Aggression, Substance Use Disorder, and Presence of a Prior Suicide Attempt
Among Juvenile Offenders With Subclinical Depression
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Abstract

Juvenile justice agencies often use the presence of a DSM diagnosis as a criterion for offenders’ eligibility for mental health treatment. However, relying on diagnoses to sort offenders into discrete categories ignores subclinical disorders—impairment that falls below the threshold of DSM criteria. The current study used structured clinical interviews with 489 juvenile offenders to examine aggression, presence of a suicide attempt, and substance use disorders among juvenile offenders with subclinical depression compared to juvenile offenders with major depression or no mood disorder. Analyses demonstrated that juvenile offenders with subclinical depression reported significantly more aggression, abuse of substances, and the presence of a prior suicide attempt compared to juvenile offenders with no mood disorder, but did not differ significantly on aggression and substance abuse compared to juvenile offenders with major depression. These results have implications for correctional agencies’ policies through which offenders are offered mental health treatment, and provide a first step in identifying early signs of problematic behavior before it worsens. Specifically, the results support the notion that depressive disorders should be viewed along a continuum when determining how to allocate services.

Keywords: subclinical depression, juvenile offenders, aggression, substance abuse, suicide
Aggression, Substance Use Disorder, and Presence of a Prior Suicide Attempt Among Juvenile Offenders With Subclinical Depression

In 2011, approximately 1,470,000 adolescents were arrested in the United States (Puzzanchera, 2013)—the large number of adolescents involved in the justice system presents challenges to effectively intervene and rehabilitate juvenile offenders. To complicate rehabilitation, 16.1% of male and 22.9% of female juvenile offenders have an affective disorder such as major depression or bipolar disorder (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). This rate is substantially higher than that found in the general population (2.5% for boys and 4.9% for girls; Merikangas et al., 2010). Research suggests that mental health problems are indirectly related to increased recidivism rates among juvenile offenders (Becker, Kerig, Lim, & Ezechukwu, 2012; Wierson & Forehand, 1995) and pose obstacles to rehabilitation for criminality if not effectively treated (Andrews, Bonta, & Wormith, 2006; Bonta & Andrews, 2007).

Treatment Allocation in the Juvenile Justice System

In response to growing awareness of the high rates of serious mental disorders (e.g., major depression and bipolar disorder) in criminal justice settings when compared to the general population, many juvenile justice agencies have developed, are considering, or are planning to use specialty services to reduce reoffending among juvenile offenders with severe mental illnesses (Cocozza & Shufelt, 2006). Specialty services include mental health courts and specialized probation caseloads, which have demonstrated efficacy at preventing recidivism (Burriss, Breland-Noble, Webster, & Soto, 2011; Cocozza & Skowyra, 2000; Skowyra & Cocozza, 2007). However, because access to community treatment providers is often limited (Grisso, 2008), specialized mental health courts for juveniles often have eligibility requirements based on whether the offender has a diagnosable serious mental disorder (Arredondo et al., 2001;
Burriss et al., 2011; Redlich, Steadman, Monahan, Petrila, & Griffin, 2005). Diagnoses of mental illness in juvenile justice settings typically rely on the system set forth by the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000) and its successor (5th ed.; DSM-5; American Psychiatric Association, 2013), both of which characterize major depression as categorical in nature. As such, clinicians make a binary decision of either ‘diagnosis’ or ‘no diagnosis’ for individuals being assessed. This binary system of diagnosing is limited because it does not take into account the fact that symptoms of serious mental disorders are found in the general population, even if not to a diagnosable degree.

The current diagnostic system overlooks individuals with subclinical depression—those who experience some symptoms of major depression and have impairment in their daily lives, but the duration, severity, or number of symptoms does not meet the threshold to warrant a formal diagnosis. For example, a juvenile who does not present with five symptoms for most of day nearly everyday for at least two weeks, however severe, would not be diagnosed with major depression according to the DSM-IV-TR, or DSM-5 (American Psychiatric Association, 2000, 2013). Some individuals do not meet full DSM-IV-TR criteria for major depression but still have significant symptoms, and may qualify for a diagnosis of depression not otherwise specified (American Psychiatric Association, 2000), or other specified depressive disorder (American Psychiatric Association, 2013). Assignment to these two categories is based on clinical judgment, which is subject to biases, and is often subject to disagreement among clinicians (Kahneman & Klein, 2009; Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2013; Neal & Grisso, 2014; Tversky & Kahneman, 1974). Currently, offenders who do not have a diagnosis (e.g., offenders with subclinical depression) are not given priority access to mental health services (Almquist & Dodd, 2009; Redlich et al., 2005; Texas Administrative Code, 2013) even
though they are likely suffering from similar amounts of impairment as juveniles with major depression (Lewinsohn, Solomon, Seeley, & Zeiss, 2000).

**Potential Risk Factors for Untreated Subclinical Depression**

Delinquency, a general term for minor crime, misbehavior, disruptive behavior problems, and wrongdoing, appears to interact with major depression among adolescents due to a shared diathesis. The irritability from major depression seems to exacerbate the already high levels of aggression found in many delinquent adolescents in the community (Stringaris, Zavos, Leibenluft, Maughan, & Eley, 2012), which increases the likelihood of continued delinquency (Kofler et al., 2011; Reinke, Eddy, Dishion, & Reid, 2012), and violence (Mattila, Parkkari, and Rimpelä, 2006; Price, Salekin, Klinger, & Barker, 2013; Salekin, Leistico, Neumann, DiCicco, & Duros, 2004). Specifically, Kofler and colleagues (2011) followed adolescents in the community from age 12 to 18, and found that major depression had a faster progression when accompanied by delinquent behavior (characterized by physical assault, burglary, theft, arrest, etc.). Reinke and colleagues (2012) found the same connection among adolescents between ages 10 and 16 who lived in at-risk neighborhoods where the co-occurrence of a disruptive disorder (characterized by easy loss of temper, arguing with adults, physical fights, etc.) and major depression led to a higher likelihood of both depressive symptoms and disruptive problems to increase in severity over time. Mattila and colleagues (2006) had similar findings; using a cross-sectional design, they found that adolescents with depressed mood in the community had a higher likelihood of causing violence related injuries. This research suggests that the irritability experienced by adolescents with major depression fuels aggressive behavior and puts the adolescent at risk for future delinquent behaviors (Grisso, 2008; Kofler et al., 2011; Price et al., 2013; Reinke et al., 2012).
Other research has found that the hostility expressed in major depression is related to suicidal ideation (Björkenstam, Björkenstam, Vinnerljung, Hallqvist, & Ljung, 2011). For example, many adolescents in the community who complete suicide (71%) had a history of aggressiveness, major depression, and conduct problems (e.g., physical fights, stealing, lying, deceitfulness, etc.; McCracken, Cantwell, Hanna, Koplewicz, & Klass, 1993). Therefore the compounded irritable dimension shared between major depression and delinquency may end in an adolescent directing their hostility towards themselves (Grisso, 2008).

Symptoms of major depression (e.g., irritability), by definition, cause distress and/or dysfunction for the adolescent (American Psychological Association, 2000, 2013). Dysfunction often leads to dysphoria, defined as a general dissatisfaction with life, which increases the likelihood of substance abuse (Lembke, 2012; Mattila et al., 2006). Prior research is in disagreement on whether the adolescent is using the substance to self-medicate (Khantzian, 1985; Mason, Hitch, & Spoth, 2009), or if dysphoria increases the likelihood that the adolescent will be exposed to situations where they are introduced to substance use (Lembke, 2012). Specifically, Loeber, Stouthamer-Loeber, and Raskin White (1999) found that half of delinquent adolescents with substance abuse had internalizing problems (dysphoric mood, depressed mood, irritability, etc.). In addition, delinquent adolescents with internalizing problems significantly predicted long-term substance abuse (Loeber et al., 1999). This indirect relationship of internalizing problems and substance abuse can be concretely seen in the high levels of co-occurring major depression and substance abuse (Teplin, Abram, McClelland, & Dulcan, 2003). In sum, there is an indirect relationship—major depression and dysphoric states increase the likelihood that an adolescent will abuse substances, and abusing substances is a robust predictor of recidivism (Andrews & Bonta, 2010; Bonta & Andrews, 2007; Schubert, Mulvey, & Glasheen, 2011).
The Present Study

Major depression among adolescents in the community is associated with troubling behaviors such as self-harm, suicidal ideation, suicide attempts (Grisso, 2008; Mattila et al., 2006; McCracken et al., 1993), irritability (American Psychiatric Association, 2000, 2013), continued delinquency (Kofler et al., 2011; Reinke et al., 2012) aggression, and substance abuse (Khantzian, 1985; Lembke, 2012; Lewinsohn, et al., 2000; Loeber, et al., 1999; Mattila et al., 2006). Even without major depression, juvenile offenders already have an increased risk for these problematic behaviors compared to non-disordered offenders (Abram et al., 2008; Teplin et al., 2002; Wasserman & McReynolds, 2006). Therefore, juvenile offenders with major depression are a group at particularly high-risk. Juvenile offenders with subclinical depression likely have many of the same problematic behaviors as juvenile offenders with major depression, but lack the minimum number of symptoms needed for a diagnosis, and are typically ineligible for specialized services (Almquist & Dodd, 2009; Redlich et al., 2005; Texas Administrative Code, 2013). The lack of treatment for subclinical depression may increase the likelihood that the juvenile offender’s delinquency, suicidal ideation, and substance use progress to clinical levels and result in future re-arrest (Fergusson, Horwood, Ridder, & Beautrais, 2005; Lewinsohn et al., 2000; Loeber, Burke, Lahey, Winters, & Zera, 2000; McCracken et al., 1993).

The present study takes a first step towards understanding the needs and risks of juvenile offenders with subclinical depression by comparing them directly to juvenile offenders with diagnosed major depression and juvenile offenders with no mood disorder. For Aim 1, we examined the self-reported levels of aggression among juvenile offenders. Due to the shared diathesis of aggression between depressive symptoms and disruptive problems (Kofler et al., 2011; Mattila et al., 2006; McCracken et al., 1993; Reinke et al., 2012; Stingarlis et al., 2012), we hypothesized that juveniles with subclinical depression would report levels of aggression similar
to those with major depression, but would report more aggression compared to juvenile offenders with no mood disorder. For Aim 2, we examined history of a previous suicide attempt among juvenile offenders. Based on correlations found between hostility and suicidal ideation among juvenile offenders (Grisso, 2008; McCracken et al., 1993), we hypothesized that more juveniles with subclinical depression would have attempted suicide in the past compared to juvenile offenders with no mood disorder, but that a similar proportion of juvenile offenders with subclinical depression would have attempted suicide in the past when compared to juvenile offenders with major depression. For Aim 3, we examined substance abuse among juvenile offenders with subclinical depression. Based on the high levels of dysphoria experienced by juveniles with major depression (Khantzian, 1985; Lembke, 2012) and the high rates of comorbidity between substance use disorders and major depression in juvenile delinquents (Loeber et al., 1999; Teplin et al., 2003), we hypothesized that juvenile offenders with subclinical depression would abuse substances at a higher rate than juvenile offenders with no mood disorder, but abuse substances at rates similar to juvenile offenders with major depression.

Method

Data were derived from routine intake procedures at a juvenile probation agency, where juvenile offenders received a comprehensive semi-structured mental health assessment. The semi-structured interview yielded diagnoses based upon DSM-IV-TR criteria (American Psychiatric Association, 2000). As described later, the information from these interviews was used to sort juvenile offenders into three categories based on the absence or presence of symptoms and/or the duration and severity of the symptoms of major depression the juvenile endorsed.

Participants
Participants were 489 juvenile offenders from a juvenile probation agency in the Southwestern U.S. All juvenile offenders meeting criteria for the groups in the present study (described in the measure section below) during the 20 months of data collection were included in the analyses. The majority of the sample was male (66.9%). Most of the sample was Latino (83.6%), which mirrors the demographics of the region (81.2% Latino; United States Census Bureau, 2012). Juveniles’ ages ranged from 7 to 17 years old ($M = 14.45$, $SD = 1.46$). Most juveniles were first time offenders (85.3%) and in low risk diversion programs.

**Kiddie Schedule for Affective Disorders and Schizophrenia**

Juveniles were interviewed using the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS; Kaufman, Birmaher, Brent, Rao, & Ryan, 1996), which conforms to the DSM-IV-TR’s (American Psychiatric Association, 2000) diagnostic criteria. The K-SADS assesses the presence of current, past, and lifetime (which includes juveniles with a current and/or past diagnosis) DSM-IV-TR Axis I diagnoses (American Psychiatric Association, 2000; Kaufman et al., 1996). The interviewers used the K-SADS’s definition of a diagnosis as current (i.e., present within the last two months) when determining diagnoses, but when there were disagreements with DSM-IV-TR criteria, the DSM-IV-TR criteria for past and current diagnoses superseded the K-SADS’s definition. For example, the K-SADS codes current substance use disorder as abuse in the last *two* months, whereas the DSM-IV-TR’s criteria for substance use disorder is abuse in the last *12* months (American Psychiatric Association, 2000). Each symptom is rated on a 0 to 3 scale, where 0 indicates there is no information to determine the presence or absence of a symptom, 1 indicates the symptom is not present, 2 indicates the symptom is present but did not meet full criteria, and 3 indicates the symptom met full criteria (Kaufman et al., 1996).
Interviewer training and inter-rater reliability. Interviewers were graduate students in either a masters or doctoral psychology program who were employed by the juvenile probation agency. Interviewers completed a three-day intensive training before administering the K-SADS. Following the training, the interviewers practiced administering the K-SADS with other students under the supervision of a licensed Ph.D.-level clinical psychologist.

To compute inter-rater reliability, interviewers randomly selected juvenile offenders and requested the permission from both the juvenile offender and the parent to record the interview. Between two and four secondary raters who were blind to the original ratings coded the K-SADS while listening to the recording. Over the course of the project, there were six interviewers who collectively recorded 14 interviews. Each secondary rating was compared to the original interviewer’s, resulting in 50 total comparisons. A weighted kappa statistic was obtained for each comparison. The mean weighted kappa for all 50 comparisons was .82 (SD = 0.14). A kappa of .70 is typically accepted as adequate inter-rater reliability (Banerjee, Capozzoli, McSweeney, & Sinha, 1999), suggesting that interviewers’ inter-rater reliability was good.

Categorization method

The present study collapsed past or present occurrence of symptoms of major depression into a single category of lifetime occurrence. This methodological decision was made because it was often not possible to determine which symptoms or behaviors manifested first. The juvenile offenders were placed in one of three categories depending on the presence, severity, and duration of his or her symptoms of major depression. The three categories included juvenile offenders who met the DSM-IV-TR criteria for major depression, juvenile offenders with subclinical depression, and juvenile offenders with no mood disorder. Juvenile offenders in the major depression category met criteria for major depression according to the K-SADS, which is based on DSM-IV-TR criteria (five or more symptoms of depression with one symptom being a
mood disturbance; American Psychiatric Association, 2000). Juveniles in the no mood disorder group had no Axis I anxiety, psychotic, or mood disorder (the no mood disorder category included juveniles with only substance use disorders and childhood behavioral disorders such as attention deficit-hyperactivity disorder, conduct disorder, oppositional defiant disorder, and disruptive disorder). The criteria for the subclinical depression group were created using the diagnostic criteria for major depression (five depressive symptoms for at least two weeks or more with one being a mood disturbance symptom; Magruder & Calderone, 2000). The juvenile offenders with subclinical depression endorsed a mood disturbance symptom (e.g., either depressed mood, loss of interest in enjoyable activities, or irritability), and one to three other major depression symptoms that were either at threshold (5 to 7 days weekly, more than half of awake time) or subthreshold level (3 to 4 days weekly, more than half of awake time; Magruder & Calderone, 2000). Most (64.2%) of the sample had no mood disorder, whereas 27.8% had subclinical depression, and 8.0% reported symptoms meeting full criteria for major depression.

**Problematic behaviors**

All dependent variables were coded as current or past, but for the purposes of this study, symptoms were collapsed into lifetime occurrence for the same reason as the independent variable (current or past symptoms of depression collapsed into lifetime occurrence). For Aim 1, aggression among juvenile offenders was examined. Symptoms of aggression were drawn from the oppositional defiant disorder and conduct disorder (e.g., disruptive disorders) sections of the K-SADS which included: argues with adults, loses temper easily, purposely disobeys or defies the rules at home or at school, and initiates physical fights. Arguing with adults, losing temper easily, and initiating physical fights are clearly aggressive behaviors and were therefore chosen to symbolize aggression. Purposely disobeying and defying the rules at home or at school was chosen to also symbolize aggression, because oppositional defiant disorder symptoms, by
definition, are aggressive as they provoke angry responses from others and lead to aggression (McCracken et al., 1993). Disobeying rules is a provocative behavior and an oppositional defiant disorder symptom, and was therefore also classified as an aggressive behavior. For Aim 2, the history of either the presence or absence of a suicide attempt (coded as yes or no prior suicide attempt) among juvenile offenders was examined. The presence or absence of a past suicide attempt was drawn from the major depression section on the K-SADS. For Aim 3, substance use disorders among juvenile offenders were examined and the dependent variable was the presence or absence of a diagnosable substance use disorder.

**Results**

To address the aims of the present study, twelve chi-square analyses examined the proportion of juveniles with subclinical depression that were aggressive, had the presence of a prior suicide attempt, and substance use disorder compared to those with no mood disorder and those with major depression. Each of the aggression variables was originally coded as ‘1’ (endorsed for 1 to 2 days), ‘2’ (endorsed for 3 to 4 days), or ‘3’ (endorsed for 5 to 7 days). Due to unequal intervals between originally coded variables (e.g., the distance between 1 and 2 ≠ the distance between 2 and 3), the aggression variables were treated as categorical variables to facilitate interpretation of Aim 1.

**Aim 1: Examining Aggression Among Juvenile Offenders With Subclinical Depression**

The aggression reported by juvenile offenders with subclinical depression was significantly higher than the aggression reported by juveniles with no mood disorder. Juveniles with subclinical depression lost their temper, $\chi^2(2, n = 447) = 66.19, p < .001$, Cramer’s $V = .27$, CI [.08, .28], argued with adults, $\chi^2(2, n = 447) = 30.16, p < .001$, Cramer’s $V = .18$, CI [.09, .25], and deliberately disobeyed the rules, $\chi^2(2, n = 447) = 17.27, p = .001$, Cramer’s $V = .13$, CI [.03, .15] for more days per week than juvenile offenders with no mood disorder. Specifically,
22.8% of juvenile offenders with subclinical depression lost their temper for 5 to 7 days per week compared to the 5.1% of juvenile offenders with no mood disorder. The percentage of juvenile offenders with subclinical depression (25.0%) who argued with adults for 5 to 7 days per week was more than twice that rate from juvenile offenders with no mood disorder (8.0%). In terms of deliberately disobeying the rules, the percentage of juvenile offenders with subclinical depression (12.5%) who deliberately disobeyed the rules for 5 to 7 days per week was approximately 3 times the rate found with juvenile offenders with no mood disorder (3.2%).

For the second comparison of Aim 1, aggression represented by the frequency of loss of temper, $\chi^2(2, n = 174) = 1.24, p = .539$, Cramer’s $V = .06$, CI [-.07, .25], arguing with adults, $\chi^2(2, n = 174) = 0.06, p = .972$, Cramer’s $V = .01$, CI [-.16, .14], and deliberately disobeying the rules, $\chi^2(2, n = 174) = 0.12, p = .940$, Cramer’s $V = .02$, CI [-.11, .12], reported by juvenile offenders with subclinical depression was not significantly higher than the aggression reported by juvenile offenders with major depression.

**Aim 2: Examining the Presence or Absence of a Suicide Attempt Among Juvenile Offenders With Subclinical Depression**

The proportion of juvenile offenders with subclinical depression who had previously attempted suicide was significantly higher than the proportion of juvenile offenders with no mood disorder, $\chi^2(1, n = 411) = 77.95, p < .001$, $\Phi = .43$, CI [.34, .53]. Specifically, 10.1% of juvenile offenders with subclinical depression had previously attempted suicide, compared to 0% of juvenile offenders with no mood disorder.

For the second comparison of Aim 2, the proportion of juvenile offenders with major depression who had previously attempted suicide was significantly higher than that of the
juvenile offenders with subclinical depression, $\chi^2(1, n = 166) = 24.98, p < .001, \Phi = .39, CI [.18, .53]$. Specifically, 45.9% of juvenile offenders with major depression had previously attempted suicide compared to 10.1% of juvenile offenders with subclinical depression.

**Aim 3: Examining History of Substance Use Disorders Among Juvenile Offenders With Subclinical Depression**

The proportion of substance use disorder among juvenile offenders with subclinical depression was significantly higher than that found in juvenile offenders with no mood disorder, $\chi^2(1, n = 450) = 10.67, p = .001, \Phi = .15, CI [.05, .24]$. Specifically, 36.8% of juvenile offenders with subclinical depression had a substance use disorder compared to the 22.0% of juvenile offenders with no mood disorder.

For the second comparison of Aim 3, juvenile offenders with subclinical depression did not significantly differ in frequency of substance use disorder when compared to juvenile offenders with major depression, $\chi^2(1, n = 175), = 1.66, p = .197, \Phi = .10, CI [-.27, .05]$.  

**Discussion**

The present study was a first step in determining whether juvenile offenders with subclinical depression reported levels of aggression, prior suicidal behavior, and substance abuse that are similar to the behavior of juvenile offenders with no mood disorder, or juvenile offenders with major depression, which may allow for better identification of a potentially high-risk subset of juvenile offenders. Juvenile offenders with subclinical depression tended to report behaviors that were similar to juvenile offenders with major depression, and reported higher rates of prior suicide attempts, greater amounts of aggression, and greater rates of substance use disorder than did juvenile offenders with no mood disorder. It appears that juvenile offenders with subclinical depression experience considerable impairment that is similar to that experienced by juvenile
offenders with major depression, even without meeting diagnostic criteria for a mental disorder. Relying solely on categorical diagnoses does not take into consideration the dimensional quality of mental illness that often cannot be adequately described by a categorical diagnostic system (DSM; Brown & Barlow, 2005; Krueger, Skodol, Livesley, Shrub, & Huang, 2007; Widiger & Samuel, 2005; Widiger, Trull, Hurt, Clarkin, & Frances, 1987), and often may miss identifying juvenile offenders with substantial needs in multiple domains.

**Juvenile Offenders With Subclinical Depression Have Substantial Needs**

**Suicide.** As expected, the present study found that juvenile offenders with subclinical depression reported significantly higher rates of a prior suicide attempt when compared to juvenile offenders with no mood disorder. Contrary to what was hypothesized, juvenile offenders with subclinical depression reported significantly lower rates of a prior suicide attempt when compared to juvenile offenders with major depression. However, both results are in agreement with research findings that adolescents with major depression exhibit the highest rates of suicidal ideation and suicide attempts (Cukrowicz et al., 2011) whereas those with subclinical depression exhibit suicidal tendencies, but to a lesser degree (Fergusson et al., 2005). For example, Fergusson and colleagues (2005) followed a group of young adults in the community from age 17 to 25 and found that later in adulthood those with subclinical depression were more likely to develop a clinical diagnosis of major depression and have suicidal ideation and suicide attempts. In addition, young adults who displayed subclinical depression in adolescence had a similar prognosis in adulthood at follow-up compared to adolescents with major depression at baseline (Fergusson et al., 2005). This suggests that juvenile offenders with subclinical depression are at a higher risk of graduating to clinical levels of depression and developing suicidal tendencies later in life (Fergusson et al., 2005; Loeber et al., 2000; McCracken et al., 1993; Shankman et al., 2009).
Juvenile offenders in general are a high-risk group for suicide attempts (Björkenstam et al., 2011)—completed suicide attempts have been found to be as much as 4.6 times higher in incarcerated youth than in the general youth population (Bailey, 1993). Further, juvenile offenders have the unique stress associated with being involved with the juvenile justice system, which makes them a particularly vulnerable population. Juvenile justice agencies should be aware that juveniles with subclinical depression may be at a higher risk for suicidal behavior than the general population of juvenile offenders even though they do not have a mental health diagnosis.

**Aggression.** This study is the first to find that aggression likely has a relationship with subclinical depression among juvenile offenders. These findings suggest that a greater number of juvenile offenders with subclinical depression exhibit concerning aggressive behaviors when compared to juvenile offenders with no mood disorder. Early signs of aggression and depression, much like what was found in the present study, may be worthy of attention as longitudinal studies document the extent of harm that can arise from aggression and depressive symptomology over time. For example, Colman and colleagues (2009) followed adolescents from age 13 to 53 and found that the co-occurrence of major depression and aggression increases the likelihood that the adolescent will have more interpersonal, social, and economic dysfunction and maladjustment. Furthermore, Jackson, Kuppens, Sheeber, and Allen (2011) found that adolescents with major depression were more likely to have deficits in emotion regulation, and more likely to exhibit anger. These examples are drawn from adolescents in the community, but in general, juvenile offenders are typically more aggressive than adolescents in the community (Teplin et al., 2002). Therefore, juvenile offenders with subclinical depression may be overlooked due to lack of a clinical diagnosis, and their aggressive behaviors may go unnoticed.
These aggressive behaviors, however, have the potential to lead to physical altercations and escalate to re-arrests (Grisso, 2008).

**Substance abuse.** Another notable finding of the present study is that juvenile offenders with subclinical depression had higher rates of substance abuse than did juvenile offenders with no mood disorder. Consistent with this result, Abram and colleagues (2008) found that substance use disorder co-occurs with affective and/or anxiety disorders in approximately one third of juvenile offenders. This is concerning, as substance abuse is one of the most robust risk factors for future criminal behavior among juvenile offenders (Schubert et al., 2011). Female juvenile offenders with a co-occurring affective disorder (e.g., major depression, etc.) were approximately 4 times more likely to reoffend, and males approximately 2 times more likely to reoffend than their counterparts who had no diagnosis (McReynolds, Schwalbe, & Wasserman, 2010). Research has found that juvenile offenders’ abuse of a substance accounted for 10% of the variance in predicting recidivists from non-recidivists 21 to 32 months after release from incarceration (Wierson & Forehand, 1995). Substance use problems uniquely predict recidivism, as well as introduce the juvenile to a wide range of risk factors for reoffending (van der Put, Creemers, & Hoeve, 2014).

Recidivism risk is complicated to predict, and prior research suggests that the combination of disruptive disorders (e.g., symptoms include initiating physical fights, bullying, aggressively stealing, etc.) and substance use is even more predictive of re-arrest than either component alone (Cottle, Lee, & Heilbrun, 2001). Affective disorders on their own do not predict recidivism, but when combined with both disruptive behavior and substance use, the odds of recidivism were 2.24 times more likely than the odds of reoffending for juvenile offenders with no disorder (McReynolds et al., 2010). The present study supports the notion that juvenile offenders with subclinical depression are a special subgroup that may be at a higher risk of
reoffending and substance use issues even though they do not have enough symptoms of depression to warrant a diagnosis.

**Under-Identification of Mental Illness May Inhibit Interventions for Criminality**

As discussed above, juvenile offenders with subclinical depression have a complex constellation of substance abuse problems, aggression, and untreated mental health symptomology. Best practices for managing juvenile offenders who have mental health problems and impairment suggest that juveniles should be assessed for mental health problems, diverted from the juvenile justice system when appropriate, and treated for their criminal behavior and mental health needs simultaneously (Grisso, 2008). First, juvenile offenders with mental health needs who are not diverted from the system will be processed through the criminal justice system as a typical offender. Two studies have found that juvenile offenders with a mental illness have higher rates of involvement in the juvenile justice system, familial problems, and criminal peers when compared to juvenile offenders without a mental illness (Cottle et al., 2001; Schubert et al., 2011). As such, juvenile offenders with mental health symptomology, even without meeting criteria for a DSM diagnosis, may be at a disproportionate risk of recidivism and become more deeply embedded in the criminal justice system.

Second, juveniles who are not diverted from the criminal justice system likely will not reap the benefits of mental health treatment from the criminal justice system. Untreated mental illness will render the juvenile less likely to respond successfully to interventions for his or her criminal behavior (Andrews et al., 2006; Bonta & Andrews, 2007; Herinckx, Swart, Ama, Dolezal, & King, 2005; Skeem, Manchak, & Peterson, 2011; Vanderloo & Butters, 2012). The empirically supported Risk Needs Responsivity model (RNR; Andrews & Bonta, 2010; Andrews et al., 2006; Bonta & Andrews, 2007) recognizes this problem of an untreated mental illness affecting the efficacy of correctional interventions. Mental illness is addressed by RNR under
the *responsivity* principle, which directs criminal justice practitioners to tailor treatments to individual characteristics, such as mental illness, if it is a problem for the individual (Andrews et al., 2006; Bonta & Andrews, 2007). Addressing the *responsivity* principle has the potential to reduce recidivism rates in juvenile offenders (Andrews et al., 2006; Bonta & Andrews, 2007). When mental illness is addressed during treatment planning, it appears that the offender has a higher likelihood of successfully abstaining from crime, as mental illness is a barrier to effective rehabilitation for criminal behavior (Andrews et al., 2006; Skeem et al., 2011).

**Limitations**

There are some limitations in the present study that should be borne in mind when interpreting the results. First, although the sample obtained was relatively large, only a small proportion of juveniles with major depression were represented in the sample (8.0% had major depression), whereas juvenile offenders with no mood disorder were overrepresented in the sample. The groups as a whole varied greatly, as the dependent variables of interest (suicide attempt, substance use disorder, aggression) are more common in juvenile delinquent populations than the general population, but still have low base rates within this specialized population. Second, a notable limitation of this study is its reliance on self-reported data. The interviewers built rapport with the juvenile offenders to increase the likelihood that they would report symptoms, but the sample was mostly Latino, and Latinos may view mental health differently than other ethnicities, as perceptions of mental illness are highly influenced by culture (Cauce et al. 2002; Urdaneta, Saldaña, & Winkler, 1995). In addition, underreporting has been found to be more prevalent in minority populations when asking questions regarding mental illness and problematic behaviors (Satcher, 2001). As such, replications with juvenile justice samples without self-reported data need to be completed.
Lastly, the present study collapsed current and past major depression, aggression, substance use disorder, and the presence of a suicide attempt into a lifetime occurrence, because observations were not taken at multiple time points, so temporal precedence questions could not be answered. This is a notable limitation of the present study, as one of the lurking questions of clinical research is whether symptoms of depression exacerbate the aggressive behavior or substance abuse, or if the aggressive behavior and substance abuse come first and exacerbates the symptoms of depression. Although the present study cannot inform temporal precedence questions, it does provide information in raising awareness that mental health symptoms may not have to meet diagnostic criteria to have clinical significance.

**Implications**

Throughout all generations of the DSM (e.g., DSM II, DSM III, DSM IV, etc.), the categorical diagnosing system dominates. Although the DSM-5 recently redefined some mental health diagnoses using a hybrid categorical and dimensional diagnostic system, this does not apply to mood disorders (American Psychiatric Association, 2013; Trull, Distel, & Carpenter, 2011). Although categorical diagnosing has benefits (e.g., ability of simplifying diagnoses to communicate easily between professionals, etc.), the present study suggests that relying on a categorical system (like the DSM) oversimplifies symptomology, and by doing so, professionals lose important information (also see Brown & Barlow, 2005; Demjaha et al., 2009; Widiger & Samuel, 2005). In light of the present study’s results, juvenile justice agencies using a categorical diagnostic system to allocate services will likely fail to identify youth with clinically significant, although not diagnosable, mental health issues. As such, it may be advisable to incorporate a dimensional element into the current diagnostic system for major depression and disruptive disorders.
The present study highlights the need for juvenile justice agencies to screen all juveniles for suicidal risk and mental health symptoms. The widely used Massachusetts Youth Screening Inventory-Second Version (MAYSI-2; Grisso & Barnum, 2006) is an example of a brief self-report measure that assesses these domains. In addition, correctional staff should be educated on the symptoms that overlap and co-occur so that they can better identify the youth who are in need of services, in need of more intensive interventions, or are at a high risk for future delinquency. This education should also include coverage of the problematic correlates of subclinical disorders (e.g., suicide attempts, substance abuse, aggression). Agencies may need to advocate on behalf of juvenile offenders with subclinical disorders to increase the likelihood that community mental health services are made available to them. Doing so will aid in improving outcomes for this potentially high-risk group.
References


