-system-involved youth have at least one psychiatric disorder (e.g., Shufelt & Cocozza, 2006; Teplin et al., 2007; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002), far exceeding rates found in the general population (Waddell, Shepherd, Schwartz, & Barican, 2014). In addition, comorbidity (i.e. the co-occurrence or two or more mental disorders) is highly prevalent in this population, with 58% to 79% of justice-involved youth meeting diagnostic criteria for two or more mental disorders (Abram, Teplin, McClelland, & Dulcan, 2003; Abrantes, Hoffmann, Anton, & Estroff, 2004; Shufelt & Cocozza, 2006; Ulzen & Hamilton, 1998). Justice-involved youth with comorbid psychiatric conditions are a particularly vulnerable group, as individuals with multiple diagnoses often exhibit poorer psychosocial outcomes compared to individuals with single diagnoses (Drake, Mueser, Clark, & Wallach, 1996; Kessler et al., 1994). Thus, an increased understanding of the relationship of comorbidity patterns to justice-involved youth’s outcomes is needed. This entails elucidating the interrelationships among mental health variables, criminal risk factors, intervention, and recidivism outcomes.

Mental disorders in justice-involved youth

Despite the high prevalence rates of comorbid mental disorders in justice-involved youth, past research has focused mainly on single diagnoses and their influence on youth’s rehabilitation and other life outcomes. Consistently across studies, disruptive behavior disorders (DBD), such as conduct disorder (CD) and oppositional defiant disorder (ODD), have emerged as the most prevalent mental disorders in justice involved youth (Fazel, Doll, & Langstrom, 2008; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). Implications for justice-involved youth
with disruptive behavior disorders include increased likelihood of persistent adult dysfunction (Zoccolillo, Pickles, Quinton, & Rutter, 1992) and continued engagement in antisocial behaviors in adulthood (Loeber, Burke, Lahey, Winters, & Zera, 2000). Other common psychopathologies in this population include substance use disorders (SUD), affective disorders, learning disabilities (LD), and ADHD (Brink, 2005; Fazel et al., 2008; Murphy, 1986; Teplin et al., 2002). The outcomes of these mental disorders in justice-involved youth have also been investigated. For example, adolescents with learning disabilities display higher levels of antisocial behaviors and arrest rates than non-learning-disabled peers (Keilitz & Dunivant, 1986; Waldie & Spreen, 1993), and justice-involved youth with ADHD were more likely to recidivate compared to non-ADHD youth (Gordon, Diehl, & Anderson, 2012).

In contrast to the number of studies examining the prevalence rates of psychiatric comorbidities in justice-involved youth (Abram et al., 2003; Abrantes et al., 2004), limited research has examined the significance of such comorbidity patterns on outcomes in this population. Some of the most common comorbidity patterns found in community, clinical, and forensic studies include the co-occurrence of disruptive behavior disorders with ADHD, disruptive behavior disorders with SUD, and SUD with ADHD (Abram et al., 2003; Armstrong & Costelo, 2002; Chan, Dennis, & Funk, 2008; Milin, Halikas, Meller, & Morse, 1991; Vermeiren, 2003). Despite their high prevalence, the specific relationships between these comorbidity patterns and outcomes for justice-involved youth have yet to be elucidated.

**Mental health and offending**

The role of mental illness in criminal behavior and justice system involvement has been examined in the literature, with research producing mixed results. Some studies have reported that untreated mental disorders are risk factors for criminal justice system involvement and recidivism (Hoeve, McReynolds, & Wasserman, 2013; Vermeiren, Schwab-Stone, Ruchkin, De
Clippele, & Deboutte, 2002) while others have found no meaningful correlations between mental illness and antisocial behaviors (Skeem, Manchak, & Peterson, 2011). However, most of the existing studies on mental health and offending have focused on single diagnoses and few have examined links between particular patterns of mental disorders and offending. Within this small literature, there is evidence that the co-occurrence of particular mental disorders is associated with antisocial behaviors and recidivism outcomes. For example, some research shows that individuals with substance abuse disorders alongside other psychopathologies are at increased risk for recidivism compared to those with substance use disorders alone (Rezansoff, Moniruzzaman, Gress, & Somers, 2013; Wallace, Mullen, & Burgess, 2004). The co-occurrence of ADHD and CD is associated with earlier age of onset of antisocial behaviors (Loeber et al., 2000), and greater variety and severity of antisocial behaviors than CD alone (Walker, Lahey, Hynd, & Frame, 1987). However, differing definitions of mental disorders and differences in which disorders are included in studies, as well as varied samples, hinder our understanding of the relationship of comorbidities to antisocial outcomes.

Furthermore, few studies have examined justice-involved youth with mental disorders in the context of the risk-need-responsivity framework, an assessment and case management framework that is widely used to identify targets of intervention to reduce reoffending in justice system-involved youth and adults (Andrews & Bonta, 2010; Andrews, Bonta, & Hoge, 1990). Three principles form the core of the RNR framework. The risk principle states that the intensity of service should match an offender’s level of risk level for recidivism. The need principle states that each offender’s criminogenic needs – defined as risk factors that are strongly and directly related to criminal behavior – should be the targets of rehabilitative interventions. Criminogenic needs that have been well-validated in empirical studies include: history of antisocial behavior, antisocial personality pattern, antisocial cognition/attitudes, antisocial peers, family dysfunction,
school/work obstacles, misguided use of leisure time, and substance abuse (Andrews & Bonta, 2010). With the exception of history of antisocial behavior, a static risk factor, criminogenic needs represent dynamic risk factors in that they are amenable to change and therefore constitute targets of intervention. Substantial research supports the utility of targeting criminogenic needs in reducing reoffending (Andrews & Bonta, 2010; Andrews et al., 1990; Vieira, Skilling, & Peterson-Badali, 2009). Finally, the responsivity principle states that treatment should entail cognitive social learning interventions that are tailored to an individual’s unique characteristics (Andrews et al. 1990; Bonta & Andrews, 2006).

In contrast to the dominance of the RNR framework in understanding and addressing risk factors for continued offending and in the rehabilitation of justice-involved individuals, there is a paucity of research examining mental health within this framework. Most research has focused on the adult justice population and conceptualized mental health as singular disorders as defined within the *DSM-IV-TR* (American Psychiatric Association, 2000). In studies where mental health was defined as singular disorders and investigated within the context of the RNR framework, criminogenic needs predicted recidivism equally well in individuals with and without mental disorders and no incremental validity was added by the inclusion of clinical variables (e.g., mental disorder diagnoses, treatment history) to the prediction of reoffending (Bonta, Law, & Hanson, 1998; Skeem, Winter, Kennealy, Louden, & Tatar, 2014). To date, only a handful of studies have attempted to examine this issue in the youth justice population (McCormick, Peterson-Badali, & Skilling, 2016; Shubert, Mulvey & Glasheen, 2011), and even fewer have conceptualized mental health in terms of comorbid mental disorders or clusters rather than discrete, singular diagnoses (Guebert & Olver, 2014). The few studies available relevant to examining the links between mental health, criminogenic needs, and recidivism in justice-involved youth has produced conflicting results. Some studies reported that mental health status
was unrelated to recidivism (McCormick et al., 2016) while others found that specific mental disorder patterns, such as CD and substance abuse, were related to more serious criminogenic need profiles and to higher rates of reoffending (Guebert & Olver, 2014). Given such inconsistencies in the literature, further research regarding the relationships between mental health variables, criminogenic needs, and recidivism outcomes among justice-involved youth is warranted.

The present study

The existing literature has primarily investigated mental disorders as single diagnoses. However, given the common occurrence of psychiatric comorbidities, conceptualizing mental health solely as singular diagnoses may not be representative of the realities of the justice populations. The high prevalence rates and the consistency of certain comorbidity profiles in the justice populations may represent meaningful clusters that differentiate between subsets of justice-involved individuals and have implications for treatment and/or recidivism outcomes. Thus, the current study attempted to identify common mental disorder profiles in a sample of justice-involved youth, and understand their relationships to criminogenic needs, treatments received during probation, and recidivism outcomes.

Three research questions were examined: (1) What are the common mental disorder profiles in justice-involved youth? It was expected that common profiles observed in community and clinical studies would also be found in a sample of justice-involved youth. For example, we anticipated the co-occurrence of disruptive behavior disorders with ADHD (Vermeiren, 2003), and substance use/abuse disorders with disruptive behavior disorders (Armstrong & Castello, 2002; Chan et al., 2008). (2) Are criminogenic needs being addressed at similar rates across the mental disorder profiles? The RNR framework stipulates that interventions should target individuals’ identified criminogenic needs to reduce risk of reoffending (Andrews et al. 1990;
Bonta & Andrews, 2006). Thus, it is important to establish whether differences exist across the mental disorders in the rate of addressing individuals’ identified criminogenic needs. (3) Does addressing youths’ identified criminogenic needs via case management and treatment services have an impact on re-offense rates across the mental disorder profiles? RNR principles and previous research indicate that case management targeting individuals’ identified criminogenic needs is associated with reduced reoffending (Peterson-Badali, Skilling, & Haqanee, 2015; Vieira, Skilling, & Peterson-Badali, 2009). It was expected that this finding would also hold in youth regardless of their specific mental disorder profile.

To answer the above research questions, information including mental disorder diagnoses, services received during probation, and recidivism data were collected from a sample of community-sentenced youth who received comprehensive assessments that included information related to mental health, criminogenic needs, and risk to reoffend.

METHOD

Participants

The sample consisted of 195 youth (154 males and 41 females), ranging from 12 to 20 years of age ($M = 16$ years, $SD = 1.56$), referred for court-ordered assessments between 2003 and 2010 to a mental health agency in Toronto, Canada in order to assist the court in disposition decisions; assessments were conducted by members of a multidisciplinary team including a psychiatrist and a psychologist. Youth in this study sample met diagnostic criteria for at least one or more mental disorders. Participants were included through consecutive admission and consent was obtained from all current study participants for their clinical information to be used for research purposes. The overall research consent rate in the clinic was 79%.
As shown in table 1, 32% of the participants reported their ethnicity as Black, 27% as White, and 7% as Asian. The offenses leading to participants’ referrals for assessment included non-violent (e.g., theft, drug-related, break and enter), violent but not sexual (e.g., assault, robbery), and sexual offenses (e.g., sexual assault, invitation to touching). The majority of the youth (63%) were charged with offenses in the violent but not sexual category, 23% in the non-violent category, and 14% in the sexual category.

Procedure

Participants’ data were coded from their assessment files, probation case notes, and criminal records according to a previously-developed coding scheme (Peterson-Badali, Skilling, & Haqanee, 2015). Assessment files were reviewed to extract information on demographics, mental health, offense history, charges leading to referral for assessment, scores on the YLS/CMI (the Youth Level of Service/Case Management Inventory; Hoge & Andrews, 2002), and clinician recommendations targeting identified criminogenic needs. At the time of assessment, a psychologist, a psychiatrist, or a social worker with expertise in forensic assessment completed the YLS/CMI and the court-ordered assessments using information from youth’s legal history, standardized questionnaires and psychological tests, collateral reports from other sources (e.g., parents, probation officers, youth workers), and youth self-report (Peterson-Badali et al., 2015). Probation case notes were reviewed to determine the details of youth’s sentence, case management received during probation, and whether services youth received matched recommendations made in clinical files. Recidivism information was obtained from criminal records for youth with at least a two year follow-up period following their assessments.
Measures

(1) Mental disorder diagnoses

Mental disorder diagnoses, extracted from the clinical files, were made by either a psychiatrist or a licensed psychologist who was part of the multidisciplinary team that conducted the forensic assessments. There were six mental disorder variables in this study: disruptive behavior disorders (DBD), Attention Deficit Hyperactivity Disorder (ADHD), Substance Use Disorders (SUD), internalizing disorders, Learning Disorders (LD), and cognitive disabilities. Disruptive behavior disorders include Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). SUD include substance abuse disorder and substance dependence disorder. Internalizing disorders include mood and/or anxiety disorders such as major depressive disorder, dysthymia, generalized anxiety disorder, and post-traumatic stress disorder. LD includes specific learning disorders and communication disorders. Cognitive disabilities include intellectual disabilities and global developmental delay. The diagnostic criteria used by the clinicians for these mental disorders was drawn from the Diagnostic and Statistical Manual of Mental Disorders-IV-TR edition (American Psychiatric Association, 2000) and Learning Disabilities Association of Ontario (LDAO, 2001). Learning disabilities and cognitive disabilities have not always been included in studies examining mental health issues in justice-involved youth; however, these two groups of disorders have established links with justice-system involvement (Mauser 1974; Simpson & Hogg, 2001) and further, given the high rates of learning and cognitive disabilities within this population of youth, any discussion of mental health in justice-involved youth would be incomplete without them.

(2) Risk to reoffend and criminogenic needs

The seven dynamic criminogenic needs were coded into seven binary variables based on clinician recommendations from the assessment reports, which were informed by the YLS/CMI
(Hoge & Andrews, 2002, 2011), a standardized forensic tool used to assess 12- to 18-year-old youth’ risk to reoffend, criminogenic needs, and responsivity factors. The first section is a 42 item checklist divided into eight domains to assess youth’ risk to reoffend and criminogenic needs. The eight domains map onto eight major risk factors relevant to criminal behavior as identified in the RNR literature (Andrews & Bonta, 1990, 2010). These domains include: prior and current criminal offenses (a major but static risk factor) and seven dynamic criminogenic needs domains (family circumstances/parenting, education/employment, peer relations, substance abuse, leisure/recreation, personality/behavior, and attitudes/orientation). Items within each domain are summed into domain scores, which are also assigned categorical descriptors (low, medium, high). An overall score is determined by summing all items; total scores also categorize youth as low, moderate, high, or very high risk to reoffend.

The YLS/CMI has been reported to possess moderate to strong internal consistency for most subscales (Catchpole & Gretton, 2003; Schmidt, Hoge, & Gomes, 2005; Vitopoulos, Peterson-Badali, & Skilling, 2012). Moderate to strong concurrent validity has also been reported between YLS/CMI total score and broad and narrow-band scores on the Child Behavior Checklist (Schmidt et al., 2005) and Structured Assessment of Violence Risk in Youth (Catchpole & Gretton, 2003). Predictive validity is reported to be moderate to high, with YLS/CMI total scores significantly correlated with general and violent recidivism (Catchpole & Gretton, 2003; Olver, Stockdale, & Wormith, 2009; Onifade et al., 2008; Rennie & Dolan, 2010). In the current sample, inter-rater reliabilities for the YLS/CMI total score among the primary clinicians ranged from .80 to .98 (average $r = .93$).

(3) Matching of identified criminogenic needs

Following procedures from previous studies (Peterson-Badali et al., 2015; Vitopoulos et al., 2012), the extent to which youths’ identified criminogenic needs were targeted through
intervention and/or case management was examined using the concept of “treatment match”. For each criminogenic need domain in which a youth had an identified need (i.e., a clinician recommendation), match was coded as a binary variable (i.e., matched or not matched) by reviewing the youth’s probation records to determine whether the need had been addressed via service provision and/or case management activities. For example, a match in the Substance Use domain meant that a youth successfully completed most or all of a substance abuse counseling program recommended by a clinician. Other examples of match include completion of evidence-based programs targeting clinician-identified Attitude and/or Personality needs, enrolment and completion of school following recommendations in the Education domain, and association with pro-social peers following recommendations in the Peer Relations domain.

For each youth an ‘overall match’ score was also calculated by dividing the number of matched needs by the number of identified needs. For example, if a youth had two out of four identified criminogenic needs addressed during probation, the youth’s overall match score was 50%.

(4) Recidivism

Recidivism was defined as whether a youth was convicted of one or more offenses within a two year follow-up period following referral for assessment. Information was obtained from a national police criminal record database. Reoffenses were only included for new offenses occurring at least 3 months after forensic assessment completion in order to allow sufficient time for probation service implementation.

Statistical analyses

(1) Mental disorder profiles

A two-step cluster analysis (SPSS Statistics/IBM Version 22, 2013) – which handles categorical data and automatically tests multiple cluster solutions, outputting the optimal solution
was used to determine patterns of mental disorder. Two-step cluster analysis employs a two-stage process: In the first pre-clustering stage, each record in the dataset is scanned to determine whether it is to merge with previously constructed dense regions or to form a new cluster by itself based on a Log-likelihood distance measure. In the second stage, a hierarchical clustering algorithm is applied to combine data records sequentially to form clusters (Chiu, Fang, Chen, Wang, & Jeris, 2001; Mooi & Sarstedt, 2011). The six mental disorder variables described above were used in the analysis: disruptive behavior disorders, ADHD, SUD, internalizing disorders, LD, and cognitive disabilities. After the cluster analysis was completed, individuals within each cluster were assigned a membership category, and subsequent analyses were conducted based on the cluster group memberships.

(2) Treatment match across clusters

Overall treatment match scores were compared across the cluster groups using one-way ANOVA tests. Post-hoc test Tukey was used to evaluate significant ANOVA results. Chi-square tests were used to compare clusters within each criminogenic need domain, and Fisher’s exact test was used in cases with small sample sizes.

(3) Predicting recidivism

A hierarchical binary logistic regression was conducted with recidivism as the outcome variable. The predictors included individuals’ YLS/CMI domain scores for Criminal History, overall match scores, and mental disorder cluster membership.

RESULTS

Preliminary analyses

Table 1 presents the descriptive statistics for participants’ demographic information, offense information, and rates of psychiatric diagnoses. In the current sample, 67.2% of the participants met diagnostic criteria for two or more mental disorder diagnoses. The most
common diagnoses included disruptive behavior disorders (74.9%), which included individuals with CD and/or ODD diagnoses. This is followed by ADHD (43.1%), substance use/abuse disorders (37.4%), LD (25.6%), cognitive disabilities (10.3%), and internalizing disorders (23.1%). The overall recidivism rate was 63%, and mean time to first reoffense conviction was approximately 17 months for youth who reoffended.

Table 1: Participants’ demographic, offense, and psychiatric information

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (N = 195)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>% Ethnicity (n)</strong></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>32.2 (63)</td>
</tr>
<tr>
<td>White</td>
<td>27.2 (53)</td>
</tr>
<tr>
<td>Asian</td>
<td>7.2 (14)</td>
</tr>
<tr>
<td>Other</td>
<td>23.6 (46)</td>
</tr>
<tr>
<td>Missing</td>
<td>9.7 (19)</td>
</tr>
<tr>
<td><strong>% Index offense (n)</strong></td>
<td></td>
</tr>
<tr>
<td>Non-violent</td>
<td>22.6 (43)</td>
</tr>
<tr>
<td>Violent (non-sexual)</td>
<td>63.1 (123)</td>
</tr>
<tr>
<td>Sexual</td>
<td>13.8 (27)</td>
</tr>
<tr>
<td><strong>Psychiatric diagnoses (n)</strong></td>
<td></td>
</tr>
<tr>
<td>Any two or more diagnoses</td>
<td>67.2 (131)</td>
</tr>
<tr>
<td>Any disruptive behavior disorders</td>
<td>74.9 (146)</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>72.8 (142)</td>
</tr>
<tr>
<td>Oppositional defiant disorder</td>
<td>10.8 (21)</td>
</tr>
<tr>
<td>Attention deficit hyperactivity disorder</td>
<td>43.1 (84)</td>
</tr>
<tr>
<td>Substance use/abuse diagnosis</td>
<td>37.4 (73)</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Rate (n)</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Learning disabilities</td>
<td>25.6 (50)</td>
</tr>
<tr>
<td>Cognitive disabilities</td>
<td>10.3 (20)</td>
</tr>
<tr>
<td>Internalizing disorder</td>
<td>23.1 (45)</td>
</tr>
<tr>
<td>Any mood disorder</td>
<td>19.0 (37)</td>
</tr>
<tr>
<td>Any anxiety disorder</td>
<td>10.8 (21)</td>
</tr>
<tr>
<td>Recidivism-yes (n)</td>
<td>63.1 (123)</td>
</tr>
</tbody>
</table>

Time to recidivism conviction in days for youth who reoffended (s.d.) 508 (300.4)

**Mental illness profiles**

The cluster analysis resulted in a six cluster solution. The first cluster included individuals with primarily LD diagnoses ($n = 33$, 16.9% of the total sample). The second cluster included individuals with disruptive behavior disorders and internalizing disorders (DBD & Internalizing, $n = 38$, 19.5% of the total sample). The third cluster included individuals with ADHD and disruptive behavior disorders diagnoses (DBD & ADHD, $n = 24$, 12.3% of the total sample). The fourth cluster included individuals with a disruptive behavior disorders, LD, and ADHD diagnoses (DBD, LD, ADHD, $n = 28$, 14.4% of the total sample). The fifth cluster included individuals with a disruptive behavior disorders, SUD, and ADHD diagnoses (DBD, SUD, ADHD, $n = 36$, 18.5% of the total sample). The sixth cluster included individuals with primarily disruptive behavior disorders diagnoses ($n = 36$, 18.5% of the total sample). Table 2 presents the recidivism rates for the mental disorder clusters; a chi-square analysis resulted in a significant
model, \( \chi^2 (5) = 11.03, p = .05 \). It appears that clusters 4 (DBD, LD, ADHD) and 6 (DBD) have significantly higher rates of offending than clusters 1 (LD) and 2 (DBD & Internalizing Disorders).

**Are identified criminogenic needs being met at a similar rate across the mental disorder clusters?**

Table 2 displays the percentage of youth for whom a criminogenic need was identified and matched during probation within each criminogenic needs domain and across mental disorder clusters. The overall proportion of treatment match varied from 17% (in the peer relations domain) to 35% (in the family domain). When examined across the mental disorder clusters, peer relations, leisure, and antisocial attitudes consistently displayed the lowest proportions of treatment match. There were significant differences across the mental disorder clusters with respect to overall treatment match scores \( F(5,189) = 3.66, p = .004, \eta^2 = 0.09 \). Individuals in cluster 2 (DBD, Internalizing) \( (M = .43, SD = .33) \) were more likely to have their identified needs successfully addressed compared to individuals in cluster 5 (DBD, SUD, ADHD) \( (M = .17, SD = .26) \) and 6 (DBD) \( (M = .22, SD = .25) \). There were no significant differences across the other mental disorder clusters. When criminogenic needs were examined individually, Family was the only domain with significant differences across the clusters, with clusters 5 (DBD, SUD, ADHD) and 6 (DBD) less likely to have their need matched compared to the other clusters.
Table 2: Percentage treatment match scores within each criminogenic need and recidivism rates across mental disorder clusters

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>37.0 (10)</td>
<td>44.1 (15)</td>
<td>52.4 (11)</td>
<td>50.0 (13)</td>
<td>18.8 (6)</td>
<td>12.9 (4)</td>
<td>34.5 (59)</td>
</tr>
<tr>
<td>Education/Employment</td>
<td>29.0 (9)</td>
<td>45.9 (17)</td>
<td>31.8 (7)</td>
<td>32.1 (9)</td>
<td>20.6 (7)</td>
<td>41.7 (15)</td>
<td>34.0 (64)</td>
</tr>
<tr>
<td>Peer Relations</td>
<td>23.8 (5)</td>
<td>4.8 (1)</td>
<td>26.9 (7)</td>
<td>25.0 (6)</td>
<td>11.4 (4)</td>
<td>11.8 (4)</td>
<td>16.8 (27)</td>
</tr>
<tr>
<td>Substance Use</td>
<td>41.7 (5)</td>
<td>7.7 (1)</td>
<td>36.4 (8)</td>
<td>25.0 (5)</td>
<td>17.1 (6)</td>
<td>5.3 (1)</td>
<td>21.5 (26)</td>
</tr>
<tr>
<td>Leisure</td>
<td>39.1 (9)</td>
<td>15.0 (3)</td>
<td>30.0 (9)</td>
<td>19.0 (4)</td>
<td>10.7 (3)</td>
<td>16.1 (5)</td>
<td>21.6 (33)</td>
</tr>
<tr>
<td>Personality</td>
<td>30.8 (8)</td>
<td>34.8 (8)</td>
<td>58.6 (17)</td>
<td>28.6 (8)</td>
<td>21.9 (7)</td>
<td>30.3 (10)</td>
<td>33.9 (58)</td>
</tr>
<tr>
<td>Attitude</td>
<td>25.0 (2)</td>
<td>11.8 (2)</td>
<td>31.6 (6)</td>
<td>20.0 (4)</td>
<td>16.7 (4)</td>
<td>12.5 (4)</td>
<td>18.3 (22)</td>
</tr>
<tr>
<td>Reoffended</td>
<td>48.5 (16)</td>
<td>50.0 (19)</td>
<td>66.7 (16)</td>
<td>78.6 (22)</td>
<td>63.9 (23)</td>
<td>75.0 (27)</td>
<td>63.1 (123)</td>
</tr>
</tbody>
</table>
Does matching services to identified criminogenic needs predict recidivism equally well across the mental disorder clusters?

To address this question I first examined the predictive validity of the YLS/CMI as a risk measure in this sample. A logistic regression analysis resulted in a significant model, \( \chi^2 (1) = 12.97, p < .001 \); and its predictor, YLS/CMI total score, was also significant, \( B = .07, \chi^2 (1) = 12.04, p = .001 \), odds ratio (OR) = 1.07, 95% confidence interval (CI) = [1.03, 1.11]. Therefore, for each unit increase in YLS/CMI score, the odds of reoffense were 7% greater. Additionally, a Receiver Operating Characteristic (ROC) analysis was conducted to examine the ability of the model to correctly classify individuals. The area under the curve (AUC) statistic was significant (0.66, \( p < .001 \)), indicating that YLS/CMI scores classified the sample significantly better than chance; at a 95% CI, there was a 66% probability that a randomly selected recidivist would obtain a higher YLS/CMI score than a randomly selected non-recidivist (CI range = 0.57-0.74).

Next, a hierarchical logistic regression with recidivism as the outcome was conducted to examine whether matching services to identified criminogenic needs predicted recidivism equally well across the mental disorder clusters. YLS/CMI Criminal History domain scores were first entered into the regression model in lieu of overall YLS/CMI scores to control for risk because: 1) static factors such as offense history are strong predictors of reoffending (Bonta, Law, & Hanson, 1998; Cottle, Lee & Heilburn, 2001), and 2) the overall treatment match scores (which are entered in the second step of the hierarchical logistic regression) were calculated from the total YLS/CMI risk scores, resulting in an overlap if YLS/CMI total scores were used (Vitopoulos et al., 2012). Furthermore, Criminal History domain scores and YLS/CMI total risk scores were highly correlated, \( r (236) = .65, p < .001 \), making Criminal History an appropriate proxy for YLS/CMI total scores. In the second step, overall treatment match scores for each
participant were entered into the model. In the third and final step, mental disorder clusters were entered into the model, with cluster 1 (LD) as a reference group because of its ‘low risk’ status.

The model was significant at every step (see Table 4). Criminal history was significant at every step, with higher scores associated with an increase in recidivism. Matching services to clinician identified needs was also significant at every step, with higher overall treatment match scores associated with decreased odds of recidivism. With respect to the mental disorder clusters, clusters 4 (DBD, LD, ADHD) and 6 (DBD) significantly predicted increased odds of recidivism when compared to cluster 1 (LD).

In order to understand why clusters 4 (DBD, LD, ADHD) and 6 (DBD) predicted increased odds of recidivism even after controlling for Criminal History scores and treatment match, the compositions of the clusters were explored in more detail. In particular, given that the ‘disruptive behavior disorders only’ cluster significantly predicted recidivism (and was associated with higher reoffence rates than most of the other clusters), it seemed prudent to examine specific YLS/CMI items related to disruptive behavior disorders across the mental disorder clusters. The items included Inadequate guilt feelings under the Antisocial Personality criminogenic need domain, as well as Antisocial/procriminal attitudes, Not seeking help, Actively rejecting help, and Callous/little concern for others under the Antisocial Attitude criminogenic need domain. Chi-square analyses revealed significant differences across the mental disorder clusters for each of these YLS/CMI items (see Table 4). Compared to clusters 1 (LD) and 2 (DBD & Internalizing Disorders), a higher percentage of individuals in cluster 6 (DBD) were identified by clinicians as presenting Inadequate guilt feelings and Not seeking help. Compared to cluster 1 (LD), a greater percentage of youth in clusters 4 (DBD, LD, ADHD) and 5 (DBD, SUD, ADHD) had the Antisocial/procriminal attitudes item checked off by clinicians. Compared to cluster 1 (LD), a greater percentage of youth in cluster 4 (DBD, LD, ADHD) had the Actively
rejecting help item endorsed by clinicians. Compared to cluster 1 (LD), a greater percentage of youth in clusters 3 (DBD & ADHD), 4 (DBD, LD, ADHD), 5 (DBD, SUD, ADHD), and 6 (DBD) were identified as Callous/little concern for others item; cluster 6 (DBD) was also more likely to have this item checked off than cluster 2 (DBD & Internalizing Disorders).
Table 3: Hierarchical regression analyses predicting recidivism from criminal history, match, and mental disorder profiles

<table>
<thead>
<tr>
<th>Model Variables</th>
<th>B</th>
<th>SEβ</th>
<th>Wald’s $\chi^2$</th>
<th>Df</th>
<th>p</th>
<th>exp(B)</th>
<th>CI (95%)</th>
<th>CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model (Step) 1</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Criminal history</td>
<td>0.47</td>
<td>0.09</td>
<td>28.26</td>
<td>1</td>
<td>&lt;.001</td>
<td>1.60</td>
<td>1.35</td>
<td>1.90</td>
</tr>
<tr>
<td>Constant</td>
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<td>0.19</td>
<td>4.94</td>
<td>1</td>
<td>.03</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall model at Step 1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>33.42</td>
<td>1</td>
<td></td>
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<tr>
<td><strong>Model (Step) 2</strong></td>
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</tr>
<tr>
<td>Criminal history</td>
<td>0.40</td>
<td>0.09</td>
<td>18.64</td>
<td>1</td>
<td>&lt;.001</td>
<td>1.48</td>
<td>1.24</td>
<td>1.78</td>
</tr>
<tr>
<td>Overall treatment match</td>
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<td>13.15</td>
<td>1</td>
<td>&lt;.001</td>
<td>0.17</td>
<td>0.07</td>
<td>0.44</td>
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<tr>
<td>Constant</td>
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<td>0.27</td>
<td>0.97</td>
<td>1</td>
<td>.33</td>
<td>1.31</td>
<td></td>
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</tr>
<tr>
<td>Overall model at Step 2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>&lt;.001</td>
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<tr>
<td></td>
<td>47.35</td>
<td>2</td>
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<tr>
<td><strong>Model (Step) 3</strong></td>
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</tr>
<tr>
<td>Criminal history</td>
<td>0.44</td>
<td>0.10</td>
<td>17.89</td>
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<td>1.55</td>
<td>1.27</td>
<td>1.91</td>
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<td>Overall treatment match</td>
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<td>.001</td>
<td>0.17</td>
<td>0.06</td>
<td>0.49</td>
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<td>Cluster 2</td>
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<td>0.46</td>
<td>0.47</td>
<td>1</td>
<td>.49</td>
<td>1.37</td>
<td>0.56</td>
<td>3.34</td>
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<td>Cluster 3</td>
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<td>1.62</td>
<td>0.54</td>
<td>4.93</td>
</tr>
<tr>
<td>Cluster 4</td>
<td>1.20</td>
<td>0.55</td>
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<td>1</td>
<td>.03</td>
<td>3.33</td>
<td>1.13</td>
<td>9.79</td>
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<tr>
<td>Cluster 5</td>
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<td>.38</td>
<td>0.64</td>
<td>0.23</td>
<td>1.75</td>
</tr>
<tr>
<td>Cluster 6</td>
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<td>2.88</td>
<td>1.11</td>
<td>7.47</td>
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<tr>
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<td>0.34</td>
<td>0.16</td>
<td>1</td>
<td>.69</td>
<td>0.88</td>
<td></td>
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</tr>
<tr>
<td>Overall model at Step 3</td>
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<td>7</td>
<td>&lt;.001</td>
<td></td>
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Table 4: *Disruptive behavior disorders related YLS/CMI items by mental disorder clusters*

<table>
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</thead>
<tbody>
<tr>
<td>7f. Inadequate guilt feelings</td>
<td>37.5 (12)</td>
<td>40.5 (15)</td>
<td>68.2 (15)</td>
<td>71.4 (20)</td>
<td>65.7 (23)</td>
<td>72.2 (26)</td>
<td>17.04</td>
<td>5</td>
<td>.004</td>
<td>.30</td>
</tr>
<tr>
<td>8a. Antisocial/procriminal attitudes</td>
<td>22.6 (7)</td>
<td>29.7 (11)</td>
<td>40.9 (9)</td>
<td>60.7 (17)</td>
<td>62.9 (22)</td>
<td>44.4 (16)</td>
<td>17.17</td>
<td>5</td>
<td>.004</td>
<td>.30</td>
</tr>
<tr>
<td>8b. Not seeking help</td>
<td>34.4 (11)</td>
<td>43.2 (16)</td>
<td>63.6 (14)</td>
<td>64.3 (18)</td>
<td>54.3 (19)</td>
<td>75.0 (27)</td>
<td>15.04</td>
<td>5</td>
<td>.010</td>
<td>.28</td>
</tr>
<tr>
<td>8c. Actively rejecting help</td>
<td>9.4 (3)</td>
<td>27.0 (10)</td>
<td>22.7 (5)</td>
<td>50.0 (14)</td>
<td>31.4 (11)</td>
<td>30.6 (11)</td>
<td>12.74</td>
<td>5</td>
<td>.026</td>
<td>.26</td>
</tr>
<tr>
<td>8e. Callous, little concern for others</td>
<td>6.3 (2)</td>
<td>16.2 (6)</td>
<td>45.5 (10)</td>
<td>42.9 (12)</td>
<td>48.6 (17)</td>
<td>41.7 (15)</td>
<td>23.03</td>
<td>5</td>
<td>&lt;.001</td>
<td>.35</td>
</tr>
</tbody>
</table>
DISCUSSION

The present study aimed to further understand the role of mental health in offending by examining mental disorder profiles in justice-involved youth in the context of the risk-need-responsivity framework. To this end, interrelationships among mental disorder clusters, risk levels, criminogenic needs, case management, and recidivism were explored.

Consistent with previous findings of high comorbidity rates in justice-system involved (Abram et al., 2003; Abrantes et al., 2004; Shufelt & Cocozza, 2006; Vermeiren, 2003), over 67% of the youth in the current sample exhibited two or more concurrent diagnoses. Not surprisingly, disruptive behavior disorders was the most frequently diagnosed mental disorder, followed by ADHD, and substance use disorders. The base rates of mental disorder diagnoses found in the current study were consistent with those found in the wider literature. For example, 43% of the sample met diagnostic criteria for ADHD, which falls within the typical range observed in justice-involved youth (Lederman, Dakof, Larrea, & Li, 2004; Shufelt & Cocozza, 2006; Teplin et al., 2007; Vreugdenhil et al., 2004). Results from the current study confirm previous findings that comorbidity of mental disorders is the norm, rather than the exception, in this sample of justice-involved youth.

Mental disorder profiles

Five of the six mental disorder clusters included disruptive behavior disorders, an unsurprising finding given that antisocial and/or criminal behaviors are features of diagnoses such as conduct disorder. Disruptive behavior disorders and ADHD was the most prevalent of the comorbid diagnoses, which was manifested in three of the six mental disorder clusters. This finding is also congruent with the extant literature on comorbidities in the community and justice populations, such that ADHD has been found to frequently overlap with CD (Angold et al., 1999; Biederman, Newcorn, & Sprich, 1991; Vermeiren, 2003). This high comorbidity rate may reflect
similarities in the presentation of symptoms for these disorders, and/or synergies arising from the interaction of these two disorders. For example, a youth with ADHD may, in a moment of impulsivity, engage in reckless thrill seeking behaviors that introduce him to the justice system. It may also be that the combination of symptoms represented in these two disorders puts individuals at risk for engagement in antisocial acts (e.g., aggression, lying, impulsivity). For example, ADHD has been more frequently found in children with early-onset, rather than late-onset, CD (Loeber, Green, Keenan, & Lahey, 1995). Given that individuals with early-onset CD often engage in persistent antisocial behaviors across the lifespan, concurrent diagnoses of ADHD and disruptive behavior disorders may reflect intrinsic vulnerabilities in some youth that explain their entries into the justice system.

One mental disorder profile included individuals with disruptive behavior disorders, ADHD, and LD comorbidities. The overlap between LD and ADHD is a robust finding in the general population (Biederman et al., 1991). Children and youth with both diagnoses have similar difficulties related to learning and often exhibit poor academic achievement, leading to disengagement from schools (Barry, Lyman, & Klinger, 2002; Marder & D’Amico, 1992; Rapport, Scanlan, & Denney, 1999). In fact, the co-occurrence of both LD and ADHD is associated with poorer outcomes such as more disruptions in cognitive abilities and poorer performance in academic tasks compared to children with either ADHD or LD (Jakobson & Kikas, 2007; Kamphaus & Frick, 2005; Mayes, Calhoun, & Crowell, 2000). Academic underachievement and school disengagement are potent risk factors for delinquency and later problematic behaviors (Henry, Knight, & Thomberry, 2012; Murray & Farrington, 2010). Therefore, individuals with comorbid LD and ADHD may be at higher risk for academic underachievement than those with either LD or ADHD diagnoses alone, and combined with DBD, predispose them to engage in antisocial behaviors.
Another mental disorder cluster with disruptive behavior disorders and ADHD also included substance use/abuse disorders. Substance use/abuse disorders are highly prevalent in justice-involved youth (Abram et al., 2003; Abrantes et al., 2004) and their presence is related to more severe antisocial behaviors and higher incidence of psychiatric comorbidity (Vermeiren, 2003). The aggregation of substance abuse, CD and ADHD may be an especially hazardous mixture, as substance abusers tend to demonstrate more aggressive CD and more severe ADHD than non-abusers (Milin et al., 1991), and they tend to start using substances at earlier ages (Thompson, Riggs, Mikulich, & Crowley, 1996)). Therefore, the co-occurrence of these three diagnoses may represent a complex developmental relationship that is especially relevant for justice-involved youth.

The disruptive behavior disorders and internalizing disorders cluster primarily included individuals with a disruptive behavior disorders and mood and/or anxiety disorders. The internalizing disorders included a varied array of diagnoses, such as major depressive disorders, dysthymia, generalized anxiety disorders, and/or post traumatic stress disorders. There is some evidence from the literature indicating a tendency for CD to co-occur with both depressive and anxiety disorders in children and adolescents in the general (Zoccolillo, 1992) and clinical populations (Russo & Beidel, 1994). In fact, increasing severity of antisocial behaviors is associated with increasing risk for affective disorders (Zoccolillo, 1992), and recently one study has reported that justice-involved youth with both disruptive behavior disorders and internalizing disorders are at an increased risk for recidivism compared to non-disordered justice-involved youth (Hoeve et al., 2013). Therefore, this mental disorder profile may represent a group of youth with more severe antisocial behaviors and poorer outcomes.

Two mental disorder clusters emerged consisting primarily of single diagnoses. The LD cluster included youth with varied impairments in aspects of learning ranging from reading,
mathematics, to language. Individuals with LD are at a higher risk for involvement in the justice system, and three hypotheses have been put forward to explain the link (Brier, 1989; Keilitz & Dunivant, 1986). The susceptibility hypothesis proposes that individuals with LD possess certain cognitive and neurological characteristics (e.g., inability to anticipate the consequences of actions, poor perception of social cues) that leave them vulnerable to engagement in antisocial activities (Murray, 1976). The school failure hypothesis proposes that learning disability leads to academic failure, which contributes to negative self-image, frustration, and school dropout, in turn leading to antisocial behaviors (Murray, 1976). The differential treatment hypothesis proposes that the justice system treats individuals with LD more harshly than individuals without LD (Dunivant, 1982). Current literature suggests that a multifactorial explanation – combining factors from the three hypotheses – affect the relationship between learning disability and youth delinquency (Brier, 1989).

The disruptive behavior disorders -only cluster consisted of individuals with CD and/or ODD diagnoses, with a defining feature in antisocial behaviors. By virtue of their inclusion in the justice system, all youth in the current sample have displayed antisocial behaviors. However, given that most of the youth in the sample exhibited psychiatric comorbidities, the fact that youth in this cluster have predominantly disruptive behavior disorders diagnoses without other psychopathological complications makes them a unique group for comparison and study.

Despite limited research in psychiatric comorbidities in justice-involved youth, the mental disorder profiles that emerged from the current study are consistent with the extant literature from the justice-involved, as well as general child and adolescent, populations. Thus, these six mental disorder profiles reflect robust findings that are relevant for the treatment and rehabilitation of justice-involved youth (discussed below).

Matching services to criminogenic needs
In addition to identifying mental disorder profiles, it is also important to examine their relationships to justice-involved youth. To our knowledge, no research has investigated mental disorder clusters in the context of the RNR framework. The RNR need principle stipulates that services must target identified criminogenic needs in order to reduce risk (Andrews et al., 1990). One of my goals was to understand whether mental disorder profiles were associated with delivery of such services, or “treatment matching” (i.e., addressing identified criminogenic needs through probation-directed case management). I found that youth in cluster 2 (disruptive behavior disorders & internalizing disorders) had higher proportion of needs matched compared to youth in cluster 5 (disruptive behavior disorders, SUD, ADHD) and 6 (disruptive behavior disorders). One explanation for this finding relates to variability in the availability of resources for targeting different criminogenic needs. Few programs and services exist that target the criminogenic need of Antisocial Attitude, which includes features coinciding with the diagnostic criteria for disruptive behavior disorders. In the current study, Antisocial Attitudes displayed one of the lowest proportion treatment match across the mental disorder clusters. These findings fall in line with previous research, in which lack of programming was identified by probation officers as a significant barrier to treatment (Haqanee, Peterson-Badali, & Skilling, 2015). In contrast, resources that target the criminogenic need of Education are more abundant, including special education programs, alternative schools, cooperative education programs, and vocational programs. In this study, Education was one of the criminogenic needs with the highest proportion of treatment match across the mental disorder clusters, which coincides with previous research findings that probation officers may “over-program” the criminogenic need of Education (i.e., targeting Education when it was not identified as a relevant need) (Haqanee et al., 2015; Luong & Wormith, 2011). Thus, successful matching of services to identified criminogenic needs may be dependent on the nature of the needs. Individuals in clusters 5(disruptive behavior disorders,
SUD, ADHD) and 6 (disruptive behavior disorders) exhibited higher needs in Antisocial Attitude domains, one of the criminogenic needs with limited programming, which may explain their diminished proportion match.

**Mental disorder profiles and recidivism**

Consistent with previous research on similar samples, youths’ reoffending was significantly predicted by their criminogenic risk (as measured by Criminal History) as well as by the extent to which their identified needs were addressed during their probation terms overall treatment match (Peterson-Badali et al., 2015; Vieira et al., 2009). In the current study – even after accounting for risk and treatment matching – the specific nature of the mental disorder clusters also differentiated individuals with respect to recidivism outcomes. Individuals in clusters 4 (disruptive behavior disorders, LD, ADHD) and 6 (disruptive behavior disorders) had higher odds of reoffense than those in cluster 1 (LD), which was chosen as the reference group due to its consistently low risk scores. In addition, the observed rates of recidivism were also elevated for clusters 4 (disruptive behavior disorders, LD, ADHD) and 6 (disruptive behavior disorders) compared to other clusters, such as 1 (LD), and 2 (disruptive behavior disorders & internalizing disorders).

The comorbidity profile of disruptive behavior disorders, LD, and ADHD (cluster 4) in justice-involved youth is not surprising given that high comorbidity rates of disruptive behavior disorders with ADHD (Vermeiren, 2003), and LD with ADHD (Biederman et al., 1991) have been long established in the forensic and general literature. However, the particular profile of disruptive behavior disorders, LD, and ADHD has hitherto not been emphasized as an important mental disorder profile for the justice population. This profile’s inclusion of both LD and ADHD suggests that individuals in this group likely demonstrate poor academic achievement (Barry et al., 2002), and poor academic achievement has been linked to behavioral problems and higher
rates of recidivism in justice-involved adolescents (Katsiyannis, Ryan, Zhang, & Spann, 2008). However, if the link between academic achievement and delinquency is robust, individuals in cluster 1 (LD) should also reoffend at similar or higher rates compared to other clusters, but this was not the case since cluster 1 demonstrated the lowest recidivism rate out of the mental disorder clusters. Given the disruptive behavior disorders, LD, and ADHD cluster, in particular, predicted recidivism, there must be characteristics at play other than academic underachievement. In a study where justice-involved youth with LD were followed longitudinally, it was found that specific personality characteristics of impulsivity and poor judgment discriminated between persisting and non-persisting antisocial behaviors (Waldie & Spreen, 1993). Therefore, it appears that the unique combination of ADHD and LD, in the presence of disruptive behavior disorders increases an individual’s likelihood for reoffending, and this comorbidity pattern warrants further investigation.

Cluster 6 (disruptive behavior disorders) also predicted an increased odds of reoffending in the current study. In order to explore this finding further, YLS/CMI items related to disruptive behavior disorders were examined. Clinicians identified the YLS/CMI antisocial attitude items *inadequate guilt feelings, not seeking help, and callous/little concern for others* for a greater percentage of individuals in cluster 6 than for individuals in clusters 1 (LD) and 2 (disruptive behavior disorders & internalizing disorders). This differential rate of identification of YLS/CMI items is particularly interesting given that individuals in cluster 2 and 6 both have disruptive behavior disorders diagnoses. Clinicians also identified the items *inadequate guilt feelings* (e.g., toward victims), *antisocial attitudes, not seeking help, actively rejecting help, and callous/little concern for others* for a greater percentage of youth in cluster 4 (disruptive behavior disorders, LD, ADHD) than for youth in cluster 1 (LD). Clinician identification of these items suggests that youth in clusters 4 and 6 would qualify for the callous-unemotional specifier (e.g., lack of guilt
or remorse, callous-lack of empathy) under the current Conduct Disorder diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders-5th edition* (American Psychiatric Association, 2013). Studies have found that youth with callous-unemotional traits engage in particularly severe, stable, and aggressive patterns of antisocial behaviors (Frick & White, 2008; Moran, Ford, Butler, & Goodman, 2008), which may explain the increased rates of recidivism in clusters 4 and 6. These findings suggest that clinicians should go beyond diagnosing mental disorders to understanding the specific subtypes and specifiers related to individuals’ diagnoses. In this case, understanding whether justice-involved youth endorse callous-unemotional traits may improve treatment planning and case management outcomes.

**Implications for risk, need, and responsivity**

consistent with the RNR principles and previous research (Catchpole & Gretton, 2003; Olver et al., 2009; Peterson-Badali et al., 2015), risk (as assessed by the YLS/CMI) was predictive of youths’ reoffending, and addressing identified criminogenic needs through interventions was associated with reduced rates of recidivism. In addition to adding to the body of literature supporting the risk and need principles, this study also identified commonly occurring mental disorder profiles in a sample of justice-involved youth, in which two profiles (clusters 4 and 6) emerged as significant predictors of youths’ recidivism even after controlling for risk and treatment matching. The latter finding is noteworthy given that the central tenets of the RNR framework rest on criminogenic factors as necessary and sufficient to predict reoffending and critical to treatment planning. Differences between clusters in the frequency with which clinicians endorsed YLS/CMI antisocial attitude items suggest that it may be important for case managers and treatment providers to gain finer grained mental health information (i.e., specifiers of mental disorder diagnoses) as well as attend to specific YLS/CMI
items in order to inform and fine-tune intervention planning and case management for justice-involved youth.

**Strengths and limitations**

Data used in the current study were collected from comprehensive assessments, often involving multiple parties such as justice-involved youth, their parents, and other collateral sources of information (e.g., frontline workers). This is a methodological strength as it provided multiple sources of information regarding youths’ mental health functioning, which was used to arrive at psychiatric diagnoses. Past research on justice-involved youth’s psychopathology heavily relied on self-report measures (Vermeiren, 2003), which alone is not a reliable way to arrive at mental disorder diagnoses, especially with respect to disruptive behavior disorders. Furthermore, past research mainly focused on understanding single psychiatric diagnoses and their impacts on youth’s outcomes. When comorbidities were examined in the justice-involved population, the focus was often placed on understanding their prevalence rates. This study is one of the few that examined psychiatric profiles in justice-involved youth and attempted to understand the significance of such profiles in relation to the RNR model and youth’s reoffending.

The current study also had several limitations. The justice-involved youth sample was drawn from a single mental health care facility in an urban area in Canada. Gender ratio in this sample was heavily skewed, with nearly three times as many male as female participants. Disproportionate gender ratio precluded the examination of mental disorder profiles by gender, which is unfortunate given the documented differences in the manifestation of psychopathologies in male and female justice-involved individuals (Abram et al., 2003). Furthermore, the current study’s modest sample size also prevented more detailed classification of mental disorders. For example, the low numbers of anxiety and mood disorders in the current sample necessitated the creation of an overall internalizing disorder category; such amalgamation may have concealed
important differences between specific internalizing disorders with respect to youth’ risk, needs, and/or outcomes. Therefore, future research should aim to draw larger samples from geographically diverse areas with more balanced gender ratios in order to replicate and extend the findings from this study.


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