

Understanding the Influence of Mental Health Diagnosis and Gender on Placement Decisions for Justice-Involved Youth

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Abstract Justice-involved youth have high rates of psychiatric diagnoses, and these youth are often placed out-of-home, although evidence identifies several negative implications of juvenile confinement, especially for youth with psychopathology. Furthermore, youth in the justice system may be processed differently based on gender. As males and females tend to manifest symptoms differently, the psychopathology of youth may act to moderate the relationship between gender and placement in the juvenile justice system. The present study used a large, diverse sample ($n = 9851$, 19.8 % female) to examine whether youth placed in various types of out-of-home facilities differed in terms of externalizing, internalizing, substance use, or comorbid disorders, and to determine the predictive value of mental health diagnoses in placement decisions. The moderation effect of psychopathology and substance use on the relationship between gender and placement also was explored. The results indicated that each type of disorder differed across placements, with internalizing being most prevalent in non-secure, and externalizing, comorbid, and substance use being most prevalent in secure settings. Mental health diagnoses improved the prediction of placement in each out-of-home placement beyond legal and demographic factors such that externalizing and substance use disorders decreased the likelihood of placement in non-

secure settings, and internalizing, externalizing, and substance use disorders increased the likelihood of placement in secure and state-secure facilities. The relationship between internalizing pathology and placement in more secure facilities was moderated by externalizing pathology. The relationship between gender and placement was significantly moderated by mental health such that females with mental health diagnoses receive less secure placements. Implications for policymakers and practitioners are discussed, as well as implications for reforming juvenile justice within a developmental approach.

Keywords Juveniles · Placement · Mental health · Internalizing · Externalizing · Substance use Gender

Introduction

Adolescence is a period marked by transitions from childhood dependence to emerging adulthood, and characterized by increasing independence and self-identity development (Arnett 2000). Age-typical ways in which adolescents form their identities and develop independence include experimentation and novelty-seeking (Collins and Steinberg 2006). Youth may engage in risky behaviors due to a heightened sensitivity to external influences such as immediate reward or peer influences (Gardner and Steinberg 2005). These behaviors have evolutionary roots and continue to serve some adaptive purposes, including the development of autonomy, yet can have a substantial downside in modern society and may result in interactions with the juvenile justice system.

In 2013, U.S. juvenile courts processed 33.8 delinquency cases for every 1000 juveniles in the population

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(Hockenberry and Puzzanera 2015). The rate of juvenile offending differs between genders, with the rate of female juvenile offending increasing over recent years while rates of male juvenile offending have decreased (Snyder 2008). Most of these youth are first-time offenders (Mulvey et al. 2010). Although many youth reduce their offending behavior as they age, some youth become chronic offenders marked by a significant history of adult criminal involvement. Understanding those factors leading to persistence as opposed to desistance from juvenile delinquency is an important step in improving outcomes for all youth involved in the juvenile justice system.

Extant literature is modest in its ability to identify factors differentiating trajectories of offending, although research suggests substance use (D'Amico et al. 2008; Stoolmiller and Blechman 2005) and externalizing psychopathology (McReynolds et al. 2010) are related to offending persistence. Internalizing psychopathology could lead to violent behavior (Mattila et al. 2006), and there is a moderate correlation between depression and anxiety with future offending (Boots and Wareham 2009). Thus, it is not surprising that 50–75 % of justice involved youth have at least one mental health diagnosis (Skowyra and Powell 2006), 46.2 % have substance use disorders (Shufelt and Coccozza 2006), and youth with multiple diagnoses are even more likely to be represented in the juvenile justice system (Coker et al. 2014; Shufelt and Coccozza 2006). Rates of psychopathology within the juvenile justice system also differ by gender (Cauffman et al. 2007a), indicating a potential pathway for observed gender differences in juvenile justice system processing (Chesney-Lind and Shelden 2013).

The prevalence of mental illness among justice-involved youth underscores the need for the juvenile justice system to address these youth's needs through developmentally appropriate dispositions, including placement decisions. The purpose of the current study was to understand the types of mental health and substance use problems of youth placed in out-of-home facilities, and to evaluate how mental health factors influence placement decisions beyond legal and demographic factors. Furthermore, given gender differences in psychopathology and criminal activity, the study sought to explore the role of mental health in influencing gendered pathways to placement.

Mental Health in Justice-Involved Youth

The relationship of all types of mental health diagnoses and offending may be especially pronounced in adolescence given that adolescence is marked by increased substance use (Aldworth 2009), externalizing psychopathology (Farrington 2009), internalizing psychopathology (Betts et al. 2016), and the co-occurrence of these disorders (Angold et al. 1999). Substance use frequently co-occurs with a variety of

familial, peer, legal, and mental health problems (Elliott et al. 2012). Internalizing psychopathology is manifested by emotions and behaviors directed toward the self or internal experience (Kazdin 2005). Typical behaviors associated with this category include social inhibition, withdrawal, disassociation, and constraint (Kazdin 2005); although, anxiety and depression may also be manifested as anger, contributing to outward violence (Mattila et al. 2006), and involvement in the justice system. Several environmental factors have been identified as contributing to the development of internalizing psychopathology. Among justice-involved youth, childhood and adolescent experience of emotional abuse (Gore-Felton et al. 2001) or sexual abuse (Gover 2004) is associated with internalizing psychopathology. Externalizing psychopathology is conceptualized as projecting distress outward (Krueger 1999), and is characterized by impulsivity and disruptive behaviors (American Psychiatric Association 2013). Risk factors for the development of externalizing psychopathology often overlap with those of internalizing diagnoses. Shared risk factors between the two include interactions with antisocial peers, familial conflict, family history of antisocial behavior, and academic failure (Monahan et al. 2014).

The overlap in risk factors for externalizing and internalizing psychopathology has provided one potential explanation for the high prevalence of the co-occurrence of the two (Wolff and Ollendick 2006). Heterotypic comorbidity (Angold et al. 1999), or co-occurring internalizing and externalizing diagnoses, has been identified as prevalent in approximately 50 % of clinically referred youth with conduct disorder, with depression being the most common internalizing diagnosis (Greene et al. 2002). Comorbid internalizing and externalizing psychopathology could be a result of the shared risk factors between the two diagnoses, although other studies suggest the presence of one disorder causes another (Wolff and Ollendick 2006).

Although the causal mechanisms of comorbid diagnoses are not clearly understood, research indicates that the presence of both internalizing and externalizing psychopathology is associated with worse psychological, social, and legal outcomes than the presence of one type of diagnosis alone. Justice-involved youth with heterotypic comorbidity have higher levels of traumatic exposure, are more likely to report prior suicide attempts, and have a greater number of internalizing, externalizing and substance use diagnoses than justice-involved youth without both types of psychopathology (Hoeve et al. 2015). Furthermore, justice-involved youth with both types of disorders are significantly more often referred to the justice system than externalizing youth for violent interpersonal offenses (Hoeve et al. 2015), and are at an increased risk of recidivism compared to youth with only one diagnosis (Hoeve et al. 2013).

Gender Differences in Mental Health in Justice-Involved Youth

Gender differences in psychopathology of justice-involved youth is of particular importance as female delinquency has increased over time, although male delinquency has decreased (Snyder 2008), and justice system processing of females may differ from that of males. Some studies demonstrate stricter processing for females despite lesser offenses (Zhang et al. 2010), whereas other studies demonstrate similar system processing for both genders (Espinosa et al. 2013). Additionally, research has indicated a significantly larger portion of female crime could be attributed to symptoms of a mental health disorders in comparison to males (Copeland et al. 2007).

Differential system processing may be due to different manifestations of symptoms between males and females in the juvenile justice system. Within community samples, females are likely to exhibit more internalizing pathology and males are more likely to exhibit externalizing pathology (Kazdin 2005; Nock et al. 2006; Nock et al. 2007). However, within juvenile justice settings, the gender differences are altered with females reporting twice as many internalizing symptoms as their male counterparts, and equal rates of externalizing symptoms (Cauffman et al. 2007a). Females in the juvenile justice system also have higher rates of heterotypic comorbidity (Wasserman et al. 2005) and overall psychopathology than their male counterparts (Wasserman et al. 2005). Rates of substance use disorders do not appear to be significantly different between males and females in the juvenile justice system (Wasserman et al. 2005; Harzke et al. 2012).

The Process of Juvenile Placement

Juvenile justice system processing can be variable across jurisdictions, although some factors remain relatively stable across most states. The goals of many juvenile justice systems are community safety and rehabilitation (National Research Council 2013). The objectives are to hold youth accountable, provide fair processing, and prevent crime, all while keeping costs to a minimum (National Research Council 2013). In order to attain these goals through system processing, juvenile justice courts gather legal, demographic, and mental health data on justice-involved youth and use this data to inform judges in making appropriate disposition decisions. The task of gathering all of this information is a multi-person process taken on by the juvenile's probation office at system intake. Following the screening procedure, the youth may be adjudicated delinquent, or found guilty. The following step is the disposition decision, including placement, which is solely the judge's

decision in many states' jurisdictions, including Texas (Texas Attorney General 2016).

The premise of a developmental approach to juvenile justice is that the goals, design, and operation of the juvenile justice system should be informed by the current state of knowledge about adolescent development, including understanding risk factors for recidivism and mental health needs (National Research Council 2013). Thus, the legal, demographic, and mental health variables gathered at intake should be used to inform judges about the overall risk of future, chronic offending as well as the risk the juvenile poses to the community. Unfortunately, no consistent policies are in place helping judges understand the developmental importance of certain variables and appropriately weight this information in making their decisions. For example, a developmental approach would suggest that secure and state-secure placement should be used sparingly and only to respond to and prevent serious offending, whereas the use of in-home and non-secure placement should be utilized more frequently given the low rates of chronic violent offending in adolescence (National Research Council 2013). Thus, state and state-secure facilities should be reserved for youth identified as high-risk for re-offending. Furthermore, the process of juvenile justice should be equitable and therefore absent of gender or racial disparities in processing and placement (National Research Council 2013).

Placement Options for Justice-Involved Youth

Courts have options that do not require out-of-home placement such as probation (either regular or intensive supervision), referral to an outside agency, community-based day treatment, mental health program, imposition of a fine, community service, or restitution (Hockenberry and Puzzanchera 2015). A wealth of research has established the benefits of in-home dispositions which allow juveniles to access community-based treatments while remaining in a prosocial environment (Ryon et al. 2013). Evidence suggests that even for violent adolescent offenders, in-home probation is more effective in reducing recidivism than out-of-home placement (Loughran et al. 2009; Ryan et al. 2014), potentially because in-home placements are less likely than out-of-home placements to inhibit autonomy and hinder psychosocial development (Dmitrieva et al. 2012). Additional benefits of utilizing in-home placement include decreasing the populations of overcrowded detention facilities, facilitating the further development of community-based mental health services, and encouraging family participation in treatment (Skowrya and Powell 2006). It is plausible that the benefits of in-home placement are even more significant for youth with substantial mental health

issues although little research has directly examined this question.

Alternatively, courts may utilize out-of-home placements, including non-secure, secure, or state-secure out-of-home placements (Hockenberry and Puzanchera 2015). Non-secure placements are programs licensed by the state's welfare system and include residential treatment centers, therapeutic camps, halfway houses, substance abuse treatment facilities, and foster care. Treatment in non-secure settings is frequently based on developmental knowledge, and the programs are less costly than secure or state-secure facilities (National Research Council 2013). Within adult populations, offenders randomly assigned to less secure out-of-home placements are less likely to reoffend than those assigned to more secure placement (Gaes and Camp 2009). Non-secure placements may result in more positive outcomes in justice-involved youth because they allow more integration with the community, permit development of self-identity in a less structured environment, provide opportunities to improve familial and interpersonal relations, and allow for school and job attainment.

More secure placements include county-operated secure or state-secure placements. State-secure placements are to be reserved for youth at risk for chronic violent offending, demonstrated by significant offense history (Texas Attorney General 2016). Secure placements have frequently received criticism for their expense (American Correctional Association 2008), and failure to reduce recidivism. Up to 85 % of juveniles placed in state-operated secure facilities recidivate within 5 years of their release (Trulson et al. 2005), and their subsequent crimes are more severe (Hoeve et al. 2013).

Research suggests more secure placements are often unsuccessful in meeting the developmental needs of youth (Lambie and Randel 2013). Secure settings do not allow experience of a realistic environment for youth to develop and explore their sense of self and are therefore unprepared for life outside of a justice setting (Lambie and Randel 2013). Additionally, out-of-home placements may limit one's ability to engage in a prosocial environment (Lambie and Randel 2013), and could actually result in increasing antisocial behavior through socialization with antisocial peers (Robst et al. 2011).

Secure settings may even be harmful for mentally ill youth. Mentally ill youth are unlikely to receive treatment within secure settings, as only about 25 % of juveniles in out-of-home placement receive mental health treatment (Shelton 2005). Out-of-home placement in secure juvenile facilities can expose individuals with serious mental illness to exploitation, maltreatment, and sexual victimization at the hands of violent offenders (Dierkhising et al. 2014; Wolf et al. 2007). Removal from one's home may induce trauma-related symptoms, exacerbate internalizing

symptoms, and hinder rehabilitation (Hennessey et al. 2004; Lemos and Faísca 2015).

Factors Influencing Placement Decisions

In theory, placement decisions for youth are designed to uphold the goals of the juvenile justice system (i.e., community safety and rehabilitation). Thus, a variety of legal, familial, psychosocial, and mental health variables have been hypothesized to influence placement decisions. Currently, research indicates that the strongest variables influencing dispositional decisions are similar to factors identified in risk literature for future offending; they are primarily legal factors, including the total number, type, and age of juvenile court contacts, and placement history (Cauffman et al. 2007b). According to the Texas Juvenile Justice Department, the most restrictive facilities are reserved for juveniles with a history of unsuccessful placement and a current felony offense (Texas Administrative Code 2016).

Secondary to legal factors, individual and contextual factors also influence juvenile dispositions. In 2013, Espinosa et al. (2013) found that exposure to trauma was the strongest predictor of out-of-home placement decisions over any other contextual variable under study. Familial factors identified as risk factors for future offending, such as limited parental support, parental history of incarceration, and presence of an abusive parent, have been found to predict out-of-home placement (Dannerbeck 2005; O'Donnell and Lurigio 2008). Familial factors likely precipitate problematic behaviors associated with juvenile delinquency, as well as underlie a variety of mental illnesses present in juvenile offenders. Thus, it is likely that familial factors predicting out-of-home placement may overlap with behavioral and mental health factors influencing placement. Furthermore, juveniles with more school-related problems are more likely to receive placement in secure facilities (O'Donnell and Lurigio 2008). School-related problems may also be indicators of problematic behavior and mental health problems, which also likely influence placement decisions, but have not yet been subjected to substantial research scrutiny.

There has been recent attention to differential processing based on demographics, namely gender and ethnicity. Some researchers have corroborated the claim that females are processed differently within the juvenile justice system (Chesney-Lind and Sheldon 2013), although other researchers have failed to find such gender differences (Tracy et al. 2009). Other evidence suggests that contextual factors influence differential gender placement, such that trauma experiences are more influential for female processing than male processing (Espinosa et al. 2013). Thus, it is conceivable that mental health variables play a role in

differential system processing although this has not specifically been examined. Additionally, researchers have found differential processing based on race and ethnicity (Fader et al. 2014; Rodriguez 2010). Although we acknowledge the importance of understanding the intersect between ethnicity and mental health in system processing, this issue is beyond the scope of the present study and clearly deserves its own thoughtful and thorough examination in future research. Nonetheless, we recognize that, given the influence of ethnicity on placement decisions, it is important to account for ethnicity in analyses regarding juvenile placement.

Although a collection of factors appear to contribute to placement decisions for juveniles, there is a paucity of research evaluating how a juvenile's constellation of psychiatric diagnoses and symptoms influence specific placement decisions. Research has indicated that youth placed out-of-home have greater mental health needs (Wasserman et al. 2010), and likely have multiple diagnoses (Coker et al. 2014). However, research has not clearly identified if these conditions influence placement. Substance use has been found to predict placement in secure settings (Niarhos and Routh 1992; Fader et al. 2001; Cauffman et al. 2007b). Campbell and Schmidt (2000) found that externalizing problems were related to a reduction in probation length, but no mental health variables significantly influenced initial placement decisions. Espinosa et al. (2013) examined the influence of mental health need on each level of placement and found greater mental health need, determined by a mental health screening tool, influenced placement severity for juveniles beyond legal and demographic factors, with trauma being the strongest predictor.

Research has also examined specific mental health diagnoses as they relate to disposition recommendations from the mental health professional rather than resulting dispositions. Such research is important as recommendations from mental health professionals are frequently utilized by judges (O'Donnell and Lurigio 2008). Juveniles with mood or conduct disorders are more likely to be recommended for out-of-home placement by an assessment team (DeGue et al. 2008). Juveniles with externalizing pathology or substance use are more likely to be recommended for secure placement because they are viewed as a direct threat to public safety, and are seen as distressing (O'Donnell and Lurigio 2008). Other diagnoses have not been found to predict recommendations beyond legal and familial factors.

Thus, although studies suggest that legal factors are primary predictors of placement, there is evidence that a variety of mental health variables might be influential in decisions and recommendations to remove juveniles from their home. To our knowledge, no prior studies have examined how a juvenile's constellation of externalizing,

internalizing, and substance use diagnoses, including their comorbidity, may influence their level of placement beyond legal and demographic factors. Furthermore, no prior studies have evaluated the potential interaction between psychopathology and gender in placement decisions. Given the overlap between increases in mental health and juvenile offending associated with adolescent development, understanding the interaction of mental health variables in making placement decisions is a crucial step in moving toward a more developmentally-informed juvenile justice system.

Hypotheses

The current study sought to determine whether differences exist in the degree of mental illness present among types of out-of-home placement. The predictive value of internalizing psychopathology, externalizing psychopathology, and the interaction between the disorders in placement decisions was determined. The role of substance use disorders was also explored. Additionally, the study sought to understand the role of mental health in the relationship between gender and placement.

The goal of the juvenile justice system is to protect the community and to rehabilitate youth. Given that youth with multiple diagnoses are at an increased risk of involvement in the justice system (Shufelt and Coccozza 2006), it was predicted that the number of diagnoses would vary across placements. The prevalence of substance use disorders and externalizing disorders have been found to be higher than internalizing disorders within more secure settings (Wasserman et al. 2010). Therefore, Hypothesis I predicted that there would be a greater number of externalizing and substance use disorders in secure and state-secure facilities than within the other placements.

Previous research has found familial conflict, parental antisocial behavior (Dannerbeck 2005), and school-related problems (O'Donnell and Lurigio 2008) are associated with placement in more secure facilities. Each of these factors has also been identified as risk factors for internalizing and externalizing psychopathology (Monahan et al. 2014). Although the rate of internalizing diagnoses are higher among justice-involved youth than community samples (Cauffman et al. 2007a), youth with externalizing or substance use disorders are viewed as distressing and are considered threats to public safety (O'Donnell and Lurigio 2008). Additionally, externalizing diagnoses and substance use disorders have received much evidence demonstrating their link to recidivism (McReynolds et al. 2010; Stoolmiller and Blechman 2005), whereas internalizing diagnoses have not consistently been linked to recidivism unless they co-occur with externalizing diagnoses (Hoeve et al. 2013). Therefore, Hypothesis II predicted that when

controlling for demographic and legal variables, the type of disorder would add predictive value to placement decisions beyond what the control variables predict. Specifically, we predicted that youth with externalizing or substance use disorders would have an increased likelihood of being placed in secure and state-secure facilities, whereas youth with internalizing psychopathology would be more likely to be placed in non-secure facilities. It was also predicted that the relationship between internalizing psychopathology and placement would be moderated by externalizing psychopathology such that individuals with comorbidity are more likely to be placed in more secure facilities. Specific diagnoses were also evaluated to determine whether certain mental illnesses were driving any found differences.

Given potential gender differences in system processing, the influence of gender on placement requires further explanation. Justice-involved females appear to have different psychiatric profiles than their community-based peers, as well as from their male counterparts, including more internalizing and comorbid diagnoses than justice-involved males (Wasserman et al. 2005), and more externalizing diagnoses than females in the community (Cauffman et al. 2007a). Thus, mental health needs provide one potential explanation for gendered pathways to placement. Hypothesis III predicted that the relationship between gender and placement would be moderated by mental health variables.

Methods

Participants

The current study used archival data. The database included information from justice-involved youth who were referred to the juvenile justice system across three urban counties in the state of Texas during a 2-year period, from 1 January 2007 to 31 December 2008. During this time period, 34 222 juveniles were referred and screened for mental health needs. Information regarding the juveniles' offense history, demographics, and disposition data was collected by trained juvenile probation officers and clinicians and has previously been obtained through approval from the Chief Juvenile Probation Officer and the juvenile board and the Institutional Review Board at all participating organizations.

The database included information from 9 900 juvenile offenders who had received a mental health assessment after indicating mental health need on the Massachusetts Youth Screening Instrument-Second Version (MAYSI; Grisso and Barnum 2006). The sample included only those juveniles assessed by the juvenile probation department's on-site licensed clinical professionals after being determined to have significant mental health need from the MAYSI-2,

given at intake. Although each of these individuals was assessed, not all youth had a diagnosis, thereby indicating a natural control group. Of the 9 900 juveniles, 49 of these individuals were referred to the adult courts. As these cases were not handled within the juvenile justice system, they were removed prior to analysis. The final sample used in the current study included data from 9 851 juveniles. The sample was primarily male (80.2 %) and from a minority ethnic group (42.6 % African American, 41.1 % Hispanic, 15.4 % Caucasian, less than 1 % Asian, Native American, or Other). The mean age at referral was 15 years ($SD = 1.34$).

Of the 9 851 juveniles, 4 871 received in-home placement dispositions (75.3 % male). For the juveniles sentenced to out-of-home placements, 1 105 were sent to non-secure facilities (49.0 % male); 2 998 to secure facilities (96.1 % male); and 877 were sent to secure state facilities (92.9 % male).

Placement

One dummy-coded variable was created to indicate the type of post-disposition placement for the juveniles in this study. Post-disposition placements include in-home placement, non-secure, county-operated secure facilities, and state-operated secure facilities. Although this study is primarily concerned with evaluating out-of-home placement type, not every juvenile included received out-of-home placement as their disposition. Individuals who received in-home placement received a value of 0 on the post-disposition variable. More specifically, a "0" indicates juveniles who received in-home dispositions, including dispositions such as no supervision, consultation of caution by a probation officer, referrals that were counseled and released, deferred prosecution, probation, or modification of probation. Non-secure facilities include residential treatment centers, therapeutic camps, halfway houses, substance abuse treatment facilities, and foster care. County secure facilities include boot camps, county correctional facilities, leadership academies, and some rehabilitation centers that have strict supervision guidelines and are registered with the state's juvenile justice department. The Texas Youth Commission (now the Texas Juvenile Justice Department) is the institutional division of juvenile justice, in which juveniles are considered wards of the state and participate in rehabilitative programming in secure institutions administered by the state of Texas. The placement variables indicated if an individual was sentenced to a non-secure facility, secure facility, or the Texas Juvenile Justice Department. A score of "0" indicated receiving in-home dispositions; "1" indicated non-secure placement; "2" indicated county-secure placement, "3" indicated placement in Texas Juvenile Justice Department (state-secure).

Measures

DSM-IV-TR Diagnoses

The main predictor variable in this study was dimensional mental health diagnosis. At the time of data collection, the Texas Juvenile Probation Commission utilized the Diagnostic and Statistical Manual of Mental Disorders – IV (American Psychiatric Association 1994) as the categorization guide, and the diagnoses were provided by the licensed clinical staff in the mental health assessment centers of the juvenile probation departments. The present study was concerned with the value of mental health diagnoses in predicting out-of-home placements; therefore, only diagnostic data included on Axis I were included. The original 280 diagnostic codes contained within the assessment data were re-coded into three categorized composite variables for analysis.

The role of both internalizing and externalizing psychopathology across juvenile justice placements needs further exploration. While specific diagnoses can be valuable, common DSM disorders are systematically covariant and have been critiqued for low construct validity. Utilizing dimensional approaches to understanding symptomology is robust to variations across diagnostic instrumentation and method (Krueger 1999), and provides a more accurate picture of the traits underlying the behavioral manifestations of psychiatric conditions. According to the Diagnostic and Statistical Manual-5 (American Psychiatric Association 2013), classifying disorders into externalizing and internalizing represents an empirically supported framework. Thus, dimensional approaches to understanding the differences in mental illness across placements are likely more externally reliable and valid than categorical approaches. The initial set of diagnostic composites was developed to test for the influence of externalizing, internalizing, and substance use disorders on placement out of the home. It is important to note that the data collection system developed by each of the local juvenile probation departments only allowed for up to six diagnoses to be collected for each youth. The reference group for analyses included the individuals who did not receive any diagnosis and therefore had a value of 0 on each composite variable.

The psychiatric disorders included within the internalizing category were adjustment disorders, depressive disorders, anxiety disorders, trauma-related disorders including post-traumatic stress disorder (PTSD), panic disorders, eating pathology, bipolar disorders, and other mood disorders (Compton et al. 2002; Kazdin 2005; Texas Department of State Health Services (TDSHS) 2007). Although there has been debates regarding the categorization of bipolar disorders as well as eating pathology within the internalizing and externalizing dichotomy, these disorders

have been found to share common underlying traits with internalizing disorders rather than externalizing disorders (Forbush and Watson 2013). Kessler et al. (2011) also found bipolar disorders to load most strongly onto an internalizing factor, with some crossover onto externalizing. Thus, the current state of research more strongly places bipolar disorder with internalizing pathology, yet necessitates the exploration of disaggregated diagnoses as well. The internalizing composite allowed the researcher to account for number of internalizing disorders and ranged from 0 to 6.

The externalizing composite was developed to capture the most common diagnoses associated with externalizing disorders. The psychiatric disorders included within this category were attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), conduct disorder (CD), disruptive disorder NOS, and intermittent explosive disorder (Kazdin 2005; TDSHS 2007). The externalizing composite allowed the researcher to account for number of externalizing disorders and ranged from 0 to 6.

Substance use disorders likely play a significant role in placement decisions (Cauffman et al. 2007b), and may influence placement decisions separately from internalizing or externalizing diagnoses. The substance use composite variable represented the number of substance use diagnoses the youth received and ranged from 0 to 6.

Each composite variable (i.e., internalizing, externalizing, and substance use) represented the number of diagnoses the youth received during the assessment. Each composite variable was used to test Hypothesis I. However, insufficient cell observations (i.e., too few youth were diagnosed with more than two diagnoses in one category) were identified within the composite variables, indicating it would be inappropriate to use the composite variables in the multivariate analyses. Each composite variable was recoded for use in the multivariate analyses, and the new variables, presence of internalizing, presence of externalizing, and presence of substance use, indicated whether the juvenile had one or more diagnoses within each respective category. Thus, individuals with a diagnosis within the respective category received a “1” and individuals who did not have a diagnosis in the respective category received a “0”.

A moderation term between internalizing and externalizing psychopathology was also created to indicate the predictive value of heterotypic comorbidity, or co-occurring internalizing and externalizing disorders, in placement decisions (Angold et al. 1999). The term was designed to test the hypothesis that externalizing diagnoses would moderate the relationship between internalizing diagnoses and placement. The moderation term was created by multiplying the presence of internalizing and presence of externalizing variables. Therefore, only youth with both internalizing and externalizing diagnoses received a “1” on

the moderation term. Youth with only one type of disorder, or no diagnoses, received a “0” on the moderation term.

A second set of diagnostic variables was developed because not every diagnosis fits within the guidelines of externalizing and internalizing categories, and in order to determine if specific diagnoses aided our understanding of placement decisions. To better understand potential differences in specific disorder types, while excluding diagnostic categories not related to adolescent mental health such as dementia related to Alzheimer’s and pervasive developmental disorders, the final set of variables were created to represent the presence of bipolar, depression, anxiety, adjustment, PTSD, CD, ODD, substance use, ADHD, and disruptive disorders, each with a value of “0” or “1” with “1” indicating presence of the diagnosis.

Gender

The role of gender in placement decisions, specifically its role in interacting with mental health diagnoses, was of interest in the current study. Gender was coded as “1” for females, and “0” for males. The gender variable was used to identify the interactions between gender and mental health diagnoses in placement decisions, and was therefore multiplied by the variables indicating presence of mental health diagnoses to create the following moderation terms: gender x internalizing, gender x externalizing, gender x substance use, gender x internalizing x externalizing.

Control Variables

The study controlled for race, ethnicity, age at referral, offense severity, age at first referral, misdemeanor history, felony history, and placement history. Race was coded as “1 = African American”. Ethnicity was coded as “1 = Hispanic”. Offense severity was coded using a 4 point variable with 0 = not specified, and 1 through 3 ranging from least severe status offense, misdemeanor, to felony, respectively. Misdemeanor and felony history represented the number of each respective convictions on the individual’s record. Placement history represented the most severe placement the juvenile had received on any of his or her prior referrals.

Plan of Analysis

Hypothesis I: Hypothesis I predicted that the number and type of diagnoses would vary across facility type. Specifically, there would be higher rates of externalizing and substance use disorders in secure and state-secure facilities than within the other placements. A series of one-way between-subjects analyses of variance (ANOVA) was conducted to compare the mean number of internalizing, externalizing, and substance use disorders across placement

types (i.e., in-home, non-secure, secure, and state-secure). The Levene tests showed significant differences among the variances for each type of disorder by placement; because the homogeneity of variance assumption was violated, the Welch’s ANOVAs were interpreted. Significant findings were further analyzed with post hoc pairwise comparisons using the Games-Howell procedure with an accepted alpha level of .05. The Games-Howell procedure controls for Type I error and accounts for unequal variances (Field 2013). Hedge’s *g* effect sizes were calculated for each pairwise comparison as Hedge’s *g* takes into account different sample sizes, as were present in the current sample (Hedges 1981).

Hypothesis II: Hypothesis II predicted that, when controlling for demographic and legal variables, the type of disorder would add predictive value to placement decisions beyond what the control variables predict. We predicted that youth with externalizing or substance use disorders would have an increased likelihood of being placed in secure and state-secure facilities, whereas youth with internalizing psychopathology would be more likely to be placed in non-secure facilities. It was also predicted that the relationship between internalizing psychopathology and placement would be moderated by externalizing psychopathology such that individuals with both types of disorders are more likely to be placed in more secure facilities. A hierarchical multinomial logistic regression was used to test Hypothesis II. The placement variable was the outcome variable, and the in-home juveniles were used as the reference group. The control variables and gender were included in the first block of each model. The predictor variables, representing presence of diagnostic categories, were added to the second block of the model to assess the predictive value of internalizing diagnoses, externalizing diagnoses, and substance use diagnoses. The third block included the moderation term, internalizing x externalizing.

Significant findings were further explored in order to identify whether any particular diagnoses were driving the differences among placement. A multinomial regression was used to identify how each specific diagnosis differed across placements when controlling for legal and demographic factors.

Hypothesis III: Hypothesis III predicted that the relationship between gender and placement would be moderated by mental health. The fourth block of the multinomial model included each gender-related moderation term (i.e., gender x internalizing, gender x externalizing, gender x substance use, gender x internalizing x externalizing) to determine how one’s mental health profile may moderate the relationship between gender and his or her placement. Moderation terms within a multinomial regression can be somewhat difficult to interpret. To ease the process of

Table 1 Summary of differences in control variables by placement

	In-home (<i>n</i> = 4 871) %	Non-secure (<i>n</i> = 1 105) %	Secure (<i>n</i> = 2 998) %	State-secure(<i>n</i> = 877) %	Test statistic
Gender (Female)	24.7	51.0	3.9	7.1	$\chi^2 = 1321.87^{**}$
Race (African American)	42.6	42.4	41.1	48.0	$\chi^2 = 13.29^{**}$
Ethnicity (Hispanic)	41.1	37.2	43.4	38.2	$\chi^2 = 16.36^{**}$
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	
Age at referral	14.66 (1.50)	14.93 (1.24)	15.21 (1.06)	15.36 (1.00)	$F(3, 2823) = 1.59.55^{**}$
Offense severity	2.17 (.59)	2.09 (.63)	2.03 (.71)	2.23 (.83)	$F(3, 2555) = 33.16^{**}$
Age at first referral	13.74 (1.45)	13.64 (1.45)	13.76 (1.48)	13.33 (1.48)	$F(3, 2692) = 21.61^{**}$
Misdemeanor history	.88 (1.63)	1.35 (1.76)	1.66 (2.04)	1.99 (1.96)	$F(3, 2592) = 161.55^{**}$
Felony history	.27 (.61)	.41 (.67)	.54 (.80)	1.11 (.98)	$F(3, 2517) = 260.98^{**}$
Placement history	.49 (.86)	.94 (.88)	1.38 (1.22)	2.44 (1.19)	$F(3, 2571) = 993.58^{**}$

Note * $p < 0.05$, ** $p < 0.01$

interpretation, the multinomial logit model is expressed directly in terms of probability of placement for males and females, demonstrating the probabilities of placement with each disorder type.

It is important to note that, with each block included in the final model, the resulting regression included 17 predictor variables. In order to decrease the bias in the performance of the model, Vittinghoff and McCulloch (2007) recommend 10 or even less events per variable (EVP). Given the large sample size in this study, the EVP for the final model was approximately 60, indicating adequate sample size for the model. Internal replication was conducted using bootstrapped samples in order to ensure model accuracy. Confidence intervals and significance levels are presented from the bootstrapped samples.

Results

Descriptives

A series of one-way ANOVAs were conducted to evaluate placement differences in the continuous control variables, specifically age at referral, offense severity, age at first referral, misdemeanor history, felony history, and placement history. Categorical control variables were analyzed using crosstabulation analyses and Pearson chi-squared statistics. Descriptive statistics and tests of differences are reported in Table 1. Gender differences were found in frequency of placements, and females were more represented in non-secure placements than any other placement. Females represented very small proportions of the secure and state-secure populations. African American youth represented just under half of each placement's population, with the highest prevalence in state-secure, and ethnicity also significantly varied by placement. There appeared a trend such that younger individuals

are placed in less secure facilities. Offense severity also varied by placement such that juveniles placed in-home or in state-secure had more severe offenses than juveniles placed in non-secure and secure facilities. There were no significant differences in offense severity between juveniles placed in non-secure and secure facilities or between in-home and state-secure. Juveniles who were younger at the time of their first offense appear to be represented in state-secure. Additionally, misdemeanor and felony history increased with placement security. There was also a significant difference in placement history such that juveniles in more secure placements for the current referral had previously received more restricted placements as well.

Hypothesis I

The results from the Welch's ANOVAs and descriptive statistics regarding number of internalizing, externalizing, and substance use disorders by placement type are presented in Table 2. The prevalence of each type of disorder by placement is also provided.

It was predicted that the number and type of diagnoses would vary across placements, with more secure placements having more externalizing and substance use diagnoses. The Welch's ANOVA and post-hoc tests revealed significant differences in mean number of diagnoses for each type of disorder. Hedge's *g* effect sizes and significance of post hoc comparisons are presented in Table 3. A significant difference in mean number of internalizing disorders across placement types was found, such that juveniles within non-secure placements had the highest number of internalizing disorders, followed by juveniles in secure placements. There was no significant difference between juveniles placed in-home and state-secure, with these placements having the lowest number of internalizing disorders. Pairwise comparisons revealed moderate effects between non-

Table 2 ANOVA results for Hypothesis I

	In-home		Non-secure		Secure		State-secure		Test statistic
	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%	
Internalizing	0.41 (0.59)	36.4	0.53 (0.65)	45.6	0.47 (0.63)	39.9	0.41 (0.61)	35.3	$F(3, 2634) = 13.71^{**}$
Externalizing	0.84 (0.65)	70.7	0.78 (0.70)	65.3	1.02 (0.71)	79.6	1.04 (0.71)	81.5	$F(3, 2616) = 66.61^{**}$
Substance use	0.52 (0.74)	40.4	0.47 (0.76)	34.5	0.84 (0.93)	57.7	0.62 (0.84)	44.6	$F(3, 2619) = 99.49^{**}$

Note. $*p < 0.05$; $**p < 0.01$

Table 3 Hedge’s g effect size and significance of pairwise comparisons of disorders by placement

	Non-Secure	Secure	State-secure
Internalizing			
In-home	0.20 ^{**}	0.09 ^{**}	0.00
Non-secure	–	0.10 [*]	0.19 ^{**}
Secure	–	–	0.09
Externalizing			
In-home	0.09	0.27 ^{**}	0.30 ^{**}
Non-secure	–	0.34 ^{**}	0.37 ^{**}
Secure	–	–	0.03
Substance use			
In-home	0.07	0.39 ^{**}	0.13 ^{**}
Non-secure	–	0.41 ^{**}	0.19 ^{**}
Secure	–	–	0.24 ^{**}

Note. $*p < 0.05$; $**p < 0.01$

secure placements and both in-home and state-secure placements. There were also significant differences in mean number of externalizing disorders among the facilities. Moderate effects were found between both secure and state-secure and both in-home and non-secure, indicating the number of externalizing diagnoses were higher among secure and state-secure placements. There were significant differences with moderate effect sizes in mean number of substance use disorders among placement types, such that juveniles in secure placements had the highest numbers of substance use disorders.

Hypothesis II

Hypothesis II used hierarchical multinomial regression to test whether type of diagnosis added predictive value to placement decisions beyond demographic and legal variables. Specifically, it was predicted that externalizing and substance use disorders would be predictive of increased likelihood of placement in secure and state-secure settings, while internalizing disorders would increase the likelihood of placement in non-secure settings. Furthermore, we predicted that externalizing diagnoses would moderate the relationship between internalizing diagnoses and placement

such that youth with both diagnoses would have increased likelihood of placement in secure and state-secure facilities. Table 4 summarizes the estimated change in odds of placement (Exp(B)) in non-secure, secure, and state-secure facilities for each control and predictor variable, along with a 95 % CI. The full model demonstrated good model fit ($\chi^2 = 4621.17, p < 0.01$), had a Nagelkerke’s R^2 of .41, and accurately predicted placement for 59.2 % of the cases.

Being African American or Hispanic decreased one’s likelihood of placement in non-secure facilities compared to in-home placement. Committing more severe crimes, having prior history of felonies, and having prior placements increased one’s likelihood of placement in non-secure facilities. Youth with externalizing or substance use disorders had a decreased likelihood of placement in non-secure facilities rather than in-home. Internalizing diagnosis was not a significant predictor of placement in non-secure settings, nor was the moderation between internalizing and externalizing diagnoses.

Race and ethnicity were not significant predictors of placement in secure settings. Females had a reduced likelihood of placement in secure settings. Older youth and youth who were older at their first referral had an increased likelihood of placement in secure settings rather than in-home placement. More severe prior placement predicted increased likelihood of placement in secure settings. Youth with substance use disorders had double the likelihood of placement in secure settings. The relationship between internalizing diagnoses and placement was moderated by externalizing diagnoses, such that youth with only internalizing diagnoses had nearly tripled likelihood of placement in secure settings, and youth with only externalizing had over double the likelihood of placement in secure settings. However, the multiplicative odds ratio for youth with an internalizing diagnosis and an externalizing diagnosis was 1.53. Thus, for individuals without externalizing diagnoses, the odds of placement in secure settings rather than in-home are 2.89 times greater for youth with internalizing diagnoses than for youth without internalizing diagnoses. For youth with externalizing diagnoses, the ratio of the two odds is only 1.53.

Race and ethnicity were not significant predictors of placement in state-secure facilities. However, several legal

Table 4 Multinomial regression predicting out-of-home placement

Variable	Non-secure		Secure		State-secure	
	Exp(B)	95 % CI	Exp (B)	95 % CI	Exp(B)	95 % CI
Race (African American)	0.75**	[0.62, 0.92]	0.95	[0.81, 1.10]	1.06	[0.81, 1.38]
Ethnicity (Hispanic)	0.73**	[0.60, 0.89]	0.97	[0.84, 1.13]	0.89	[0.69, 1.20]
Gender	0.80	[0.50, 1.29]	0.52*	[0.24, 0.91]	0.41	[0.06, 1.13]
Age at referral	1.05	[0.97, 1.13]	1.11**	[1.04, 1.17]	1.01	[0.91, 1.11]
Offense severity	1.17**	[1.05, 1.30]	0.95	[0.88, 1.03]	2.00**	[1.76, 2.30]
Age at first referral	0.99	[0.92, 1.05]	1.10**	[1.04, 1.15]	1.13**	[1.05, 1.22]
Misdemeanor history	1.00	[0.95, 1.05]	1.03	[0.99, 1.07]	0.93*	[0.88, 0.98]
Felony history	1.14*	[1.01, 1.29]	1.06	[0.97, 1.17]	1.60**	[1.44, 1.81]
Placement history	1.70**	[1.55, 1.86]	2.15**	[2.00, 2.30]	4.45**	[4.09, 4.93]
Type of disorder						
Internalizing	0.79	[0.58, 1.06]	2.89**	[2.25, 3.69]	2.80**	[1.75, 4.60]
Externalizing	0.56**	[0.43, 0.75]	2.37**	[1.92, 3.00]	2.36**	[1.54, 3.79]
Substance use	0.64**	[0.52, 0.78]	2.02**	[1.80, 2.26]	1.22*	[1.01, 1.49]
Internalizing × externalizing	1.31	[0.86, 1.99]	0.53**	[0.40, 0.70]	0.41**	[0.23, 0.68]
Gender moderations						
Gender × internalizing	2.88**	[1.73, 4.89]	0.38**	[0.19, 0.90]	0.78	[0.23, 5.80]
Gender × externalizing	3.87**7	[2.35, 6.54]	0.47	[0.25, 1.11]	0.99	[0.31, 6.33]
Gender × Substance use	2.03**	[1.50, 2.78]	0.26**	[0.15, 0.40]	1.83	[1.00, 3.81]
Gender × internalizing × externalizing	0.40**	[0.20, 0.75]	1.59	[0.59, 3.90]	0.79	[0.10, 3.12]

Note * $p < 0.05$, ** $p < 0.01$

variables were significant predictors of placement in state-secure settings rather than in-home. Increases in offense severity, age at first referral, felony history, and placement history were associated with increases in likelihood of placement in state-secure settings. Increases in misdemeanor history were associated with decreased likelihood of placement in state-secure settings. Youth with substance use disorders had an increased likelihood of placement in state-secure settings. Youth with only internalizing diagnoses had over double the likelihood of placement in state-secure settings than youth without internalizing diagnoses, and youth with externalizing diagnoses also had over double the likelihood of being committed to state-secure settings rather than in-home compared to youth without the diagnoses. However, the multiplicative odds ratio for youth with an internalizing diagnosis and an externalizing diagnosis was 1.14. Thus, for individuals without externalizing diagnoses, the odds of placement in state-secure settings rather than in-home are 2.80 times greater for youth with internalizing diagnoses than for youth without internalizing diagnoses. For youth with externalizing diagnoses, the ratio of the two odds is only 1.14.

In order to determine whether found differences were driven by specific diagnoses, a multinomial logistic regression was conducted on post-disposition placement. The model controlled for legal and demographic factors and

added each specific diagnosis (i.e., anxiety, depressive, post-traumatic stress, adjustment, bipolar, conduct, disruptive, oppositional defiant, and attention deficit hyperactive disorders) to the second block. Table 5 summarizes the estimated change in odds of placement (Exp(B)) in non-secure, secure, and state-secure facilities for each disaggregated diagnosis, along with a 95 % CI. The model demonstrated good fit ($\chi^2 = 4509.96$, $p < 0.01$). Nagelkerke's R^2 was .41, and the model accurately predicted placement for 59.3 % of youth, indicating a model similar in fit and accuracy as the aggregated model. The results indicated that bipolar disorders increased one's likelihood of placement in non-secure and state-secure, adjustment disorders more than doubled one's likelihood of placement in secure and state-secure, and no other disaggregated internalizing diagnoses were significant predictors of placement. Youth with ODD or disruptive disorder had a decreased likelihood of placement in non-secure rather than in-home when compared to youth without these diagnoses. Youth with ADHD, ODD, or disruptive disorders had an increased likelihood of placement in secure facilities, with youth with ODD or disruptive disorders being twice as likely to receive placement in secure as youth without these diagnoses. Youth with CD, ODD, or disruptive disorders had increased likelihood of placement in state-secure facilities, although ADHD was not a significant predictor.

Table 5 Multinomial regression with specific diagnoses

Variable	Non-secure		Secure		State-secure	
	Exp(B)	95 % CI	Exp (B)	95 % CI	Exp(B)	95 % CI
Bipolar disorders	1.62**	[1.26, 2.05]	1.06	[0.83, 1.35]	1.52*	[1.07, 2.12]
Depressive disorders	1.10	[0.86, 1.38]	1.17	[.96, 1.46]	1.15	[0.82, 1.57]
Adjustment disorder	0.86	[0.69, 1.05]	2.37**	[2.06, 2.73]	1.79**	[1.38, 2.39]
Anxiety disorders	1.05	[0.68, 1.58]	0.85	[0.58, 1.23]	0.68	[0.33, 1.14]
PTSD	1.51	[0.93, 2.55]	0.99	[0.59, 1.60]	1.26	[0.55, 3.06]
CD	0.91	[0.75, 1.12]	1.16	[0.98, 1.38]	1.48**	[1.16, 1.97]
ADHD	1.16	[0.95, 1.41]	1.31**	[1.15, 1.49]	1.25	[0.98, 1.55]
ODD	0.76**	[0.62, 0.92]	2.15**	[1.86, 2.51]	1.46*	[1.14, 1.91]
Disruptive disorder	0.69**	[0.56, 0.83]	2.01**	[1.76, 2.31]	1.41**	[1.12, 1.83]

Note * $p < 0.05$, ** $p < 0.01$

Table 6 Calculated probabilities of placement from the multinomial Logit Model

Diagnosis	In-home		Non-secure		Secure		State-secure	
	Males	Females	Males	Females	Males	Females	Males	Females
None	0.59	0.69	0.23	0.21	0.150	0.09	0.03	0.01
Internalizing	0.47	0.53	0.14	0.38	0.33	0.07	0.06	0.02
Externalizing	0.52	0.54	0.11	0.37	0.31	0.08	0.06	0.02
Substance use	0.55	0.66	0.14	0.27	0.28	0.04	0.03	0.03
Comorbidity	0.44	0.51	0.10	0.41	0.40	0.07	0.05	0.02

The alternate model for predicting placement from disaggregated diagnoses demonstrated similar performance to the aggregated model. The directionality of changes in odds of placement reflected those of the respective aggregate diagnostic dimensions. However, given the variability of diagnoses across jurisdictions, it is likely the aggregated model has greater external validity.

Hypothesis III

It was predicted that mental health would moderate the relationships between gender and placement. Table 4 summarizes the results from the multinomial regression testing Hypothesis III. The probabilities of placement for males and females with different diagnoses are represented in Table 6. It is important to note that the multinomial regression demonstrates change in odds of placement from in-home to each specific out-of-home placement for the presence of each diagnosis, whereas the probabilities demonstrate the overall chance of placement in each facility.

The odds ratios and estimated probabilities taken from the multinomial regression demonstrated that the prediction of non-secure placement is not significantly influenced by gender alone, yet the interactions between gender and mental health diagnoses demonstrated significant changes in likelihood of placement. Females with internalizing, externalizing, substance use, or comorbid diagnoses had

increased probability of placement in non-secure settings compared to females without diagnoses and males. Males were most likely to be placed in non-secure settings if they did not have a mental health diagnosis. Females overall were less likely than their male counterparts to be placed in secure settings, and females with internalizing or substance use diagnoses had significantly decreased likelihood of placement in secure settings than their male counterparts and females without these diagnoses. Females consistently had a low probability of placement in state-secure settings, and the relationship between gender and placement in state-secure settings was not moderated by any mental health variables examined.

Discussion

The present study sought to understand the value of internalizing psychopathology, externalizing psychopathology, and substance use disorders, as well as the interaction between internalizing and externalizing diagnoses, in placement decisions for justice involved youth. Although several studies have demonstrated the prevalence of mental illness in juveniles, as well as the negative effects of out-of-home placement, the present study is one of the first to examine the magnitude of different disorders among placements, and how specific types of disorders influence placement decisions for youth. Furthermore, this study is

among the first to evaluate decisions for different types of out-of-home placements. An additional aim of this study was to identify the role of mental health in moderating the relationship between gender and placement. Although previous research has identified the different rates of placement for males and females, as well as the different prevalence rates of disorders for males and females, this study was the first to approach the phenomenon through a moderation hypothesis.

Hypotheses

Hypothesis I predicted that there would be a greater average number of externalizing and substance use disorders among more secure placements. The results supported Hypothesis I, demonstrating that youth within non-secure placements have the greatest number of internalizing disorders compared to all other youth, with in-home and state-secure placements having the lowest rates of internalizing diagnoses. Externalizing disorders were common within every placement, with secure and state-secure settings having the highest rates. Secure settings also had the highest rate of substance use disorders, and juveniles in non-secure had the lowest.

Hypothesis II was partially supported. When controlling for demographic and legal variables, mental health variables added predictive value to placement decisions as predicted, although the direction of the influence was not precisely predicted. Placement in non-secure settings was predicted by an absence of externalizing and substance use disorders, although neither internalizing nor externalizing in combination with externalizing disorders were significant. Secure and state-secure settings were predicted by the presence of externalizing or substance use diagnoses, and, unexpectedly, internalizing diagnoses. The relationship between internalizing diagnoses and placement in secure or state-secure settings was moderated by the presence of externalizing diagnoses such that the presence of comorbid psychopathology resulted in increased likelihood of placement than the presence of only internalizing psychopathology.

Supplementary analyses revealed that specific diagnoses created a relatively similar model in accuracy and variance explained when compared to the aggregated disorders model. The value of internalizing diagnoses appeared to be driven primarily by adjustment and bipolar disorders, whereas each specific externalizing diagnosis contributed to the model. The disaggregated model demonstrated that the diagnoses influenced placement in expected ways, given the results from Hypothesis II. Thus, although specific diagnoses can be informative for treatment provisions, the aggregated model for predicting placement may be more informative given the variations in assessment and

diagnoses found across jurisdictions (Krueger 1999; Morin et al. 2015).

Hypothesis III predicted that the relationship between gender and placement would be moderated by mental health variables. The results supported this hypothesis, demonstrating that overall, males with diagnoses are receiving more secure placements, whereas having internalizing, externalizing, or substance use diagnoses appear to prevent females from secure placement and encourage their placement in non-secure facilities.

The prediction model coincided with prior studies suggesting legal characteristics such as offense and placement history, and ages at current and first referral, influence placement decisions. Interestingly, this study failed to replicate prior findings that African American and Hispanic youth are disproportionately sentenced out-of-home (Fader et al. 2014). Within the present sample, being African American or Hispanic resulted in a reduced likelihood of placement in non-secure settings rather than in-home, and race and ethnicity were not significant predictors of secure or state-secure placement. The results from the prediction models are somewhat surprising given that preliminary analyses found race and ethnicity to vary significantly across placements, with African Americans being over-represented in state-secure settings. It may be that the inclusion of mental health variables in the model decreased the influence of ethnicity and race. Although mental health does not play a role in the disproportion of minority justice system contact (Desai et al. 2012), it has been found to influence the relationship between ethnicity and placement (White 2015). Although the role of race and ethnicity in placement decisions is beyond the scope of the present study, it appears that the potential role of mental health variables within the context of racial disparities in juvenile placement requires further investigation in future studies.

Mental Health across Placements and Explanations

The in-home group represented the largest post-disposition placement with over half of the juveniles remaining at home, a finding consistent with prior research (Snyder and Sickmund 1999). Juveniles in-home had lower rates of internalizing diagnoses than non-secure and secure placed juveniles, but did not differ significantly from juveniles placed in state-secure facilities. They had slightly more externalizing and substance use diagnoses than non-secure, but significantly less externalizing and substance use diagnoses than secure or state-secure. These findings indicate that there are a large number of mentally ill juveniles who remain in their homes. This is an encouraging result as it suggests that many justice involved youth with diagnosed mental health disorders are placed in the least restrictive and inexpensive settings in which they are most likely to receive

appropriate intervention and have their developmental needs met. However, the current study also demonstrated that having mental illnesses appear to place youth at risk for removal from their home.

The results indicated that juveniles in secure and state-secure settings had the greatest number of diagnoses, and when controlling for legal and demographic characteristics, secure and state-secure placement was predicted by the presence of internalizing, externalizing, and substance use disorders. Furthermore, the relationship between internalizing diagnoses and placement in more secure settings was moderated by externalizing diagnoses, and youth with both diagnoses had increased probability of placement in secure settings. This finding is consistent with research indicating that youth with mental health problems are at an increased risk of out-of-home placement (Wasserman et al. 2010), and youth with multiple diagnoses are at an even greater risk of more intensive juvenile justice contact (Coker et al. 2014). The current study is the first to demonstrate that the number of diagnoses differs by placement as well.

The link between mental illnesses and secure settings may be because secure settings are viewed as treatment avenues for juveniles. According to the Texas Administrative Code chapter 343.100, section 48 (2016), a secure facility “is intended for the treatment and rehabilitation” of juvenile offenders. Due to the high prevalence of mentally ill offenders in secure facilities, juvenile courts expect mental health treatment to be provided within these settings (Underwood et al. 2014). However, secure settings, including boot camps, correctional facilities, and rehabilitation centers, have demonstrated limited effectiveness in reducing recidivism, have evidence of limited treatment provisions, and may actually increase mental health problems (Hennessey et al. 2004; Lambie and Randel 2013). Lipsey (2006) found that treatments placing juveniles together, such as in a secure setting, are actually 30 % less effective than individual programs present in community settings. Other studies have suggested, regardless of the time spent in secure settings, that there appears to be no improvement in recidivism or self-reported offending compared to in-home probation (Loughran et al. 2009). Given the absolute greater number of mental health diagnoses within the secure placement group, the current findings highlight the necessity for these settings to provide appropriate evidence-based treatment to adolescents (Shelton 2005; Underwood et al. 2014). Alternatively, such facilities may be used to hold youth prior to receiving in-home treatment. In a nationally representative survey of juvenile detention facilities, two-thirds of the facilities held youth in secure facilities because they were awaiting community mental health treatment (United States House of Representatives 2004). Regardless, the present findings

underscore that many youth placed in secure facilities are in need of developmentally-appropriate mental health services.

Youth may also be placed in secure and state-secure facilities in efforts to protect the youth from outside influences. Youth with psychopathology or substance use likely have a history of environmental risk factors such as familial conflict and association with antisocial peers (Monahan et al. 2014), and their placement in secure facilities may be an endeavor to limit their access to the environmental risk factors present in their lives. Therefore, the justice system may be using secure facilities as a means to ensure strict supervision and provide access to treatment to reduce the chance of reoffending and improve the prognosis for these youth.

Alternatively, the placement of mentally ill offenders within secure and state-secure settings may be to uphold the goal of community safety. Again, youth with psychopathology or substance use disorders are more likely to reoffend (D’Amico et al. 2008; McReynolds et al. 2010), and youth with such pathology may be viewed as dangerous and a threat to public safety. Thus, youth with internalizing, externalizing, or substance use diagnoses may be placed in the more expensive, secure facilities in order to limit their access to the public. The moderation between externalizing and internalizing diagnoses in secure placement may be explained by evidence suggesting that internalizing psychopathology alone is not as strongly related to future violent offending as comorbidity (Hoeve et al. 2013). Thus, it may be that youth are being incarcerated through efforts to protect the community from youth who appear to be violent and threatening to public safety. An interesting avenue for future research would be to explore the influence of mental health stigma in placement decisions among adolescent offenders, as it is possible that misunderstandings regarding the potential for violence among adolescents with mental health concerns is playing an outsized role in placement decisions.

State-secure placement was used sparingly, and the odds ratios indicate that legal history is strongly influential of placement in state-secure settings. It appears that the placement in very expensive, restrictive facilities is dependent upon legal factors such as offense severity, felony history, and prior placements. Juveniles with severe legal histories are much more likely to be placed in state-secure settings, although this study is one of the first to demonstrate internalizing, externalizing, and substance use diagnoses increase one’s likelihood of placement in state-secure even beyond legal factors. Interestingly, conduct disorder was only predictive of placement in state-secure settings, and conduct disorder is frequently identified as a risk factor for continued criminal behavior (Boduszek et al. 2014). Therefore, consistent with a developmentally-informed approach, it appears that the juvenile courts are reserving the most restrictive placements for youth who have been identified as at-risk for future offending.

Gendered Pathways to Placement

When gender was considered in the model, the results indicated that females with mental illnesses are actually less likely to receive more secure placements than their male counterparts, with the exception of substance use disorders. Females are most likely to be placed in non-secure out-of-home settings, representing just over half of the population of non-secure settings. It may be that females with mental health diagnoses are viewed as lower risk than their male counterparts and are therefore less likely to be incarcerated, supported by research demonstrating that males are more likely to recidivate than females (Hoeve et al. 2013). Interestingly, gender alone was not a significant predictor of non-secure or state-secure settings, indicating that gender alone may not be as important as gender in combination with mental health in informing placement decisions. Additionally, although internalizing diagnoses were prevalent among non-secure settings, internalizing diagnoses on their own were not significant predictors of non-secure placement. Given the prevalence of internalizing diagnoses in female youth (Cauffman et al. 2007a), and the significant interaction of gender and internalizing diagnoses in predicting non-secure placement, we hypothesize that neither gender nor internalizing diagnosis influence placement decisions for non-secure placement unless they are considered in conjunction with one another.

The evident importance of mental health in the relationship between gender and placement may help explain the incongruent findings regarding gender disparities in placement. Studies that have failed to include mental health and gender interactions could be missing important information influencing placement decisions. The mental health of females could also speak to the familial and psychosocial backgrounds of these youth, as females in the justice system with mental illnesses may have experienced more trauma (Ford et al. 2012), have more familial conflict, and have worse interpersonal relationships than their male counterparts (Leve et al. 2015). Thus, females with mental illness may be especially in need of placement allowing them to grow and develop in a prosocial environment with access to treatment that allows for familial involvement, such as non-secure settings. Therefore, the juvenile justice system may be more attuned to the developmental needs of females with mental illnesses and respond to justice-involved mentally-ill females with less restrictive placements.

Implications

Findings from this study have several implications for assessment, treatment, policy, and developmentally informed approaches to juvenile justice. These results demonstrate that mental health diagnoses influence

placement decisions, and thus standardized, effective evaluations for all juveniles entering the system is key in allowing judges to make informed decisions. The use of validated instruments for mental health screening and assessment could improve the reliability of diagnoses across practitioners, enhance validity of diagnoses, and facilitate valid comparisons across jurisdictions and studies (Wasserman et al. 2003). Furthermore, policies calling for consistent pre-disposition psychological evaluations are necessary as current psychological evaluations are highly variable in following forensic assessment principles, using empirically-supported tools, obtaining sufficient details in clinical history, and accurately describing diagnoses (Morin et al. 2015). Providing thorough, valid assessments to judges prior to the disposition is especially important considering clinicians' mental health recommendations coincide with court dispositions on approximately 67.5 % of cases (Campbell and Schmidt 2000).

Findings from this study speak to the need of placement-specific treatment programs. Although this study did not access the specific programming provided within each placement, the study did describe the specific mental health needs of juveniles within each placement, demonstrating the specific needs present in each setting. There are a multitude of juveniles receiving in-home placements who have mental health concerns, which further demonstrates the necessity of evidence-based community treatment programs for juveniles receiving in-home dispositions. Specifically, it appears that juveniles with in-home placements require treatment for externalizing disorders and substance use as these are the most prevalent disorders among this group. However, treatment will likely need to address internalizing symptoms, as approximately 37 % of these juveniles have been diagnosed with an internalizing disorder. As the in-home group also included juveniles with deferred adjudication and probation, these juveniles would likely benefit from specialized supervision that increases participation and access to services for juveniles with mental health needs, resulting in juveniles being less likely to be adjudicated for the initial offense than those receiving traditional supervision (Colwell et al. 2012).

Non-secure settings require treatment opportunities for internalizing, externalizing, and comorbid psychopathology, and substance use disorders. Given the high rates of internalizing diagnoses in non-secure settings, it appears that the juvenile justice system could benefit from enhancing treatment for internalizing pathology specifically within non-secure settings. It is essential that non-secure placements provide such services with an emphasis on reducing recidivism as future offending could make juveniles more likely to be placed in restricted facilities, and such facilities exacerbate internalizing symptoms (Lemos and Faísca 2015). Non-secure settings can especially grow

in gender-specific programming given that females with mental illnesses are more likely to be placed in non-secure settings. It is likely that such treatment needs to be trauma-informed, as females in the justice system have experienced more trauma than their male counterparts (Ford et al. 2012).

County- and state-operated secure settings must work toward providing services for juveniles with all types of diagnoses, especially externalizing and comorbid disorders. Given the gamut of problems individuals with comorbid diagnoses exhibit (Hoeve et al. 2015), it is essential that juveniles with comorbid diagnoses receive mental health services. It is especially important that secure settings and policies regarding such settings work toward improving the rate of individuals who receive services, as there is currently a large gap between the number of juveniles with serious mental health needs and those receiving mental health services within secure settings (Lambie and Randel 2013; Rogers et al. 2001; Shelton 2005; Teplin et al. 2005). It is of paramount importance that less severe placements adequately address the mental health needs of juveniles as juveniles within state-operated secure settings likely have been in prior placements. Earlier detection of mental health needs and prevention of worsening symptoms in in-home, non-secure, and secure settings could avert placement in such restrictive placements for many juveniles.

The current results provide a platform on which to build a developmentally-informed approach to juvenile justice. Presently, youth with internalizing, externalizing, or substance use disorders, which are indicative of underlying environmental risk factors, are more likely to be removed from their home and placed in secure facilities. Secure out-of-home placements may inhibit development through restrictive environments, encourage offending persistence through association with antisocial peer, and exacerbate symptoms through traumatic experiences (Lambie and Randel 2013). Mentally ill female offenders appear to be the exception, as they are likely placed in non-secure facilities where they may still develop through self-exploration, interactions with the community, and access to their families. Therefore, the present study demonstrated, to some degree, that the justice system is sentencing some youth to the least restrictive environments although specifically males with internalizing or externalizing pathology or substance use disorders are being sentenced to secure placements. In order to adopt a juvenile justice approach consistent with an understanding of the developmental nature of adolescence, juvenile courts could benefit from training on risk and protective factors for internalizing and externalizing psychopathology, including discussion of the mechanisms through which out-of-home placement may contribute to the proliferation of these disorders and the potential exacerbation of delinquency if youth are not placed in settings that can address their mental-health needs.

Limitations

Although this study is an important step in better understanding the influence of mental health and gender on placement decisions for justice-involved youth, the limitations to the methodology should be addressed. The present study analyzed data provided by juveniles referred between 1 January 2007 and 31 December 2008. More recent analyses of the juvenile justice system has revealed several changes that have been made since that time period, including a reduction in number of females who receive out-of-home placement and an overall reduction in juveniles receiving secure placement (Hockenberry and Puzanchera 2015). Furthermore, due to the archival nature of this study, the results were based on *DSM-IV-TR* diagnoses rather than the updated *DSM-5*. As such, the extent to which these findings generalize to current placement decisions is unclear; however, there is no evidence indicating that the criteria used to make placement decisions has fundamentally changed in that time period. Therefore, although the frequencies of placement may have somewhat changed, it is still reasonable to estimate current placement trends utilizing the predictive value of various variables determined by this study. It is important to note that the effect sizes revealed that the resulting models were not precisely defined models, as this may be a limitation to the robustness of the findings.

Further limitations come from the generalizability of these findings. The analyses only included data from youth who had received a mental health evaluation from a licensed professional. However, not all juveniles who indicated a mental health need on the initial screening measure actually received an assessment. Therefore, the data could have issues with selection bias. Additionally, the sample used in the present study comes from primarily urban counties within the state of Texas. There may be issues regarding the relatedness of these findings to rural areas and to other states' juvenile justice systems.

The ultimate reliability and validity of the specific diagnoses within this study are unknown. However, the discussion of specific diagnoses within this sample is relevant as the diagnoses that were used represented the information that the juvenile justice system had available when placement decisions were made. Therefore, although this study cannot identify placement decisions based solely on accurate measures of specific psychopathology, it is able to demonstrate how the information available to the courts is utilized in placement decisions.

Future Directions

Currently, there is a gap in the literature explaining the pathways through which youth with psychopathology go on to persist in criminal activity (Mulvey et al. 2010).

However, evidence has indicated that youth placed in more secure settings are likely to reoffend upon release (Trulson et al. 2005), and secure placement may play a role in offending persistence. Although this study is not able to draw causal explanations, its results demonstrate that youth with mental illnesses are being placed in the same environments shown to increase criminal activity; thus, future research should examine if there is an interaction between mental-health diagnoses and placement decisions in terms of a youth's likelihood to reoffend. Similarly, understanding if the provision of appropriate mental health services results in reductions in recidivism for justice-involved youth also appears to be a fruitful area for future studies.

Placement decisions for juveniles in this sample appeared to result from a combination of several demographic, legal, and mental health variables. However, the primary interest of this study predicted the placement decisions for juveniles. In order to better inform treatment methods within out-of-home placements, future studies could utilize latent class analysis to further investigate the profiles of juveniles placed within each facility type, including investigations of demographic, legal, mental health, and psychosocial variables.

The analyses in this study are archival in nature. Therefore, a more current analysis of the variables studied would facilitate generalizability of the present findings. The samples studied should include both urban and rural counties across several states and should include an analysis of other demographic factors not available to us in this analysis. For example, family functioning, cognitive ability, and peer influences have all been associated with juvenile offending and may be directly or indirectly associated with placement decisions and may also be influenced by mental health diagnoses. Therefore, accounting for risk factors and behavioral variations in placement decisions requires future study. A non-archival study could benefit from utilizing interview techniques and questionnaires of mental health professionals and judges involved in placement decisions to obtain a subjective account of the factors considered in placement for juveniles, specifically those related to the type of mental health diagnosis. Further, it would be helpful for future investigations to use reliable, well-validated standardized measures of mental health symptoms such as structured or semi-structured interviews and caregiver and self-report questionnaires in order to arrive at psychiatric diagnoses. It was beyond the scope of the present study to investigate how other variables such as trauma history, cognitive abilities, and family factors may impact placement decisions, although future studies should address these variables as they may interact with mental health symptoms to influence placement. Additional variables to consider in future studies include ethnicity and race and their

interactions with mental health variables on placement decisions. Finally, future research should investigate the specificity of treatments provided within each setting type in order to better understand if juveniles are being sentenced to placements with appropriate services, as well as to understand how placements can improve services offered.

Conclusion

Although previous studies identified several key legal and demographic factors contributing to out-of-home placement for justice-involved youth, this is one of the first investigations, using a large diverse sample, to examine the relationship between dimensions of psychopathology and placement decisions. Findings from this study lend information regarding placement decisions for juveniles, identifying variables previously unexplored. Specifically, mental health diagnoses influence placement decisions for juveniles, and internalizing, externalizing, substance use, and comorbid disorders differentially influence placement decisions. Furthermore, the relationship between gender and placement decisions appears to be influenced differentially for different diagnoses, providing a potential explanation for gendered pathways to placement. Our results speak to the need for effective mental health screening and assessment processes as the results of such processes are influencing the dispositions that juveniles receive. This finding is key when developing and researching treatment programs within specific settings. Furthermore, developmentally-informed, evidence-based treatment programming designed to address the specific needs of juveniles within each setting is called for, and gender-specific programming is necessary, especially within non-secure settings. Future studies should explore the interaction of mental health and placement in offending persistence, the profiles of juveniles within each out-of-home placement, the subjective accounts of placement decisions as told by mental health professionals and judges, and the available treatments for mentally ill juveniles in out-of-home placements.

Authors' Contributions SMK conceived of the study, participated in its design, analysis of the data, and coordination and drafted the manuscript. ATS contributed to the research design, data interpretation, and writing of the manuscript. EE consulted on the research design and data collection. All authors read and approved the final manuscript.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no competing interests.

Ethical Approval Approval for the current research has previously been obtained through approval from the Chief Juvenile Probation Officer and the juvenile board and the Institutional Review Board at all participating organizations. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments.

Informed Consent At the time of evaluation, the youth in the present study were considered wards of the state. Therefore, consent was not required in data collection. The data used by the authors was de-identified, ensuring complete anonymity.

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