

Youth Pathways to Placement: The Influence of Gender, Mental Health Need and Trauma on Confinement in the Juvenile Justice System

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Abstract Although the juvenile crime rate has generally declined, the involvement of girls in the juvenile justice system has been increasing. Possible explanations for this gender difference include the impact of exposure to trauma and mental health needs on developmental pathways and the resulting influence of youth's involvement in the justice system. This study examined the influence of gender, mental health needs and trauma on the risk of out-of-home placement for juvenile offenders. The sample included youth referred to three urban juvenile probation departments in Texas between January 1, 2007 and December 31, 2008 and who received state-mandated mental health screening ($N = 34,222$; 30.1 % female). The analysis revealed that, for both genders, elevated scores on the seven factor-analytically derived subscales of a mental health screening instrument (Alcohol and Drug Use, Depressed-Anxious, Somatic Complaints, Suicidal Ideation, Thought Disturbance, and Traumatic Experiences), especially related to past traumatic experiences, influenced how deeply juveniles penetrated the system. The findings suggest that additional research is needed to determine the

effectiveness of trauma interventions and the implementation of trauma informed systems for youth involved with the juvenile justice system.

Keywords Detention · Incarceration, disposition · Gender disparity · Trauma · Mental health

Introduction

Adolescence is a period of developmental transition characterized by changes in family, school, peers, self-concept, and general physical development (Bergman and Scott 2001). Although most youth navigate this developmental period successfully, incidents of rule breaking and behavioral problems are common and can result in involvement with law enforcement. Some research suggests that intervention by the criminal justice system during the critical period of adolescence may negatively impact youth outcomes, including decreasing opportunities for meeting educational goals and increasing the risk for later involvement in delinquency and deviance (Sampson and Laub 2005; pipeline articles). Recent trends have shown a steady decline in juvenile offending overall, particularly among violent crimes. However, statistics have also shown a trend toward increased delinquency in females. For example, Snyder (2008) reported that between 1994 and 2006, arrests for simple assault declined by 4 % for boys while the rate increased by 19 % for girls. Given the gender differences in adolescent development, it seems critical to examine the pathways that lead to youth involvement in the juvenile justice system through this lens.

Research consistently shows gender-related differences in delinquent behavior. The literature suggests these

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differences first emerge early in child development and become more pervasive in adolescence. Some leaders in criminology have suggested that gender differences in delinquent behavior can be attributed to differential socialization between genders (Bottcher 2001), while others have argued that differences are tied to offender status in a gender-stratified society (Chesney-Lind 2002). However, a third model emerges when examining both the developmental criminological and the developmental psychology literature. The developmental psychology literature has shown that females are more likely to exhibit internalizing symptoms that may not come to the attention of the adults in their life (Rosenfield et al. 2005), while males are more likely to exhibit externalizing behaviors, which are problematic for other people and society (Compton et al. 2002; Kazdin 2005). Greater internalizing results in girls having increased rates of depression, bipolar, anxiety, post-traumatic stress, and other mood disorders. Boys tend to have higher rates of conditions such as attention-deficit/hyperactivity disorder, oppositional defiant disorder, and conduct disorder. Therefore, one possible explanation of the gender differences found in the involvement of youth in the juvenile justice system could be explained by differences in mental health conditions that may develop and/or intensify in adolescence.

Gendered Pathways to Delinquency

Pathways toward and through the juvenile justice system differ between girls and their male counterparts. This may be related to how boys and girls develop their self-concepts and identities. Boys' self-concepts and identities are developed in relationship to the world, while girls' and young women's self-concepts and identities are developed through their interactions with others (Gilligan and Brown 1992). Gilligan and Brown contend that female moral development is based on a personal view and commitment to others. Although female offenders occasionally engage in conduct more stereotypical of males, such as aggression and assaultive behavior, more often they suppress their aggression and struggle with the difficulty of managing their emotions, especially those associated with depression and anxiety (Ford et al. 2006). Delinquent girls have a higher risk of self-devaluation, suicidality (Wasserman et al. 2005), and conflict with family and school compared with their male counterparts (Zoccolillo et al. 1996). Attachment, interdependence and connectedness are critical to the foundation of their identity.

Gender Disparity in System Processing

Studies of delinquency and the response of the juvenile justice system have consistently found both legal and extra-

legal factors contribute to the detention and dispositional outcomes of youth involved in juvenile offending. However, findings have been inconsistent regarding the effects of gender on case outcomes in post-adjudication disposition decisions (Belknap and Holsinger 2006). Some studies have revealed girls were the recipients of more severe sanctions than their male counterparts, especially in response to status offenses (Chesney-Lind 2002). Other studies indicated females received more lenient outcomes for delinquent behavior (class B misdemeanor and higher offenses) than males. Some research discovered that outcomes depend on the stage of processing. For instance, MacDonald and Chesney-Lind (2001) reported no difference between boys and girls in the decision to petition an offense. However, during the adjudication stage, "charge seriousness" was more important for girls than boys with the reverse trend during the disposition stage. Thus, when female juvenile offenders were adjudicated delinquent, they were "more likely than boys to be given a restrictive sanction for a less serious offense" (p. 187).

It has become common knowledge in criminology that by engaging in a practice referred to as bootstrapping, courts detain females through findings of contempt of court, probation violations, or violations of court orders for underlying status offenses or minor delinquent behavior (Sherman 2005). As a result of bootstrapping, early evidence suggests more female juvenile offenders are detained prior to adjudication for offenses less threatening to the community than those of their male counterparts. Data from the Juvenile Detention Alternatives Initiative (JDAI), launched by the Annie E. Casey Foundation in 1992, demonstrated the number of juveniles housed in secure detention nationwide increased by 72 % between 1985 and 1995 (Sherman 2005). While it may be assumed this increase reflected the need for community safety, less than one-third of the juvenile offenders detained in 1995 were charged with a violent offense. Across both genders, more youth were detained for status offenses than violent offenses, with violations of court orders accounting for 39.9 % of the detention population. This trend was even greater for female juvenile offenders, who were more likely than their male counterparts to be detained for status offenses and technical violations (Sherman 2005). Similar findings have been demonstrated in several study replications (American Bar Association and the National Bar Association 2001; Sickmund et al. 2004).

For instance, Gavazzi et al. (2006) noted girls were more likely to be detained for incorrigibility and domestic violence, and parents were more likely to be the complainants. Their findings also indicated boys were more likely to be arrested for property offenses, with complainants more likely to be community citizens. The authors summarize the difference between male and female juvenile detention

decisions by stating that: “boys are detained as a response to public safety issues, whereas girls are detained because of problems at home” (p. 608). By 2003, this trend had extended to custodial placements other than detention as well, with females accounting for 40 % of the status offenders but only 14 % of delinquents held in custody (Snyder and Sickmund 2006).

Mental Health Disorders and Delinquency

Recent studies suggest a correlation between juvenile justice system processing and psychiatric disorders, with some research indicating girls with mental health needs are funneled deeper into the system for less serious offenses than their male counterparts. Abram et al. (2003), in a study of Cook County Juvenile Detention youth, found females were 1.4 times more likely than males to meet diagnostic criteria for at least one disorder, and they also were more likely to have at least one co-morbid disorder. Davis et al. (2009) discovered females receiving care in the community mental health system were arrested at younger ages and more frequently than girls not receiving public mental health treatment. In addition, for those youth needing hospitalizations, girls had shorter lengths of stay than boys (Pavkov et al. 1997). These findings have led some researchers to suggest girls are typically undertreated for their mental health needs and others to suggest this lack of treatment results in their involvement in the juvenile justice system (Wasserman et al. 2005).

Youth involved with the juvenile justice system often have not one, but several co-morbid psychiatric disorders. Wasserman et al. (2005) found the prevalence of youth meeting criteria for at least one psychiatric disorder to be 39 %, with 16 % meeting criteria for three or more disorders. In addition to the growing prevalence of youth with mental health challenges in the juvenile justice system, studies also indicate mental health disorders are correlated with delinquent behavior. Several prospective studies indicate hyperactivity (Lynam et al. 2000), conduct disorders and emotional disorders (Copeland et al. 2007; Boots 2008; Boots and Wareham 2009) serve as key indicators for involvement with the justice system. Specifically, Copeland et al. (2007) found 20.6 % of female juvenile offending and 15.3 % of male juvenile offending was attributable to mental health disorders, after controlling for offense level and poverty. Among specific psychiatric profiles, the findings indicate co-occurring anxiety and depressive disorders had the strongest association with delinquent behavior. Boots and Wareham (2009) extended these findings further when they demonstrated a moderate correlation between depression and anxiety ($r = .577$) and future offending.

Trauma and Delinquency

Although not all youth who experience trauma engage in delinquent activity, studies of youth involved with the juvenile justice system have found high rates of traumatic experiences, generally between 70 and 90 % (McMackin et al. 1998; Steiner et al. 1997). Some studies have found boys and girls involved with the juvenile justice system experienced different types of traumas, with males more likely to have witnessed a violent event and females more likely to have been the victim of violence. The Survey of Youth in Residential Placement, conducted on a sample of over 7,000 incarcerated youth, indicated females were almost twice as likely to report prior physical abuse (42 % of females versus 22 % of males), and females reported a higher likelihood (69 % of females versus 40 % of their male counterparts) of the perpetrator of the physical abuse being a sibling or mother (Sedlak and McPherson 2010). Researchers also found girls who reside in violent homes have heightened risk factors for engaging in delinquent activity, such as truancy, sexual promiscuity, running away, and substance abuse (Thornberry et al. 2004). Not surprisingly, female juveniles arrested for running away frequently report experiences of family violence and emotional, physical, and sexual abuse and report these conditions as their primary motivation for leaving home (Chesney-Lind 2002). Furthermore, studies indicate females who have experienced trauma develop mental health problems as a result of that trauma more often than their male counterparts (Crimmins et al. 2000). Some studies found girls who have mood disorders are more likely to have experienced trauma and are more likely to have post-traumatic stress disorder (Wasserman et al. 2005).

Sexual victimization, in particular, is a common form of trauma experienced by girls involved in the justice system and is likely a contributing factor to the complex mental health needs of this population. Although virtually absent from formal theories of female delinquency, some studies examined the correlation between sexual abuse and female juvenile delinquency. In a study of chronically delinquent offenders, Sherman (2005) found 77 % of female offenders had a history of sexual abuse in comparison to only 3 % of the males, suggesting a potential relationship between trauma and chronic delinquency in girls. Furthermore, Goodkind et al. (2006) found juvenile justice-involved girls who have experienced some form of sexual abuse had poorer mental health and more substance use, risky sexual behavior, and delinquent behavior than those who had not experienced this form of trauma.

Hypotheses

Despite the overall decline in the rate of juvenile delinquency, the involvement of girls with the juvenile justice system has increased. In addition, there has been an enhanced recognition of the disproportionate representation of youth with mental health needs and trauma histories in the juvenile justice system. While males typically are associated with externalizing problems, females disproportionately are identified with internalizing problems and interpersonal aggression. This changing demographic of juvenile delinquency poses challenges to the traditional juvenile justice system accustomed to handling behaviors associated with externalizing manifestations of delinquency. Analyzing the extent to which mental health need, trauma, and gender influence juvenile justice system processing will provide a more comprehensive understanding of the pathways youth take in the juvenile justice system, as well as identify potential modifications needed to address the unique needs of youth accessing the system in the future.

First, we hypothesized that more girls would be placed outside of the home for bootstrap level offenses, such as status offenses and violation of probation, than boys. This analysis sought to determine whether girls are funneled deeper into the system for lower level offenses than their male counterparts. Second, we hypothesized that greater mental health need, as measured by the mental health screening instrument, would be associated with a greater risk of out-of-home placement. Finally, we formed an exploratory hypothesis aimed toward examining the influence of the endorsement of prior traumatic experiences, as measured by the mental health screening instrument, on the restrictiveness of out-of-home placement decisions. We were interested in whether a trauma history increased the likelihood of a juvenile being removed from their home. In addition to these three primary hypotheses, a secondary analysis explored the relative importance of these variables on different types of out-of-home placement.

Method

The study sample included all youth referred to three urban juvenile probation departments in Texas during the period of January 1, 2007 through December 31, 2008. Only youth who received the state-mandated mental health screening, the Massachusetts Youth Screening Instrument-Second Version (MAYSI-2) were included ($N = 34,222$; 30.1 % female). This secondary dataset included all demographic, offense, disposition and placement data collected by trained juvenile probation officers and clinicians within the departments. Data was obtained with approval from the

Chief Juvenile Probation Officer and the juvenile board and the protocol was reviewed and approved by the Institutional Review Board at the researchers' university.

Measures

The main predictor variables considered were referral offense seriousness, gender, and level of mental health need. Gender is a dichotomous static variable and was coded as male (0) or female (1) for analysis. The referral offense seriousness and level of mental health need variables could be interpreted with a broad array of values; therefore, specific operational definitions and categorical values for these variables were developed prior to conducting analyses.

Offense Seriousness

Youth could have been referred to local juvenile probation departments for multiple offenses on any one referral event. Therefore, this study targeted the referral offense associated with most severe disposition during the sample period. The categorical coding guidelines identified within the Texas Juvenile Probation Commission (TJPC) data codebook were used for establishing operational definitions and assigning categorical values for offense seriousness. The TJPC data codebook is used by juvenile probation officers collecting and entering data into the state's data collection system. This coding process categorized the 4,019 types of offenses into a continuous classification variable ranging from the least serious 1 (status offenses) to the most severe 8 (capital felony). The classifications between status offense and capital felony included the following: 2 = Class B misdemeanor; 3 = Class A misdemeanor; 4 = State-jail felony; 5 = Third-degree felony; 6 = Second-degree felony; and 7 = First-degree felony.

In addition to the ordinal offense severity code, two dichotomous indicator variables were constructed to evaluate the potential bootstrapping of juveniles into and through the juvenile justice system. Bootstrapping has been defined in the literature as engaging in a practice whereby courts detain females through findings of contempt of court, probation violations, or violations of court orders for underlying status offenses or minor delinquent behavior (Sherman 2005). A traditional bootstrap variable (Status) included offenses that have been typically categorized as status offenses (otherwise known as "Conduct Indicating Need for Supervision Offenses" or CHINS offenses), Class C misdemeanors, and contempt of court referrals. These types of offenses include runaway, truancy, and curfew violations. Class C misdemeanors are typically violations of city or county ordinances and are processed in a manner similar to status offenses. A second bootstrap variable

(VOP) included violations of probation or juvenile court order.

Mental Health Need

Texas has adopted the MAYSI-2 for mental health screening within the juvenile justice system (Grisso 2004; Schwank et al. 2003). The MAYSI-2 is a 52-item, self-report screening instrument completed by youth between the ages of 12 and 17 upon intake in the juvenile justice system. The MAYSI-2 contains seven factor-analytically derived subscales: Alcohol and Drug Use, Angry-Irritable, Depressed-Anxious, Somatic Complaints, Suicidal Ideation, Thought Disturbance, and Traumatic Experiences. Studies have demonstrated good concurrent validity when comparing MAYSI-2 scales with scores on other mental health measures (Archer et al. 2004; Grisso and Barnum 2006). Test–retest reliability up to eight days later was moderate to good, ranging from 0.53 to 0.89 (Grisso and Barnum 2006). Cut-off scores for the MAYSI-2 subscales (excluding Traumatic Experiences) were developed to identify youth scoring greater than 90 % of the normative sample on each subscale (Grisso and Barnum 2006). Overall mental health need was defined as the total number of subscales reaching this “warning” cut-off, ranging from 0 to 6.

The traumatic experiences subscale of the MAYSI-2 does not have established warning cut-offs, and so was kept in its original reporting format, with a scoring range of 0–5. Four questions on the subscale are common to both genders: “Have you been badly hurt or been in danger of getting badly hurt or killed?”, “Have you ever in your whole life had something very bad or terrifying happen to you?”, “Have you ever seen someone severely injured or killed?”, and “Have you had a lot of bad thoughts or dreams about a bad or scary event that happened to you?”. For boys, the fifth question is “Have people talked about you a lot when you’re not there?”. For girls, this fifth question is “Have you ever been raped or been in danger of getting raped?”.

Level of Placement

Level of placement was categorized into a five-point ordinal variable, with higher scores on the scale representing more “severe” placements. Categorization reflected not only the determination of whether the facility was secure or non-secure, but also consideration of what intercept point in the juvenile justice system (pre or post disposition) the juvenile could be placed within the facility. No placement is reflected by a “0” on the scale and detention is reflected by a “1”. Although often a secure setting, juvenile detention facilities are the first type of

facility within the juvenile justice system a youth can be placed and are frequently used to hold juveniles while awaiting court decisions pre-adjudication. The next three levels of placement severity within the composite were non-secure (2), county secure (3), and state correctional facility (4). Non-secure facilities included facilities licensed by the state child welfare agency to provide foster care or treatment services and included residential treatment centers, emergency shelters, substance abuse treatment facilities, therapeutic camps, and foster care. Local juvenile probation departments contract with non-secure facilities to care for juveniles who are considered low risk and in need of some form of treatment or other basic care needs. County secure facilities included county-operated secure post-adjudication programs registered with the state’s juvenile justice department to serve as an intermediate placement option for moderate or high-risk juveniles. These facilities may include juveniles who have been adjudicated of either misdemeanor or felony offenses. State correctional facilities included high security facilities intended for high-risk juveniles with felony adjudications and represent the state’s youth prison system (Texas Juvenile Justice Department 2012).

Control Variables

Control variables included age at first referral, age at target referral, ethnicity, severity of offense history and prior probation referrals. Ethnicity was reflected by dummy coding two variables—Hispanic (1) or White (0) and Black (1) or White (0). Both age at first referral and age at target referral were also included in the analyses. Almost half of the juveniles in the sample had a prior record with the partnering juvenile probation departments ($n = 16,077$). Severity of offense history was categorized using the same procedures as the target referral offense. The seriousness of offense history ranged from 0, indicating no prior record, to 8, indicating prior referral for a capital murder. Prior probation referrals were defined as the number of prior dispositions to probation supervision.

Procedures

Differences in variables of interest and control variables by gender were examined through independent t-tests and Chi square analyses. Multivariate analyses examined level of placement by gender and mental health need. First, the analyses sought to establish the general influence of mental health need and gender on level of placement. The examination of the general influence of the predictor variables on level of placement for all facility types utilized an OLS regression model with gender (0 = male, 1 = female) included in the equation, along with other predictor

variables, regressed on facility composite (0 = no placement, 1 = detention, 2 = non-secure, 3 = secure, 4 = corrections). The OLS regression model is presented for ease of interpretation. Results from ordinal logistic regression and probit models confirmed the significance, direction, and relative magnitude of coefficients presented in the OLS model.

Additional analyses examined the influence of the predictor variables by specific facility type and gender at both the pre-adjudicatory and post-adjudicatory phases, requiring separate female and male models. A dichotomous outcome variable was created for the pre-adjudicatory detention decision and coded as either not detained (0) or detained (1). Binary logistic regression was used to model the detention decision. Multinomial logistic regression was used to model post-adjudicatory placement, which includes separate panels to describe the influence of predictors on placement in non-secure facilities, county operated secure facilities, and state correctional facilities. Alternatives to placement served as the reference category for the multinomial comparisons. Detention was included as a predictor

variable in the post-adjudicatory placement model. Status offense had to be removed from the post-adjudicatory placement model. Limited cell size prevented model convergence when status offense was included. Additional analysis was conducted to test for differences between regression coefficients of the gendered models. The formula suggested by Brame et al. (1998) was used to test for differences between the model coefficients:

$$Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}$$

Results

Table 1 presents outcomes, offense seriousness, mental health need, and control variables by gender. The mean facility composites show boys are placed deeper in the system overall. The binary outcomes show males are more likely to be placed in each type of confinement, with the exception of non-secure placement, where girls are twice as likely to be placed. Part of the reason is apparent in the

Table 1 Level of placement, offense seriousness, mental health need, and control variables by gender

	Female Mean (SD)	Male Mean (SD)	Test of difference
Level of placement			
Facility composite	0.496 (0.748)	1.024 (1.212)	$t = -49.130^{***}$
Detention	0.373	0.531	$\chi^2 = 725.656^{***}$
Non-secure placement	0.068	0.033	$\chi^2 = 213.268^{***}$
County secure placement	0.013	0.142	$\chi^2 = 1293.434^{***}$
State correctional commitment	0.008	0.048	$\chi^2 = 332.220^{***}$
Offense seriousness			
Offense composite	2.091 (1.956)	2.789 (1.641)	$t = -48.709^{***}$
Status offense (Boot1)	0.144	0.068	$\chi^2 = 512.619^{***}$
VOP (Boot2)	0.089	0.143	$\chi^2 = 192.406^{***}$
Mental health need			
Warnings (total #)	0.284 (0.697)	0.232 (0.688)	$t = 6.400^{***}$
Drug	0.023	0.020	$\chi^2 = 4.854^*$
Angry	0.109	0.068	$\chi^2 = 166.115^{***}$
Depressed	0.104	0.047	$\chi^2 = 385.650^{***}$
Somatic	0.065	0.036	$\chi^2 = 143.961^{***}$
Suicide	0.141	0.059	$\chi^2 = 628.816^{***}$
Thought	0.164	0.113	$\chi^2 = 94.904^{***}$
Trauma score	1.1300 (1.470)	1.120 (1.232)	$t = 11.182^{***}$
Control variables			
Race–Black	0.363	0.373	$\chi^2 = 3.386$
Ethnicity–Hispanic	0.390	0.413	$\chi^2 = 15.993^{***}$
Age at referral	14.900 (1.275)	14.956 (1.387)	$t = -3.581^{***}$
Age of onset	14.383 (1.399)	14.140 (1.560)	$t = 14.225^{***}$
Severity of offense history	0.894 (1.508)	1.691 (2.163)	$t = -39.075^{***}$
Prior probated dispositions	0.208 (0.560)	0.455 (0.830)	$t = -32.108^{***}$
Prior facility composite	0.205 (0.536)	0.521 (0.985)	$t = -38.208^{***}$

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2 Predictor variables regressed on level of placement composite

	<i>B</i>	SE	<i>Beta</i>
Severity of offense	.195	.003	.269***
Gender–female	–.152	.010	–.062***
Status offense (Boot1)	–.229	.017	–.059***
VOP (Boot2)	.709	.018	.211***
Mental health need	.043	.007	.067***
Trauma score	.039	.004	.275***
Race–Black	.181	.012	.078***
Ethnicity–Hispanic	.145	.012	.064***
Age at target referral	–.056	.006	–.068***
Age at first referral	.049	.005	.248***
Prior offense history	.137	.004	.046***
Prior probation history	.401	.009	.026***
Constant	–.087	.056	
Model $R^2 = .425$ ***			

* $p < .05$; ** $p < .01$; *** $p < .001$

level of offense, which shows that girls, on average, commit less serious offenses and are more than twice as likely as boys to be referred for status offenses. Girls also had less serious prior records, as evidenced by the control variables. They also tended to be slightly younger at referral and older at age of onset than boys.

Consistent with existing literature on prevalence of mental health disorders and gender, girls had a higher level of mental health need as evidenced by the total number of warnings and a greater percentage of girls with need across all subscales. Trauma scores were also higher for girls than boys. Girls also tended to be clustered at the higher end of

the scale, with 10.9 % of girls reporting four or more trauma indicators compared to only 5.2 % of the boys (not tabled). The percentage of females reporting five or more trauma indicators was over four times higher (4.1 %) than their male counterparts (0.9 %).

Analysis of the predictor variables regressed on the level of placement composite, reported in Table 2, indicated that all predictor variables were statistically significant. The *Betas* from the OLS regression revealed the strongest predictors of increased severity of out-of-home placement were higher scores on the MAYSI-2 Trauma scale, offense severity, age at first referral, and commission of a probation violation. Gender was negatively related to level of placement, indicating that being female decreased a juvenile's overall likelihood of being placed at a higher level of placement. Prior offense and probation history were also related to increased levels of out-of-home placement, as was minority status and overall mental health need, while the commission of a status offense and lower age at target referral were related to lower levels of placement.

Detention Decision

The logistic regression analysis presented in Table 3 indicates gender differences among predictor variables when regressed on the variable reflecting whether or not a juvenile was detained. As the age at target referral for a male juvenile offenders increased, the odds of being detained increased. However, for girls, as their age at target referral increased, their odds of being detained decreased. Commission of status offenses was negatively related to a detention decision for both genders, although boys were slightly less likely to be detained than girls for status

Table 3 Predictor variables regressed on detention decision by gender

	Female		Male		Test of difference
	e^b	(se_b)	e^b	(se_b)	
Severity of offense	1.975***	(.022)	1.553***	(.010)	10.000***
Status offense (Boot1)	0.389***	(.082)	0.286***	(.073)	2.793**
VOP (Boot2)	6.177***	(.112)	3.967***	(.056)	3.544***
Mental health need	1.005	(.035)	1.163***	(.024)	–3.476***
Trauma score	1.257***	(.017)	1.063***	(.013)	8.000***
Race–Black	2.004***	(.063)	2.052***	(.040)	–0.320
Ethnicity–Hispanic	1.557***	(.064)	1.822***	(.039)	–2.090*
Age at target referral	0.935*	(.034)	1.065***	(.018)	–3.421***
Age of first referral	1.009	(.032)	0.954**	(.016)	1.528
Prior offense history	1.261***	(.025)	1.171***	(.011)	2.741**
Prior probation referrals	1.159*	(.065)	1.083**	(.027)	0.971
Constant	0.103***	(.296)	0.088***	(.172)	0.480
Model Pseudo R^2	.243***	.203***			

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4 Multinomial logistic regression model predicting post-adjudication placement by gender

	Female		Male		Test of difference
	e^b	(se_b)	e^b	(se_b)	
Non-secure placement					
Severity of offense	1.118**	(.037)	1.446***	(.028)	−5.539***
VOP (Boot2)	3.167***	(.136)	7.990***	(.122)	−5.003***
Mental health need	1.144**	(.051)	1.097	(.055)	0.547
Trauma score	1.193***	(.030)	1.033	(.035)	3.130**
Race–Black	0.972	(.121)	0.865	(.110)	0.716
Ethnicity–Hispanic	0.806	(.127)	0.926	(.109)	−0.832
Age at target referral	0.918	(.052)	0.837***	(.038)	1.444
Age of first referral	0.966	(.048)	0.995	(.034)	−0.493
Prior offense history	1.243***	(.032)	1.386***	(.022)	−2.809**
Prior probation referrals	1.595***	(.078)	1.103	(.069)	3.548***
Detention	19.408***	(.173)	5.665***	(.124)	5.789***
County operated secure placement					
Offense composite	1.601***	(.087)	1.178***	(.015)	3.447***
VOP (Boot2)	17.108***	(.311)	2.439***	(.064)	6.135***
Warnings	0.585***	(.184)	1.092**	(.033)	−3.342***
Trauma score	1.286***	(.057)	1.026	(.020)	3.742***
Race–Black	1.549	(.300)	1.009	(.064)	1.397
Ethnicity–Hispanic	1.453	(.304)	1.044	(.064)	1.064
Age at referral	1.040	(.096)	0.823***	(.025)	2.354**
Age of onset	0.809*	(.086)	1.193***	(.021)	−4.384***
Prior offense history	1.276***	(.059)	1.253***	(.013)	0.315
Prior probated dispositions	1.554**	(.133)	2.669***	(.033)	−3.949***
Detention	12.988***	(.432)	5.505***	(.059)	1.986*
State correctional commitment					
Offense composite	2.174***	(.108)	2.136***	(.030)	0.161
VOP (Boot2)	11.990***	(.419)	12.452***	(.124)	−0.087
Warnings	0.962	(.138)	1.267***	(.046)	−1.897
Trauma score	1.399***	(.074)	1.110**	(.031)	2.875**
Race–Black	0.868	(.351)	1.216	(.111)	−0.918
Ethnicity–Hispanic	1.056	(.346)	1.222	(.111)	−0.402
Age at referral	1.120	(.126)	0.934	(.037)	1.382
Age of onset	0.746**	(.105)	1.060	(.029)	−3.229***
Prior offense history	1.696***	(.072)	1.664***	(.021)	0.253
Prior probation referrals	2.397***	(.134)	2.936***	(.043)	−1.440
Detention	4.337***	(.393)	2.097***	(.089)	1.801
Model Pseudo R ²	.435***	.456***			

* $p < .05$; ** $p < .01$; *** $p < .001$

offenses. The exponentiated logistic regression coefficients indicated for a violation of probation, a girl’s chance of being detained almost doubled ($e^b = 6.177$) that of a boy’s ($e^b = 3.967$). Current offense severity and prior offense history increased a girl’s odds of being detained slightly more than a boy’s. Scoring in the warning cutoffs on the MAYSI-2 was not found to be statistically significant in predicting detention for girls. For boys, however, higher

mental health need increased the odds of being detained. Elevations on the traumatic experience scale increased the likelihood of detention more for girls than for boys.

Non-secure Placement

Analysis of the predictor variables on non-secure placement, presented in the first panel of Table 4, indicates age

at target referral was negatively related to confinement for males. Greater offense severity and offense history increased the likelihood of a non-secure placement for both genders, although these variables were less important for girls than boys. A violation of probation increased the odds of non-secure placement for boys ($e^b = 7.990$) at about $2\frac{1}{2}$ times that of girls ($e^b = 3.167$). The only legal variable that increased a girl's odds of incarceration in a non-secure facility relative to a boy's was prior probation history. Neither mental health need nor trauma score was found to be a statistically significant predictor of placement in a non-secure facility for boys. For girls, however, elevations on either mental health need or trauma increased the odds of placement in a non-secure facility. Detention, an outcome found to be strongly related to trauma and VOP for girls, when inserted into the current model was shown to influence non-secure confinement for both genders. However, the influence of detention was uneven in the multinomial model, increasing the odds of a girl's confinement by $3\frac{1}{2}$ times that of a boy's. With an odds multiplier of nearly 20, detention was by far the strongest predictor of a girl's non-secure confinement.

County Operated Secure Placement

The second panel of Table 4 presents results from the multinomial logistic regression analysis of the predictor variables on secure out-of-home placement by gender. Current offense severity and prior offense history increased the odds of secure placement for both genders, but current offense increased the likelihood of placement by a greater margin for girls than boys. The analysis also revealed age at first referral was a negative predictor of secure placement for girls, yet for boys it had a positive relationship. While a violation of probation (VOP) increased the odds of secure placement for boys ($e^b = 2.439$), girls with a VOP experienced about 7 times greater risk of secure out-of-home placement than boys ($e^b = 17.108$). Overall mental health need was a statistically significant predictor of secure placement for boys; yet for girls, higher mental health need resulted in decreased odds of secure placement. However, elevated trauma scores increased the risk of placement in a county-operated secure post-adjudication facility for girls. Detention was again more strongly related to the placement decision for girls than for boys.

State Correctional Commitment

The third panel of Table 4 presents the influence of the predictor variables on state correctional commitment. The models indicate that severity of the offense and prior offense history were highly predictive of state commitment for both genders. Severity of offense and offense history

resulted in virtually the same odds of commitment by gender, as did a current violation of probation and prior probation. Age at first referral was not significant for boys. However, for girls it was negatively related, indicating earlier starts to offending by girls were more likely to evoke the most severe sanction available. Both mental health need and trauma scores were significant for boys, with only the trauma scale being significant for girls. Girls had a higher risk of commitment based on reports of trauma in comparison to boys. While detention was a significant predictor of state commitment for both genders, it appears to be twice as influential for girls. It should be noted that although not statistically significant in a two-tailed Z-test, the coefficients would have been significant if a one-tailed test had been employed. Because the pattern matches the results from the other types of confinement, the relative size of the test coefficients suggests the differences between genders are reliable.

Discussion

The overarching purpose of this study was to evaluate the influence of gender and mental health need on out-of-home placement for youth involved with the juvenile justice system. Previous research suggested a relationship between female delinquency and mental health need. It initially was hypothesized that female juvenile offenders were ordered to out-of-home placement at a higher rate for lesser offenses than males with similar mental health needs. Contrary to this hypothesis, the combined OLS model regressed on the level of placement variable indicated that, overall, being male increased a juvenile's likelihood of being placed in more restrictive placements. Interestingly, mental health need was a significant, but relatively small, predictor of placement severity, while trauma indicators, age at first referral and violation of probation were the most significant predictors.

Although results supported the hypothesis that mental health need had an influence on out-of-home placement and placement severity, it was clear a history of traumatic experiences was a more influential factor in placement decisions regardless of gender. However, when the analysis included the influence of status offenses and violations of probation, the influence of past traumatic experiences appeared to be especially influential for girls. Other research studies, as well as findings from this study, suggest several possible explanations for this relationship. Research has shown adolescents and adults who have experienced childhood trauma are at an increased risk for a variety of mental health problems, as well as many behaviors leading to familial and legal difficulties, such as substance abuse, promiscuity, teen pregnancy, running

away, and aggression (Felitti et al. 1998). This relationship has been shown to be dose dependent, meaning the greater the cumulative number of traumatic experiences, the greater the risk, which mirrors the dose response found in the current study.

Research has shown offenders with mental health disorders are much less successful under supervision in the community than those without mental health disorders (Monahan et al. 2005; Skeem et al. 2006; Solomon et al. 2002). This seems to be particularly true for girls, who have been found to have higher rates of mental health needs than their male counterparts and respond less positively to involvement in the system (Teplin et al. 2002; Wasserman et al. 2005). The findings of this study extend this previous research, suggesting that through the use of violation of probation, girls and youth of both genders with documented mental health needs are funneled deeper into both county and state operated out-of-home placements than boys and those without a mental health needs. These effects also appear to be cumulative, with pre-adjudicatory decisions influencing post-adjudicatory outcomes. Factors influencing detention decision for girls, expressly traumatic experiences and bootstrapping, continue to indirectly influence post-adjudicatory decisions.

The trend identified for trauma experiences to increase the risk for youth to be placed in more restrictive settings may be counter-productive. Some researchers postulate traumatic stress symptoms may be worsened as a result of being involved in the juvenile justice system. Youth being placed out of the home, especially in more secure settings, may be further traumatized by separation from familiar adults, exposure to aggressive or threatening peers, and by feelings of threat and lack of safety. The characteristics of the environment, including traditional confrontational methods of maintaining order, may backfire for girls with traumatic stress symptoms (Griffin 2002; Hennessey et al. 2004). Seclusion and restraints have been cited as an example of a practice in institutions that can be especially re-traumatizing (Huckshorn 2006). Prescott (1997) indicated the cycle of staff interventions, especially during times of crisis, led to increased self-injury in response to the use of physical and mechanical restraints. Due to their high rates of traumatic stress and the possibility of re-traumatization through incarceration, girls may be especially susceptible to worsened traumatic stress symptomology (Hennessey et al. 2004).

Although this study is an important step in better understanding the influence of gender and mental health need on juvenile justice placement decisions, several limitations to the methodology should be noted. One important limitation to note is the study was limited to three urban juvenile probation departments in one state. Additional studies should be undertaken to replicate the findings in

other states and jurisdictions to determine its generalizability. Similarly, differences between jurisdictions were not identified in the analyses conducted and should be explored in future research. In addition, the study was limited to the variables available within the county administrative systems. This did not allow for the inclusion of other measures of mental health need or trauma that may have been more sensitive than a screening measure. It also did not allow for the inclusion of extralegal variables that may influence a court's decision to put a juvenile in out-of-home placement, such as home environment, community-based resources, or other process-oriented measures.

Although the study design had some limitations, there are also many strengths that result in this study contributing to the literature. One strength of the study is the relatively large sample size and the longitudinal nature of the data collected. The data set analyzed included demographic as well as lifetime arrest, disposition and mental health data collected on over 30,000 individual youth who were referred to the participating juvenile probation departments during the 2 year sample period. Combined, the participating juvenile probation departments account for over 51 % of the state's total juvenile population each year. Another strength of this study was the use of multiple probation departments. All three departments resided in urban settings, but differed in geographic location and ethnic composition. One department was located in north Texas with a primary minority population of African American youth. Another was located in south Texas with a primary minority population of Hispanic youth. The final department was located in central Texas with comparable representation of African American and Hispanic youth. In addition, well-delineated variable definitions and the inclusion of many relevant predictor variables further strengthened the study. This was evidenced by the relatively large amount of variance predicted in the tested models.

Conclusion

The above findings suggest the importance of trauma informed care, both to better address the impact of trauma on criminogenic risk and improve the success rate of youth with mental health needs on supervision. One important step in the last decade is a focus on trauma-informed systems, including juvenile justice systems. The National Child Traumatic Stress Network defines a trauma-informed child and adolescent service system as one in which all programs and agencies “infuse and sustain trauma awareness, knowledge, and skills into their organizational cultures, practices, and policies” (National Child Traumatic Stress Network 2012). In a trauma informed juvenile justice

system, judges and probation officers are knowledgeable about the impact of trauma and respond to youth with this context in mind. All youth are screened routinely for exposure to trauma and evidence-based trauma treatments are available. Behaviors that may be attempts to cope with current or past traumatic experiences, such as substance abuse, interpersonal aggression, risky sexual behavior, self-injury, gang affiliation, and running away, are recognized as a symptom of mental health difficulties and addressed with a trauma lens, rather than strictly a legal one.

Although, this study replicated the findings of several other prevalence studies that youth in out-of-home juvenile justice placements have higher rates of mental health need than those remaining in the community, it also highlighted the need for juvenile justice systems to enhance their awareness of the role of trauma in juvenile delinquency and transform the system to address and support youth who have experienced significant trauma in their childhood. Additional research is needed to determine the effectiveness of trauma interventions for youth in the various components of the juvenile justice system (e.g., prevention programs, community-based supervision, detention, non-secure and secure facilities, parole). For some youth, their trauma history coupled with their involvement in the juvenile justice system can lead to the development of post-traumatic stress disorder (PTSD), depressive disorders, and anxiety disorders. Without effective treatment and/or involvement in a trauma informed system, these disorders are likely to continue to cause impairment and may result in negative long-term outcomes. The reality is juvenile justice systems have public safety, and not mental health treatment, as their primary goal and significant organizational change will be needed to embrace the goal of becoming a trauma-informed system.

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Author contributions Each author contributed to the development of the study and the resulting article submission. EE was the primary researcher and conceived the study and performed the initial analysis and the initial implications of the study. JJ assisted with the initial analysis and conducted additional analysis to examine the exploratory hypothesis. ML contributed to the interpretation of the analysis and the impacts of trauma and trauma informed care. All three authors helped to write the article and approved the manuscript's content.

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