A HOLISTIC APPROACH TO JUVENILE JUSTICE RE-ENTRY PRACTICES: ADVERSE CHILDHOOD EXPERIENCES AS BEHAVIORAL PREDICTORS

by

Kiley E. Tomes, B.S.

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Project Approved:

Supervising Professor: Danica Knight, Ph.D.

Department of Psychology

Yang Yang, Ph.D.

Institute of Behavioral Research: Research Scientist

Casey Call, Ph.D.

Department of Psychology

Abstract

The escalating rate of substance use disorders (SUDs) across the U.S. has significantly affected vulnerable populations; juvenile justice (JJ)-involved youth are particularly susceptible to substance abuse. These adolescents frequently experience mental health disorders, dysfunctional relationships, and complex trauma; thus, developing and implementing effective prevention interventions is imperative. To provide holistic care for these adolescents, relationships among key factors impacting JJ-involved youths' community re-entry plans—trauma, substance use, and behavioral challenges—must be better understood.

The research was conducted with the Leveraging Safe Adults Project's data. The youth's TCU Drug Screen 5 (TCU DS-5), Adverse Childhood Experience (ACE) assessment, and Strengths & Difficulties Questionnaire (SDQ) constructs were analyzed. Findings indicated that youth with 1+ abuse ACE were likely to possess other categorial ACEs. Youth with 3+ household dysfunction ACEs were likely to experience 4+ ACEs and/or score above the Conduct Problems, Hyperactivity, and/or Total Difficulties SDQ scale's *abnormal* thresholds. Relationships between neglect and household dysfunction ACEs remained independent. The only variable producing a direct, significant relationship to severe SUDs was possessing 2+ *abnormal* SDQ scale scores. Understanding the relationships between a JJ-involved youth's TCU DS-5, ACE, and SDQ scores can provide the youth's caregivers, counselors, and probation offices with explanations for current behavior and inform future interactions. Further, individual re-entry plans to lower recidivism rates can be quickly curated through a trauma-informed lens.

Keywords: adverse childhood experiences (ACEs), juvenile justice, substance use disorder (SUD), strengths & difficulties questionnaire (SDQ), TCU drug screen 5 (TCU DS-5), youth trauma

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A Holistic Approach to Juvenile Justice Re-Entry Practices:

Adverse Childhood Experiences as Behavioral Predictors

Juvenile justice (JJ)-involved youth experience elevated rates of Adverse Childhood Experiences (ACEs; Folk et al., 2021). ACEs measure childhood trauma and represent interrelated experiences of abuse, neglect, and household dysfunction. An accumulation of ACEs profoundly increases an individual's risk for physical and mental health implications such as liver disease, smoking, sexually transmitted diseases, and suicide attempts (Dong et al., 2004; Folk et al., 2021).

One of the most frequent medical issues arising from experiencing ACEs is developing a substance use disorder (SUD). JJ-involved youth are nine times more likely to develop a SUD. In general, national rates of substance use (SU) among JJ-involved youth are incredibly high: 78% report alcohol use, 85% report marijuana use, and 7% report opioid use (Weise et al., 2019). SUDs can visually manifest themselves through an affected individual's behavior and mood; thus, it can be reasonably inferred that harmful behavioral patterns of JJ-involved youth may be associated with their SU. With 16-27% of youth arrested for non-traffic offenses by their 18th birthday, numerous adolescents face the dangerous probabilities ACEs, SUDs, and JJ-involvement impose (Lau et al., 2018).

ACEs are documented predictors of behavioral health outcomes in adulthood (Folk et al., 2021). A 2019 study examined ACE's association with emotional and behavioral problems (EBP) among adolescents aged 10 to 16 years old (M = 13.14 years; 44.0% boys; N = 341). The Strengths & Difficulties Questionnaire (SDQ) was used to measure EBP, and the possible dose-response association was evaluated by analyzing data from adolescents with 0 ACEs, 1-2 ACEs and three or more ACEs. Overall, adolescents with 1-2 or three or more ACEs reported greater EBP compared to adolescents without ACEs. The study suggested these results might be attributed to high levels of stress accumulated from traumatic

experiences. These implications reiterate the hazards ACEs impose upon a youth's mental and physical health (Lackova Rebicova et al.).

Further, vulnerable populations who experience a heightened rate of ACEs—like JJ-involved youth—show strong associations with inimical behavioral traits (Weise et al., 2019). Early identification and intervention for youth with SUDs are essential for a successful re-entry plan and reduced recidivism risk. Multiple studies have focused on JJ-involved youth's ACEs and their association with recidivism; yet, literature solely investigating JJ-involved youth's ACEs and the specific, viewable impacts they foist upon the youth's behavior does not exist (Folk et al., 2021). Combining the conjectures of ACEs as behavioral predictors and JJ-involved youths' risk for SUD development could establish a powerful launchpad for improving JJ-involved youths' overall health and deterring initiation or escalation of substance abuse.

This study investigates relationships among key factors impacting JJ-involved youths' community re-entry plans: trauma, SU, and behavioral challenges. Results from this thesis could benefit future researchers, JJ-staff, and JJ-involved youths' caregivers better meet this vulnerable population's needs. For example, being able to identify risk levels and possible behavioral reactions based on a youth's prior history could help clinicians and caregivers succor the youth's efforts to live a healthy lifestyle. Applying a trauma-informed lens to create comprehensive SUD and recidivism preventive methods can increase re-entry success and the youth's confidence in their ability to overcome past challenges.

This thesis intends to bridge the knowledge gap regarding JJ-involved youths' ACEs and how ACEs are linked with behavioral tendencies and SU. The derived research questions are as follows:

1. Do youth with 1+ abuse ACE commonly score above the *abnormal* threshold for one or more SDQ scales and/or the *severe* threshold for the TCU DS-5?

2. Do youth with 1+ neglect ACE commonly score above the *abnormal* threshold for one or more SDQ scales and/or the *severe* threshold for the TCU DS-5?
3. Do youth with 1+ household dysfunction ACE commonly score above the *abnormal* threshold for one or more SDQ scales and/or the *severe* threshold for the TCU DS-5?
4. Do youth with 4+ total ACEs commonly score above the *abnormal* threshold for one or more SDQ scales and/or the *severe* threshold for the TCU DS-5?
5. Do youth who score above the *abnormal* threshold for a specific SDQ scale also score above the *abnormal* threshold for other SDQ scales and/or the *severe* threshold for the TCU DS-5?

Methods

This thesis explores data collected through the Leveraging Safe Adults (LeSA) Project, originating in Texas Christian University's (TCU) Institute of Behavioral Research. Funded by the National Institute on Drug Abuse, this five-year study commenced in 2019. The LeSA Project's mission is to prevent opioid initiation and/or escalation of substance use among JJ-involved youth as they re-enter their communities (Knight et al., 2021). The protocol aims to implement effective intervention and prevention methods into standard re-entry practices using Trust-Based Relational Intervention (TBRI). TBRI, a trauma-focused therapeutic model, educates caregivers on productive techniques for supporting and treating at-risk youth (Purvis et al., 2013). TBRI's emphasis on strengthening youth/caregiver relationships allows the LeSA Project to naturally incorporate adolescents' "safe adults" into standard re-entry practices. Safe adults are the youth's parent/guardian, extended family member, or other trusted adult; they are trained with TBRI principles to help empower the adolescent and correct detrimental behavior.

The LeSA Project uses a hybrid type 1 effectiveness and implementation design to evaluate TBRI outcomes. First, TBRI-based intervention methods for impeding non-medical

use of opioids among JJ-involved youth will be employed and evaluated. Secondly, participating JJ-facilities' input will be gathered and used to fortify the TBRI-based intervention's longevity if effectuated into JJ-facility re-entry practices (Knight et al., 2021).

Participants

There are currently 12 JJ-sites across Texas and Illinois participating in the LeSA Project; these sites were selected based on long-standing relationships with TCU and the surrounding community's high SU rate. The typical census of each facility ranges from 70 to 400 beds. Although Covid restrictions have decreased each site's census, these sites still house substantial populations of the desired LeSA Project participant: adolescents transitioning back to their community after detainment in a secure facility.

The LeSA Project provides each JJ-site with the eligibility criteria and asks the site to promote the LeSA Project to its youth and their families. To be eligible for participation, the youth must be 15-18 years old, 2-3 months away from community re-entry, devoid of active suicidal ideation, and in relation with a safe adult or caregiver willing to participate as well (Knight et al., 2021). Common distribution methods include the JJ-site's family therapist offering details during therapy sessions, the case manager presenting the study, or the site incorporating LeSA Project documents into an intake process. The enrollment process and data collection are ongoing through 2023, and this thesis included a subset of youth from eight of the 12 sites.

Data from 28 youth participants were analyzed. Of these 28 participants, 24 were male, and four were female. Their ages ranged from 14 to 18 years old. Two participants lived in Illinois, and the remainder resided in Texas. One youth graduated high school, two earned their GED, five completed 11th grade, two completed 10th grade, ten completed 9th grade, and eight completed 8th grade or less. Of the 25 youths who disclosed their race, 40% identified as White, 28% as Multiracial, 16% as Hispanic, 12% as Black/African American, and 4% as American Indian/Alaska Native. The percentages of each race represented in this

thesis were on par with the national JJ-involved youth race percentages; 60% of JJ-involved youth were White, 15% were Black/African American, >.01% were American Indian, and one fourth were Hispanic (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2021).

Procedures

The LeSA Project is divided into three phases to assess TBRI results. While each phase's intentions and participants remain separate, their timelines may overlap due to evolving Covid restrictions. Phase 1 studies JJ-involved youth at risk for SU and adapts TBRI to their re-entry practice; phase 2 tests TBRI's effectiveness by employing three differing formats for youth/caregiver dyads; phase 3 examines JJ-staff's feedback regarding TBRI implementation at each site. The youth studied in this thesis were all phase 1 participants. The LeSA Project requires 18 months of youth/caregiver dyad participation. Within this time frame, both the youth and the caregiver complete five online assessment batteries at five different time points: Months 0 (completed while the youth are still in the JJ-facility or up until eight weeks post-release), 3, 6, 12, and 18. Phase 1 and phase 2 participants complete the same assessments in the same timeline. This thesis analyzed the participant's Months 0 assessment battery (also referred to as their baseline data). All assessments are survey-style, administered via Qualtrics on a computer, and monitored by a TCU Research Assistant (RA). The participant answers the measures in a secure, private room, with the RA available to answer any questions or address concerns. The youth and their caregiver receive monetary compensation after completing their assessment batteries. The dyad also checks in monthly with a LeSA team member via phone or virtual communication platforms. Some families are content with the minimum participation requirements, while others request frequent meetings with LeSA team members (Knight et al., 2021).

Measures

The data analyzed in this thesis originated from the LeSA Project's youth baseline assessment battery. This predetermined array includes: SU Timeline Follow Back, TCU Drug Screen 5 (TCU DS-5), TCU DS-5 Opioid Supplement, SDQ, Anxiety-General Anxiety Disorder, Depression-Patient Health Questionnaire, Pain, ACE Questionnaire, Family Assessment Device, Experiences in Close Relationships-Relationship Structures, Check-In Measure, Post-Session Fidelity Forms, SU Involvements from the Cooperative, TCU Thinking Form, Delayed Discounting Task, Self-Efficacy, Social Exposure to SU, Perceived Social Support While in Facility-Berlin Social Support Scale, Difficulties in Emotion Regulation, and the Youth Background Form (Knight et al., 2021). Each assessment timepoint lasts no more than an hour, and all resulting data is self-reported.

This thesis analyzed the TCU DS-5, ACE, and SDQ constructs. These measures were selected based on their content's connections to the thesis' research questions.

TCU Drug Screen 5 (Survey Scale)

The TCU DS-5 is an evidence-based screener designed to mirror the Diagnostic and Statistical Manual of Mental Disorder's (DSM-5) criteria for SUDs. While risk assessments are commonly used in JJ-settings, these tools were not created to diagnose SUDs. Further, SUD diagnoses in JJ-facilities can be obstructed by inadequate financial resources, staffing limitations, and lengthy testing periods; only 65% of JJ-involved youth receive proper SUD screening. The direct mapping of the TCU DS-5 items onto the DSM-5 SUD criteria enables clinical diagnosis of individuals who currently have a SUD or are at-risk for one. This measure is brief (takes about 5 minutes to complete), simple to interpret, and straightforward to administer (each question is answered with a simple *yes* or *no* and can be completed electronically or via a paper print-out and a writing utensil). Thus, the TCU DS-5 accurately identifies a significantly larger population of youth requiring SU aid and increases the

amount of JJ-involved youth whose needs will be addressed while in JJ-facilities (Wiese et al., 2019).

The TCU DS-5 assessment is composed of 13 questions total (with some responses consolidated) and asks the survey-taker about their drug usage over the past 12 months. The initial nine questions ask the participant about the volume of drugs taken, their usage length, the intensity of cravings and drug-related illnesses, the danger the drugs imposed on themselves or others around them, and success at attempts to cut back. These nine questions also inquire the survey-taker to reflect on their self-awareness while using drugs. The participant is asked if they perceived their drug usage to be an issue, if they allowed their usage to conflict with their morals, and if they minimized their quality of life to prioritize drugs. The 10th and 11th questions are divided into two parts each. Questions #10a and #10b ask the participant if their drug tolerance has increased and if they have increased their drug intake to meet the rising threshold. Questions #11a and #11b allow the participant to indicate if they experience drug withdrawals and if they continue using drugs to avoid them (See Appendix A for the complete questionnaire).

The TCU DS-5 items are scored on a nominal scale response option (*Yes* = 1 and *No* = 0). For questions #1-9, every *yes* was assigned 1 point. Questions #10-11 were evaluated in a logical OR operator manner; if a *yes* was reported for at least one part of the question, the question would receive a score of 1 regardless of the answer to the question's other half. Score yields range from 0 to 11 and are calculated by summing the 1-point *yes* responses. Threshold names and interpretation of the TCU DS-5 score directly correlate with the DSM-5 classifications for SUDs (*mild disorder* = 2-3 points, *moderate disorder* = 4-5 points, and *severe disorder* = 6+ points; Institute of Behavioral Research, 2020).

The Global Appraisal of Individual Needs (GAIN) was used to evaluate the TCU DS-5 for convergence validity. The GAIN is a common, evidence-based SUD risk assessment used for both youths and adults. The reliability of the TCU DS-5 is remarkable. There was

significant agreement between the TCU DS-5 and two of the GAIN's subscales for any juvenile SUD: Substance Frequency Scale (SFS) and Substance Problem Scale-Lifetime (SPSL). The SFS is the average percentage of SU reports in the past 90 days, and the SPSL is a lifetime count of substance abuse symptoms, SU dependence, and DSM-IV health and mental disorders derived from SU. Cohen's kappa coefficients of .15 were produced for both tests ($p = .002$ and $p \leq .001$, respectively), thus indicating the TCU DS-5 and the GAIN SFS and SPSL subscales diagnose youth SUDs in akin fashions (Wiese et al., 2019).

Adverse Childhood Experiences Questionnaire (Survey Scale)

The ACE questionnaire evaluates the long-term impact childhood trauma has on the development of chronic adulthood diseases. Because ACEs measure childhood trauma, this assessment tool can be used prospectively or retrospectively. There is a positive correlation between possessing ACEs and experiencing psychological and medical issues in adulthood: the greater the number of ACEs an individual endures, the greater their risk for chronic disease complications (Felitti et al., 1998). An individual possessing four or more ACEs is considered clinically at-risk for physical and mental health complications. Some of these risks include cancer growth, heart and pulmonary disease, inflammation, depression, anxiety, lifetime SU dependence, opioid addiction, and suicide. It is critical to identify youths with ACEs while they are still young; addressing their needs and providing support can drastically improve their adulthood quality of life (Giano et al., 2020).

The ACE questionnaire can be administered electronically or with a paper print-out and a writing utensil; it takes about 5 minutes to complete. Respondents answer each question by writing the number *1* to indicate that they have experienced the described situation; if they have not experienced the ACE, they place a marker (such as an "X" or checkmark) onto the line next to *no*. Survey-takers must only answer *yes* if the ACE occurred before their 18th birthday (Karyn Purvis Institute of Child Development, 2019).

The ACE assessment consists of 10 questions sorted into three categories. The first category represents abuse (questions #1-3; physical, emotional, and sexual). These questions ask the survey-taker if their parent(s) or any adult has ever verbally or physically assaulted them, took advantage of their fearful emotions, or made sexual contact with them. The next category is neglect (questions #4-5; physical and emotional); these questions ask if the respondent has ever felt personally unwanted and if their caregivers provided the physical and/or emotional essentials for a healthy upbringing. The final category is household dysfunction (questions #6-10; parental divorce, mother treated violently, substance abuse, mental illness, and incarcerated relatives). This category inquiries about the participant's parental marital status, their mother's upbringing, their living situation, and the stability of their household members (See Appendix B for the complete questionnaire).

The ACE items are scored on a nominal scale response option (*Yes* = 1 and *No* = 0). Each participant's ACEs are reflected by a reply of *1* on the line indicating *yes* to having experienced the described situation. The total ACE score is calculated by summing the 1-point *yes* responses; scores range from 0 to 10. The assessment's three categories have separate summations; each total is found by summing the 1-point *yes* responses from only the questions concerning the specific category. Category totals vary in range (abuse = 0-3, neglect = 0-2, and household dysfunction = 0-5).

The reliability of the ACE assessment as a negative adulthood health outcome predictor is exceptional. Researchers have used the Adult Attachment Interview (AAI) to assess for internal consistency. The AAI reveals *unresolved* or *cannot classify* responses from an individual who has experienced loss and abuse. These responses indicate the individual's lack of healing and lessened satisfaction with life. Participants in this study were adults who had experienced childhood trauma. After analyzing their responses to the ACE and AAI assessments, researchers found a Cronbach's alpha coefficient of .88. This significant value

validates the push to include ACE screenings in pediatric health environments (Murphy et al., 2014).

A 2016 study investigating the usage of ACE scores as a recidivism predicter corroborated ACE's behavioral health implications. This study explored the offender's ACE and Level of Service Inventory-Revised (LSI-R) scores; the LSI-R is the most common assessment tool to evaluate an offender's risk of re-offending. It analyzes the offender's criminal history, financial status, education and employment history, family and marital status, alcohol and drug use, accommodations, leisure and recreation activities, peers and companions, emotional and personal status, and attitudes. Participants came from a Midwestern community-based corrections agency, their average age was 33.99 (SD = 10.40), and their average ACE score was 4.03 (SD = 2.61). A regression analysis resulted in ACE and LSI-R scores exhibiting a significant, positive correlation trend ($\beta = .245$, $p < .01$). Thus, the ACE assessment does predict an offender's likelihood of re-offense and their overall behavioral challenges (Moore & Tatman).

Strengths & Difficulties Questionnaire (Survey Scale)

The SDQ assesses children's psychological adjustment and is intended to uncover any intellectual or behavioral problems. It can be used as a research or screening tool, a treatment-outcome gauge, or a clinical assessment component. The 25-item assessment encompasses five scales of 5 items each. The scales are Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems, and Prosocial behavior and inquire about positive and negative behavioral qualities. For the LeSA Project, the youth's SDQ asks the adolescent questions from a first-person perspective.

The Emotional Problems scale asks the respondent if they experience frequent physical ailments, commonly feel depressed and/or anxious, and allow internal emotions such as fear or nerves to dictate their everyday lives. The Conduct Problems scale implores youth to reflect on their temper, inclinations to participate in physical altercations, and tendencies to

steal others' property. This scale also asks the survey-takers if they believe they are often accused of lying or cheating and usually do as they are told. The Hyperactivit*y* scale covers topics the youth may experience, such as restlessness, constant fidgeting, and their likelihood of being distracted. This scale also asks adolescents if they think before doing things and if they consider their attention span average or better. The Peer Problems scale inquires about the youth's preferences between being alone or being with adults and if they feel younger people tend to pick on them. It also asks the adolescent if people their age generally like them and if they have at least one good friend. The Prosocial scale asks the respondent about their empathy, integrity, and charitability. This scale includes questions about the adolescents' tendencies to help others, especially those younger than them ("English (USA)," 2020; See Appendix C for the complete list of questions).

The SDQ scale items use a 3-point Likert scale response option (*Not True* = 0, *Somewhat True* = 1, and *Certainly True* = 2). A caveat to this scale scoring is that specific questions in the Conduct Problems (question #7), Hyperactivity (questions #21 and #25), and Peer Problems (questions #11 and #14) assign a 2-point value to *Not True* and a 0-point value to *Certainly True*. For each scale, score yields range from 0 to 10 and are calculated by summing the points corresponding to the scale's questions. The scale's scores could be altered proportionally if at least three of the five items were answered. The Total Difficulties score is the addition of each scale score except for the Prosocial scale; thus, scores range from 0 to 40. For simplicity in this thesis, the SDQ Total Difficulties will be referred to as a scale in addition to the primary five scales (Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems, and Prosocial; Education, Health, Care [including Social Care, Children Looked After, Early Help] Police and Prison services [EHCAP], 2019; See Appendix D for the SDQ scoring guide).

Each scale's score can be categorized into a three-band solution. These bandings were defined based on a population-based UK survey. The bandings manifested after manipulating

the cutoffs to classify 80% of children as scoring *normal*, 10% scoring *borderline*, and 10% scoring *abnormal*. Self-completed SDQs utilize the following score ranges for the three-band categorization: *Normal* (Total Difficulties = 0-15, Emotional Problems = 0-5, Conduct Problems = 0-3, Hyperactivity = 0-5, Peer Problems = 0-3, and Prosocial = 6-10), *borderline* (Total Difficulties = 16-19, Emotional Problems = 6, Conduct Problems = 4, Hyperactivity = 6, Peer Problems = 4-5, and Prosocial = 5), and *abnormal* (Total Difficulties = 20-40, Emotional Problems = 7-10, Conduct Problems = 5-10, Hyperactivity = 7-10, Peer Problems = 6-10, and Prosocial = 0-4; EHCAP, 2019).

When tested for internal consistency, the reliability of the SDQ was found to be satisfactory. In 2001, a study was conducted to test the psychometric properties of the SDQ and involved parents, teachers, and students. Scores from each SDQ scale and the individual's Total Difficulties score were utilized in the Cronbach alpha coefficient calculation; this process was completed three times for each informant group (parents, teachers, and students), and the mean Cronbach alpha coefficient was .73. This indicates that the SDQ is a dependable measure of children's psychopathology (Goodman, 2001).

Analytic Plan

To examine the proposed research questions, responses to each construct and any of their included domains were analyzed quantitatively and qualitatively through a phenomenological lens. Assessment data was translated and scored, trends in assessment results were manually observed, and multiple correlations and chi-square tests were performed for statistical significance testing.

Assessment Data Translation and Scoring

Each participant's responses were derived from Qualtrics in the Java coding language. The data was imported into an Excel workbook, and then the binary format was converted into a lexical presentation to reflect the participant's responses. This conversion was done using standard Excel formulas; for example, cells containing the number "1" were formulated

to display "Yes." Throughout this process, all participant's identities were hidden; each youth had a unique ID assigned to distinguish their responses. Each participant's TCU DS-5, ACE, and SDQ measures were scored according to the assessment creator's scoring guide (See Appendices A-D for construct scoring guidelines). To eliminate human error while calculating each youth's assessment results, the Excel formulas of "COUNTIF" and "SUM" were utilized.

Manual Data Trend Observations

This thesis' research questions were purposely left open-ended to ensure all analysis opportunities were viewed as plausible. To explore all potential relationships between the TCU DS-5, ACE, and SDQ assessments, an Excel table was created to display each participant's assessment ID; their TCU DS-5 score; their total ACE score; the sum of each categorial ACE (abuse, neglect, and household dysfunction); the sum of each SDQ scale (Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems, and Prosocial); their SDQ Total Difficulties score; numerical displays of their total *abnormal* SDQ scales, *borderline* SDQ scales, and the sum of their *abnormal and borderline* scales; and a nominal indication if they scored in the *abnormal* Total Difficulties range.

Score ranges were then color-coded to organize the data visually: Total ACE scores of 4 or more were highlighted yellow, scores above the *severe* threshold for the TCU DS-5 were highlighted green, and SDQ scales and Total Difficulties scores sitting in the *abnormal* range were highlighted red. Color-coding the quantitative data based on each measure's threshold allowed the data to be studied quantitatively. This thesis' sample size is relatively small (n=28), and visually looking for patterns allows intricate connections to be easily deciphered.

With each of the research question groupings, the same visual path was followed while analyzing the data for potential trends:

- Research questions #1-3: The focus was given to youths meeting the ACE requirements in the corresponding category. The number of youths with 4+ total

ACEs, scores above the *abnormal* threshold for SDQ domains, and/or scores above the *severe* threshold for the TCU DS-5 were noted.

- Research question #4: Youths with 4+ total ACEs who scored above the *abnormal* threshold for SDQ domains and/or scores above the *severe* threshold for the TCU DS-5 were examined.
- Research question #5: For every youth with 3 or fewer ACEs, their Prosocial SDQ and TCU DS-5 scores were analyzed.

Testing for Statistical Significance

All analyses were performed with SPSS version 26.0. Each variable was input in the discrete, quantitative format. Then, variables were duplicated and manipulated into the binary, categorical format. Descriptive statistics for each variable's mean, range, and standard deviation were calculated. Bivariate Pearson correlation tests were then run between all possible pairs of the ACE, SDQ, and TCU DS-5 assessment items. The output was a two-tailed alpha value; significance levels were set at .05 and .01. Finally, Pearson chi-square tests were conducted on the statistically significant correlation dyad results. The level of significance was set at .05 and below.

Results

Descriptive Statistics

The descriptive statistics for the quantitative variables are displayed below in Table 1. The mean results for each categorial ACE rounded to the nearest whole number are as follows: the 28 youths possessed one out of three abuse ACEs (SD = 1.17), one out of two neglect ACEs (SD = 0.75), two out of five household dysfunction ACEs (SD = 1.73), and four out of 10 total ACEs (SD = 3.02). These JJ-involved youths' ACE mean results were well above the ACE national prevalence. A study observing ACE prevalence in the United States was conducted in 2020 with 18 to 24-year-old participants who possessed similar race demographics as the LeSA Project adolescents. The study reported a mean of 1.91 out of 8.

Researchers opted to score total ACEs in a 0-8 range by streamlining the abuse and neglect ACEs into one category. Thus, the emotional neglect ACE and the physical neglect ACE were merged with their emotional and physical abuse ACE counterparts, respectively. However, in a 0-10 total ACE range, the reported mean equates to a national total ACE score of 2.39 (Giano et al., 2020). The youths studied in this thesis had at least one more ACE than the national average (M = 3.50).

The JJ-involved adolescents scored lower on the SDQ scales of Emotional Problems (M = 3.36, SD = 2.04) and Peer Problems (M = 3.61, SD = 1.87). Thus, a sizable portion of the youths scored within the *normal* range; only one youth scored within the *abnormal* range for Emotional Problems and only five for Peer Problems. Compared to the Emotional and Peer Problems scales, the Prosocial scale's mean may seem quite high (M = 6.59). However, the range for a *normal* score on the Prosocial scale is 6-10. Therefore, most of the youth resided within the *normal* range for this scale as well; only five adolescents scored above the *abnormal* threshold for Prosocial behavior. For the overall SDQ assessment, the adolescents scored, on average, within the *abnormal* range for only two SDQ scales out of the six total (M = 1.57, SD = 1.07). The greatest amount of *abnormal* SDQ thresholds reached by a participant was four. The adolescents were closely split on where they scored within the SDQ Hyperactivity scale (M = 5.82, SD = 2.55); 12 youths scored within the *normal* range and 15 in the *abnormal* range.

Conversely, the JJ-involved youth's means for the SDQ Conduct Problems, SDQ Total Difficulties, and the TCU DS-5 were either nearly at or above the *abnormal* or *severe* thresholds. The JJ-involved adolescent's SDQ Total Difficulties mean was 18.42 (SD = 6.55); this scale's *abnormal* range begins at 20; this high mean value was reflected by 15 of the 28 youths scoring above the *abnormal* threshold. The SDQ Conduct Problems and TCU DS-5 means were above the *abnormal* and *severe* thresholds, respectively. Eighteen of 28 adolescents scored within the *abnormal* range for SDQ Conduct Problems (M = 5.64, SD =

2.79); 17 youths scored above the *severe* threshold (indicative of a severe SUD) for the TCU DS-5 ($M = 6.11$, $SD = 4.25$).

Table 1

Descriptive statistics for categorial ACEs, SDQ scales, and the TCU DS-5 (N = 28)

Variable	*M*	Range	*SD*
Abuse ACE Score	0.79	0-3	1.17
Neglect ACE Score	0.50	0-2	0.75
Household Dysfunction ACE Score	2.21	0-5	1.73
Total ACE Score	3.50	0-10	3.02
SDQ: Emotional Problems	3.36	0-10	2.04
Youth above the *normal* threshold: 23 Youth above the *borderline* threshold: 4 Youth above the *abnormal* threshold: 1			
SDQ: Conduct Problems	5.64	0-10	2.79
Youth above the *normal* threshold: 6 Youth above the *borderline* threshold: 4 Youth above the *abnormal* threshold: 18			
SDQ: Hyperactivity	5.82	0-10	2.55
Youth above the *normal* threshold: 12 Youth above the *borderline* threshold: 1 Youth above the *abnormal* threshold: 15			
SDQ: Peer Problems	3.61	0-10	1.87
Youth above the *normal* threshold: 13 Youth above the *borderline* threshold: 10 Youth above the *abnormal* threshold: 5			
SDQ: Prosocial	6.59	0-10	2.21
Youth above the *normal* threshold: 20 Youth above the *borderline* threshold: 3 Youth above the *abnormal* threshold: 5			
SDQ: Total Difficulties	18.42	0-40	6.55

Variable	*M*	Range	*SD*
Youth above the *normal* threshold: 8 Youth above the *borderline* threshold: 5 Youth above the *abnormal* threshold: 15			
SDQ: Number of *Abnormal* Scores	1.57	0-6	1.07
TCU DS-5	6.11	0-11	4.25
No SUD: 8 *Mild* SUD: 1 *Moderate* SUD: 2 *Severe* SUD: 17			

Correlation Coefficient Matrix

Among the 12 variables examined and the sample population of 28 youths, 30 significant correlations were found from the 66 total pairing possibilities. These 30 significant pairings can be viewed below in Table 2. The overall significance rate was 45% and comprised 15 pairings significant at the $p \leq .05$ level and 15 more at the $p \leq .01$ level. At the $p \leq .05$ level, significant correlations were produced from pairings involving every variable; the average correlation coefficient was $r(28) = .428$. The r values produced were not precise, as the range was .375 up to .463.

The pairings significant at the $p \leq .01$ level were generated from all dyads, including all variables except for pairings including the SDQ Prosocial scale and the TCU DS-5 scores. The average correlation coefficient was $r(28) = .677$, and the precision of these r values was remarkably less than those at the $p \leq .05$ level. The range of the r values went from .492 to .857. With the substantial amount of significant correlation coefficients found, further testing needed to be completed to address this thesis' research questions adequately.

Table 2

Correlation coefficients between categorial ACEs, SDQ scales, and the TCU DS-5 (N = 28)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Total ACE	–											
2. Abuse ACE	.819**	–										
3. Neglect ACE	.789**	.724**	–									
4. Household Dysfunction ACE	.857**	.446*	.460*	–								
5. SDQ: Emotional Problems	.438*	.563**	.463*	.187	–							
6. SDQ: Conduct Problems	.289	.112	.036	.415*	.140	–						
7. SDQ: Hyperactivity	.439*	.260	.165	.521**	.297	.510**	–					
8. SDQ: Peer Problems	.010	.096	.093	-.087	.300	.440*	.217	–				
9. SDQ: Prosocial	.011	-.025	.067	.007	.157	-.437*	-.056	-.047	–			
10. SDQ: Total Difficulties	.433*	.353	.251	.412*	.575**	.792**	.761**	.652**	-.171	–		
11. SDQ: Number of *Abnormal* Scores	.435*	.250	.232	.492**	.090	.729**	.663**	.375*	-.293	.703**	–	
12. TCU DS-5	.240	.065	.169	.304	.234	.378*	.343	.120	-.205	.399*	.450*	–

Note. **Correlation is significant at the $p \leq .01$ level (two-tailed). *Correlation is significant at the $p \leq .05$ level (two-tailed)

Chi-Square Crosstabulations

Chi-square tests of independence were performed to determine if a youth possessing just one ACE in the expressed category was enough to produce significant results. A chi-square test was conducted for each significant correlation pairing found in the previous section, whether it was significant at the $p \leq .05$ or $p \leq .01$ level. To ensure valid results, variables with skewed group presentation were not included; the variables excluded were the SDQ Emotional Problems, Peer Problems, and Prosocial scales. Further, to run a credible

chi-square test, the household dysfunction ACE category was divided at the natural break between youths with 0-2 household dysfunction ACEs and youth with 3-5. Finally, the variable representing a youth's number of *abnormal* SDQ Problems was split into two groups: youths with 0-1 *abnormal* SDQ Problems and youth with two or more.

The null hypothesis for Table 3 is that youth who possessed 1+ neglect ACE or 3+ household dysfunction ACEs was independent of them also having 1+ abuse ACE ($H_0 = p \geq .05$, $H_a = p < .05$). Both scenarios produced significant results, thus rejecting this null hypothesis: youth with 1+ neglect ACE with $X^2(1, N = 28) = 13.29$, $p < .001$ and youth with 3+ household dysfunction ACEs with $X^2(1, N = 28) = 7.05$, $p = .008$.

Table 3

Chi-square analyses of the 1+ abuse ACE/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with 1+ Abuse ACE			
		Yes	**No**		
		10	18		
Variable		35.7%	64.3%	**Total**	**X^2 Value**
Youth with 1+ Neglect ACE	**Yes**	8	2	10	13.29*
		28.6%	7.1%	35.7%	
	No	2	16	18	
		7.1%	57.1%	64.3%	
Youth with 3+ Household Dysfunction ACEs	**Yes**	8	5	13	7.05*
		28.6%	17.9%	46.4%	
	No	2	13	15	
		7.1%	46.4%	53.6%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

The test of the null hypothesis for youth who possessed 1+ neglect ACE being independent of them also having experienced 3+ household dysfunction ACEs ($H_0 = p \geq .05$, $H_a = p < .05$) was not significant (see Table 4). Thus, the null hypothesis was not rejected (X^2 [1, $N = 28$] = 3.48, $p = .062$]).

Table 4

Chi-square analysis of the 1+ neglect ACE/significant correlation coefficient variable dyad (N = 28, df = 1)

		Youth with 1+ Neglect ACE			
		Yes	**No**		
		10	18		
Variable		35.7%	64.3%	**Total**	**X^2 Value**
Youth with 3+ Household Dysfunction ACEs	**Yes**	7	6	13	3.48
		25.0%	21.4%	46.4%	
	No	3	12	15	
		10.7%	42.9%	53.6%	

Seventy-five percent of pairings in Table 5 produced significant results. The null hypothesis for the pairings below was that youth who have 3+ household dysfunction ACEs were not likely to have also scored within the *abnormal* range for the SDQ Conduct scale, Hyperactivity scale, Total Difficulties scale, or 2+ SDQ scales ($H_0 = p \geq .05$, $H_a = p < .05$). The first three pairings produced significant results: X^2 (1, $N = 28$) = 4.39, $p = .037$; X^2 (1, $N = 28$) = 5.32, $p = .021$; and X^2 (1, $N = 28$) = 5.32, $p = .021$, respectively. However, there was no relationship shown between youth with 3+ household dysfunction ACEs and 2+ *abnormal* SDQ Scores, X^2 (1, $N = 28$) = 2.67, $p = .102$.

Table 5

Chi-square analyses of the 3+ household dysfunction ACEs/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with 3+ Household Dysfunction ACEs			
		Yes	**No**		
		13	15		
Variable		46.4%	53.6%	**Total**	**X^2 Value**
Youth with *Abnormal* SDQ Conduct Scores	**Yes**	11	7	18	4.39*
		39.3%	25.0%	64.3%	
	No	2	8	10	
		7.1%	28.6%	35.7%	
Youth with *Abnormal* SDQ Hyperactivity Scores	**Yes**	10	5	15	5.32*
		35.7%	17.9%	53.6%	
	No	3	10	13	
		10.7%	35.7%	46.4%	
Youth with *Abnormal* SDQ Total Difficulties Scores	**Yes**	10	5	15	5.32*
		35.7%	17.9%	53.6%	
	No	3	10	13	
		10.7%	35.7%	46.4%	
Youth with 2+ *Abnormal* SDQ Scores	**Yes**	10	7	17	2.67
		35.7%	25.0%	60.7%	
	No	3	8	11	
		10.7%	28.6%	39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

The null hypotheses was that youth with 4+ total ACEs were not likely to have also possessed 1+ abuse ACE, 1+ neglect ACE, 3+ household dysfunction ACEs, *abnormal* SDQ Hyperactivity scores, *abnormal* SDQ Total Difficulties scores, or 2+ *abnormal* SDQ scale scores is depicted in Table 6 ($H_0 = p \geq .05$, $H_a = p < .05$). The null hypothesis was rejected for the first five pairings as follows in their respective order: $X^2 [1, N = 28] = 11.87$, $p = .001$; $X^2 [1, N = 28] = 7.05$, $p = .008$; $X^2 [1, N = 28] = 20.54$, $p < .000$; $X^2 [1, N = 28] = 5.32$, $p = .021$; and $X^2 [1, N = 28] = 5.32$, $p = .021$. The last pairing involving youth with 2+ SDQ *abnormal* scores was not significant ($X^2 [1, N = 28] = 2.67$, $p = .102$).

Table 6

Chi-square analyses of the 4+ total ACEs/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with 4+ Total ACEs			
		Yes	**No**		
		13	15		
Variable		46.4%	53.6%	**Total**	**X^2 Value**
Youth with 1+ Abuse ACE	**Yes**	9	1	10	11.87*
		32.1%	3.6%	35.7%	
	No	4	14	18	
		14.3%	50.0%	64.3%	
Youth with 1+ Neglect ACE	**Yes**	8	2	10	7.05*
		28.6%	7.1%	35.7%	
	No	5	13	18	
		17.9%	46.4%	64.3%	
Youth with 3+ Household Dysfunction ACEs	**Yes**	12	1	13	20.54*
		42.9%	3.6%	46.4%	

	No	1 3.6%	14 50.0%	15 53.6%	
Youth with *Abnormal* SDQ Hyperactivity Scores	**Yes**	10 35.7%	5 17.9%	15 53.6%	5.32*
	No	3 10.7%	10 35.7%	13 46.4%	
Youth with *Abnormal* SDQ Total Difficulties Scores	**Yes**	10 35.7%	5 17.9%	15 53.6%	5.32*
	No	3 10.7%	10 35.7%	13 46.4%	
Youth with 2+ SDQ *Abnormal* Scores	**Yes**	10 35.7%	7 25.0%	17 60.7%	2.67
	No	3 10.7%	8 28.6%	11 39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

50% of the pairings in Table 7 produced significant results. The null hypotheses for these pairings was that youth who scored above the *abnormal* threshold for SDQ Conduct Problems were not likely to score above the *abnormal* threshold for the SDQ Hyperactivity scale, Total Difficulties scale, 2+ SDQ scales or *severe* threshold for the TCU DS-5 ($H_0 = p \geq .05$, $H_a = p < .05$). Analyses for *abnormal* SDQ Total Difficulties score and 2+ *abnormal* SDQ scores were significant: $X^2(1, N = 28) = 7.05$, $p = .008$; and $X^2(1, N = 28) = 16.77$, $p < .000$, respectively. Analyses for *abnormal* SDQ Hyperactivity scores and *severe* TCU DS-5 scores were not significant: $X^2(1, N = 28) = 3.48$, $p = .062$; and $X^2(1, N = 28) = 0.75$, $p = .387$, respectively.

Table 7

Chi-square analyses of the abnormal SDQ Conduct Problems scale scores/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with *Abnormal* SDQ Conduct Scores			
		Yes	**No**		
		18	10		
Variable		64.3%	35.7%	**Total**	**X^2 Value**
Youth with *Abnormal* SDQ Hyperactivity Scores	**Yes**	12	3	15	3.48
		42.9%	10.7%	53.6%	
	No	6	7	13	
		21.4%	25.0%	46.4%	
Youth with *Abnormal* SDQ Total Difficulties Scores	**Yes**	13	2	15	7.05*
		46.4%	7.1%	53.6%	
	No	5	8	13	
		17.9%	28.6%	46.4%	
Youth with 2+ *Abnormal* SDQ Scores	**Yes**	16	1	17	16.77*
		57.1%	3.6%	60.7%	
	No	2	9	11	
		7.1%	32.1%	39.3%	
Youth with *Severe* TCU DS-5 Scores	**Yes**	12	5	17	0.75
		42.9%	17.9%	60.7%	
	No	6	5	11	
		21.4%	17.9%	39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

The null hypothesis for Table 8 is that youth who scored within the *abnormal* SDQ Hyperactivity range were not likely to also score within the *abnormal* range for SDQ Total Difficulties or to possess 2+ *abnormal* SDQ scale scores ($H_0 = p \geq .05$, $H_a = p < .05$). Both analyses produced significant results thus rejecting this null hypothesis: youth who scored above the *abnormal* threshold for SDQ Total Difficulties with $X^2(1, N = 28) = 9.07$, $p = .003$ and youth who possessed 2+ *abnormal* SDQ scores with $X^2(1, N = 28) = 9.12$, $p = .003$.

Table 8

Chi-square analyses of the abnormal SDQ Hyperactivity scale scores/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with *Abnormal* SDQ Hyperactivity Scores			
		Yes	**No**		
		15	13		
Variable		35.7%	64.3%	**Total**	**X^2 Value**
Youth with *Abnormal* SDQ Total Difficulties Scores	**Yes**	12	3	15	9.07*
		42.9%	10.7%	53.6%	
	No	3	10	13	
		10.7%	35.7%	46.4%	
Youth with 2+ *Abnormal* SDQ Scores	**Yes**	13	4	17	9.12*
		46.4%	14.3%	60.7%	
	No	2	9	11	
		7.1%	32.1%	39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

Findings for the null hypothesis that scoring within the *abnormal* threshold for SDQ Total Difficulties would not be associated with 2+ *abnormal* SDQ scores or a *severe* TCU DS-5 score are presented in Table 9 ($H_0 = p \geq .05$, $H_a = p < .05$). The crosstabulations showed a relationship between youth with *abnormal* SDQ Total Difficulties scores and 2+

abnormal SDQ scores, X^2 (1, N = 28) = 5.04, p = .025, and no relationship regarding youth with a *severe* TCU DS-5 score, X^2 (1, N = 28) = 2.16, p = .142.

Table 9

Chi-square analyses of the abnormal SDQ Total Difficulties scale scores/significant correlation coefficient variable dyads (N = 28, df = 1)

		Youth with *Abnormal* SDQ Total Difficulties Scores			
		Yes	**No**		
		15	13		
Variable		53.6%	46.4%	**Total**	**X^2 Value**
Youth with 2+ *Abnormal* SDQ Scores	**Yes**	12	5	17	5.04*
		42.9%	17.9%	60.7%	
	No	3	8	11	
		10.7%	28.6%	39.3%	
Youth with *Severe* TCU DS-5 Scores	**Yes**	11	6	17	2.16
		39.3%	21.4%	60.7%	
	No	4	7	11	
		14.3%	25.0%	39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

Findings regarding the null hypothesis that having 2+ *abnormal* SDQ scores is not associated with a *severe* SUD as defined by the TCU DS-5 ($H_0 = p \geq .05$, $H_a = p < .05$) are summarized in Table 10. This analysis rejected the null hypothesis with X^2 (1, N = 28) = 4.50, p = .034.

Table 10

Chi-square analysis of the 2+ abnormal SDQ scale scores/significant correlation coefficient variable dyad (N = 28, df = 1)

		Youth with 2+ *Abnormal* SDQ Scores			
		Yes	**No**		
		17	11		
Variable		60.7%	39.3%	**Total**	X^2 **Value**
Youth with *Severe* TCU DS-5 Scores	**Yes**	13	4	17	4.50*
		46.4%	14.3%	60.7%	
	No	4	7	11	
		14.3%	25.0%	39.3%	

Note. *Significant at the $p \leq .05$ level (two-tailed)

Research Questions Results

Research Question #1: Do youth with 1+ abuse ACE commonly score above the abnormal threshold for one or more SDQ scales and/or the severe threshold for the TCU DS-5?

A chi-square test to examine the relationship between abuse ACEs and abnormal Emotional Problems scale scores was not performed due to the skewed SDQ Emotional Problems distribution; only one of the 28 youths scored within this scale's abnormal range. Therefore, this study could not conduct a test of this specific relationship. Furthermore, possessing 1+ abuse ACE does not predict scoring above the TCU DS-5's severe threshold as evidenced by this variable dyad not producing statistically significant correlation coefficient results. In fact, experiencing either abuse, neglect, or 3+ household dysfunction ACEs is not connected to severe TCU DS-5 scores (demonstrated by the lack of statistically significant correlation coefficient results).

Deviating slightly from the original research question, results between youth with 1+ abuse ACE and possessing other categorial ACEs were analyzed; significant correlation coefficients were produced when youth with abuse ACEs were paired with youth possessing neglect ACEs or household dysfunction ACEs. Both dyads resulted in significant chi-square values as well. These outcomes speculate that youth who experienced 1+ abuse ACE also

have an increased likelihood of possessing 1+ neglect ACE or 3+ household dysfunction ACEs (See Figure 1 for a visual of this conclusion).

Research Question #2: Do youth with 1+ neglect ACE commonly score above the abnormal threshold for one or more SDQ scales and/or the severe threshold for the TCU DS-5?

There were two correlation coefficients significant at the $p \leq .05$ level found concerning youth with neglect ACEs: those also with household dysfunction ACEs or those who also scored above the abnormal threshold for the SDQ's Emotional Problems. The correlation between neglect ACEs and the SDQ's Emotional Problems was not examined further due to this SDQ scale's skewed distribution. However, a chi-square test was performed between youth with 1+ neglect ACE and youth with 3+ household dysfunction ACEs. The result was nonsignificant, and thus there is no evidence that youth with 1+ neglect ACE are at any disadvantage regarding the SDQ scales or the TCU DS-5. Nevertheless, the results of research question #1 do suggest youth with 1+ Neglect ACE also possess 1+ Abuse ACE.

Research Question #3: Do youth with 3+ household dysfunction ACEs commonly score above the abnormal threshold for one or more SDQ scales and/or the severe threshold for the TCU DS-5?

Results showed that youth with 3+ household dysfunction ACEs are not at significant risk for scoring above the TCU DS-5's *severe* threshold. These youth are also not likely to possess multiple *abnormal* SDQ scale scores. There was a correlation coefficient significant at the $p \leq .01$ level found between youth with household dysfunction ACEs and those having a higher number of *abnormal* SDQ scores, but a chi-square test for this variable dyad produced nonsignificant results.

However, youths who possessed 3+ household dysfunction ACEs did generate significant correlation coefficients and chi-square results when paired with the SDQ scales of

Conduct Problems, Hyperactivity, and Total Difficulties. Thus, possessing three or more household dysfunction ACEs suggests that youth are likely to score within the *abnormal* range for the SDQ scales of Conduct Problems, Hyperactivity, and Total Difficulties. These findings imply that the negative impact of possessing 3+ household dysfunction ACEs is more prevalent than only having experienced two or fewer household dysfunction ACEs, 1+ abuse ACE, or 1+ neglect ACE. Visualizations of these results can be seen in Figure 1.

Research Question #4: Do youth with 4+ total ACEs commonly score above the abnormal threshold for one or more SDQ scales and/or the severe threshold for the TCU DS-5?

Tests concerning a youth's total ACEs resulted in the greatest number of significant results. Correlation coefficients significant at the $p \leq .01$ level were found between youth possessing greater amounts of ACEs and their likelihood of also possessing multiple abuse, neglect, or household dysfunction ACEs. When further analyzing these relationships via chi-square tests, the speculation that youths with 4+ total ACEs and them also experiencing 1+ abuse ACE, 1+ neglect ACE, or 3+ household dysfunction ACEs was verified by significant outcomes. This result can also be seen within the youths' baseline ACE scores; the mean for abuse, neglect, and household dysfunction ACEs was at least 1 for each categorial ACE.

Youth with a greater number of total ACEs also scored higher on the SDQ scales of Emotional Problems, Hyperactivity, and Total Difficulties. Thus, these youth scored within the abnormal range for a greater number of SDQ scales; these relationships can be seen by their correlation coefficients exhibiting significance at the $p \leq .05$ level. Due to the skewed distribution of the SDQ Emotional Problems scale, chi-square tests were performed for only three of these four dyads: the SDQ Hyperactivity scale score, the SDQ Total Difficulties scale score, and the 2+ abnormal SDQ scale scores. Significant chi-square values were produced from the relationships between youth with 4+ total ACEs and those who also scored within the abnormal range for the SDQ's Hyperactivity or Total Difficulties scales. The chi-square test generated nonsignificant results between youth with 4+ total ACEs and

those who scored above the abnormal threshold for two or more SDQ scales. Therefore, youth with 4+ total ACEs more commonly scored within the *abnormal* range for the SDQ scales of Hyperactivity and Total Difficulties but not above the *severe* threshold for the TCU DS-5 (See Figure 1).

Research Question #5: Do youth who score above the abnormal threshold for a specific SDQ scale also score above the abnormal threshold for other SDQ scales and/or the severe threshold for the TCU DS-5?

The summary of results addressing this research question will exclude SDQ scales with skewed distributions of *abnormal* scores: Emotional Problems, Peer Problems, and Prosocial behavior. Each of the following conclusions is visually represented in Figure 1.

SDQ: Conduct Problems

JJ-involved adolescents with higher SDQ Conduct Problems scores also had increased scores on the SDQ Hyperactivity scale, SDQ Total Difficulties scale, their total amount of *abnormal* scale scores, and the TCU DS-5. Chi-square tests were conducted for these four variable pairings. Significant results were produced from youth with *abnormal* SDQ Conduct Problem scale scores who also possessed *abnormal* scores on the Total Difficulties SDQ scale and/or 2+ *abnormal* SDQ scores overall. Nonsignificant chi-square results were generated from the dyads regarding youth with *abnormal* SDQ Conduct and Hyperactivity scale scores and/or *severe* TCU DS-5 scores. Therefore, youth who scored within the *abnormal* range for the SDQ Conduct Problems scale also scored above the *abnormal* Total Difficulties SDQ scale threshold and possessed two or more *abnormal* SDQ scale scores on average.

SDQ: Hyperactivity

Significant correlation coefficients resulted from youth with *abnormal* SDQ Hyperactivity scale scores when paired with *abnormal* SDQ Total Difficulties scores or greater total *abnormal* SDQ scale scores overall. Both dyads produced significant chi-square

values. Thus youth with *abnormal* SDQ Hyperactivity scale scores were more likely to possess an *abnormal* SDQ Total Difficulties score and more than two *abnormal* SDQ scale scores.

SDQ: Total Difficulties

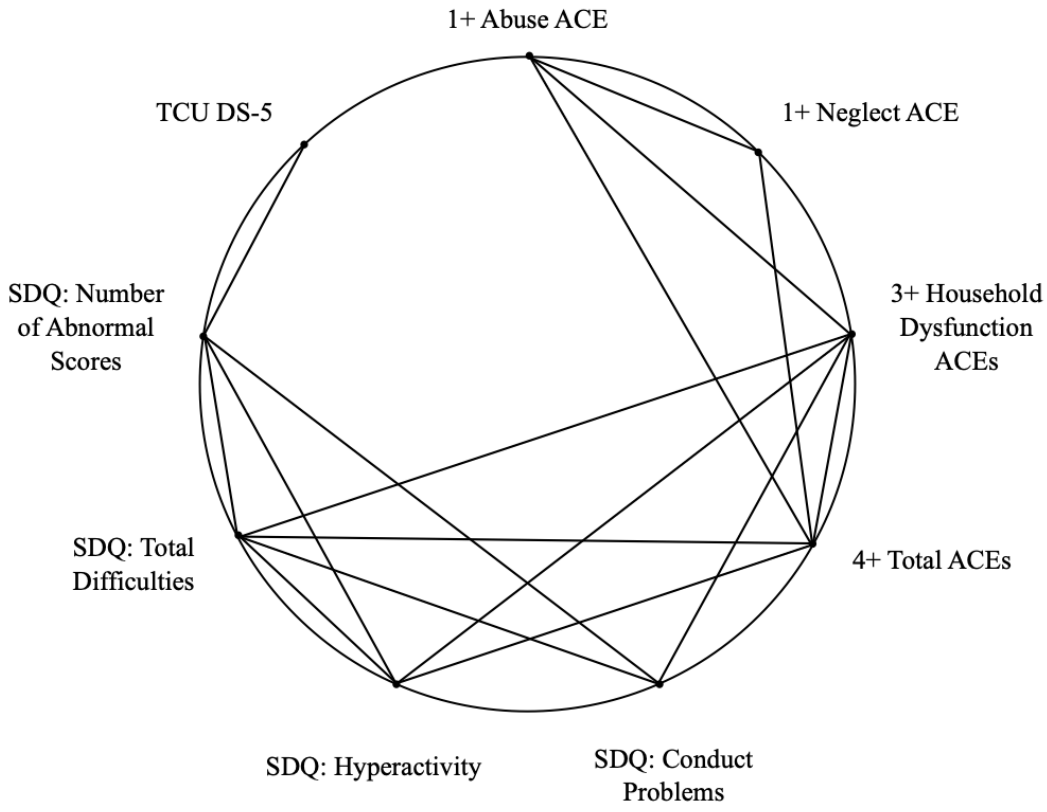
Adolescents with an abnormal SDQ Total Difficulties score were more likely to score within the *abnormal* range for a greater number of SDQ scales and within the *severe* range for the TCU DS-5, as demonstrated by significant correlation coefficients between these pairings. However, only the dyad of *abnormal* SDQ Total Difficulties scores and 2+ *abnormal* SDQ scores resulted in a significant chi-square value.

SDQ: Number of *Abnormal* Scores

When the relationship between the number of *abnormal* SDQ scores and *severe* TCU DS-5 scores was examined, a significant correlation coefficient and chi-square test resulted. Therefore, youth who possess two or more *abnormal* SDQ scores were more likely to have a severe SUD.

Figure 1

Significant chi-square variable dyads denoted by connecting lines



Discussion

The purpose of this study was to examine relationships between ACEs, SU, and behavioral problems among youth involved in juvenile justice. Findings indicate that JJ-involved youth who possessed one or more abuse ACEs were likely to have experienced other categorial ACE trauma. There were also significant relationships reported between youth with 3+ household dysfunction ACEs and them possessing 4+ ACEs and/or scoring above the *abnormal* threshold for the Conduct Problems, Hyperactivity, and/or Total Difficulties SDQ scales. Interestingly, relationships in this study between neglect ACEs and household dysfunction ACEs remained independent. Also, the only variable dyad that produced significant chi-square results regarding a direct relationship to scoring above the *abnormal* threshold for the TCU DS-5 was the pairing of a severe SUD and youth who had two or more *abnormal* SDQ scale scores.

Results of this study are corroborated by a 2004 study of the general US population, focusing on the co-occurrence of ACEs. The results found all 10 ACEs were interwoven within each other. If an individual reported one ACE, then the probability of them reporting another ACE was up to 18 times higher than individuals who had no ACEs to report. If ACEs are so closely interrelated, then possessing just one ACE raises an individual's risk for *abnormal* SDQ scale scores. This inference is supported by this thesis' findings that experiencing four or more ACEs suggests multiple *abnormal* SDQ scale scores. ACEs are proven to negatively impact an individual's short-term and long-term physical and mental health, and these impacts become more prevalent and dangerous as the ACE amount increases (Dong et al., 2004). Intervening in these youth's lives early on could be the difference between the youth receiving help and overcoming their obstacles in a successful, healthy manner or the distressed youth resorting to destructive behaviors and engaging in risky behavior. The implications of this study, the results produced from this thesis' research,

and the innumerable other studies demonstrating the physical and mental risks an ACE can impose on one's life all emphasize the utility of universal, frequent ACE testing.

Repeated ACE questionnaire testing could be set at life milestone intervals, such as at each doctor's apportionment or once every new school year. The ACE assessment is free to conduct and easy to complete; incorporating the questionnaire would not require extra funding or advanced test administration skills. Even if the full ACE assessment is not completed during the testing period, knowing at least one aspect of a youth's history can help authority figures ask the right questions to uncover impactful events. Implementation of the ACE assessment into major aspects of a youth's upbringing can greatly aid children in vulnerable populations where SUDs are more common and normalized.

Younger children may be afraid to seek help or lack trust in authority figures. Providing these youth with a non-confrontational opportunity to reveal any potential ACEs could lead to more honest answers and a targeted approach to increasing their personal and academic success trajectory. Even if adolescents have not experienced any ACEs, regular ACE assessments provide value as an educational tool for educating children and their families on how their dynamics should be while in safe, stable, nurturing relationships (Bethell et al., 2018).

In addition to frequent ACE assessments, youths should also complete the SDQ as often as they do the ACE test. As shown by the results of research question #5, scoring within the *abnormal* range for the SDQ scales of Conduct Problems, Hyperactivity, and/or Total Difficulties are all indicators of also possessing 3+ household dysfunction ACEs. Additionally, *abnormal* scores in the SDQ scales of Hyperactivity and/or Total Difficulties may suggest that the youth has experienced four or more total ACEs, illustrated by research question #4's findings. Simply assessing behavior can give meaningful insight into the youth's home life and provide them with resources explicitly related to their increased trauma exposure.

Visual, negative behavior can be associated with youths scoring above the *abnormal* threshold for SDQ Conduct Problems, Hyperactivity, and/or Total Difficulties; these youths are more likely to have more than two abnormal SDQ scale scores overall. Moreover, youths with more than two *abnormal* SDQ scale scores are more likely to have a severe SUD as defined by the TCU DS-5. Thus, assessing youths with the SDQ, or even with just the SDQ Conduct Problems scale, can gently and accurately uncover risk for possible SUDs. This subtle way of identifying youths at risk for SU can be the early intervention needed to save their lives. Repeated testing, along with purposeful and valuable SU education, can help deter adolescents from falling into dangerous activities and reduce the normalcy of youths with SUDs.

Regarding research questions #1 and #2, a JJ-involved youth with one or more abuse ACE is also likely to have experienced one or more neglect ACE, 3+ household dysfunction ACEs, and/or 4+ total ACEs. Based on national prevalence rates, abuse ACEs claim the second (physical abuse) and fourth (sexual abuse) spots in the rankings. Also, if a youth has experienced any abuse ACEs, there is a 41% chance of them already having four or more ACEs total (Dong et al., 2004). With such high prevalence and close associations with the other ACE categories and clinical thresholds, abuse ACEs must be taken seriously and assessed regularly. Future studies should focus on how each abuse ACE subcategory specifically influences a youth's behavior. Also, more studies on how to encourage youth to report abuse they have or are experiencing would be incredibly beneficial. Creating a culture of support and empathy in academic and personal settings will increase adolescents' willingness to report abuse experiences.

Within JJ-facilities, assessing a youth's ACE score within 24 hours of their arrival can provide helpful information for psychological and medical diagnoses, target the sectors of their life they may try to hide, and expedite their integration into prevention programs and aiding services most beneficial to the trauma they have undergone (Dong et al., 2004).

Relating this implication to research questions #3 and #4, the value of adding ACE assessments to youth's intake and re-entry planning can exponentially increase their rate of success and general satisfaction. For example, this thesis found that youth with three or more household dysfunction ACEs are more likely to have four or more total ACEs. Even if an ACE assessment is not administered, a youth who informs a JJ-staff member that they have experienced three of the five household dysfunction ACEs can be presumed to be clinically at risk for severe mental, health, and behavioral issues.

Additionally, a youth who has experienced 3+ household dysfunction ACEs is more likely to exhibit the behaviors of abnormal SDQ Conduct Problems, Hyperactivity, and Total Difficulties. Knowing these conjectures, JJ-staff and caregivers can formulate holistically targeted care plans. For example, youths with 3+ household dysfunction ACEs can have a re-entry plan crafted that emphasizes positive conduct behaviors and diminishing common hyperactivity traits. With knowledge of each youth's ACEs, JJ-staff and caregivers will not have to probe the youth with numerous questions or invade their personal space for lengthy observations. They could also apply the intention of addressing a JJ-involved youth as a complex human whose behavior is a natural reaction to trauma instead of just another adolescent who willingly defies the law. This personalized approach can help the youth feel more cared for and individually known. Further, the youth will trust their supervisors and actively work to develop the relationship. Implementing these early prevention methods into their treatment and re-entry plans could lead to a successful life after their time in the JJ-facility.

Limitations and Conclusion

The findings of this thesis contribute to current literature on JJ-involved youth, their behavioral inclinations as derivatives of ACEs, and how SUDs manifest themselves in these adolescents' lives. The use of quantitative data permits more definitive answers when explicating adulthood behaviors as a childhood trauma corollary. However, it is essential to

remember correlation does not imply causality; cause and effect cannot be determined from a correlational study due to directionality and third-variable interferences. There are several limitations of this thesis to be acknowledged.

The age caps of each cogitative assessment were divergent from one another. The TCU DS-5's items and scoring remain the same regardless of age. The ACE questionnaire can also be administered at any age. However, the respondent's score may increase until their 18th birthday or change over time as their memory may diminish or their interpretation of life events alters. The SDQ's item phrasing varies by age group: 2-4, 4-10, 11-17, and 18+. The LeSA Project uses the 11–17-year-old SDQ, but the 18+ year-old SDQ formulates some questions more maturely. For example, item #7 on the 11–17-year-old SDQ asks the participant if they "usually do as I [they] are told," and the 18+ year-old SDQ words that question as to the respondent "generally willing to do what other people want" ("English (USA)," 2020). Both versions of the SDQ are scored the same, but the differing phrasing may alter responses; this limitation may manifest if changes in a youth's behavior are measured solely on the variations between their 11–17-year-old and 18+ year-old SDQ scores. The assessments employed in the LeSA Project are intended for their target age population of 15–18-year-olds, but it is still important to note these assessments' inherent differences. Further, all assessment data was self-reported. Thus, there may be reporting inaccuracies or personal bias involved; questions could have been misunderstood or hurriedly answered in pursuit of earning the assessment completion monetary award.

Another major limitation was the extremely small ($N = 28$) population size available for data analysis. Thus, the results may not accurately represent all JJ-involved youth or the LeSA Project participants. The limited population was due to the Coronavirus pandemic's unpredictability and the influences this lack of stability imposed on enrollment timelines. A meticulous version of this thesis would require adjusting some of the current demographic ratios. Of the 28 participants, only four were female, none were of Asian ethnicity, and 26

resided in the same state. In 2020, 49% of all JJ-involved youth were female, and 6% were Asian (OJJDP, 2021). Texas youth accounted for 93% of this thesis' participants, but nationally, Texas youth only comprised 9% of the nation's JJ-population (Puzzanchera, 2021). In addition to the comparison of demographics, the socioeconomic background of the participants was unknown. Extensive research has shown that low socioeconomic status is a major risk factor for unruly juvenile behavior (Connolly et al., 2017). However, if several of this thesis' adolescents are from higher socioeconomic backgrounds, then these results are skewed and do not factually portray JJ-involved youth. An accurate study would necessitate all demographics—including states, races, and genders—to be correctly proportioned to the current JJ-population.

With such a wide topic range analyzed in this thesis, there exist numerous opportunities for future study variations. To examine the longevity of these results, this study could be conducted with first-time youth offenders, again once the youth reach 18 years old, then again at pre-determined time intervals after their community re-entry. The average age of first-time youth offenders is 15 years old (Lau et al., 2018); assessing a JJ-involved youth's TCU DS-5, ACE, and SDQ scores at these intervals, beginning at the average intake age and into adulthood, would allow the current results to be refined and observations to be more thorough. Relationships between JJ-involved youth's arrest records and their ACE and SDQ scores could be analyzed and incorporated into the behaviors that ACEs forecast. Additionally, this study should be repeated with JJ-involved youth and youth with no arrest records; results could show if these projections are limited to only JJ-involved youth or apply to all adolescents, regardless of their criminal record.

The present study examined the ACEs, SDQ, and TCU DS-5 scores of JJ-involved youths to determine if ACEs could be used as behavioral predictors. Results indicate that youth with 1+ abuse ACE, 3+ household dysfunction ACEs, or 4+ total ACEs are at an elevated risk for *abnormal* SDQ scores and *severe* TCU DS-5 placements. The results

emphasize assessing all youths' ACEs early and frequently. It is also critical to be aware of the ACEs of youth in JJ-facilities. Applying a holistic approach to their re-entry plan can increase success rates and confidence levels given to JJ-staff and the youth's caregivers. Reducing SUDs in vulnerable populations is more vital than ever, and ACEs can be the answer for how to stop harmful behaviors before they even visually manifest themselves. Childhood trauma can impose detrimental ramifications on an individual's life; nevertheless, the correct treatment and support can propel the individual toward genuine happiness and inner peace.

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Footnotes

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Appendix A

TCU Drug Screen 5[1]

During the last 12 months (before being locked up, if applicable) –	Yes	No
1. Did you use larger amounts of drugs or use them for a longer time than you planned or intended?	☐	☐
2. Did you try to control or cut down on your drug use but were unable to do it?	☐	☐
3. Did you spend a lot of time getting drugs, using them, or recovering from their use?	☐	☐
4. Did you have a strong desire or urge to use drugs?	☐	☐
5. Did you get so high or sick from using drugs that it kept you from working, going to school, or caring for children?	☐	☐
6. Did you continue using drugs even when it led to social or interpersonal problems?	☐	☐
7. Did you spend less time at work, school, or with friends because of your drug use?	☐	☐
8. Did you use drugs that put you or others in physical danger?	☐	☐
9. Did you continue using drugs even when it was causing you physical or psychological problems?	☐	☐

[1]Institute of Behavioral Research. (2020). Texas Christian University Drug Screen 5. Fort Worth: Texas Christian University, Institute of Behavioral Research. https://ibr.tcu.edu/forms/tcu-drug-screen/

10a. Did you need to increase the amount of a drug you were taking so that you could get the same effects as before? ..... □ □

10b. Did using the same amount of a drug lead to it having less of an effect as it did before? ..... □ □

11a. Did you get sick or have withdrawal symptoms when you quit or missed taking a drug? ..... □ □

11b. Did you ever keep taking a drug to relieve or avoid getting sick or having withdrawal symptoms? ..... □ □

Appendix B

Adverse Childhood Experience Questionnaire[2]

Prior to coming to a locked facility (for youth):

1. Did a parent or other adult in the household often or very often… Swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt?

No___ If Yes, enter 1 __

2. Did a parent or other adult in the household often or very often… Push, grab, slap, or throw something at you? Or ever hit you so hard that you had marks or were injured?

No___ If Yes, enter 1 __

3. Did an adult or person at least 5 years older than you ever… Touch or fondle you or have you touch their body in a sexual way? Or attempt or actually have oral, anal, or vaginal intercourse with you?

No___ If Yes, enter 1 __

4. Did you often or very often feel that … No one in your family loved you or thought you were important or special? o\Or your family didn't look out for each other, feel close to each other, or support each other?

No___ If Yes, enter 1 __

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[2]Karyn Purvis Institute of Child Development. (2019). TBRI & Trauma-Informed Classroom [Seminar PowerPoint slides]. Texas Christian University, Karyn Purvis Institute of Child Development. https://child.tcu.edu/wp-content/uploads/2019/10/TBRI-TIC-Facilitator-Guide.pdf

5. Did you often or very often feel that … You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

No___ If Yes, enter 1 __

6. Were your parents ever separated or divorced?

No___ If Yes, enter 1 __

7. Was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? Or sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

No___ If Yes, enter 1 __

8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

No___ If Yes, enter 1 __

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

No___ If Yes, enter 1 __

10. Did a household member go to prison?

No___ If Yes, enter 1 __

Appendix C

Strengths & Difficulties Questionnaire (Youth)[3]

For each item, please mark the box for *Not True*, *Somewhat True* or *Certainly True*. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months prior to coming to a locked facility.

	Not True	Somewhat True	Certainly True
1. I try to be nice to other people. I care about their feelings	□	□	□
2. I am restless, I cannot stay still for long	□	□	□
3. I get a lot of headaches, stomach-aches or sickness	□	□	□
4. I usually share with others, for example CD's, games, food	□	□	□
5. I get very angry and often lose my temper	□	□	□
6. I would rather be alone than with people of my age	□	□	□
7. I usually do as I am told	□	□	□
8. I worry a lot	□	□	□
9. I am helpful if someone is hurt, upset or feeling ill	□	□	□
10. I am constantly fidgeting or squirming	□	□	□
11. I have one good friend or more	□	□	□
12. I fight a lot. I can make other people do what I want	□	□	□
13. I am often unhappy, depressed or tearful	□	□	□

[3]English (USA). (2020, January 26). Youth In Mind. Retrieved May 1, 2022, from https://www.sdqinfo.org/py/sdqinfo/b3.py?language=Englishqz(USA)

	Not True	Somewhat True	Certainly True
14. Other people my age generally like me	□	□	□
15. I am easily distracted, and I find it difficult to concentrate	□	□	□
16. I am nervous in new situations. I easily lose confidence	□	□	□
17. I am kind to younger children	□	□	□
18. I am often accused of lying or cheating	□	□	□
19. Other children or young people pick on me or bully me	□	□	□
20. I often offer to help others (parents, teachers, children)	□	□	□
21. I think before I do things	□	□	□
22. I take things that are not mine from home, school or elsewhere	□	□	□
23. I get along better with adults than with people my own age	□	□	□
24. I have many fears, I am easily scared	□	□	□
25. I finish the work I'm doing. My attention is good	□	□	□

Appendix D

Scoring the Strengths & Difficulties Questionnaire for age 4-17[4]

It is usually easiest to score all 5 scales first before working out the Total Difficulties score. These scores can be scaled up pro-rata if at least 3 items were completed, e.g. a score of 4 based on 3 completed items can be scaled up to a score of 7 (6.67 rounded up) for 5 items.

Scoring symptom scores on the SDQ for 4-17 year olds

Emotional Problems scale	**Not True**	**Somewhat True**	**Certainly True**
• Often complains of headaches… *(I get a lot of headaches…)*	0	1	2
• Many worries… (*I worry a lot)*	0	1	2
• Often unhappy, downhearted… (*I am often unhappy….)*	0	1	2
• Nervous or clingy in new situations… (*I am nervous in new situations…)*	0	1	**2**
• Many fears, easily scared *(I have many fears…)*	0	1	**2**
Conduct Problems scale			
• Often has temper tantrums or hot tempers (*I get very angry)*	0	1	**2**
• Generally obedient… *(I usually do as I am told)*	**2**	1	0
• Often fights with other children… *(I fight a lot)*	0	1	**2**
• Often lies or cheats *(I am often accused of lying or*	0	1	**2**

[4]Education, Health, Care (including Social Care, Children Looked After, Early Help) Police and Prison services (EHCAP). (2019, August 19). Scoring the strengths & difficulties questionnaire for ages 4-17. https://www.ehcap.co.uk/content/sites/ehcap/uploads/NewsDocuments/236/SDQEnglishUK4-17scoring-1.PDF

cheating)			
• Steals from home, school or elsewhere *(I take things that are not mine)*	0	1	**2**
Hyperactivity scale			
• Restless, overactive… *(I am restless…)*	0	1	**2**
• Constantly fidgeting or squirming *(I am constantly fidgeting….)*	0	1	**2**
• Easily distracted, concentration wanders *(I am easily distracted)*	0	1	**2**
• Thinks things out before acting *(I think before I do things)*	**2**	1	0
• Sees tasks through to the end… *(I finish the work I am doing)*	**2**	1	0
Peer Problems scale			
• Rather solitary, tends to play alone *(I am usually on my own)*	0	1	**2**
• Has at least one good friend *(I have one goof friend or more)*	**2**	1	0
• Generally liked by other children *(Other people my age generally like me)*	**2**	1	0
• Picked on or bullied… *(Other children or young people pick on me)*	0	1	**2**
• Gets on better with adults than with other children *(I get on better with adults than with people my age)*	0	1	**2**
Prosocial scale			
• Considerate of other people's feelings *(I try to be nice to other people)*	0	1	**2**
• Shares readily with other children… *(I usually share with others)*	0	1	**2**
• Helpful if someone is hurt… *(I am helpful is someone is hurt…)*	0	1	**2**

• Kind to younger children *(I am kind to younger children)*	0	1	**2**
• Often volunteers to help others… *(I often volunteer to help others)*	0	1	**2**

Categorizing SDQ scores for 4-17 year olds

Self-Completed SDQ	**Normal**	**Borderline**	**Abnormal**
Total Difficulties score	0-15	16-19	20-40
Emotional Problems score	0-5	6	7-10
Conduct Problems score	0-3	4	5-10
Hyperactivity score	0-5	6	7-10
Peer Problems score	0-3	4-5	6-10
Prosocial score	6-10	5	0-4