# THE DIFFERENTIAL EXPOSURE TO ACES AND ASSOCIATED OUTCOMES RESPECTIVE OF GENDER IN THE JUVENILE JUSTICE SYSTEM

by

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#### ABSTRACT

The relationship between childhood trauma and juvenile justice system involvement has been extensively researched in recent years, but gender differences in traumatic experiences and associated outcomes are still relatively new in development. The aim of this study was to examine gender differences in rates of total ACE exposure, abuse ACE exposure, depression, and anxiety. 93 participants were utilized from the Leveraging Safe Adults (LeSA) study and assessments were conducted at baseline. Findings indicate gender differences in total ACE exposure, abuse ACE exposure, and anxiety with females reporting significantly higher rates in each of these categories. Contrary to expectations, there was not a significant difference in rates of depression across gender, but this could be due to a relatively small female sample size. Recommendations include trauma and mental health screenings in juvenile justice facilities as well as clinician consideration in differential traumatic experiences and associated outcomes in youth.

## Introduction

Previous literature has consistently demonstrated that justice-involved youth tend to experience greater exposure to Adverse Child Experiences (ACEs) as a whole compared to the general population (Baglivio & Epps, 2016; Logan-Green et al, 2017). Furthermore, increased exposure to ACEs is associated with more instances of mental health issues such as depression and anxiety (Houchins et al, 2021). Although trauma-informed care has more recently been advocated for in the juvenile justice system, there is still a need to better understand the ways in which childhood trauma affect justice-involved youth as a unique population. In addition, the current literature is lacking in understanding which specific ACEs influence depression and anxiety. Mental health disorders impact the course of an individual's life into adulthood and can result in juvenile justice system and further criminal justice system involvement (Barrett et al, 2014). As such, it is critical to gain knowledge and understanding in the effects and influences of specific adverse experiences.

The majority of youth involved in the JJ system meet the criteria for at least one psychiatric disorder, however many youth meet criteria for several disorders across minor, moderate, and severe offenses (Haney-Caron et al, 2019). In addition, treatment of these issues is further complicated because many youth suffer from multiple disorders that are co-occuring to one another. Mental health treatment can provide a protective factor to youth for offending and recidivism (Robst, 2017). As such, it is necessary for JJ-involved youth to have mental health needs addressed in order to reduce the risk of further delinquency.

Because juvenile justice settings have been historically composed mostly of male youth, much of the research on trauma and juvenile justice has been in regard to males. However, current trends indicate rapid growth in the population of female youth in the justice system, and they now make up one third of all justice-involved youth (Kerig, 2018). Previous literature has identified differences in the types of traumatic experiences that each respective gender of youth experience—females are more likely to report instances of sexual assault and abuse while males are more likely to report to community violence exposure (Kerig, 2018). However, there are few studies that examine the ways in which various traumas impact males and females differently within the realm of juvenile justice. Prior research has indicated that adolescent girls may be more likely to experience internalizing issues as a result of trauma while males exhibit more externalizing problems (Haahr-Pederson et al, 2020), but research in justice-involved samples is still greatly needed as most victimized youth experience multiple forms of abuse, not only physical or emotional (Kerig, 2018). Furthermore, there are few, if any, studies examining specific categories of ACEs and how they differentially affect both male and female juvenile offenders. As such, it is necessary to begin to increase the understanding of gender differences in regard to abusive experiences and how they relate to the development of further psychopathology.

## **The Current Study**

The present study seeks to identify if the presence of the category of abuse ACEs differs across gender in a population of juvenile offenders within residential facilities. This study examines if ACEs differentially affect the psychopathology of juvenile justice-involved males and females in terms of mental health problems such as anxiety and depression. Previous literature has demonstrated that justice-involved females experience higher rates of sexual abuse and associated mental health problems (Conrad et al., 2013; Kerig, 2018; Wamser-Nanney & Cherry, 2018). Furthermore, Muniz and colleagues' study on youth referred to the Florida Department of Juvenile Justice found that ACEs may differentially affect males and females in terms of internalizing and externalizing behaviors, but they call for further research (Muniz et al., 2019). They used the PACT survey to measure internalizing and externalizing problems as well as ACEs and only looked at referrals to the juvenile system. As such, this study seeks to expand upon Muniz and colleagues' previous research by examining a more specific population of juvenile offenders (those in residential placement) with other measurement tools such as the ACE Questionnaire, PHQ, and GAD assessments. This study seeks to address two key questions: **Research Question 1**: Are there differences in the rates of total ACE exposure and abuse ACEs for males and females respectively in JJ youth?

**Research Question 2:** How do the rates of mental health problems such as anxiety and depression differ for male and female JJ youth?

First, I hypothesize that rates of total ACE exposure will be similar for males and females involved in this sample, but females will have a higher prevalence of abuse ACEs than males based on previous research demonstrating a higher prevalence of sexual abuse in females compared to males. Based on this understanding, I hypothesize that rates of mental health problems including depression and anxiety will be higher among females compared to males.

## Methods

## **Participants**

Data for this study was acquired from the Leveraging Safe Adults (LeSA) Project. The LeSA Project is an IRB approved study conducted through Texas Christian University in which the effectiveness of the Trust Based Relational Intervention<sup>®</sup> (TBRI<sup>®</sup>) on youth released from residential placement is being examined. The LeSA Project seeks to build relationships between caregivers and youth to prevent opioid and other substance abuse after a youth's release from a residential treatment facility. The study covers 11 residential treatment sites across two states and aims to recruit 360 youth/caregiver dyads. The residential facilities in the LeSA Project are located in the Midwest and Southwest regions of the United States. All 11 sites are mediumsecurity residential treatment facilities with juvenile referrals from all across the country. Inclusion criteria for youth at participating facilities include those 14 -18 years of age, who are currently receiving treatment within a facility and are eligible for probation, are not at risk for suicide, and have one caregiver that is able to participate with them in the study.

Youth and caregivers completed self-report assessments at months 0, 3, 12, and 18 within a residential facility as well as monthly following the youth's release. For the purpose of this study, baseline data (month 0) for 93 youth were utilized as this study includes all youth that have completed baseline assessments to date.

## Procedure

The LeSA Study was approved by the Institutional Review Board (IRB) at Texas Christian University. Participating juvenile justice facilities assisted in connecting research assistants to caregivers participating in the study with youth. Consent for participation was collected for caregivers in addition to parental consent for participating youth. Youth provided their own consent if they turned 18 during the study, and all youth under 18 provided their own assent. All consent and assessment documents were available in both Spanish and English. Youth self-report assessments were conducted in an interview-assisted format with trained research assistants. Assessment responses were recorded through Qualtrics, and protocols were either delivered via secure platforms such as Zoom or in person. All participants were individually compensated with \$15 gift cards for each assessment completed.

#### Measurements

## Adverse Childhood Experiences (ACEs)

Participants completed the Adverse Childhood Experiences Questionnaire (ACEs; Felitti et al., 1998) as part of their baseline data measurements at the start of the study. The ACEs selfreport is a 10-item questionnaire that measures childhood trauma in categories of: abuse, neglect, and household dysfunction with questions such as *"Did a household member go to prison"* and *"Did a parent or other adult in the household often act in a way that made you afraid that you might be physically hurt."* Responses are recorded as "Yes" or "No" with each "Yes" receiving a score of one to sum a cumulative total ACEs at the end, with higher scores indicating more severe instances of childhood trauma. Total scores can range from 0-10 on the ACEs Questionnaire. For the purposes of this study, Abuse ACE scores were calculated by adding the scores of the first three questions on the ACEs Questionnaire that measure emotional, physical, and sexual abuse respectively. As such, scores for this subcategory could range from 0-3. The ACEs Questionnaire is both reliable and valid (Schauss et al, 2021).

### Anxiety (GAD-7)

Participants completed the Generalized Anxiety Disorder 7 (GAD-7; Spitzer et al, 2006) at baseline. The GAD is a 7-item self-report measure that is used for screening and diagnosis of anxiety disorders with questions asking over the last two weeks "*I have been bothered by feeling nervous, anxious, or on edge*" or "*I have been bothered by feeling afraid as if something awful might happen*". Responses are rated on a scale from 0-3 where (0= not at all, 1= several days, 2= more than half the days, 3= nearly every day). Responses to each question are summed for a cumulative total score. Scores range from 0- 21 where 0-4 is considered minimal anxiety, 5-9 is

mild anxiety, 10-14 is moderate anxiety, and 15-21 is severe anxiety (Plummer et al, 2016). The GAD-7 is both reliable and valid (Johnson et al, 2019).

## **Depression (PHQ-8)**

Participants completed the Patient Health Questionnaire (PHQ-8; Kroenke et al, 2009) at baseline. The PHQ is an 8-item self-report measure that is used for screening and diagnosis of depression with questions asking over the last two weeks "*I have had little interest or pleasure in doing things*" or "*I have had trouble concentrating on things, such as reading the newspaper or watching television*". Responses are rated on a scale from 0-3 where (0= not at all, 1= several days, 2= more than half the days, and 3= nearly every day). Responses to each question are summed for a cumulative total score. Scores range from 0-24 where 0-4 is considered minimal depression, 5-10 is mild depression, 11- 16 is moderate depression, and 17-24 is severe depression (Kroenke & Spitzer, 2001). The PHQ-8 is both reliable and valid (Kroenke et al, 2009).

## **Demographics**

Demographic measures such as age, sex and race/ethnicity were recorded to examine differential relationships in trauma and associated outcomes of anxiety and depression. For the purpose of this study, sex was defined as male or female. Racial categories included American Indian/Alaska Native, Asian, Native Hawaiian/ Pacific Islander, Black/African American, White, More than one race, and Other (specify). Ethnicity was recorded by answering "Yes" or "No" to the question "Are you Hispanic or Latino?".

## **Analytic Plan**

This study utilized responses from youth on self-reported questionnaires such as the ACEs Questionnaire, PHQ, and GAD assessment. Responses from Qualtrics were exported to Excel, and data was cleaned in order to conduct further testing. Four two-tail independent t-tests were run in Excel, all assuming unequal variances due to the larger proportion of males in the sample than females. The t-tests were used to compare males and females in terms of total ACEs score, abuse ACEs score, PHQ score, and GAD score. Abuse ACE scores were calculated by adding the scores of the first three questions on the ACEs Questionnaire that measure emotional, physical, and sexual abuse respectively. The null hypotheses were rejected if p < .05.

#### **Results**

## **Baseline Descriptive Data**

**Demographics.** Of the 93 youth included in this study, the majority were male (74 males, 19 females) with an average age of 16.10 (SD = 1.06) years. Most juveniles identified their race as White (37.63%) with the remainder identifying as Other (24.73%), Black or African American (23.66%), More than one (11.83%), American Indian or Alaska Native (2.15%), and Native Hawaiian or Pacific Islander (1.08%). It should be mentioned that the majority of youth that responded with "Other" indicated their race as Hispanic or Mexican. In terms of ethnicity, nearly half the sample identified as Hispanic or Latino (49.5%). Detailed demographic data categorized by gender are presented in Table 1.

	Male		Female		Total	
	(N=	(N=74)		(N=19)		93)
Demographic Characteristic	n	%	n	%	n	%
Sex	74	79.57	19	20.43		
Race						
White	26	35.14	9	47.37	35	37.63
Other	20	27.03	3	15.79	23	24.73
Black or African American	21	28.38	1	5.26	22	23.66
More than one	7	9.46	4	21.05	11	11.83
American Indian or Alaska Native	1	1.35	1	5.26	2	2.15
Native Hawaiian or Pac. Islander	-	-	1	5.26	1	1.08
Ethnicity						
Hispanic/Latino	39	52.70	7	36.84	46	49.5
Age						
14 years	4	5.41	4	21.05	8	8.70
15 years	15	20.27	3	15.79	18	19.57
16 years	23	31.08	5	26.32	28	30.43
17 years	27	36.49	6	31.58	33	35.87
18 years	5	6.76	-	-	5	5.43

 Table 1 Participant Demographics

**Total ACEs.** Of the 93 youth in the study sample, the vast majority of participants reported exposure to more than one adverse childhood experience (M = 4.08, SD = 2.79). The 74 males in the study reported significantly lower instances of total ACEs (M = 3.5, SD = 2.61) compared to the total ACE scores of 19 females (M = 6.32, SD = 2.36). As such, there was a significant effect for sex,  $t_{(30)} = 2.04$ , with p < .05. These results are contrary to hypothesis one in that males reported fewer ACEs than expected, demonstrating gender differences in total ACE scores.

Abuse ACEs. Abuse ACE scores (indicated by responses to the first three questions on the ACE questionnaire) for the total sample were relatively low (M = 1.0, SD = 1.14). Males reported abuse ACEs below the mean of the total sample with (M = 0.73, SD = 0.98), however

females reported abuse ACE scores of (M = 2.05, SD = 1.13). As a result, there was a significant effect for sex,  $t_{(25)} = 2.06$ ; p < .05. These results confirm hypothesis one in demonstrating greater reports of abuse ACEs in females compared to males.

**Depression.** In the total sample, participants demonstrated scores of moderate depression (M = 14.49, SD = 4.75). Males reported similar scores to that of the whole sample with (M = 13.24, SD = 5.47), and females reported slightly higher scores of (M = 15.47, SD = 4.29). There was not a significant effect for sex,  $t_{(35)} = 2.03$ ; p > .05. However, a p-value of 0.07 suggests a trend in the expected direction, but a larger sample size would be needed to ensure greater statistical power. These results partially confirm hypothesis two in showing slightly higher rates of depression in females compared to males.

Anxiety. Participants in the total sample indicated scores of moderate anxiety (M = 14.03, SD = 5.87). Males reported slightly lower levels of anxiety (M = 12.99, SD = 4.75), whereas females reported severe levels of anxiety with (M = 17.11, SD = 6.49). As a result, there was a significant effect for sex  $t_{(23)} = 2.07$ ; p < .05. These results confirm hypothesis two in demonstrating higher rates of anxiety in females compared to males.

## Table 2

	Ma	Male		Female		Total		t-value	р
	М	SD	Μ	SD	Μ	SD	Ū.		-
Tota	<i>l</i> 3.50	2.61	6.32	2.36	4.08	2.79	30	2.04	0.000085
ACES	5								
Abuse	e 0.73	0.98	2.05	1.13	1	1.14	25	2.06	0.000087
ACES	5								
PHQ	2 13.24	5.47	15.47	4.29	13.49	4.75	35	2.03	0.07
GAL	0 12.99	4.75	17.11	6.49	14.03	5.87	23	2.07	0.02

Results of Male vs. Female Total ACEs, Abuse ACEs, PHQ, and GAD Scores

### Discussion

The purpose of this study was to examine differences across gender in rates of total ACE exposure, abuse ACE exposure, depression, and anxiety in a sample of youth placed in residential treatment within the juvenile justice system. T-test results indicated that females reported higher rates of total ACEs, abuse ACEs, and anxiety. While depression measures were not statistically significant, they demonstrate a trend in the expected direction. However, a larger sample size is needed to solidify findings.

In regard to total ACE exposure, the findings of the current study support previous literature stating that the majority of youth in the juvenile justice system experience multiple traumatic events in childhood (Baglivio & Epps, 2016; Logan-Green et al, 2017) and many of these youth experience multiple forms of victimization, thus deeming them poly-victims (Kerig, 2018). As a result, it is clear that childhood trauma is particularly salient in this population. Furthermore, findings of total ACE exposure differences across gender are mixed, with some studies reporting that females report greater exposure to ACEs (Baglivio et al, 2014) and others finding no significant gender difference (Jones & Pierce, 2022). However, in this study, females reported higher rates of exposure to total ACEs, confirming that there may be a gender difference in the volume of exposure to childhood trauma.

Despite indications that youth experience multiple forms of abuse, there is very little literature to date examining the category of abuse ACEs specifically. Findings from the current study demonstrate a significant difference in females experiencing higher rates of abuse than males, thus contributing to the literature that abuse experiences may be a stronger risk factor for justice system involvement in females compared to males (Kerig, 2018). To continue, the current study supports previous studies findings of the presence of both high ACE exposure and mental health issues in justice-involved youth (Kobulsky et al, 2018; Barrett et al, 2014; Folk et al, 2021). On the other hand, previous research has linked physical and emotional abuse to externalizing problems rather than internalizing mental health problems, but this may be due to the fact that externalizing behaviors are more easily observable and identifiable while internalizing behaviors may be left undiagnosed (Muniz et al, 2019). In reference to gender differences, females reported higher rates of depression and anxiety, with anxiety being the only statistically significant finding of these mental health measures. It is critical to note that a larger sample of females would allow greater statistical power in these measures. Nonetheless, the present findings support previous literature indicating greater rates of internalizing mental health problems in justice-involved females compared to males (Wasserman et al, 2010; Conrad et al, 2014).

#### Implications

Previous research has found the presence of a mental health disorder to significantly predict recidivism in the juvenile justice system as well as further adult criminality (Barrett et al, 2014). The findings of the current study support the notion for trauma and mental health screenings in juvenile justice facilities as well as the need for trauma-informed care in the treatment of subsequent psychopathology. Previous literature has found the Massachusetts Youth Screening Instrument, Version 2 (MAYSI-2; Grisso & Barnum, 2006) to be a psychometrically sound screening tool to identify youth in need of mental health services within the juvenile justice system (Ford et al, 2008). Many juvenile justice facilities conduct mental health screenings at intakes but fail to repeat assessments during treatment and at discharge from such facilities (Swank & Gagnon, 2016). While intake screening is critical to identify youth that require mental health services, continually repeating assessments during and after treatment could allow facilities to evaluate the efficiency of their services and implement changes if necessary. Furthermore, clinicians should consider gender differences in the types of traumatic experiences youth experience as well as the way that these experiences may differentially manifest themselves in mental health disorders. For example, researchers have found justice system-involved females to experience greater sexual victimization as well as greater instances of bullying, and a higher likelihood of being part of the LGBTQ community (Dembo et al, 2019). As such, females may require more extensive services in the treatment of sexual traumas as well as providers sensitive to the needs of sexual minority youth.

## **Limitations and Future Directions**

The current study had several limitations. For one, there are biases in the use of selfreport assessments. Biases may be due to socially desired responses, underreporting of abuse and maltreatment, or inaccurate recall of events (Donaldson & Grant-Vallone, 2002; Homma et al, 2012). As previously mentioned, there was a relatively small sample of female youth in the study, and a larger sample size is needed in order to increase power and allow generalizability of study results. Another limiting factor to generalizability is that youth had to have a caregiver willing to participate in the study with them. As such, the youth in this study may not be representative of the entire juvenile justice system as many justice-involved youth do not have familial support (Shelton, 2004). Furthermore, this study only examined male and female youth and did not consider non-binary individuals, which could add another dimension to current findings. LGBTQ youth within the juvenile justice system have been found to have a multitude of challenges in the legal system such as harsher treatment from police as well as heightened risk of physical and sexual assault in facilities, which have considerable effects on their mental health outcomes (Ramos, Barnert, & Bath, 2022). Lastly, there is literature suggesting that male reports of abuse, especially sexual assault, go under-reported (Homma et al, 2012), which could influence the gender differences reported in abuse experiences within this study by eliminating potential sex differences in abuse experiences.

Future studies could expand upon the current findings by examining if gender is a moderator of the relationship between ACEs and mental health disorders such as depression and anxiety. In addition, researchers could examine which particular ACEs correlate to the development of subsequent mental health disorders in order to better tailor treatment to individuals' traumatic experiences. Additionally, the ACE questionnaire does not measure the intensity or chronic nature of trauma, particularly abuse victims. Instead, future studies may benefit from using the Complex Trauma Inventory (CTI) to measure trauma intensity and severity of trauma symptoms to better capture gender differences in traumatic experiences (Litvin, Kaminski, & Riggs, 2017).

## **Summary and Conclusion**

In summation, the current study depicts an initial examination of the abuse ACEs category specifically and suggests gender differences in the volume of abuse experiences of justice-involved youth. Additionally, the current study demonstrated gender differences in rates of anxiety but not depression. However, future studies with larger female samples could provide additional clarity in gender differences of subsequent psychopathology. Overall, it is clear that nearly all justice-involved youth have complex trauma histories and mental health needs, which facilities, courts, and public policy should consider to more adequately treat such youth and prevent future recidivism and justice-system involvement. Substantial measures in the mental health treatment of justice-involved youth must be utilized in order to prevent and reduce the long-term negative effects of traumatic experiences.

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