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Trauma Clusters and IORNS Measure for Sex Offense Treatment Outcomes

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Trauma Clusters and IORNS Measure for Sex Offense Treatment Outcomes

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Abstract

Adverse Childhood Experiences or ACEs are traumatic experiences that occur for children including abuse, neglect, and household dysfunction (Centers for Disease Control and Prevention, 2021). The pattern of ACEs grouping together, or what will be known as ACEs Clusters, has impact on outcomes for specific populations (Lacey et al., 2020). Individuals convicted of a sexual offense (ICSO) have often experienced childhood physical and verbal abuse (Levenson et al., 2014). It was hypothesized that ACEs clusters for the ICSO population will be: low ACEs, household dysfunction, and household violence. To evaluate whether an ICSO is at risk for engaging in violent behavior, general reoffending, or sexual offending, the Inventory of Offender Risk, Needs, and Strengths (IORNS) is often used (Miller, 2018). Both ACEs and IORNS scores can be used with ICSO populations; however, research is lacking in the influence of ACEs and IORNS scores on the ICSO length of incarceration or treatment outcomes. It was also hypothesized that ACEs Cluster scores would predict the IORNS Overall Risk Index and treatment success. The participants for this study included 133 adult, male, court-ordered individuals convicted of a sexual offense in an outpatient treatment setting. Their data on ACEs, IORNS, and treatment outcomes were analyzed through stepwise regression for treatment outcomes and linear regression for the length of incarceration. Results indicate that for the outpatient ICSO sample, the three clusters found were: the parents divorced/separated ACE (Cluster 1), low number of ACEs (Cluster 2), and high number of ACEs (Cluster 3). These clusters were found to be predictive of the IORNS Overall Risk Index and treatment success. For specific ACEs, ACE 3 (specific to sexual abuse) was predictive of length of incarceration, but not treatment completion. It was found that ICSO who were in the higher number of ACES cluster (cluster 3) were less likely to complete treatment. Generality of results has not been

established; however, results for these participants suggest a trauma-informed approach may be important when working with ICSO.

Keywords: IORNS, ACEs clusters, sex offense treatment outcomes

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Trauma Clusters and IORNS Measure for Sex Offense Treatment Outcomes

Chapter 1

Adverse Childhood Experiences or ACEs are negative or traumatic experiences that occur for children from birth through age 17 years. These experiences can be related to abuse, neglect, and household dysfunction (Centers for Disease Control and Prevention, 2021). Disadvantageous outcomes may occur for those affected by ACEs, including negative vocational and educational outcomes. Those affected by ACEs may also suffer from negative physical and mental health outcomes including substance use problems (Centers for Disease Control and Prevention, 2021)**.**

With greater research on ACEs, it was found that the greater number of ACEs often denotes more difficult outcomes across an individual's lifespan. For example, ACEs, including household dysfunction and maltreatment, are more likely to be correlated with heart problems, depression, and stroke (Maguire-Jack et al., 2020). The number of ACEs also seems to vary in diverse populations, and ACEs disproportionately affect people of color, with Latinx and Black children having higher ACEs scores (Maguire-Jack et al., 2020). Further understanding about how individual ACEs affect diverse populations is pertinent.

Research points toward the grouping of ACEs (also known as the clustering of ACEs) as an important factor in understanding how they may impact an individual's health (Maguire-Jack et al., 2020). ACEs clusters have been found in different populations. For university students in East Asia, it was found that there were three ACEs clusters: (a) low ACEs, (b) household dysfunction, and (c) household violence (Lacey et al., 2020). It was found that those with household violence had a higher risk of depression and anxiety. Economic difficulties are also

correlated to higher ACEs scores (Lacey et al., 2020). Additionally, a British study looked at the clustering of ACEs and found that parental mental health was a significant component of the clustering. They found the clusters to be: "low ACEs" (55%), "parental separation and mother's mental health problems" (18%), "parental mental health problems, convictions and separation" (15%), "abuse and mental health problems" (6%), and "poly adversity" (6%; Lacey et al., 2020, p. 2219). Finally, a study from China also looked at the clustering of ACEs, and the results indicated that parental discord was the first cluster (composed of parent separation, death, divorce, or emotional neglect). The second cluster was environmental discord, which was composed of witnessing violence. The last cluster was "elevated ACEs across multiple categories" (Qu, 2022, p. 23).

Trauma and Criminal Behavior

ACEs scores are also related to criminal behavior. According to Mason (2020), those with higher ACEs scores tended to have a higher reoffending rate after completing a re-entry program. It was found that those who had ACE scores of 5 or higher had a higher recidivism rate (Mason, 2020). When it comes to specific ACEs, those who are in the criminal justice system and are considered criminal offenders (with or without sexual offenses) have experienced a higher rate of sexual and physical abuse than the general population (Levenson et al., 2014). Those in the criminal justice system have experienced a higher rate of childhood household dysfunction, including witnessing domestic violence, having separated parents, or having imprisoned household members (Levenson et al., 2014).

Juvenile individuals convicted of a sexual offense (ICSO) often have a higher rate of trauma exposure, and the majority of juvenile ICSO were found to have post-traumatic stress disorder (McMackin et al., 2002). Juvenile offenders have often experienced some form of abuse

that has contributed to post-traumatic stress disorder, often this abuse is sexual or physical in nature (McMackin et al., 2002).

More definitively, Kahn et al. (2020) found that higher ACEs scores in offenders did not appear to correlate with individuals committing sexual offenses against children. However, Kahn et al. (2020) found that ACEs score correlated with anxiety, depression, substance use disorders, paraphilia, and antisocial personality disorder. Herrenkohl et al. (2017) found an association between childhood maltreatment and antisocial behaviors in adulthood.

Overall, meta-analysis supports the connection between trauma and sexual offending (Levenson et al., 2014). Specifically, it was found that individuals convicted of a sexual offense are three times as likely to have been victims of childhood sexual abuse than those who have not committed sexual offenses. Compared to men without sexual offenses, ICSO are also more likely to have experienced childhood physical and verbal abuse (Levenson et al., 2014). An explanation for this may be that as an individual has a greater number of ACEs, they are more likely to have greater overall dysfunction. This dysfunction may lead to maladaptive behaviors as well as a negative view of self. This can lead criminal offenders to distrust their environment and may lead the individual to make unhelpful life choices (Levenson et al., 2014)

Characteristics of Individuals Convicted of a Sexual Offense and Recidivism

Understanding traits and characteristics of ICSO is particularly important in understanding reoffending behavior. Deviant sexual interest, as well as antisocial personality and traits, are associated with sexual reoffending (Hanson & Morton-Bourgon, 2005). Deviant sexual interest is defined by illegal sexual acts, including rape and sex with children, as well as fetishism (Hanson & Morton-Bourgon, 2005). Antisocial personality disorder and antisocial traits have been characterized by rule-breaking behaviors, impulsivity, and substance use

(Hanson & Morton-Bourgon, 2005). Sex offending behavior is theorized to be developed through dysfunctional family backgrounds, which lead the individual to develop challenging interpersonal interactions and insecure attachment styles with others (Hanson & Morton-Bourgon, 2005). It is theorized that these individuals develop sexuality in "pervasive intimacy deficits that is likely to be impersonal and selfish and may be adversarial" (Hanson & Morton-Bourgon, 2005, p. 1154). An attitude that is permissive towards sexual misconduct may also be a trait that is common among ICSO (Hanson & Morton-Bourgon, 2005).

A difference noted between ICSO, and sexual recidivists is that ICSO tend to have more internalizing problems as well as dysfunctional family backgrounds (Hanson & Morton-Bourgon, 2005). In contrast, sexual recidivists tend to have more antisocial behaviors and perseverate on sexually deviant themes (Hanson & Morton-Bourgon, 2005).

Inventory of Offender Risk, Needs, and Strengths

The Inventory of Offender Risk, Needs, and Strengths (IORNS), is a measure used to evaluate whether an individual is at risk for engaging in violent behavior, general reoffending, or sexual offending (Miller, 2018). This measure can also be used to address an individual's treatment needs. The IORNS measure is a 130-item self-report measure that addresses the "static risk, dynamic risk/need, and protective factor strength" of an individual and their likelihood of offending (Miller, 2018, p. 101).

Several variables have been correlated with recidivism including static risk variables such as the number of crimes committed and the offender's age for their first crime. Static risk assessments, such as the Static-99 (Hanson & Thornton, 1999), are helpful in understanding reoffending behavior; however, they fall short in their ability to understand changing risk levels. Understanding these changing risk factors is important to better assess treatment outcomes and

other forensic questions. Dynamic risk factors have been shown to be changing criminal attitudes, irresponsibility, negative social influence, substance abuse, impulsivity, difficulties relating to self-esteem and intimacy, treatment compliance, and hostility and aggression (Miller, 2006).

The IORNS was created in an attempt to assess stable risk, dynamic risk, and protective factors. The IORNS indexes include the Overall Risk Index (ORI), which is comprised of the Static Risk Index, Dynamic Need Index, and the Protective Strength Index. The Static Risk Index is made up of the following components: (a) trouble in school, (b) behavior problems before the age of 15 years, (c) use of a weapon while committing a crime, (d) committing many criminal acts without arrest, (e) disobeying rules and/or committing new crimes while on probation, (f) history of crimes and/or arrest during adolescence, (g) stranger victims, (h) unstable employment, (i) previous physical fights (Miller, 2006, p. 19–20).

The Dynamic Need Index is made up of the following scales: criminal orientation, psychopathy, intra/interpersonal problems, alcohol/drug problems, aggression, and negative social influence (Miller, 2006). The Protective Strength Index is comprised of the person's individual and environmental resources. The personal resources may include the individual's education and ability to cognitively/behaviorally regulate their anger. The environmental resources are related to the social support the individual experiences (Miler, 2006). The IORNS measure is important in understanding reoffending and assessing treatment goals and implementation.

Trauma-Informed Treatment

As ICSO often have experienced various levels of trauma, trauma-informed care is necessary when addressing treatment. Some treatment options are placing a greater emphasis on

the individual and addressing the client's specific goals and aspirations while also helping them engage in behavioral regulation. A trauma-informed approach allows the provider to understand the person's experience and choices over their lifespan in response to trauma and is client-centered in nature (Levenson et al., 2014). This approach is important as it can help the client engage in self-regulation and offer a corrective emotional experience. The hope is that trauma-informed care allows the wiring of new neural pathways, which leads to a change in behavior (Levenson et al., 2014).

Factors that Contribute to Treatment Outcomes

Factors that affect treatment outcomes for ICSO can vary for those who successfully complete treatment, and for those who do not complete treatment for a number of reasons. ICSO who have "disruptive and rule violating behaviors (criminogenic needs), and second, poor treatment engagement (responsivity)" (Beyko & Wong, 2005, p. 383) are more likely to drop out of treatment. Specifically, ICSO who engage in treatment and have aggressive behaviors and behavioral difficulties in institutions may have more difficulty completing treatment. Treatment completion is important as ICSO who do not complete treatment are 3 times more likely to re-offend (Beyko & Wong, 2005).

Conversely, ICSO who are engaged in treatment are more likely to continue treatment (Beyko & Wong, 2005). Lack of engagement includes factors such as "lack of motivation, poor attitude toward treatment, denial, refusal to accept responsibility for one's actions and so forth" (Beyko & Wong, 2005, p. 384). Treatment appears to be important for offenders, and specifically, those who have been deemed "high risk" appear to have lower rates of recidivism when compared to high-risk offenders who do not receive treatment (Bonta et al., 2000, p. 325). Interestingly enough, treatment of lower-risk offenders appears to either increase or maintain

recidivism rates. It is thought that treatment may place lower-risk offenders in closer contact with higher-risk offenders, and this may increase criminal attitudes and behavior (Bonta et al., 2000). When those who commit sexual offenses leave treatment prior to completion, they are at a higher likelihood of reoffending than ICSO who complete treatment or who leave treatment due to their incarceration period ending. This further suggests the importance of treatment completion for ICSO (Carl & Lösel, 2021).

In order to encourage better treatment outcomes, clinician alliance is important. As ICSO are often heavily shamed by society, relationship building with the offender may be necessary for treatment as well as to increase a sense of safety for the individual. As denial may be a part of the offender's narrative, a strong alliance between clinician and offender should be built as this may help the individual eventually complete treatment (Beyko & Wong, 2005).

Factors Contributing to Length of Incarceration

Sexual abuse varies in terms of sentencing. Sexual offenses vary in severity, and thus the length of time ICSO are incarcerated also varies. On average, sexual abuse sentencing ranges between 82–252 months depending on whether there is a minimum penalty. Further, repeat sexual offenses increase the number of months an individual is incarcerated. Child pornography sexual offenses also have different sentences. Distribution of child pornography averages a 140-month sentence, receipt of child pornography averages 93 months, and possession of child pornography averages 55 months for ICSO (United States Sentencing Commission, 2019).

Purpose of This Study

The purpose of this study is to better understand how specific ACEs and ACEs clusters are related to IORNS scores, and to see if there is a relationship between the specific ACEs and

ACEs clusters with the IORNS scores. These will be analyzed to see whether data are predictive of length of incarceration and treatment outcomes for ICSO in an outpatient setting.

Hypotheses

The hypotheses for this study are as follows:

H1: There will be ACEs clusters within the outpatient ICSO population that are the same as in the East Asian study (Lacey et al., 2020). The three ACEs clusters will be: low ACEs, household dysfunction, and household violence (Lacey et al., 2020).

H2: The ACEs Cluster scores will be predictive of the IORNS ORI.

H3: The ACEs cluster scores will be predictive of treatment success, with those who are in the household violence cluster to be less likely to have completed treatment.

H4: For individual ACES, it is hypothesized that those who have experienced sexual abuse will be less likely to have completed treatment and have a longer length of incarceration.

Chapter 2

Methods

Participants

The participants for this study included a nonrandom clinical sample of 133 individuals. These individuals were adult, male, and court-ordered to participate in sex offense treatment and receive treatment at an outpatient sex-offense treatment clinic. The study was conducted using archival data from participants between the years 2018–2022. The final sample was composed of those who had both ACEs and IORNS scores. The final sample was described with regard to age marital status, years of education, and ethnicity. Participants signed informed consent at intake into the treatment program, which allowed their data to be used for research purposes.

Demographics

The majority of men were White (64.3%), and ranged in incarceration length between 0–336 months (M = 41.9 months, SD = 61.9 months). Age of participants (as of 2022) ranged between 23-85 years old (M = 42.6, SD = 15.44). Marital status and years of educations were also controlled for this study. Sample demographics are reported in Table 1.

Table 1

Demographics

	N	%
Ethnicity/race		
White	85	64.3
Hispanic	25	18.7
Multiracial	9	6.7
Asian	7	5.2
Black	6	4.5
Iraqi	1	0.7
Korean	1	0.7
Total	134	100.0

Materials

Adverse Childhood Experiences Questionnaire

The ACEs questionnaire is a 10-item questionnaire that measures an individual's level of childhood maltreatment or discord occurring before the age of 18 years. The self-report questionnaire is composed of yes or no questions and is a widely used measure (Schmidt et al., 2018). The ACEs questionnaire has been regarded as valid and reliable. It has an acceptable level of internal consistency (Cronbach's alpha: .88; Florida State University, n.d.). Test-retest reliability of the ACEs questionnaire is at .79 over 7 weeks (Karatekin & Hill, 2018).

Inventory of Offender Risk, Needs, and Strength

The IORNS is an assessment that measures both static and dynamic aspects of offender risk. This measure can be used to address the treatment needs of an individual. The IORNS measure is a self-report measure made up of 130 items. Singh et al. (2018) reported good internal

consistency ranging from .74–.90 for the offender sample. The IORNS also has good test-retest reliability between .68 and .86. The IORNS validity has been developed through expert opinion as well as predictive outcomes. The IORNS construct validity has been measured by comparing it to other offender risk assessments, including the Sexual Offender Needs Assessment Rating Scale (SONAR), where the Stable Total score (of SONAR) was correlated with the ORI (IORNS) at .49 (Singh et al., 2018). Overall, the IORNS demonstrated internal consistency and stability. It also demonstrated "good convergent and discriminant validity with self-report, interview, and criminal history measures of static risk, dynamic risk, antisocial behavior, psychopathy, personality pathology, substance use, depression, and anxiety among numerous male and female offender samples" (Miller, 2006, p. 67).

Procedure

Following IRB approval (#GFU2212021), a nonrandom sample of participants were selected from archival data. The data for participants for the assessments, the ACEs, and the IORNS, were stored in files, and files were stored in a locked facility. These files were reviewed, and relevant data were extracted by treatment program staff. Of all the individuals who have participated in sex offense treatment at a particular facility in the Pacific Northwest, only files of individuals who completed both the ACEs and IORNS were used for this study. Thus, participant data of those who did not complete both of these measures were excluded from this study. The selected data were stored on an Excel sheet without personal identifying information, and then provided to the researcher. Data were analyzed through a statistical program called SPSS.

Design

The independent variables for this study were the IORNS Scores, ACEs responses, and the derived ACEs Clusters. The dependent variables for this study were length of incarceration

and treatment outcomes. Length of incarceration included the number of months the individual was imprisoned. The treatment outcomes were coded as the following: (a) completion of treatment, (b) achieved maximum benefit, or (c) all other outcomes. Completion of treatment included those in the group who had successful treatment completion. Successful treatment completion included those who completed the outpatient sex offense treatment curriculum, participated in group therapy, and taken responsibility for their crime. Achieved maximum benefit was defined as "an individual must complete enough aspects of treatment for partially reducing risk" (Rogers, 2022). For purposes of this study, completion of treatment and achieved maximum benefit were combined and contrasted with all other outcomes using stepwise regression.

For the analysis, we conducted a cluster analysis to derive ACEs clusters based on ACE item responses. Then we used stepwise regression analysis for IORNS scores and ACEs clusters and observed stepwise hierarchical regression analysis for each dependent variable.

Chapter 3

Results

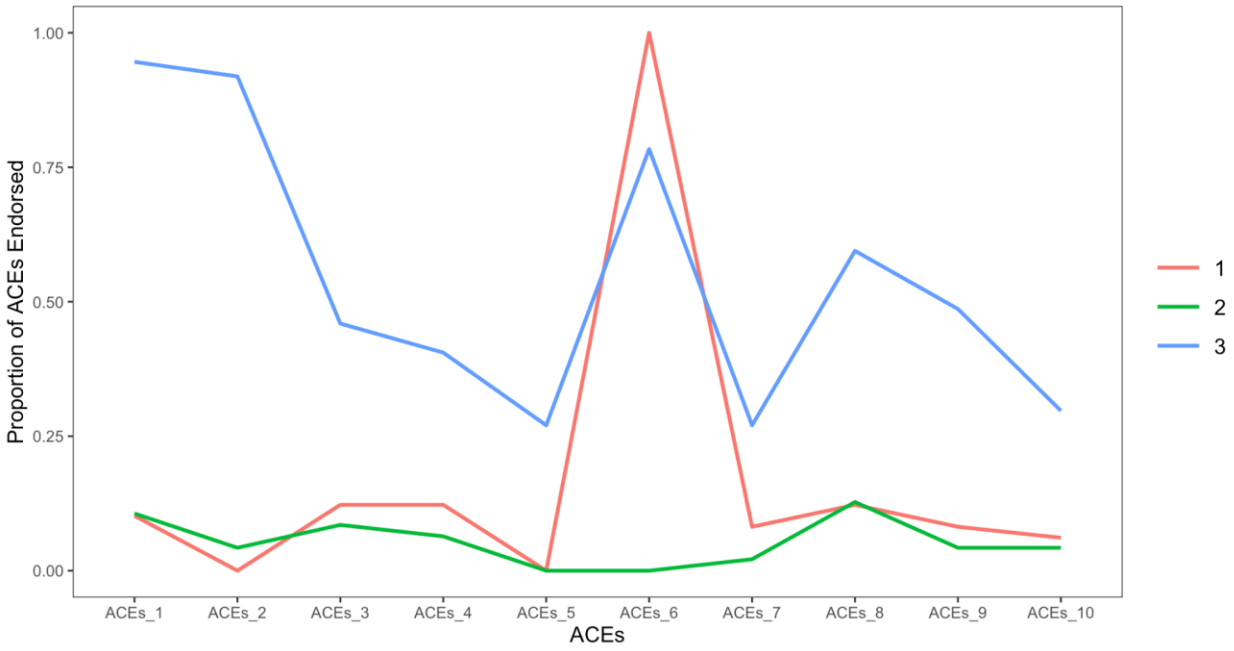
For this study, ACESs clusters were derived, then analyzed to see how they are related to the ORI of the IORNS. The ACES clusters were further analyzed to see whether they were predictive of treatment outcomes. Sexual abuse (ACE #3) was also analyzed to see whether it was predictive of length of incarceration and treatment outcomes for ICSO in an outpatient setting.

Hypothesis One

A K- Cluster analysis was done in order to analyze the ACEs clusters found within an outpatient ICSO population; 133 participants provided data for all variables measured. There were three clusters obtained from six iterations. It was hypothesized that the ACEs clusters within the outpatient ICSO population would be the same as the East Asian study clusters (low ACEs, household dysfunction, and household violence (Lacey et al., 2020). However, the three clusters found were actually: the parents divorced/separated ACE (Cluster 1), low number of ACEs (Cluster 2), high number of ACEs (Cluster 3). The minimal distance between initial clusters is 2.449. Cluster 1 (parents divorced/separated ACE) held 49 participants (36.8%). Cluster 2 (low number of ACEs) held 47 participants (35.3%), and Cluster 3 (high number of ACEs) held 37 participants (27.8%). The descriptive statistics for study variables by cluster number are delineated in Table 2.

Figure 1

Spread of ACES Clusters (Clusters 1, 2, & 3) Based upon Proportion of Specific Adversities Endorsed



Note. ACE = adverse childhood experiences; ACE #1: verbal abuse, ACE #2: physical abuse, ACE #3: sexual abuse, ACE #4: emotional neglect, ACE #5: physical neglect, ACE #6: parental separation/divorce, ACE #7: violence mother/stepmother, ACE #8: substance abuse of household member, ACE #9: household member mental illness, ACE #10: household member incarceration

Table 2

Descriptive Statistics for Study Variable by Cluster Number (ACEs Groups)

	N	*M*	*SD*
LOI			
Cluster 1	49	30.74	49.69
Cluster 2	47	44.43	64.98
Cluster 3	37	54.73	71.25
Total	133	42.25	62.03
ACES #3			
Cluster 1	49	0.12	0.33
Cluster 2	47	0.09	0.28
Cluster 3	37	0.46	0.51
Total	133	0.20	0.40
ACES total			
Cluster 1	49	1.69	0.96
Cluster 2	47	0.53	0.75
Cluster 3	37	5.43	1.74
Total	133	2.34	2.31
IORNS ORI			
Cluster 1	49	42.53	6.56
Cluster 2	47	42.49	7.96
Cluster 3	37	51.78	9.04
Total	133	45.09	8.80
Completion status			
Cluster 1	49	2.14	0.98
Cluster 2	47	1.76	0.96
Cluster 3	37	2.46	0.87
Total	133	2.09	0.98

Note. In the entire sample, 63 participants completed treatment, while 71 participants did not complete treatment (47% completed and 53% did not complete treatment.)

Hypothesis Two

For the second hypothesis, it was hypothesized that the ACES clusters would be predictive of the IORNS ORI. For this hypothesis, demographics including marital status, age, ethnicity, and years of education were controlled for. A regression analysis was performed, and after controlling for demographics in Model 1, ACES clusters were found to be predictive of IORNS ORI; 13.2% of the variance was due to demographics (R = .363, R^2 = .132, ΔR^2 = .132, df = 4,127; F = 4.817, p = .001), and 13.4% of the variance was due to ACES clusters (R = .515, R^2 = .265, ΔR^2 = .134, df = 5,126; F = 9.103, $p < .001$; β = .373, t = 4.79, $p < .001$; see Table 3).

Table 3

Regression Assessing ACES Clusters in Predicting IORNS ORI After Controlling for Demographic Variables

	R	R^2	ΔR^2	*df*	*F*	F_{sig}	β	*t*	t_{sig}	*r**	r_p
Model 1	.363	.132	.132	4,127	4.817	.001					
Birth year							-.299	-2.95	.004	-.148	-.253
Education #							-.210	-2.38	.019	-.143	-.207
Marital #							-.241	-2.38	.019	-.097	-.207
Ethnicity #							-.202	-2.34	.021	-.168	-.203
Model 2	.515	.265	.134	5,126	9.103	<.001					
Birth year							-.246	-2.61	.010	-.148	-.226
Education #							-.228	-2.80	.006	-.143	-.242
Marital #							-.212	-2.27	.025	-.097	-.198
Ethnicity #							-.155	-1.93	.057	-.168	-.169
Cluster #							.373	4.79	<.001	-.401	.392

*Zero-order correlations

r_p = partial *r*

Hypothesis Three

For the third hypothesis, it was hypothesized that the ACES clusters scores would be predictive of treatment success, and those who are in the household violence cluster would be less likely to have completed treatment. For this hypothesis, demographics including marital status, age, ethnicity, and years of education were controlled for. A regression analysis found that after controlling for demographics in Model 1, ACES clusters were predictive of completion status. As shown in Table 4, 15.3% of the variance was due to demographics (R = .391, R^2 = .153, ΔR^2 = .153, df = 4,127; F = 5.732, p < .001), and 2.6% of the variance, a trivial effect, was due to ACES clusters (R = .423, R^2 = .179, ΔR^2 = .026, df = 5,126; F = 5.504, p < .001; β = .166, t = 2.01, p = .047). As such, very little of the variance is due to ACES clusters.

No household violence cluster was found. Thus, it could not be analyzed for this hypothesis.

Table 4

Regression Assessing ACES cluster in Predicting Completion Status After Controlling for Demographic Variables

	R	R^2	ΔR^2	*df*	*F*	F_{sig}	β	*t*	t_{sig}	*r**	r_p
Model 1	.391	.153	.153	4,127	5.732	<.001					
Birth year							-.034	-.338	.736	.135	-.030
Education #							-.276	-3.17	.002	-.341	-.271
Marital #							-.147	-1.47	.144	-.207	-.130
Ethnicity #							.144	1.68	.095	.299	.148
Model 2	.423	.179	.026	5,126	5.504	<.001					
Birth year							-.011	-.106	.916	.135	-.009
Education #							-.284	-3.30	.001	-.341	-.282
Marital #							-.134	-1.36	.177	-.207	-.120
Ethnicity #							.165	1.94	.055	.229	.170
Cluster #							.166	2.01	.047	.110	.176

*Zero-order correlations

r_p = partial *r*

Hypothesis Four

For the fourth hypothesis, it was thought that those who have experienced sexual abuse (ACE 3) would be less likely to have completed treatment. Further, it was also hypothesized that those who have experienced sexual abuse would have a longer length of incarceration. A stepwise linear regression was computed, and it was found that there was no evidence of sexual abuse predicting treatment completion. As shown in Table 5, 15.5% of the variance was due to demographics, (R = .394, R^2 = .155, ΔR^2 = .155, df = 4,128; F = 5.885, F_{sig} < .001), while 0.7%

of the variance was due to ACEs 3 (Sexual abuse; R = .402, R^2 = .162, ΔR^2 = .007, df = 5,127; F = 0.997, F_{sig}: .320; β = .082, t = .998, p = .320).

A regression analysis was also completed for length of incarceration and ACE 3, and it was found that those who have experienced sexual abuse have longer lengths of incarceration. As shown in Table 6, 30.3% of the variance was due to demographics (R = .550, R^2 = .303, ΔR^2 = .303, df = 4,128; F = 13.912, F_{sig} < .001), while 2.4% of the variance was due to ACE 3 (sexual abuse) (R = .572, R^2 = 327, ΔR^2 = 024, df = 5,127; F = 4.597, F_{sig}: .034; β = .158, t = 2.14, p = .034).

An unexpected finding here was that age was a significant predictor of sentencing duration (β = -.647, t = -7.14, p < .001, r_p = -.534).

In summary, sexual abuse was predictive of length of incarceration, but not treatment completion. Age was shown to be a significant predictor of sentence duration.

Table 5

Logistic Regression for Predicting Completion Status with ACE 3 After Controlling for Demographics

	R	R^2	ΔR^2	*df*	*F*	F_{sig}	β	*t*	t_{sig}	*r**	r_p
Model 1	.394	.155	.155	4,128	5.885	<.001					
Birth year							-.026	-.262	.794	.142	-.023
Education #							-.273	-3.16	.002	-.341	-.269
Marital #							-.141	-1.43	.157	-.206	-.125
Ethnicity #							.155	1.82	.071	.239	.159
Model 2	.402	.162	.007	5,127	0.997	.320					
Birth year							-.012	-.115	.909	.142	-.010
Education #							-.268	-3.09	.002	-.341	-.264
Marital #							-.130	-1.31	.193	-.206	-.115
Ethnicity #							.157	1.85	.067	.239	.162
Cluster #							.082	.998	.320	.095	.088

*Zero-order correlations

r_p = partial *r*

Table 6

Regression for Predicting Length of Incarceration with ACE 3 After Controlling for Demographics

	R	R^2	ΔR^2	*df*	*F*	F_{sig}	β	*t*	t_{sig}	*r**	r_p
Model 1	.550	.303	.303	4,128	13.192	<.001					
Birth year							-.647	-7.14	<.001	-.504	-.534
Education #							-.118	-1.50	.135	-.015	-.132
Marital #							-.213	-2.37	.019	.126	-.205
Ethnicity #							-.024	-.308	.758	-.085	-.027
Model 2	.572	.327	.024	5,127	4.579	.034					
Birth year							-.619	-6.86	<.001	-.504	-.534
Education #							-.108	-1.39	.166	-.015	-.123
Marital #							-.193	2.16	.033	.126	-.188
Ethnicity #							-.019	-.243	.808	-.085	-.022
Cluster #							.158	2.14	.034	.230	.187

*Zero-order correlations

r_p = partial *r*

Supplementary Analysis

Due to the ethnic mix of the sample, it was questioned whether ACEs clusters were related to ethnicity. A supplementary analysis of variance was conducted regarding the ACEs clusters, and it was found that there was no relationship between ethnicity (White/other) and ACEs clusters ($F_{1, 131} = 2.28$; $p = .134$).

Another supplementary analysis was conducted to observe whether ethnicity was related to treatment completion. An analysis of variance revealed that ethnic identity (White/other) was not related to treatment completion ($F_{1, 132} = 0.510$; $p = .476$).

Summary of Findings

For the outpatient ICSO sample, the three clusters found were: the parents divorced/separated ACE (Cluster 1), low number of ACEs (Cluster 2), high number of ACEs (Cluster 3). These clusters were found to be predictive of the IORNS ORI. The ACES Clusters were also found to be predictive of treatment success. For specific ACEs, ACE 3 (specific to sexual abuse) was predictive of length of incarceration, but not treatment completion. Surprisingly, age was also a significant predictor of length of incarceration.

Chapter 4

Discussion

Adverse Childhood Experiences or ACEs are traumatic experiences children experience that may negatively impact their mental, physical, educational, and vocational functioning (Centers for Disease Control and Prevention, 2021). Classically, ACEs have been studied by adding up the total score of ACEs, and "limitations include the underlying assumption that each adversity is equally important for outcomes, a disregard for the specific patterning of adversities and the importance of this for outcomes" (Lacey et al., 2020, p. 2220). Thus, it is important for understanding outcomes to see how certain ACEs occur together (or cluster together). This has been studied in several populations (Lacey et al., 2020; Qu, 2022); however, research has neglected to study ICSO for ACEs clustering. With a greater understanding of how ACEs cluster in the ICSO population, outcomes can be better understood. For this study, it was important to see how the ACEs cluster in an ICSO population and observe if this is predictive of the IORNS ORI and thus may also predict the risk of engaging in violent behavior, general reoffending, or sexual offending. Additionally, it is important to better understand the relationship of ACEs clusters to treatment outcomes (whether someone completes sex offense treatment or not) as ICSO who do not complete treatment are actually 3 times as likely to re-offend (Beyko & Wong, 2005). Thus, completing treatment for ICSO is incredibly important, and may impact community safety.

Hypothesis One

As such, it was first important to derive the ACEs clusters in the ICSO population.

For the first hypothesis, it was expected that within the outpatient ICSO population, the clusters would be the same as in the East Asian study: (Lacey et al., 2020). The three ACEs clusters were expected to be: low ACEs, household dysfunction, and household violence (Lacey et al., 2020). However, the three clusters found were actually: the parents divorced/separated ACE (Cluster 1), low number of ACEs (Cluster 2), and high number of ACEs (Cluster 3).

Although this was not what was expected, results may not be as surprising given that male ICSO are more likely to have been victims of childhood sexual, physical, and verbal abuse when compared to men who have not committed sexual offenses. (Levenson et al., 2014). Thus, there may be subsets of the ICSO populations with a higher number of ACEs. However, this may not explain the cluster with a lower number of ACES. Results suggest that there are differences within the ICSO population with those who have a higher number of ACEs grouping together, those with a lower number of ACEs grouping together, and those with their parents divorced or separated grouping together. Further research would be important to investigate these differences.

Hypothesis Two

For the second hypothesis, it was expected that The ACEs cluster scores would be predictive of the IORNS ORI. This hypothesis was supported as it was found that the cluster memberships were predictive of the IORNS ORI. It was found that the clusters account for 13.4% of the variance, a medium effect size (Fritz et al., 2012). Cluster 3 (high number of ACES) appears to be predictive of higher scores on the ORI. As the IORNS ORI is comprised of adding the Static Risk Index and Dynamic Need Index, and subtracting the Protective Strength Index, a higher ORI indicates a higher risk for violent behavior, general reoffending, or sexual offending (Miller, 2006). This was not surprising given that ACEs scores have already been

found to relate to criminal behavior (Mason 2020). In fact, those who are in the criminal justice system (with or without sexual offenses) and had an ACE score of 5 or higher have a higher recidivism rate (Mason, 2020). As such, it makes sense that ICSO in the higher amount of ACES cluster, and with a mean of 5.43 ACEs, would have a greater ORI on the IORNS measure.

Further, those who are in the criminal justice system (with or without sexual offenses) are more likely to have been physically or sexually abused, witnessed domestic violence, have separated parents, or have imprisoned household members than the general population (Levenson et al., 2014). Again, this is consistent with the finding that ICSO with higher ACE scores have higher ORIs on the IORNS.

It is possible that the reason for the high number of ACEs being predictive of risk of general and sexual offending behavior may be due to traumatic family systems. In these family dynamics, the individual may learn problematic interpersonal habits (or maladaptive social behaviors) as well as an insecure attachment style with others. ICSO may have developed their sexuality on the basis of "pervasive intimacy deficits that is likely to be impersonal and selfish and may be adversarial" (Hanson & Morton-Bourgon, 2005, p. 1154). As well, a negative view of self may result from traumatic home environments, and distrust in one's home environment may lead one to make unhelpful decisions (Levenson et al., 2014).

Hypothesis Three

For the third hypothesis, it was expected that the ACEs cluster scores will be predictive of treatment success, with those who are in the household violence cluster to be less likely to have completed treatment. From the cluster analysis, there was no household violence cluster found for the ICSO population. However, it was found that the ACEs clusters were predictive of treatment success, but very little of the variance is due to ACEs clusters. Cluster 2 (low number

of ACEs) has a higher average of individuals who complete treatment in comparison to Cluster 3 (high number of ACEs). This is consistent with the finding that ICSO with six or more ACEs had significant challenges completing treatment in an outpatient, "CBT [cognitive behavioral therapy]-group based treatment modality" (Rogers, 2022, p. 18).

There are other factors that may be impacting whether an individual completes treatment. Research suggests that ICSO who have "disruptive and rule-violating behaviors (criminogenic needs), and second, poor treatment engagement (responsivity)" are less likely to complete treatment (Beyko & Wong, 2005, p. 383). ICSO who engage in aggressive behaviors in institutional settings are also less likely to complete treatment (Beyko & Wong, 2005). This seems to be related to the finding that those with more antisocial personality traits are less likely to complete treatment (Rogers, 2022). It is unclear if it is the ACEs themselves that are causing the rule breaking behavior (and thus being less likely to complete treatment), or if other lurking variables are contributing to the rule breaking behavior. However, Herrenkohl et al. (2017) did find an association between childhood abuse and antisocial behaviors in adulthood.

Hypothesis Four

For the fourth hypothesis, it was expected that those who have experienced sexual abuse (ACE 3), would be less likely to have completed treatment. This hypothesis was not supported and whether someone had experienced sexual abuse was not predictive of treatment completion. This was surprising as inmates in a sex offense treatment program in a prison setting had more difficulty completing treatment if they had been sexually abused (Geer et al., 2001). This current study observes the completion in an outpatient setting; treatment results may differ based on different programs or due to the outpatient or prison settings.

For the second part of the fourth hypothesis, it was expected that those who have experienced sexual abuse (ACE 3) would have longer lengths of incarceration. This hypothesis was supported, and it was found that those who have experienced sexual abuse have longer lengths of incarceration, although very little of the variance was due to having experienced sexual abuse. The results that indicate having experienced childhood sexual abuse predicts length of incarceration is consistent with the finding that male perpetrators of sexual abuse sometimes have been victims of sexual abuse. According to Glasser et al., 35% of male perpetrators of sexual abuse relate that they have been sexually abused as children (Sourpi, 2008).

An unexpected finding of this current study is that ICSO sentences are significantly related to the age of the offender. Perhaps the criminal justice system is more lenient with older ICSO.

However, implications from these finding need more examination. These findings are particularly difficult to explain as the length of incarceration seems to be related to a number of factors. For example, although generally true that the length of incarceration is related to the severity of crime and number of instances the crime occurred, (United States Sentencing Commission, 2019), other factors such as race, age, whether they are foreign to the country to where they are being sentenced, and gender all influence sentencing. People who are foreign to the country in which they are being sentenced, men, and younger people tend to get harsher sentences (Van Wingerden et al., 2014). As such, a longer length of incarceration may not be related to the severity of crime, and thus lurking variables suggesting discrimination may also explain the finding that ICSO who have experienced sexual abuse have longer lengths of incarceration.

Limitations to this Study

Limitations to this study include that causal relationships cannot be established between variables as it was not an experimental design. For example, this study did find that ACEs clusters could predict ORI, however, it cannot be said that ACEs clusters cause higher risk for offending behavior. Further, this study cannot be generalized to populations outside the Pacific Northwest or to female ICSO and unique sample characteristics may have influenced outcomes as well.

Limits to this current study also include the fact that this sample is predominantly White. In future studies, a sample that is more racially and ethnically diverse will increase the generalizability. Further, this sample was taken from the Pacific Northwest of the United States of America, so other samples from other parts of the country and the world would also increase the generalizability. This study was also relatively small in sample size. A larger sample size would also increase the generalizability of this study.

Future Research

As this study only observed male ICSO, future directions could be to see how female ICSO differ on treatment completion based on ACEs clusters and IORNS overall risk. Further, it would be beneficial to conduct this study in different parts of the world to see how ACEs cluster in ICSO populations in other countries and cultures. Additionally, this study used a cognitive behavioral therapy group-based treatment modality, it would help to understand how other treatment modalities may potentially change the rate of treatment completion for ICSO.

Conclusion

Overall, it was found that ICSO who were in the higher number of ACEs cluster were less likely to complete treatment. Thus, the approach to treatment is very important. In order to

maximize treatment completion for those with a higher number of ACEs, trauma-informed care may be necessary when conducting treatment. A greater emphasis on the individual and addressing the client's specific goals while also aiding in their behavioral regulation may be important as it offers a corrective emotional experience. Therapists trained in trauma-informed care may facilitate a change in problematic behaviors (Levenson et al., 2014).

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