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Investigating the specific links between adverse childhood experiences and vulnerability to suicide: a mixed methods study

Priyata Thapa

A dissertation submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Doctor of Psychology

Department of Graduate Psychology

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Dedication

To those we have lost to suicide.

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Abstract

Suicide is among the leading causes of death in the U.S. and it is imperative to improve prevention efforts (CDC, 2021). Previous research has demonstrated a strong association between adverse childhood experiences (ACEs) and suicide risk (e.g. Felitti et al., 1998; Hughes et al., 2017), and the need for deeper understanding of these associations utilizing developmental and relational perspectives (e.g. Angelakis et al., 2019; Hjelmeland and Knizek, 2020). This study investigated the associations between ACEs, interpersonal learning history in early attachment relationships, and suicidality using an explanatory sequential mixed methods design. The Structural Analysis of Social Behavior (SASB; Benjamin, 1979) is a widely used dyadic model that characterizes interpersonal patterns, and Interpersonal Reconstructive Therapy (IRT; Benjamin, 2003/2006) is an integrative, interpersonal and intrapersonal psychotherapy built from clinical observations using this model. The goals of this study were to (1) investigate if specific early interpersonal hostility from caregivers, learned and copied, and measurable using the SASB model, are better predictors of adult suicidality, relative to broadly framed ACEs, and (2) to understand, in depth, these associations using descriptive clinical narratives that characterize the experiences of suicidal individuals in a psychiatric sample ($N = 103$). An additional methodological goal included applying ACE ratings to individuals based on clinical interviews and reports, and to test the reliability of this application. Statistical analyses included exploratory principal components analysis, correlations and multiple linear regression. Content analysis was used to analyze qualitative data. This study demonstrated that an individual's ACE score can be reliably measured through interviews or case reports that provide descriptions of an individual's childhood history. Quantitative

and qualitative findings support the hypothesis that interpersonal specificity of learned patterns of relating between an individual and their caregiver, as articulated by copy process theory, is significant to their vulnerability to suicide (Critchfield and Benjamin, 2008). Findings have clinical implications for clinicians working with suicidal individuals. This study bridges the ACEs literature and the clinical literature around IRT case formulation and SASB. Limitations and future directions are discussed.

Keywords: ACEs, suicide, Interpersonal Reconstructive Therapy, interpersonal specificity, interpersonal hostility, copy process, mixed methods, explanatory sequential design

Chapter I

Introduction

Suicide is a leading cause of death in the U.S. (CDC, 2021), and it is therefore, important to better understand suicide and improve suicide prevention efforts (Klonsky, 2021). Several research studies have highlighted the association between adverse childhood experiences (ACEs) and risk of suicide (Dube et al., 2001; Fuller-Thomson et al., 2016; Ports et al., 2017; Sheffler, Stanley & Sachs-Ericsson, 2020). Some researchers have looked into the direct and indirect effects of childhood adversities on suicidality, suggesting the need for additional research to look for other pathways to help develop multi-level interventions to target suicidality (Bhargav and Swords, 2022; Rytilä-Manninen et al., 2018; Sachs-Ericsson et al., 2017; Wong et al. 2019). There is a critical need to increase our understanding of the specific associations between ACEs and suicide risk to tailor interventions for suicidal individuals with experiences of childhood adversities.

Given the need and clinical utility of understanding the specific pathways between childhood adversity and suicidality, the purpose of this study is to explore the association between ACEs, interpersonal learning history in early attachment relationships, and suicide risk. Specifically, we are interested in investigating if specific early interpersonal inputs are better predictors of suicidality relative to the broad early stressors measured by ACEs. We also want to better understand the associations between early history and adult suicidality using narratives that illuminate the experiences of suicidal individuals. Two research goals guide this investigation: (i) to identify the specific associations among ACEs, relational patterns (i.e., the ways in which we relate to

self and others; Critchfield & Benjamin, 2010), and vulnerability to suicide and (ii) to understand, in depth, the experiences of suicidal individuals using narratives that highlight the associations between early history variables and adult suicidality.

This study strives to bridge the ACEs literature and the clinical literature around IRT case formulation and SASB. While ample research has demonstrated the general negative outcomes, including suicidality, of exposure to ACEs, we are interested in the level of specificity that can be obtained by considering the specific early input from key attachment relationships. By linking specific narratives to adult outcomes, this study hopes to provide evidence for specificity, and to contribute to both the literatures.

Furthermore, a methodological goal of this study is to develop a new application of the ACE scale (i.e., create a manual for scoring ACEs based on clinical interviews), which will facilitate our exploration of childhood adversities and suicidality. In order to accomplish this goal, we will pilot a new way to apply ACE scores to clinical interviews and reports, as well as to test the feasibility and reliability of this application.

To achieve the stated goals, this study will use an explanatory sequential mixed methods design (Creswell, 2015) to integrate quantitative and qualitative data. This design will help us understand how the quantitative results are supported or explained by qualitative findings. Our expectation is that these explorations will help researchers and practitioners better understand an individual's suicidality and what might influence their vulnerability to suicide risk, identify individuals at greater risk and improve intervention strategies to help this population.

Chapter II

Literature Review

Suicide

Suicide is the "fatal self-inflicted destructive act with explicit or inferred intent to die" (Goldsmith et al., 2002, p. 27). It has affected numerous individuals and families throughout the world and is a leading cause of death in the U.S. (CDC, 2021). According to the American Foundation for Suicide Prevention, there were approximately 1.38 million suicide attempts in 2019. It is therefore important to improve our understanding of suicide in order to improve suicide prevention. Client suicide not only affects the surviving loved ones, but has also personal and professional impacts on clinicians (mental health professionals, including and not limited to clinical or counseling psychologists, licensed clinical social workers, psychiatrists, and licensed mental health counselors), including emotional turmoil, stress or grief reactions, doubts on clinical judgment, after the completed suicide of the client under their care (Dransart et al., 2017; Lyra et al., 2021).

The field of suicidology has continued to focus on risk assessment and prediction of suicide, yet it remains an elusive task (Klonsky, 2021; Samra, 2007). It would therefore be helpful to closely understand the elements of suicidality that may have implications for interventions at the individual level, and which will take into account the contextual factors that contribute to an individual's suicidality. This would significantly help clinicians who have a huge role in the assessment, clinical management and therapeutic treatment of at-risk individuals (Samra, 2007).

Risk factors for suicide

Research has highlighted a range of risk factors for suicide, including those that are psychological, psychiatric, biological and sociocultural in nature (e.g., Goldsmith et al., 2002). The associations between suicidality and psychological risk factors are complex, as some factors impact the risk directly while others indirectly (De Beurs et al., 2019). Broadly, early negative life events, including and particularly, childhood maltreatment, have been found to be strongly associated with suicidality in adolescence and adulthood in multiple studies, including systematic reviews and meta-analyses (e.g., Angelakis et al., 2019; Hughes et al., 2017; Rytilä-Manninen et al., 2018; Serafini et al., 2015; Yang and Clum, 1996).

Researchers like Angelakis (et al., 2019) have highlighted that while there is substantial evidence that childhood maltreatment increases the odds for adult suicidality, understanding the underlying mechanisms has been challenging due to limited current evidence. Hjelmeland and Loa Knizek (2020) have also argued that suicide is a complex, multi-faceted, and contextual phenomenon that needs deeper investigation, particularly by exploring it through research designs that take developmental and relational issues into consideration. In addition, clinicians are met with the challenge to identify the mechanisms of psychopathology with a level of specificity that can support effective interventions in psychotherapy (Critchfield et al., 2015). The current study is guided by these needs for additional research, and deeper investigation, to elucidate mechanisms that clinicians can be especially attuned to while working with suicidal adults, and tailor interventions appropriately in a therapeutic context.

Adverse childhood experiences (ACEs)

Adverse childhood experiences (ACEs) are the stressful experiences such as emotional, physical or sexual abuse, exposure to violence, living with a caregiver with mental illness, household dysfunction etc., experienced by an individual during childhood (Felitti et al., 1998). These experiences, and the associated toxic stress, have significant adverse effects on brain development and functioning, as well as on adult health outcomes including increased mortality, mental and substance use disorders, health risk behaviors (CDC, 1998; Felitti et al., 1998; Herzog & Schmahl, 2018).

Childhood experiences and their effects on adult outcomes have long been a concern of both developmental and clinical psychologists, and a wide variety of research measures, theoretical frameworks, and measurement paradigms have been applied to explore connections. A particularly influential set of findings derives from the CDC-Kaiser Permanente Adverse Childhood Experiences (ACE) Study. This study is one of the largest, well-funded, and well-publicized, epidemiological investigations of childhood adversities and later-life well-being and health. It was conducted from 1995-1997 with two waves of data collection (CDC, 1998). Participants completed surveys that asked about their childhood experiences and current behaviors and health statuses (Felitti et al., 1998). The number of categories of these adverse childhood experiences (details described below) was then compared to measures of adult risk behavior, health status, and disease. This study assessed the long-term impact of abuse and household dysfunction during childhood from a self-report study on numerous health outcomes in adults including disease risk factors and incidence, health care utilization, quality of life, and mortality (Felitti et al., 1998). In particular, the authors found a graded relationship between the number of domains of childhood exposure and the studied adult health

outcomes that included risk factors for several leading causes of death among adults (Felitti et al., 1998).

The findings of this study showed that, compared to the individuals who had experienced no childhood trauma, those who had experienced four or more categories of childhood trauma had a 2- to 4-fold increase in poor self-rated health, a 1.4 to 1.6-fold increase in physical inactivity and obesity (Felitti et al., 1998), and 4- to 12- fold increased health risks for substance use, depression and suicide attempt. ACEs have also been widely measured in research and clinical settings as well as program and policy planning contexts (CDC, 2018).

Measurement of ACEs

The Adverse Childhood Experiences (ACE) Questionnaire is a brief 10-item measure used to assess childhood adversity through questions about physical abuse, emotional abuse, sexual abuse, physical neglect, substance abuse or mental illness, mother treated violently, incarcerated household member, and parental separation or divorce (CDC, 1998; Felitti et al., 1998). This scale was designed to measure specifically the occurrence of these adverse experiences an individual experienced before the age of 18 years. It is intended for adults above the age of 18 and is used for retrospective assessment of adverse experiences, including but not limited to direct trauma, during childhood and adolescence (Felitti et al., 1998; Wingenfeld et al., 2011). All of the questions on the ACE questionnaire are introduced with the phrase *"While you were growing up during your first 18 years of life…"* followed by the 10 items that ask about abuse, neglect and household dysfunction. Each affirmative answer (Yes) is assigned one point and the total ACE score is obtained by adding up all the points. In other words, a

score of zero would suggest no experience or exposure to childhood trauma and increasingly higher scores would suggest exposure to higher levels of traumatic experiences (Felitti et al., 1998). Felitti and colleagues (1998) constructed the ACE questionnaire by using questions from other published surveys and concepts from existing literature to meet their large-scale epidemiological goals. Among these, a large epidemiological study by Ford and colleagues (2014) utilized exploratory and subsequent confirmatory factor analysis to assess and validate the ACEs factors. Investigation of the factor loadings and item content suggested that the factors represented the construct domains of household dysfunction, emotional/physical abuse, and sexual abuse, with moderate to high correlations among the factors. Overall, the items comprising each of the scales were found to be related to one another with alphas ranging from 0.61 (*Household Dysfunction*), 0.7 *(Emotional/physical abuse),* and 0.80 (*Sexual Abuse)* (Ford et al., 2014). Special training is not required for this measure as the scoring is based on the individual's report on their exposure to childhood trauma, which can be administered by clinicians or as a self-report questionnaire.

Figure 1

Adverse Childhood Experience (ACE) questionnaire

Adverse Childhood Experience (ACE) Questionnaire

Finding your ACE Score

While you were growing up, during your first 18 years of life:

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 Yes 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 Yes 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 Yes 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? or Your family didn't look out for each other, feel close to each other, or support each other?
   No Yes If yes enter 1________
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 Yes If yes enter 1________
6. Was a biological parent ever lost to you through divorce, abandonment, or other reason?
   No Yes 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 Yes If yes enter 1________
8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?
   No Yes If yes enter 1________
9. Was a household member depressed or mentally ill, or did a household member attempt suicide?
   No Yes If yes enter 1________
10. Did a household member go to prison?
    No Yes If yes enter 1________

Now add up your "Yes" answers: ______ This is your ACE Score

Figure 1 : 10 items on the ACE questionnaire (Felitti et al., 1998). Downloaded from Zarse et al., 2019

ACEs and suicide risk

Several research studies have substantiated the relationship between an individual's suicidality and various types of childhood trauma, including physical, psychological, relational, and particularly sexual trauma (e.g., Bahk et al., 2017; Angelakis et al., 2020; Goldsmith et al., 2002;). Strong evidence exists for the impact of childhood adversities and traumatic experiences, measured by the ACEs Questionnaire, on suicidal tendencies (Dube et al., 2001; Fuller-Thomson et al., 2016; Ports et al., 2017; Sheffler, Stanley & Sachs-Ericsson, 2020). A study by Thompson et al. (2019) showed that compared to adolescents with no adverse childhood experiences, those with three or more ACEs were more than three times likely to seriously consider or attempt suicide in adulthood. A meta-analysis by Hughes and colleagues (2017) investigated the risk

estimates for individuals with at least four ACEs compared with those with none. The strongest association was found between multiple ACEs and suicide attempt (Odds Ratio = 12.5), among the health outcomes investigated in this study. These suggest the possibility of a cumulative effect of multiple types of childhood adversity on the vulnerability to suicide risk in adolescence and adulthood.

Interpersonal and relational risk factors linking childhood experiences to adult functioning

Bowlby's attachment theory (1969) suggests that children seek the closeness of a responsive and sensitive caregiver for protection and security. Ainsworth (1978) added that children use their caregiver as a *secure base* from which they can freely explore their environment and a *safe haven* to turn to in times of distress. Their models of attachment suggested that children are securely attached to the caregiver who is consistently sensitive to the child's needs, and are more likely to develop insecure attachment when the caregiver lacks consistent sensitivity to their needs (Ainsworth et al., 1978; Bowlby, 1969, 1988; Main and Solomon, 1990). Bowlby further suggested that early attachment experiences with primary caregivers shape the internal working model of the child, the expectations and beliefs about self and others, in close relationships, and influence attachment patterns in later interpersonal relationships (Bowlby, 1969, 1973).

In the context of suicidality in relation to broad attachment styles (i.e., secure, anxious, avoidant), research has shown that insecure attachment, including both anxious and avoidant attachment styles, is associated with interpersonal problems, self-criticism and dependency, which are understood as mediating the relationship between attachment style and suicide risk (Falgares et al., 2017; Stepp et al., 2008).

The Interpersonal-Psychological Theory of Suicidal Behavior further suggests that the interpersonal constructs of thwarted belongingness and perceived burdensomeness, in addition to the acquired capability for suicide, are primary risk factors for suicide (Joiner, 2005; Orden et al., 2010). Kaslow et al. (1989) suggest that suicide is both an intrapsychic and interpersonal phenomenon, and that suicidal behavior may be a response to an interpersonal climate. Their case study of a suicidal adolescent indicated that the simultaneous and intense parental messages of hostile control, negation and neglect may together be perceived psychologically as attack and establish a specific climate for suicidal behavior through the learning process (about self and others) with close attachment figures (Kaslow et al., 1989).

One model that has been used in the literature to explore both the early attachment links and the current relational dynamics around suicide is Structural Analysis of Social Behavior (SASB; Kaslow et al., 1989). The same framework will be used in this study and is reviewed in the next section.

Structural Analysis of Social Behavior (SASB) and Interpersonal Reconstructive Therapy (IRT)

The Structural Analysis of Social Behavior (SASB; Benjamin, 1979, 1996) is a widely used dyadic model that characterizes interpersonal patterns with others, and with the self. These patterns are conceptualized in three dimensions: the Focus of the action or behavior, i.e. on the other, on the self, or the introject (directed inward), the Affiliation dimension (i.e., the horizontal axis ranging from hateful behavior on the left, to loving behavior on the right), and the Interdependence dimension (i.e., the vertical axis ranging from enmeshment [Control/Submit] on the bottom to distance and separation

[Emancipate/Separate] at the top). Relational behavior is characterized by some combination of these three underlying distinctions. For example, parents protecting their children when relating to them is an example that might be characterized in the lower right of the SASB model, with focus on “other” that has moderate degrees of both love and power. Children sulking at their parents when they are forced to do something they don’t want to, is an example that might fall in the lower left of the SASB model. It is likely to be expressed as a focus on “self” with moderate degrees of both submission and (reactive) hostility. An individual expressing self-criticism would be relating to themself in a manner characterize by a focus inward (i.e., “introject”) with hostile control over the self, labeled “3-6: *Self-Blame*” in the SASB Cluster model shown in Figure 2. SASB has a long history of being useful in research and clinical settings to define relational patterns as well as their repetition across time, setting, or relationship. This model has been used in clinical and research work as well as family processes in developmental context (Benjamin et al., 2006).

Figure 2

The SASB Simplified Cluster Model (with two-digit codes).

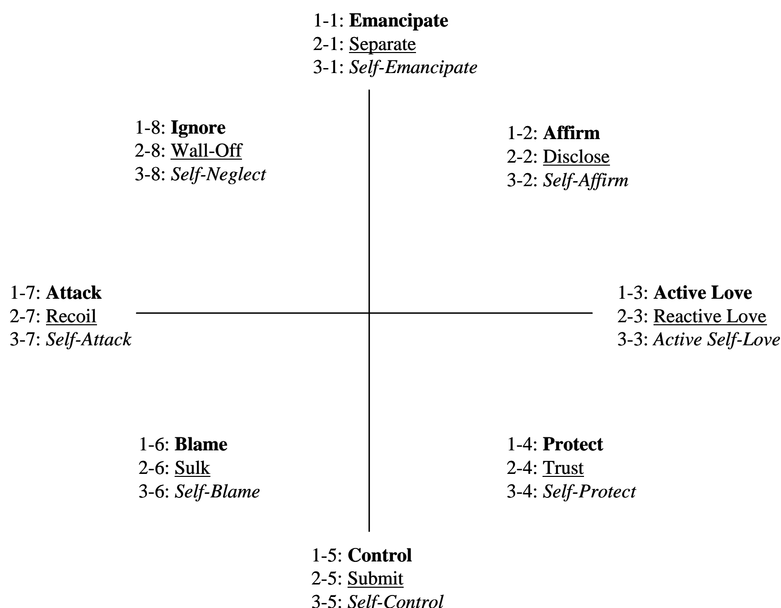

Fig 2: Focus on Other, Self, and Introject are respectively indicated by **Bold,** Underline, and *Italic* fonts. Vertical lines represent degree of Interdependence. Horizontal lines represent degree of Affiliation. SASB clusters with two-digit codes and descriptive labels are presented in circular order around each surface. The figure combines two figures. One from *Interpersonal Diagnosis and Treatment of Personality Disorders* (2nd ed.) by L. S. Benjamin, 1996, p. 55, New York: Guilford. Copyright 1996 by Guilford Press. And from "Use of the SASB Dimensional Model to Develop Treatment Plans for Personality Disorders, I: Narcissism" by L. S. Benjamin, 1987, p. 53, Journal of Personality Disorders, 1, 43–70. Copyright 1987 by Guilford Press.

Interpersonal Reconstructive Therapy (IRT; Benjamin, 2006, 2018) is an integrative, interpersonal and intrapersonal psychotherapy based on attachment and evolutionary theories and built from clinical observations using the SASB model. According to the IRT theory, maladaptive rules and ways of beings are learned and internalized in the context of close attachment relationships (Benjamin, 2003/2006); therefore, individuals repeat relational and behavioral patterns that were learned in their early social environments. In fact, the frequency of exact parallels between an individual's current patterns and internalized learning history, as evident from Benjamin's SASB model, led to the development of IRT (Benjamin, 2006).

IRT derives principles from attachment and interpersonal theories as well as object-relations psychoanalysis to conceptualize patient problems including the desire to

kill or hurt self. One of the core concepts in this approach is ‘copy process’, the idea that current problems and patterns replicate early learning experiences, and psychiatric symptoms reflect the patient’s attempts to adapt using problematic rules and values learned with caregivers or important early loved ones (Critchfield & Benjamin, 2008; 2010). Copy process occurs in three forms: *Identification* (be like the other person), *Recapitulation* (act as if the other person is around and still in control), and *Introjection* (treat yourself the way you were once treated). According to IRT’s “gift of love” (GOL) hypothesis, these patterns are repeated and maintained by the motivation, driven from individuals’ attachment-based yearning to feel loved, accepted and approved by the caregivers for living according to their rules and values. These patterns allow the individuals to achieve psychic proximity to the important people and their internalized representations (IPIR; Benjamin, 2003/2006).

Interpersonal Specificity in the context of copy process patterns and suicide risk

Sullivan (1953), is commonly referred to as the “father of interpersonal psychiatry” and to have suggested that we treat ourselves the way we were treated by important others. His work coined the term “introject” as it is operationalized and understood within psychoanalysis and is the source for the word’s use in the SASB tradition. Studies have since shown specific associations between patterns of interpersonal problems and symptomatology, such as the study by Bjerke and colleagues (2014), which investigated specific associations between interpersonal relatedness and self-reported symptom types. Strong associations were found between symptom patterns and interpersonal problems among psychiatric outpatients e.g., paranoid ideation and hostile symptoms were associated with interpersonal problems of the self-centered or

vindictive kind, while phobic anxiety was associated with those of the socially inhibited kind (Bjerke et al., 2014).

Using SASB to measure repeated relational processes in clinical and non-clinical samples, Critchfield and Benjamin (2008) observed that "constructive as well as destructive experiences shape adult behavior with surprising interpersonal specificity" (p. 71). In other words, copy processes or the repetition of early patterns, that are often precisely identifiable in interpersonal behaviors applied in the past and the present, are hypothesized to be specifically associated with the interpersonal learning history with the attachment figures and presenting problems (Critchfield and Benjamin, 2008). Their study provides evidence for each copy process (including introjection of attack as *self-attack*, relevant to our study) in a sample of psychiatric inpatients as well as a college sample. In this study, **Attack** had the strongest tendency to repeat from an early parental input to self-treatment **(Introjection** of attack as *self-attack***)** as compared to other forms of self-treatment. The correlation was near r = .35 in aggregate analysis of this sample consisting of both inpatients and normal controls, with the average correlation falling between a 'medium' and a 'large' effect size (using Cohen's 1992 distinctions). Only a few other behaviors (especially interpersonal recapitulation of neglect) showed stronger copying at the level of specific behaviors. Beyond the questionnaire-based approach used in this study (Critchfield and Benjamin, 2008), Critchfield and colleagues (2015) have also found strong evidence of copying described in interview narratives for creating an IRT case formulation among a sample referred for recurrent suicidality and other markers of clinical severity (especially personality disorders, and comorbid symptom presentations).

Copy process - Introjected Hostility

The version of copy process particularly salient to this study is the *Introjection*, of attack as *self-attack*, and its relationship with suicidal ideation and or behaviors i.e., if an individual's caregiver was hostile to them growing up, the individuals learn to be hostile towards self in an attempt to maintain closeness with the internalized loved one. Hostility directed inward as self-attack and self-rejection might be manifested in a variety of forms including harsh self-talk, self-harm, and among a subset of more vulnerable individuals, as suicidality.

The IRT theory hypothesizes that copy processes, including the introjective process of self-attack reflects learned behavior patterns but is also reflective of the GOL motivation to maintain it in the present. Any triggers to suicidal behaviors may appear specifically in relation to real or internalized loved ones when these same patterns are repeated or invoked. The case example of Roger, used in Critchfield et al. (2021) helps illustrate this perspective. Roger treats himself as he was treated by his controlling, abusive and critical father, i.e. neglecting himself in different ways, criticizing himself as worthless and a burden to the family. His suicidality stems from his copy process of *introjection,* and thus, having understood his suicidal thoughts better, his clinician helps him understand the link between his suicidal thoughts and his interpersonal learning history with his father. Through this process, the clinician enhances Roger's will to differentiate from the old values internalized from his father.

Considering that repeated interpersonal patterns are key to treatment planning in interpersonal and attachment-based therapies (Critchfield and Benjamin, 2010) used to help chronically suicidal individuals, researchers may benefit from investigating suicidal

individuals' ways of relating to self and others, which may have been influenced and maintained by maladaptive patterns learned from caregivers.

Use of mixed methods approach to study suicide and risk factors

A multifactorial complex phenomenon such as suicide can be explored effectively through the multiple perspectives of a mixed methods study. Although suicide studies have primarily used quantitative research methodologies, recently more studies have used qualitative and mixed methods approach to study this phenomenon (e.g., Awenat et al., 2018; Chu et al., 2017; Hill et al., 2019; Jacqueline et al., 2019). Researchers have also explored ACEs and later adjustment using mixed methods (e.g., Anthony et al., 2019); however, studies investigating the link between childhood adversity and suicide risk using a mixed approach is still lacking, to the best of our knowledge. The use and integration of both qualitative and quantitative data in this study addresses this deficiency in the existing literature.

This study will use an explanatory mixed method design (Creswell, 2015) situated within a pragmatist epistemology. The combination of both the qualitative and quantitative data will integrate their combined strengths and perspectives, enabling a comprehensive view of the variables under exploration. Pragmatism refers to the philosophy of research that focused on the consequences of research, and what works in real-world practice (Tashakkori & Teddlie, 2003). In the context of this study, the burden of suicide continues to increase and the potential real-world implications of the findings on the tailoring of interventions are essential to reduce the risk of suicide and its impact on survivors. This pragmatist lens has informed my approach to do this study, and will influence the upcoming steps, including data analysis, meaning making and writing

process. The addition of qualitative methods will add richness to the findings, since detailed qualitative perspectives will help clarify the quantitative trends. This in-depth understanding is expected to help clinicians working with suicidal individuals. Since the existing literature currently lacks a study that looks into our variables of interest using a mixed methods approach, this study is expected to add unique richness to the research literature in these fields.

Conclusion

While ample research has demonstrated the impact of exposure to adverse childhood experiences on suicide risk, we are interested in the level of specificity that can be obtained by considering the specific early input from key relationships, using IRT theory and SASB framework (Benjamin, 1979, 1996, 2003/2006) for measurement of interpersonal input. This question derives from Benjamin's articulation of a specificity hypothesis linking experiences in close attachment relationships with adult psychopathology. As she puts it: "for every symptom, there are reasons" (1996, p. 13). Copy process links between experiences with internalized caregivers and adult behavior (with self or others) involves a learning theory that requires very close correspondence of patterns, rather than a more diffuse impact of stressors. To assist with unpacking of any observed links, our study uses a mixed methods approach to explore the relationships between childhood adversities and suicidality. By linking specific narratives to adult outcomes, this study hopes to gain additional insight into and provide evidence for interpersonal specificity, and to contribute to both the literatures. Understanding the specific pathways that make individuals who have experienced childhood adversities

vulnerable to suicide can have a meaningful impact on the treatment of suicidal individuals and on suicide prevention.

Chapter III

Methods

The purpose of the study was to (1) investigate the specific associations among ACEs, relational patterns (i.e., the ways in which we relate to self and others; Critchfield & Benjamin, 2010), and vulnerability to suicide, and (2) to understand, in depth, the associations between early history and adult suicidality using descriptive clinical narratives that characterize the experiences of suicidal individuals.

The methodology involved (1) implementing a method for coding ACEs as applied to information discussed in these CF interviews, which have the goal, in part, to review salient early family history, (2) statistical analyses of quantitative data to assess the relative impact of specific relational patterns with attachment figures vs. more generally framed, cumulative childhood adversity (ACEs) on suicide risk, and (3) qualitative analysis of a subset of CF case reports to explore experiences of suicidality that illuminate copy processes in IRT.

Data Sources and Procedures

This study utilized archived clinical (discrete and continuous) data collected from 2003 to 2014 and used for investigating the reliability and validity of the IRT case formulation method (Critchfield et al., 2015, 2017), and are part of ongoing efforts to study efficacy and mechanisms of change in IRT. One hundred and three (103) adult patients referred to the IRT clinic at the University of Utah Neuropsychiatric Institute (UNI, since renamed the Huntsman Mental Health Institute, HMHI) were interviewed using the IRT case formulation method. Initial data collection was governed by the University of Utah IRB and all the participants signed an informed consent for recording

the case formulation interviews as well as for educational and research use of the tapes. In addition, IRB permission was obtained from James Madison University for further use and analysis of this dataset for the current study, made available by a Data Transfer Agreement with the University of Utah to Dr. Critchfield.

The archived data were derived from four, related sources: 1) the IRT case formulation interviews conducted with the patients referred to the IRT clinic at UNI; 2) the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID II; First et al., 1997) with these patients; 3) the Beck Depression Inventory (BDI; Beck et al., 1961); and 4) the patient medical record received during the referral (including demographic information, diagnoses, number of prior suicide attempts and psychiatric hospitalization). Only the information specifically pertinent to an individual's suicidality were utilized from the chart review and from the SCID-II and BDI measures.

Participants

These patients, also characterized by the CORDS acronym (i.e., Comorbid, Often Rehospitalized, Dysfunctional, and Suicidal) were referred due to the complexity of their symptoms and/or failure to respond to prior treatment attempts. Mean age of the participants was 34.7 (SD = 11.03; range = 16-68). Participants were predominantly white (94%) and female (75%).

Clinical interview data were collected from 2003 to 2014 utilizing the interview method for constructing an IRT CF as described by Benjamin (2006). See also: Critchfield et al. (2015) and Critchfield et al. (2019). The IRT case formulation interview is a semi-structured interview that lasts an average of 90 minutes, the goal of which is to elicit the patient's perspective about their presenting concerns as well as to identify the

links between their current symptoms and patterns in the interpersonal history (Critchfield et al., 2015). The case formulation interview covered the following IRT and SASB key themes: 1. Current symptoms, including severity of suicidality, 2. Important attachment figures, 3. Copy processes associated with key figures, and 4. Interpersonal and intrapsychic dynamics as described by the SASB dimensions of focus, affiliation, and interdependence (Benjamin, 2003/2006). These interviews are already part of the existing archive and were conducted by content and clinical experts in SASB/IRT, including Dr. Lorna Smith Benjamin who conducted the majority of these interviews. The case reports for each participant were written by the interviewer, or under their direct supervision. They included explicit statements about the copied behaviors linked to presenting concerns that led to referral. These behaviors were later coded to conform to SASB model terms. The consult reports also contain a great deal of narrative richness about the life history, particularly with regard to close relationships in present and past. The copied behavior of direct relevance for the theory explored in this study is Introjection of Attack by an important other as *Self-Attack.* All participant names used in this study are pseudonyms to keep identities confidential.

Measures

Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II). The SCID-II (First et al., 1997) measures the DSM-IV criteria for personality disorders, and is composed of 119 items, 15 of which assess the 9 Borderline Personality Disorder (BPD) criteria. These items have a “yes-no” format. The SCID-II has good internal consistency ($\alpha = 0.71/0.94$; Maffei et al., 1997) and a moderately good test-retest reliability (*kappa* = 0.63; Weertman et al., 2003). The BPD criterion “self-

harm/suicidality" is measured by two SCID-II items relevant for our study. The SCID-II Self-rating for killing or hurting self specifically asks about "the kind of person you generally are – that is, how you have usually felt or behaved over the past several years." These are rated as "Yes" or "No". The two items include *Item 97: "Have you tried to hurt or kill yourself or threatened to do so?" and Item 98: "Have you ever cut, burned, or scratched yourself on purpose?".*

The SCID-II Interview Suicidality criterion for BPD utilizes the interviewer's judgment about DSM-IV BPD criterion 5: "recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior". Once the self-ratings from the questionnaire is reviewed, the interviewer follows up using sample questions like: *Q97: "You've said that you have [Have you] tried to hurt or kill yourself or threatened to do so"*. The responses are followed up with "Tell me about that", and the ratings are made based on the interviewer's clinical judgment of the details described.

The Beck Depression Inventory (BDI). The BDI (Beck et al., 1961) is a 21-item self-report inventory that measures symptoms of depression, including suicidality. The BDI Item 9: Suicidal Thoughts or Wishes asks individuals to rate themselves on their thoughts, desire or intent to kill themselves in the past two weeks. This item reads: "Rated for past 2 weeks, including today: 0: I don't have any thoughts of killing myself; 1: I have thoughts of killing myself, but I would not carry them out; 2: I would like to kill myself; 3: I would kill myself if I had the chance. The BDI suicide item has been shown to have predictive validity, through association with both the risk of repeat suicide attempts and death by suicide (Green et al., 2015), and will be used as one of the measures of suicidality for this study.

Variables

Severity of suicide risk. The outcome variable for this study, severity of suicide risk, was assessed by utilizing a variety of indices for suicidality. In addition to the suicidality items described above, specifically, (i) SCID-II Self-rating for killing or hurting self, (ii) the SCID-II interview Suicidality criterion for BPD, (iii) the BDI Item 9: Suicidal Thoughts or Wishes, we also included (iv) number of lifetime suicide attempts and (v) IRT CF-based *"self-attack"* as additional indices of suicidality.

The CF-based *"self-attack"* variable is derived from the case reports. The IRT CF reports have been coded for SASB-based copy processes, another set of important elements of the existing archive used for this study. These are categorized into presence or absence of all SASB-defined behaviors linked to symptoms via copy process, including the behavior of most interest here, "*self-attack*". Each behavior is dichotomously quantified as being involved in a copy process = 1 or not involved = 0. The SASB model is helpful for coding hostility directed from a caregiver towards an individual and hostility directed towards self. As shown in figure 2, it includes a region for self-attack behaviors, which is self-directed hostility at an extreme, and can include suicidality. Among the participants that had the copy process of self-attack, a particular feature of their CF is the attachment-based link active in their suicidality.

Composite suicidality measure. Exploratory principal components analysis (PCA) was used to create a composite measure from the various items indicating suicidality in the dataset. Analysis of eigenvalues and scree plot from the PCA suggested presence of one factor having an eigenvalue of 2.5 and accounting for 42.2% of the variance. All

factors loaded between 0.56 and 0.76. The resulting single-factor score was saved and used for subsequent analysis.

Early history variables. These include (i) CF-based/ SASB-defined interpersonal attack from an attachment figure connected with a copy process and (ii) ACEs.

CF-based/ SASB-defined interpersonal attack from an attachment figure connected with a copy process. The presence or absence of CF-based or SASB-defined attack from an attachment figure is determined from the case report, and quantified respectively, using the same procedure as outlined for CF-based *self-attack.* Table 1 helps illustrate the coding of SASB-defined interpersonal patterns with others, and with the self. Others to me (Past) represents the presence (1) or absence (0) of a relational behavior, learned and copied in some form, from attachment figures. Me to Me (Present) represents a copied behavior directed towards self. **Attack,** one of our predictor variables, and **self-attack**, an indicator of adult suicidality, our outcome variable, are relevant to this study.

Table 1
Coding of SASB-based copy processes for CF case reports

SASB cluster	Others to me		Me to Others		Me to Me
	Past	Present	Past	Present	Present
Emancipate	0	0	0	0	
Affirm	0	0	0	0	
Active love	0	0	0	0	
Protect	0	0	0	0	
Control	1	1	0	0	
Blame	1	1	1	1	
Attack	1	1	1	1	
Ignore	1	1	0	1	
Separate	0	0	0	0	
Disclose	0	0	0	0	
Reactive love	0	0	0	0	
Trust	0	0	0	1	
Submit	0	0	1	1	
Sulk	1	1	1	1	
Recoil	1	1	1	1	
Wall off					

Self-emancipate	0
Self-affirm	0
Active self-love	0
Self-protect	1
Self-control	1
Self-blame	1
Self-attack	1
Self-neglect	1

Note. 1 = Presence and 0 = absence of variables.
Adapted from Critchfield et al., 2015

ACEs. ACE scores for each participant were determined from the information provided on the case reports (i.e., the summaries written up by the interviewers after the CF interviews). While the model for rating each category of childhood adversity was based directly on the 10-item ACE questionnaire (CDC, 1998; Felitti et al., 1998), the procedure was different from the original approach to measurement using self-report. The coders used retrospective reports of adverse childhood experiences to give each participant an ACE score, by applying the concepts based on the measure to the narratives included in the case reports. Each item was given a 1 (Yes) or 0 (No) based on coder evaluation that the item met or did not meet the criteria for an adverse childhood experience, as specified by the questionnaire. The details of the coding process are outlined below.

ACE ratings and inter-rater reliability

A total of one hundred and three (n = 103) case reports, i.e. all of the participants included in the study, were coded. The initial coding team included three independent coders: this researcher and two undergraduate research assistants from James Madison University. Three meetings in a span of four months were conducted throughout the coding process. The initial meeting included an hour discussion to orient the research assistants to the study's aims and variables, particularly the ACE questionnaire, and to

the team's goal of implementing a method for coding ACEs as applied to information on the CF summary case reports. One participant was randomly selected to practice rating the ACE categories. Each member read the case report and collectively rated the ACE items as a 0 or 1. This seemed to be a straightforward process, besides a few nuances in the participant' developmental history. These helped anticipate potential differences in interpretations of their adversities, i.e. if they met the criteria for an ACE item or not.

The coding team then worked independently on additional two practice cases and brought their ratings to the team meeting. These ratings were discussed, and disagreements resolved by discussion among the coders. In particular, coders were unsure if the two participants' experiences met the criteria for a couple of ACE items related to abuse, based on the phrasing of the questions and were resolved by consensus discussion. Besides these, the coding appeared to be simple and comparable to the self-report version of the questionnaire. After this meeting, each case report was randomly assigned to two raters for reliability assessment, which they worked on independently. An additional meeting was utilized to address questions related to nuances as described above, or to unclear, incomplete information on the case reports. The team also decided on a plan to use a conservative approach to coding, i.e. a score of 0, if the experiences of a certain adversity, as specified on the ACE questionnaire, were vague or ambiguous. The coders kept notes of these items as they continued their independent ratings, which were helpful to create a brief manual for the observer version of the ACE questionnaire. An additional coder, included towards the end of the project, coded 11 case reports to assist with the study's double-coding goals. This coder went through a similar process of getting oriented to and familiar with the coding procedure as outlined above. In sum, 99

participants were double-coded. Final analysis utilized the scores averaged from the two sets of ratings.

The reliability of these ratings was assessed using Intraclass Correlation Coefficient (ICC), using absolute agreement and average of two raters' values. This was calculated to be 0.86, indicating strong reliability and high level of agreement between rater pairings. Mean ACE total score for participants in our study was 3.25 (*SD = 1.75*). 38% of the sample were rated as having 4 or more ACEs via the CF report.

Internal consistency and reliability of ACEs in CORDS sample

Exploratory principal components analysis (PCA) was used to explore the factor structure of the resulting ACE scores. Two factors were found to account for 38% of the variance. A first factor contained items tapping significant disruption or dysfunction in family members (incarceration, substance abuse, separation/divorce, abuse in the marital relationship, and significant physical neglect of the patient in childhood). The second factor emphasized the individual's direct experience of physical, emotional and sexual abuse at the hands of adults in ways that could be characterized on the SASB model as hostility focused on the patient in childhood. The two factors mirror prior findings focused on the self-report version of the ACEs measure (Mersky et al., 2017). Table A1 (Appendix A) illustrates the results of the PCA.

Quantitative Data Analysis

Each of the 103 participants had a quantitative profile, including ACE scores, and presence/absence of SASB-defined interpersonal attack from an attachment figure, and of self-attack as a copy process (determined by coding procedures outlined above for ACEs and SASB), and suicidality indices from SCID-II, BDI, and patient chart. These

suicidality indices were combined to use a single indicator of suicidality. These sources of quantitative data were analyzed to investigate the better predictor of adult suicidality in our sample. Following tradition in the literature, the overall ACES score will be used. However, given the alignment of the two ACES factors with the study goals (i.e., general adverse experiences versus direct experience of interpersonal hostility), the two factor scores will also be incorporated as variables into subsequent analyses. Multiple linear regression was used to investigate the better predictor among (1) CF-based SASB-defined interpersonal attack, learned and copied, from caregiver being the primary predictor variables, (2) mean total ACE score, and (3) ACE abuse factor, and (4) ACE general household dysfunction factor.

Missing data

The BDI and SCID-II were administered only for certain phases of the original project, and also not always returned, and therefore were not available for all patients. To accommodate for the missing data, and since the analyses only consist of single suicidality items from multicomponent measures, a parallel set of regression analyses were conducted using suicidality variables not influenced by BDI and SCID-II. These included: (i) number of lifetime suicide attempts, and (ii) CF-based self-attack (i.e., self-attack involved as part of a copy process as determined by the clinical interviewer).

Qualitative Data Analysis

Based on the results of the quantitative analysis, five case reports were selected for qualitative interpretation and illustration of the quantitative trends, given the explanatory sequential mixed methods design of the study. Cases were selected such that the first four cases supported and illustrated the quantitative findings linking suicidality to

the interpersonal specificity of prior learning history, while the fifth represented an exception i.e., a contrasting narrative of a suicidal individual with no apparent history of ACEs, and no reported interpersonal hostility or abuse from caregivers.

Purposeful sampling (Creswell, 2014; Patton, 2002; Robinson, 2014), an intentional non-random selection of information-rich cases that are judged as providing insight and that can illuminate themes, concepts, or phenomena, investigated by a study, was utilized to sample the five cases. Patton (2002) has well-described the use of purposeful sampling techniques in qualitative research.

"The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases yields insights and in-depth understanding rather than empirical generalizations." (p. 230)

This study utilized a mixed purposeful sampling, combining two strategies: maximum variation sample and confirming/disconfirming case sampling (Padgett, 2012). Maximum variation sampling was used to capture the heterogeneity of lived experiences of participants with varied contexts and suicidal tendencies. This sampling method allows researchers to identify cases that differ from each other as well as significant patterns that cut across these differences (Padgett, 2012). In addition, confirming and disconfirming sampling strategy was used to identify the four cases whose experiences supported findings from quantitative data analysis and the fifth case that disconfirmed the finding.

As described in the CF case report, 92.2% of the sample (ninety six participants) had ACE scores below 6 (including one participant with a score of 0), three participants

had a score of 6, one participant each had a score of 6.5, 7.5 and 8.5, and one participant was missing an ACE score. 64 participants had an early history of SASB-defined interpersonal attack from an attachment figure as part of their copy process.

The primary researcher, also the single coder and analyst for qualitative data, purposefully sampled five case reports that varied in terms of levels of cumulative adverse childhood experiences (i.e., ACE scores 0, 3.5, 4 and 7.5), absence or presence of interpersonal hostility/SASB-defined attack and the extent of the hostility as described in the case reports, diagnoses/psychopathology (e.g. depression, substance abuse, mania, command hallucinations), gender, and racial backgrounds (White, Japanese American, and Hispanic). Each individual was suicidal and had made at least one suicide attempt at the time of their hospitalization. Since the dataset included only one participant with an ACE score of 0, the PI/coder again reviewed the case report for evidence of interpersonal history/abuse directed at him from his attachment figures and confirmed that none was reported or suggested. The process of identifying a participant with no childhood adversity or maltreatment therefore was a straightforward process given its rarity in the sample. Ten other case reports were initially selected based on varying ACE scores (lower and higher). These were further reviewed and shortlisted to four cases to capture the heterogeneity of experiences in the context of suicidality. Participants selected from the IRT database had these ID numbers: 207, 234, 233, 257, and 264.

Qualitative content analysis (Mayring, 2014) was utilized to illustrate the phenomenon of suicidality, as experienced by these participants and expressed in these narratives. Mayring (2014) argues that the reflective act of interpreting meanings in the text is central to qualitative content analysis; the text is interpreted within its context, and

categories from existing theories are generated. Data collected from these narratives (texts) include the identified occurrences of categories developed a priori based on a clear theoretical background or from previous research (Mayring, 2014). The qualitative data for this study were the case reports written after the interviews were conducted, and so were specifically oriented to exploring for IRT-defined copy processes. These reports were subjected to content analysis that elucidates Benjamin's themes provided by IRT theory (Benjamin, 2003/2006) and how those deepen our understanding of the quantitative data. A tight connection was expected at the outset of this study given the context and purpose of data collection of the original study authors.

Coding for this study was deductive as a priori categories guided the coding process for this study; specifically, coding of the categories used in this study was informed by the concepts of copy process and gift of love in IRT (Benjamin, 2006, 2018). Copy process is the precise behavioral repetition of patterns, learned in the context of close attachment relationships, which provide proximity to internalized representations of these caregivers; gift of love is the motivation that maintains these patterns, even though they are problematic, including self-destructive thoughts and behaviors, including suicidality. As noted previously, copy process occurs in three primary forms: *Identification* (be like the other person), *Recapitulation* (act as if the other person is around and still in control), and *Introjection* (treat yourself the way you were once treated).

The coding process began with the primary researcher familiarizing herself with the data by initially reading the case reports of the CF interviews, line by line, and

generating initial thoughts and impressions on the coding units and categories. This process also facilitated the purposeful sampling method to shortlist the five samples. The narratives included in CF case reports were utilized as the coding units. These coding units were carefully analyzed to identify the copy processes (categories for this study) linked with the participant's suicidality, and the associated attachment figures. The coder paid particular attention to early experiences of interpersonal hostility from caregivers (in the form of physical, emotional, sexual abuse) and the introjection of this attack, *self-attack,* in the form of suicidal ideation or behaviors. The coder also identified evidence of associated gift of love to highlight the attachment-based motivation that leads to and maintains these problematic repetitive patterns or suicidal thoughts and behaviors.

The coder tried to include as many as possible coding units, particularly prioritizing direct quotes, to provide information relevant to copy processes and suicidality while removing irrelevant details and quotes. This process allowed the coder to focus on the units (including direct quotes from participants or notes from authors of the case reports) relevant to research goals. The coder reviewed the coding units a few more times to further refine and condense them in order to articulate the copy process links (categories), while also being careful to not exclude direct quotes, or the author's notes about the participants' contexts, that were relevant to the study's variables. The coder further reviewed and selected pertinent contextual information of the participants including demographics, diagnoses/psychological challenges, and the context of the suicide attempt to be presented with each case in the following chapter.

The coder consulted the interpretative notes of the CF interviewer (also the case report author) for inter-coder agreement and engaged in peer debriefing (Creswell, 2003)

with the dissertation co-chair, who has an expertise in IRT and who provided constructive feedback on the relevant copy process links. These strategies allowed the coder to explore her analysis as well as to check her biases and assumptions and address the problems of the use of a single coder and analyst for this study. In addition to these, researcher reflexivity was a key strategy used to establish and increase the trustworthiness of this study. Furthermore, the reliability and validity of the case formulation method that generates this study's qualitative data have been established (Critchfield et al., 2015).

Researcher Positioning Statement

My personal and professional experiences impact this study, and the reflection on these experiences will be described in first person. My identity as a clinician, researcher and advocate for suicide prevention positions me with an etic perspective to this project. The positions of a researcher amongst the research team and the author of this study afford me power, particularly in the context of research design for this dissertation work, analyses, selection of the narratives and interpretation of the results. This power exists within, and is constrained by, the power of prior clinicians and researchers whose efforts, including creating the theory, conducting the interviews, writing the case reports, have shaped what is in this clinical research archive.

My clinical and research experiences with suicide have inspired and reinforced my motivation to better understand suicide risk, and to facilitate tailoring interventions to prevent suicide. Working with suicide as a trainee clinician has further been emotionally taxing and challenging, and these experiences have fueled my motivation to pursue this study. In addition to being able to better understand my clients' vulnerability to suicide and find appropriate ways to improve my therapeutic strategies, I hope to help other

clinicians do the same as they navigate similar challenges while working with suicidal clients. Finally, my training in Interpersonal Reconstructive Therapy and trauma-informed approaches have helped ground me and have bolstered my confidence to conduct this research study. To engage in reflexivity, I engaged in self-reflection and tried to be intentionally aware of my pre-existing biases and assumptions from prior experiences about childhood trauma, suicidality, and hostility in attachment relationships, that I bring to this study. In particular, I examined my pre-understanding and beliefs, specifically about the existence of links between early childhood and adult experiences, that influence my approach to this research and sample.

Mixed Methods Integration

Qualitative and quantitative data were integrated using an explanatory sequential approach. Comprised of two phases, an explanatory sequential mixed methods design (Creswell, 2015; Creswell & Clark, 2018; Clark & Ivankova, 2016) is intended to explain quantitative results in more depth through subsequent examination of qualitative data. In this study, quantitative data were analyzed to test the relative impact of specific relational patterns with attachment figures in comparison to general cumulative childhood adversity, on suicidality of the participants. The findings were further explored in the second, follow-up phase, with selected qualitative narratives that illustrate the experiences of suicidality. These two phases are distinct and build upon each other, which contributes to the strength of this design.

Quantitative data were heavily weighted and represented earlier in the first phase of analysis, as described above. It should be noted, however, that the primary quantitative indices (SASB-defined attack, ACEs, suicidality) are themselves derived from the

inspection of the qualitative source material (CF interviews), which constitutes the core of the clinical research archive. The qualitative sample was therefore a subset of the quantitative sample, and because qualitative data collection consisted of information from fewer participants, the sizes of the two kinds of samples are unequal.

Figure 3

Procedural diagram showing the current study's mixed methods integration

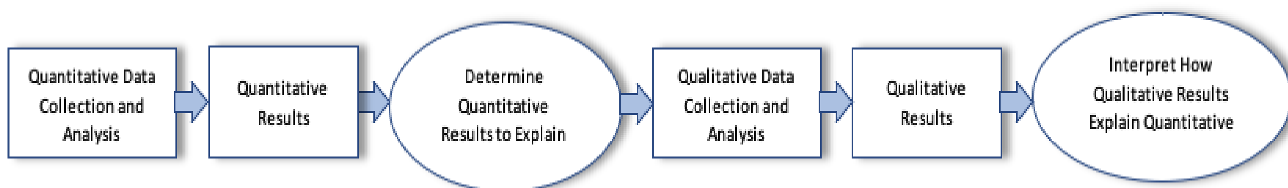

Fig 3: Procedural diagram representing this study's **QUAN → qual** explanatory sequential design (Creswell, 2015).

Chapter IV

Results

Sample Characteristics

Based on patients' medical records received at the time of the CF interview, the mean number of psychiatric hospitalizations before the consult was 4 (S.D. = 5.5; median = 3; mode = 1) and the mean number of suicide attempts lifetime before the consult was 2.1 (S.D. = 2.23; median = 2; mode = 0). Mean ACE total score for participants in our study was 3.25 (S.D. = 1.75; median = 3; mode =2; range = 0-8.5). Sixty-four participants had an early history of SASB-defined interpersonal attack from an attachment figure as part of their copy process profile.

Early history predictors of suicidality

Linear regression was utilized to assess the best predictor of suicidality among the early history variables i.e., the variables accounting for more variance, and the relative strength of prediction of these variables. A multiple regression analysis was conducted to examine the relationship between total ACE score, SASB-defined interpersonal hostility, as the predictors, and composite suicidality measure as the outcome. The model did not reach statistical significance, indicating that cumulative childhood adversity and early interpersonal hostility were not strong predictors of adult suicidality when compared jointly but trended in the expected direction, $F\ (2, 34) = 2.153$, $p = 0.07$, one-tailed, $R^2 = 0.11$. Although the overall model was not significant, standardized coefficients for total ACE and SASB-defined interpersonal hostility were, β's = 0.09 and 0.30, respectively, with the latter showing statistical significance at $p = 0.04$. Results are presented in table 2.

Table 2

Multiple regression using total ACE score and SASB-defined interpersonal hostility as predictors of composite suicidality

Predictor variables	Model			β	*p (one-tailed)*
	F	*p (one-tailed)*	R^2		
	2.15	0.07	0.11		
ACE total				0.09	0.30
SASB-defined interpersonal hostility				0.30	0.04*

$N = 103$, * = $p < 0.05$

As noted earlier, the ACE measure appears to reflect two underlying constructs: general household member dysfunction and direct experience of abuse. The second of these factors appeared to reflect a position on the extreme left of the SASB model, Attack. The factor has a significant point-biserial correlation ($r = 0.54$, $p < 0.001$) with the (binary) SASB-based Attack variable from the CF. Given both the heterogeneity and the overlap among predictor variables in the first analysis, subsequent analyses were undertaken. A multiple (stepwise) regression analysis was used with all three predictors.

Although the overall model was again not statistically significant (F [2,34]) = 2.01, $p = 0.08$, one-tailed, $R^2 = 0.11$, both the abuse factor of ACE (β = 0.32, $p = 0.03$, one-tailed) and SASB-defined early interpersonal hostility (β = 0.32, $p = 0.03$, one-tailed) were found to be significant predictors of the composite suicidality measure, compared to the ACE household dysfunction factor (β = 0.05, $p = 0.38$, one-tailed). Partial correlations allowed better understanding of the unique association between adult suicidality and each of the predictor variables, ACE abuse and SASB-defined interpersonal attack, while controlling for the effects of ACE general family dysfunction. Results are presented in Table 3.

Table 3

Multiple regression using ACE abuse, ACE household dysfunction, and SASB-defined interpersonal hostility as predictors of composite suicidality

Predictor variables	Model			β	*p (one-tailed)*	*r*
	F	*p (one-tailed)*	R^2			
	2.01	0.08	0.11			
ACE abuse				0.32	0.03*	0.31
ACE dysfunction				0.05	0.38	
SASB-defined interpersonal hostility				0.32	0.03*	0.32

N=103, * = *p*<0.05

Exploring effects for separate suicidality indicators

As noted previously, the combined suicidality indicator scale has limited power to detect differences due to missing data, particularly in the single items taken from the BDI and SCID questionnaires. The following exploratory analyses repeat the regression analyses above but do so in the full sample using (a) number of lifetime suicide attempts, and (b) presence vs absence of SASB-defined *Self-Attack* in the CF as dependent variables.

Number of lifetime suicide attempts

The model reached statistical significance upon inclusion of ACE abuse and ACE dysfunction as predictors, F (2, 84) = 4.29, $p = 0.01$, one-tailed, $R^2 = 0.30$. The ACE abuse factor ($\beta = 0.26$, $p = 0.01$, one-tailed) was found to be the better predictor of the number of suicide attempts, with the ACE general family dysfunction factor falling just beyond the decision region at $p = .053$ ($\beta = 0.17$, one-tailed). SASB-defined interpersonal attack did not enter the regression equation in this stepwise model, likely due to overlap with the ACE abuse factor. The SASB-based partial correlation dropped from $r = 0.18$ to $r = .05$ in its presence (ACE general family dysfunction controlled in both). Details are presented in Table A2 (Appendix A).

CF-based SASB-defined self-attack

The model did not reach statistical significance, F (1,100) = 2.29, $p = 0.06$, one-tailed), $R^2 = 0.02$, when the equation only included ACE dysfunction as a predictor ($\beta = 0.15$, $p = 0.07$, one-tailed). It reached statistical significance upon inclusion of both ACE dysfunction and SASB-defined interpersonal attack as predictors, F (2,99) = 21.79, $p < 0.001$, one-tailed), $R^2 = 0.31$. SASB-defined interpersonal attack ($\beta = 0.53$, $p < 0.001$, one-tailed) was found to be a significant predictor of the CF-based SASB-defined self-attack while ACE dysfunction was not ($\beta = 0.10$, $p = 0.11$, one-tailed). ACE abuse did not enter the regression equation in this stepwise model, likely due to overlap with the SASB-defined interpersonal attack. The ACE abuse partial correlation dropped from $r = 0.3$ to $r = 0.004$ in its presence (ACE general family dysfunction controlled in both). Additional details are presented in Table A3 (Appendix A).

Qualitative data

Based on the quantitative results that demonstrated significant association between specific experience of interpersonal hostility and abuse on adult suicidality, four case reports of participants were selected for qualitative interpretation and illustration of these findings. A fifth case report was chosen to represent a contrasting narrative of a suicidal individual that did not have a history of adverse childhood experiences, including no known interpersonal/internalized hostility or abuse from caregivers.

The following case examples will utilize excerpts from the case reports, including direct quotes from the patients (our primary coding targets), relevant to experiences of suicidality and copy processes (categories relevant to IRT).

Case 1: Janice

Janice is a 41-year-old female with a history of many hospitalizations. She can function at a high level and owns a small business. She has had a pattern of doing well after discharge, escalating to mania, and crashing into depression with self-harm overdoses, cutting and burning. She is admitted primarily for auditory hallucinations that command her for self-harm. Her many suicide attempts by overdose are precipitated during depression by voices that command self-harm. Current stresses include husband losing his job and now working at night; in addition, he hates current job. He is supportive, but recently has said that he cannot continue in the marriage unless she can get better. The reason is that he does not trust her to be safe home alone with their daughter. She worries that he regrets marrying her and that he will leave her, though he usually says he will not.

Excerpts around participant's experiences of suicidality and links to early learning history.

Burning and cutting makes me feel strong. Otherwise I am a weak, pathetic person. When things are bad, I can't get a handle on things. If I cut or burn, I feel strong and powerful. I can take it. I can do it. I am not weak. A lot of people cannot do that. This makes me feel good. I wish people would let me do it. … In a weird and different way, it reminds me of my parents. My parents were unloving. They made you feel like you were nothing. Not strong, not loveable, not worth anything. My mother was mostly physical; she was mean. She would say: I wish you were never born. You can never do anything right. No matter what you did, it was never good enough.

(Command hallucinations say) *Kill yourself; you are worth nothing; nobody needs you.* (When asked why she think that happens) *I am a whack job.* (Agreed with the remark) *"They pile on you, and you pile on you".*

I have been dead inside since I was young. I am just a shell I want to get rid of. The turning point came when I was 13. …. And (I) was really sick. Mother had me in their bedroom with the TV on all day; Dad came home and into the room and did his (rape) thing. He had no regard for my being sick. I thought: how can you be so evil? From then on, I did not care anymore about anything. How can my own father do this? He does not care at all about me. I was too sick to resist…. You learned never to say no to my dad. The beatings were unpredictable. In fact, nothing was predictable. Everything is all twisted. All I ever wanted is a mother and father to love me.

Relevant copy processes and GOLs. Introjection of parents' interpersonal **attack** on Janice (physical, sexual, emotional) as Janice's ***self-attack***, in the form of self-criticism, self-loathing, self-harm and suicidality. **Gift of Love**: Janice's auditory hallucinations and her self-injurious behaviors (cutting, burning) represented doing to herself what her parents did to her.

Case 2*: *Justin

Justin is a 21-year-old, single, white, male. He dropped out of college and moved back with his parents after giving up his daughter for adoption and breaking up with his girlfriend who has moved to another state. He lives with his parents and tries to handle debts. He experiences symptoms of depression, particularly a sense of great loss and "depression" after adopting out daughter, and also the loss of relationship with his girlfriend. This is his first admission for suicidal ideation but follows his third suicide attempt. He has made suicide attempts or gestures using aspirin, vodka plus muscle relaxants, and cutting his wrists.

Excerpts around participant's experiences of suicidality and links to early learning history.

I never talk to anybody about this (feelings, problems), …feeling responsible to handle everything, and guilty for not having done things differently (having to give up his baby), I'm not ready to be a father. He (biological father) is a partier, wanted to drink. He would never come home. I remember waiting in the window for him to come home, but he never would. He stayed that way his whole life. He (stepfather) controlled with anger… had harsh temper and yelled, disciplined harshly using his belt. He was always upset about something… I just got used to it, just dealt with it. That's how it's going to be. I never saw she (mother) was depressed, she hid…. felt like a failure when her second marriage ended.

Mother made an overdose attempt when Justin was age 12. Mother and stepfather would drink until later in the night and leave him to take care of his younger siblings, make their food, and get them to bed.

Relevant copy processes and GOLs. **Introjection** of the parents' tendency to **ignor**e him to **self-neglect** and of stepfather's **attack** for any non-compliance to **self-attack** (self-blame and self-punishment for giving up the baby for adoption and end of relationship with girlfriend). **Identification** with mother's **self-neglect** through drinking, isolation, feeling like a failure from end of relationship, and suicidal gestures. **Gift of Love**: Feeling guilt for problems experienced, and the need to be punished, including through self-directed hostility. Handling things the way the caregivers did, particularly during difficult life circumstances, and agreeing with their rules and ways allows Justin the love, approval, and closeness to the internalized representations of his caregivers.

Case 3*: *Amy

Amy is a 27-year-old female hospitalized after a suicide attempt by drinking vodka, taking Lexapro and cutting her wrists. She has had treatments for alcohol abuse and several hospitalizations for suicide ideation, with the most recent involving an actual attempt. She was stressed by the thought that her current and recent jobs are not at a level she should be at. Following the departure of her sister who was visiting, she used alcohol to deal with the separation and loneliness, after which she decided to take her pills. There is a long history of depression that started at age 18, when she was forced to quit figure skating because of an injury. During her graduate program, Amy's inability to rescue a teenager, with a traumatic history and with whom she was working, from going to the prison due to factors beyond Amy's control led her to drop out. For a while she was engaged in several jobs that that involved helping people. But since they only required a high school education, she felt she failed as she should be functioning at a higher level.

Excerpts around participant's experiences of suicidality and links to early learning history.

(Being forced to quit figure skating) *I did not belong anywhere.* (Following loss of a relationship at age 19) *I was devastated. That relationship gave me purpose. But I recovered with the idea that I would help people.* (Dropping out of her graduate program) *things went downhill from there - I could not help anyone no matter how hard I tried. It made me hate the world, the system, everything… I hated everything.* She knew this, or the loss of skating were not her fault… *But it still feels like it was*. Alcohol (mostly vodka) and other drugs helped by *"numb*" her pain and feelings of *"failure"*. When she stops drinking, she feels extremely sad and lonely.

Mother had an ongoing struggle with alcohol (vodka), depression and anxiety. Punishment included grabbing and shaking Amy as she would be told*: Why can't you behave?* Mother often would cry and say: *All I want is for you to be perfect.* (Amy): *I played with my toys to perfection, by instruction. I would keep a planner for next day.* (Drinking with mother) *We were on the same page; it made us closer.*

Relevant copy processes and GOLs. Identification with mother's **self-neglect** through alcohol abuse, especially vodka. Alcohol abuse led to Amy's suicidality. **Recapitulation** in efforts to be perfect in graduate school, like she sought to be perfect for her mother. **Introjection** of mother's **attack** for failing to meet her perfectionistic standards to **self-attack**, when she is not close enough to being perfect, by being self-critical calling herself a failure, and feeling suicidal in the extreme version. **Gift of Love:** Amy's addiction to alcohol and thus joining her mother in alcohol abuse is driven by her love for her mother, and her desire to maintain closeness with her mother's internalized representation.

Case 4: Lucas

Lucas is a 34-year-old male admitted on an involuntary basis 2 days ago after overdosing on 46 Naproxen, which he intended to follow with use of a loaded gun on himself. One prior psychiatric hospitalization involved a cut on the back of his neck. Current stresses include a change in his work status that led to reduced hours, rejection by his girlfriend who told him to move out, and rejection by his father who said he is not welcome to live with them. The patient had worked at a grocery store for many years. His father acknowledges nothing and offers only criticism. As a child, if he failed to please

his father, he was hit with a belt. In addition to struggles with his father, the patient has had difficulties in his relationships with women.

Excerpts around participant's experiences of suicidality and links to early learning history.

(Suicide) *gives me control. I can control my death. I don't need the approval of my mother or father. I am done. My problems would be over.* Suicide note: *Dad. I am sorry I disappointed you, my sister, my mom, and my daughter.* (Father): *You should have not done this... you should have done that; you should be better established by now. You screw everything up.* As he felt increasingly empty and burned out, he decided there was no hope of getting his father's approval, and he might as well *"finish it off".* (When asked what he would most like to say to his father) *Why are you so critical of me?* and then *Please hug me.* (Said to father): *I push everyone away because I want you.*

Relevant copy processes and GOLs. Introjection of father's hostility (relentless criticism, disapproval and rejection) to self-directed rejection in the form of suicidality. Lucas's perception of suicide as having a sense of control may also be an introjection of his father's **control** to ***self-control*** (self-discipline, sense of control over death). **Gift of Love:** Lucas's dedicating his efforts throughout his life in hopes of getting his father's approval, love and affirmation, despite being consistently rejected and criticized for his choices or actions.

Case 5 (Contrasting Case): James

James is a 68-year-old successful entrepreneur hospitalized following an attempt at suicide by cutting his wrists with a razor blade. The attack on himself was related to an intense, lengthy, humiliating, ongoing legal battle. He and his wife have worked very hard together for all these years and had agreed that when he was 65, they would begin to

travel and have fun. Due to the legal challenges however, they have spent much of their savings, and have also been fined and imprisoned in the process. In addition, the inability to stop working leads his wife frequently crying and trying to hide it from him, which causes him significant distress. He is experiencing symptoms of depression, has had a long struggle with alcohol and also has many physical problems. He smiles sometimes when talking about sad events.

Excerpts around participant's experiences of suicidality and links to early learning history.

The door is slammed…. I do not like to lose, but there is nothing more I can do…. Every sail on the boat is up. I cannot make it move……feel helpless (in the context of the legal battle). *I try to hide my sadness. It belittles my pride. When you go off to war, do not let the enemy see your weakness.* Patient feels like a disappointment to his wife, her crying *hurts me more than anything. …I am a failure. This is about me. If I am dead, that will help my wife. I feel she loves me, but I am a handful. If I am dead, most of this will go away.*

Mother was caring but stern. One of his punishments would be to *cut off my money. There was not a lot of slack.* Stepfather *was a good man and I respected him… I realized I was standing in his shoes, using what I learned from him- his discipline, his work ethics.* (When asked what his stepfather might say about the present situation): *He would say 'Do the right thing.' I believe that is what I am doing.*

Relevant copy processes and GOLs. Identification of stepfather's **self-control** in believing that one must always do the right thing (doing the right thing i.e., to continue to fight the legal battle for his rights and money). Gift of Love: James's determination to do the right thing no matter what (even though it may or may not be helpful) reflects his

love for his stepfather and loyalty to the moral standards held by his stepfather. James's suicidality appears to reflect this loyalty taken to an extreme. His narrative is consistent with IRT theory in the sense that internalized learning with an attachment figure is key to understanding his suicidality. However, the narrative does not contain evidence of interpersonal hostility or other ACEs with his early loved ones.

Summary of qualitative data observations

Consistent with the IRT theory, each narrative suggested that patterns learned and internalized with key attachment figures led to and maintained maladaptive behaviors in the present including forms of self-directed aggression; data analysis led to the identification of suicidality as an expression of Gift of Love to the caregivers, in both obvious and not so obvious ways. Introjection of parents' interpersonal attack as self-attack, i.e., turning that hostility inward and attacking self, seemed to be the most pertinent and frequently occurring copy process in these narratives. Self-attack appeared in forms of self-criticism, self-blame, self-loathing, non-suicidal self-injurious behaviors, and suicidality, which is the most extreme form of self-directed aggression. This trend is consistent with the existing research that introjection is commonly associated in suicide, which means that specific forms of aggression experienced from early caregivers are later self-directed (Critchfield et al., 2015; Kaslow et al., 1989).

Mixed Methods Integration

Qualitative narratives used to explore ACES and IRT frames relative to what participants said about their suicidality are presented with quantitative representation of the presence or absence of early history variables. As illustrated in table 4, the first four cases had mean total ACE scores ranging from 3.5 to 7.5 and a "presence" for SASB-

defined attack. These cases illustrated all three different copy processes related to suicidality, associated with key attachment figures. The final case had a 0 for mean ACE score and “absence” for SASB-defined attack. This case illustrated the experiences of a suicidal individual who experienced no interpersonal hostility from attachment figures. It is important to note, however, that the copy process associated with this individual’s stepfather (identification of “do the right thing”) seemed to have influenced his suicidality. This will be further explored in our discussion.

Table 4

Findings from quantitative and qualitative inquiry of the associations of ACEs and SASB defined and copied interpersonal hostility with adult suicidality (N=5)

Patient	Early history variables	Coding unit (condensed)	Categories (IRT copy process)	Gift of Love theme
Janice	ACE total = 6 SASB-defined attack from caregivers = 1 (Present)	*"Burning and cutting makes me feel strong… and powerful". "… In a weird and different way, it reminds me of my parents. My parents were unloving. They made you feel like you were nothing. Not strong, not loveable, not worth anything." "My mother would say: "I wish you were never born. You can never do anything right." "No matter what you did, it was never good enough."* (*Command hallucinations*) *"Kill yourself; you are worth nothing; nobody needs you" … "I am a whack job.". "I have been dead inside since I was young. The turning point came when I was 13. …. (I) was really sick. Dad came home and into the room and did his (rape) thing. From then on, I did not care anymore about anything. How can my own father do this…? I was too sick to resist…. You learned never to say no to my dad." "The beatings were unpredictable. "Everything is all twisted." "All I ever wanted is a mother and father to love me."*	**Introjection** of **Attack** (from mother and father) as ***self-attack***	Auditory hallucinations and self-harm (cutting, burning) represent doing to herself what her parents did to her.
Justin	ACE total = 7.5 SASB-defined attack from caregivers = 1 (Present)	*"I never talk to anybody about this", "…feeling responsible to handle everything, and guilty for not having done things differently", "I'm not ready to be a father". "He (biological father) is a partier, wanted to drink. He would never come home. I remember waiting in the window for him to come home, but he never would. He stayed that way his whole life.". "He (stepfather) controlled with anger… had harsh temper and yelled, disciplined harshly using his belt. He was always upset about something… I just got used to it, just dealt with it. That's how it's going to be." "I never saw she (mother) was depressed, she hid…. felt like a failure when her second marriage ended"*	**Introjection** of **Ignore** (Mother, father, Stepfather) as ***self-neglect*** **Introjection** of **Attack** (from stepfather for non-compliance) as ***self-attack*** (self-blame, self-punishment for the adoption and the end of relationship with partner **Identification** of (Mother's) **Self-neglect** as ***self-neglect*** (drinking, isolation, suicidal gestures)	Feeling guilt for problems experienced, and the need to be punished, including through self-directed hostility. Handling things the way the caregivers did, particularly during difficult circumstances, and agreeing with their rules and ways.
Amy	ACE total = 3.5 SASB-defined attack from	*"I did not belong anywhere" … "I was devastated. That relationship gave me purpose. But I recovered with the idea that I would help people." … "things went*	**Identification** of (Mother's) **Self-neglect** (through alcohol abuse) as ***self-neglect***	Addiction to alcohol and joining mother in alcohol abuse is driven by her love for and her

	caregivers = 1 (Present)	*downhill from there*" - *"I could not help anyone no matter how hard I tried. It made me hate the world, the system, everything… I hated everything."* "*But it still feels like it was (my fault)*." (Mother, grabbing and shaking patient) *"Why can't you behave?". "All I want is for you to be perfect."*. (Patient): *"I played with my toys to perfection, by instruction. I would keep a planner for next day."* (Drinking with mother) *"We were on the same page; it made us closer"*	**Recapitulation** of **submit** to Mother's **Control/**expectations for perfection as **Submit** to perfection in the context of demands and expectations of graduate school **Introjection** of (Mother's) Attack (for failing to meet perfectionistic standards) to ***self-attack*** (self-criticism, and suicidality)	desire to maintain closeness with her mother's internalized representation.
Lucas	ACE total = 4 SASB-defined attack from caregivers = 1 (Present)	*"(Suicide) gives me control. I can control my death. I don't need the approval of my mother or father. I am done. My problems would be over."* Suicide note: *"Dad. I am sorry I disappointed you, my sister, my mom, and my daughter.* (Father): *"You should have not done this... you should have done that; you should be better established by now." "You screw everything up."* As he felt increasingly empty and burned out, he decided there was no hope of getting his father's approval, and he might as well *"finish it off"*. (When asked what he would most like to say to his father) *"Why are you so critical of me?"* and then *"Please hug me"*. (Said to father): *"I push everyone away because I want you"*	**Introjection** of **Attack** (father's relentless criticism, disapproval and rejection) as ***self-attack*** (self-directed rejection in the form of suicidality) **Introjection** of **Control** (father's over patient's life) as ***self-control*** (self-discipline; sense of control/over death)	Dedicating efforts throughout his life in hopes of getting his father's approval, love and affirmation, despite being consistently rejected and criticized for his choices or actions.
James	ACE total = 0 SASB-defined attack from caregivers = 0 (Present)	*"The door is slammed…. I do not like to lose, but there is nothing more I can do…. Every sail on the boat is up. I cannot make it move…." "...feel helpless". "I try to hide my sadness. It belittles my pride. When you go off to war, do not let the enemy see your weakness"*. "*… "I am a failure. If I am dead, that will help my wife... If I am dead, most of this will go away."* *"(Stepfather) was a good man and I respected him… I realized I was standing in his shoes, using what I learned from him- his discipline, his work ethics." "He would say 'Do the right thing.' I believe that is what I am doing."*	**Identification** of **Self-control** (one must always do the right thing) as ***self-control*** (doing the right thing i.e., to continue to fight the legal battle for his rights and money)	Determination to do the right thing no matter what (making himself exhausted fighting all the way and vulnerable to more suffering, including wife's tears that bring self-disappointment) reflects his love for his stepfather and loyalty to the moral standards held by his stepfather.

Chapter V

Discussion

This study aimed at investigating the associations between ACEs, learning history in early attachment relationships, and suicide risk, as well as getting a deeper and closer understanding of these associations through the experiences of suicidal individuals in a psychiatric CORDS sample. The two main goals related to the overall aims included: (1) investigating if specific early interpersonal hostility from caregivers, learned and copied in some form and measurable using the SASB model, are better predictors of adult suicidality relative to the broad early childhood adversities (ACEs), and (2) using narratives that illuminate the experiences of suicidal individuals to better understand the associations between these early history variables and vulnerability to suicide. An additional methodological goal was to develop a new application of the ACE scale (i.e., apply ACE ratings to individuals based on clinical interviews and reports) to facilitate our exploration of childhood adversities and suicidality, and to test the feasibility and reliability of this application. Through these overall goals, this study bridges the ACEs literature and the clinical literature around IRT case formulation and SASB.

Overall, the goals of the study were met, and findings generally confirmed the expectation that relative to broad early childhood experiences, specific interpersonally parallel input learned in early attachment relationships are better predictors of suicidality, thus providing a foundation for further research on their associations. This section will discuss the general findings of the quantitative analyses, insights gained from the qualitative analysis, strengths of the study, including clinical implications, as well as limitations and possible future directions.

Key Findings

Application of clinical narrative-based ACE ratings

This study demonstrated that an individual's ACE score can be reliably measured through interviews or case reports that provide descriptions of an individual's childhood history, including salient childhood stressors. Raters in our study strongly agreed on patients' meeting criteria for ACE categories based on the information provided in the CF interview case reports. Exploration of a few discrepant ratings of items among raters highlighted the impacts of specific phrasing of the questions in ACE scale and their impacts on the more nuanced stories. These were utilized to update our instruction manual for rating ACEs based on clinical summaries, as shown in Appendix B. In addition, while some of these CORDS patients had significant history of sexual abuse, they may not have met the criteria due to the phrasing of the question specifying that the perpetrator was *"at least 5 years older"* in the ACE questionnaire and our decision to retain this criterion. This led to raters likely giving the participant a score of 0 for that category if the age difference between the abuser and abused was less than 5 years. In addition, if the age of the abuser or abused was not specified, a rater likely opted to give a score of 0, a more conservative scoring approach that the team decided on during the coding process. A few exceptions however, received ratings of 1, regardless of the unknown age of the abuser or the abused, when the sexual abuse was violent, and/or had a clear impact on the individual. These were noted in the manual. Similarly, the phrasing of the question related to emotional neglect - *"Did you often feel that no one in your family loved you or thought you were important or special" or "Your family didn't look out for each other, feel close to each other, or support each other?*" led to discrepancies

considering the nuances of some of the narratives, and not having the participant's input to clarify the details. Despite the conservative scoring criteria, a few exceptions resulted in a positive score, for instance, due to the extent of the emotional neglect by one caregiver that had a significant impact on the individual. These were also noted in the manual.

Consistent with a high level of severity and prior non-response to standard treatments, the average total ACE score for the CORDS sample in this study was comparable to a sample of psychiatric patients with schizophrenia and substance use disorder in a study conducted by Yousef and colleagues (2022), higher than samples in some other studies including forensic inpatient sample (Stinson et al., 2021), adolescent psychiatric inpatients with suicidality (Rytilä-Manninen et al., 2018), outpatients with anxiety or depressive disorders (van der Feltz-Cornelis et al., 2019), and lower than those for females in substance use treatment (Smith et al., 2021). Comparative values of these means (and standard deviations if reported in the study) are presented in Table 4. Given that the case formulation interview is not designed to systematically inquire about every element of the ACE scale and therefore might not have the same sensitivity, or capture the same range of childhood adversity as if the patients had been given the self-report questionnaire directly, we expected the narrative-based average ACE scores to be biased to underestimate ACEs relative to the self-report method used in other samples. It is known through narratives provided in prior case reports and studies that there is a higher prevalence of childhood adversity in this clinical sample, which led to the higher average ACE scores in this study.

Table 5

Comparison of mean ACE scores among different study samples (and SD in parentheses when available from prior reports)

Study	**Sample**	**Mean**
Current study	CORDS	3.25 (*SD* = 1.75)
Yousef et al. (2022)	Patients with schizophrenia and SUD	3.7
Stinson et al. (2021)	Forensic inpatients	2.63 (*SD* = 2.30)
Rytilä-Manninen et al. (2018)	Adolescent suicidal psychiatric inpatients	2.2 (*SD* 1.6)
van der Feltz-Cornelis et al. (2019)	Outpatients with anxiety or depressive disorders	2.92
Smith et al. (2021)	Females in substance use treatment	4.9 (*SD* = 2.9)

Internal consistency of ACEs in CORDS sample

Findings from our analyses looking into the psychometric stability of the construct of ACEs in our sample indicated two underlying factors. The first factor included physical neglect, parental marital/relationship discord, mental health or substance use issues, and incarceration in the household, indicating overall household dysfunction. The second factor included physical, emotional and sexual abuse. Among past studies that have investigated the factor structure of items on this measure, findings from a large epidemiological study by Ford and colleagues (2014) using ACE data available from the 2009-2010 Behavioral Risk Factors Surveillance System (BRFSS) annual surveys (85,248 participants) suggested three factors that represented construct domains of household dysfunction, emotional/physical abuse, and sexual abuse, with moderate to high correlations among the factors. This large study however used the BRFSS ACE module, which did not include items related to physical or emotional neglect and listed childhood neglect as one of the essential missing areas of adverse childhood experiences. Another study by Mersky et al. (2017) showed that ACEs loaded

on two factors, child maltreatment and household dysfunction, consistent with our findings.

Early history predictors of suicidality

The primary goal of this study was to investigate the associations between early childhood stressors and vulnerability to suicide, and particularly to assess if hostile interpersonal input from caregivers was a better predictor of suicidality than broad childhood adversities captured by the ACE questionnaire.

Comparison of overall childhood adversity and SASB-defined interpersonal hostility as predictors of adult suicidality

Consistent with past research studies that have studied the impacts of cumulative exposure to various types of stressors on adult outcomes including suicidality (Anda et al., 2006; Blosnich et al., 2021; Polanco-Roman, et al. 2021; Schilling et al., 2007), we looked into overall childhood adversity, operationalized as ACEs apparent in clinical case formulation material, as a predictor for adult suicidality. Our findings indicated that overall childhood adversity was not as strong a predictor of adult suicidality as has appeared in prior work (Cluver et al., 2015; Hughes et al., 2017; Thompson et al., 2019). This is especially true of ACEs elements that did not involve hostility specifically directed at the respondent. Past researchers have shown that the odds of suicidal ideation increased with the number of childhood adversities reported (Stansfeld, 2017; Wang et al., 2019) and that higher ACEs are associated with lifetime suicide attempts (Polanco-Roman, et al. 2021). The CDC-Kaiser ACE study in particular has highlighted the graded dose-response relationship between ACE and likelihood of negative outcomes, and compared to individuals with no reported ACEs, individuals reporting six of more ACEs

had 24.36 times increased odds of attempting suicide (Merrick et al., 2017). The findings also showed that a history of experiencing interpersonal hostility, that is learned and copied, from an attachment figure, is predictive of adult suicidality, indicating that interpersonal specificity (Critchfield & Benjamin, 2008) relates to suicidality. One possibility for the different pattern of results is the very high base rate of both suicidality and adverse childhood experiences, which may have attenuated correlations relative to the prior work. It may also be the case that with higher levels of ACEs come higher levels of hostility, and that systematic association may be due to the addition of those elements at higher levels. In other words, it is not the accumulation of ACE types *per se* that makes the difference, so much as the introduction of aggression into the developmental story for each individual impacted.

ACE abuse, ACE household dysfunction, and SASB-defined interpersonal hostility as separate predictors of suicidality

Considering the two underlying factors, abuse (physical, emotional and sexual abuse) and household dysfunction (physical neglect, parental discord, mentally ill, substance abusing or incarcerated household member) of ACEs in our sample, we were interested in the predictive values of each of these factors on adult suicidality, particularly compared to that of specific early SASB-defined and copied interpersonal hostility from caregivers. Our study found that the abuse factor or ACE and the SASB-defined attack both significantly predicted adult suicidality, while the household dysfunction factor of ACE did not predict adult suicidality. These findings are consistent with prior research studies that have highlighted the significant impacts of abuse and hostility on a person's mental health symptoms, including vulnerability to suicide risk. Thompson et al. (2019)

showed that experiences of physical, sexual, and emotional abuse increased the odds of suicidal ideation and of making a suicide attempt in adulthood from twofold to threefold. Another study, which used 10-year longitudinal epidemiological data, showed that nonviolent verbal abuse led to negative cognitive styles and psychiatric disorders associated with suicide, while physical and violent sexual abuse had direct impacts on suicide attempts (Sachs-Ericsson et al., 2017). In another interesting study, which used forensic population to investigate suicidality in relation to history of trauma, findings indicated that compared to other traumatic experiences, childhood physical abuse was the only trauma-related variable significantly increased the odds of suicide attempts by three times (Mamidipaka et al., 2022). Furthermore, SASB-defined hostility, the more interpersonal version of early history, had a slightly better predictive value on adult suicidality, which further bolsters the interpersonal specificity of suicidality argument.

ACE abuse, ACE household dysfunction, and SASB-defined interpersonal hostility as predictors of separate suicidality indicators

In addition to looking into the composite measure of suicidality that reflected a combined score for all suicidality indices, we investigated the predictive values of these early history variables on separate indicators of suicidality including the number of lifetime suicide attempts at the time of the consult interview, and the CF-based and SASB-defined *"self-attack"* (described in more detail on the methods section).

We also found that the SASB-defined/copied interpersonal hostility was not included in the stepwise regression model due to its high correlation with ACE abuse, which highlights the shared variance between these two predictors, possibly due to the overlap between the ACE abuse items, and IRT CF indicators of SASB-defined attack

from early attachment figures. In addition, the ACE abuse factor captured the aggression or hostility in an individual's life if they were not copied and therefore not coded as a SASB-defined attack.

The analyses with CF-based SASB-defined self-attack as the outcome variable of suicidality, on the other hand, showed that the SASB-defined attack from attachment figures was the better predictor, as compared to the household dysfunction factor. This association is anticipated as both CF-based SASB-defined self-attack and SASB-defined and copied attack from attachment figures were assessed as part of the same case formulation procedure in the same (SASB) metric and focus on the measurement of behavior that is "attack", rather than "abuse" or "suicidality". Their slightly greater overlap and similar approach to the interpersonal nuances (i.e., the subtle differences between the constructs "self-attack" and "suicidality") are relevant for both conceptual and methodological reasons.

Interpretation of findings

Overall, our findings highlighted that SASB-defined interpersonal attack learned and copied from early attachment figures, as compared to general adverse childhood experiences, is the better predictor of adult suicidality. The stronger predictive value of this specifically interpersonally defined variable supports the hypothesis that suicidality, self-directed aggression, is influenced by strong interpersonal specificity to the patterns of relatedness learned in attachment relationships (Critchfield and Benjamin, 2008). Separating the two factors of ACEs, i.e., the interpersonal abuse from the non-interpersonal household dysfunction, including controlling for the predictor variables appropriately in the analyses, were particularly helpful to demonstrate the significant

interpersonal influences of developmental history, regardless of the SASB coding of the copy processes. Our findings indicate that interpersonal specificity of learned patterns of relating between an individual and their caregiver, as articulated by copy process theory, is significant to their vulnerability to suicide.

Qualitative data analysis of our study further highlighted the interpersonal specificity hypothesis theory, which suggests that relational patterns in adults "directly and precisely parallel the patterns of behavior developed and remembered from key, early attachment figures" (Critchfield and Benjamin, 2008, p. 72), as related to an individual's experiences of suicidality. The first four participants represented in our case examples (Janice, Justin, Amy, and Lucas) had internalized perceived messages from their parents that they were not good or worthy enough, that they deserved blame and punishment for when things go wrong, or that they were failing their parents. These ideas were endorsed by attachment figures through relentless criticism, rejection, disapproval, or callous disregard for these individuals demonstrated by physical and sexual violence. In the context of suicidality, themes of introjection included not believing their life worth living (i.e., agreeing with caregivers about their worth) and wanting to punish self over the choices made (as the caregivers punished them), while the theme of identification with caregivers included reckless, self-sabotaging behaviors through substance use and/or suicide attempt.

The fifth participant, James, selected to contrast the others relative to quantitative findings, is unique in that while his suicidality does not involve a copy process of direct introjection of attack, it still relates to a problematic copy process. James, like his stepfather, believes that one must always do the right thing no matter what, and in the

context of the legal battle, he chooses to continue to fight the legal battle for his rights and money until he is exhausted and vulnerable to more suffering; this contributes to wife’s distress and tears, which bring him feelings of disappointment for being responsible for it all, ultimately considering suicidality for solution. This is explained by the rationale that the meaning of suicide often becomes so distorted that it is perceived to solve relational problems in life, which is why it is not overridden by existential fears of death (Critchfield and Harvell-Bowman, 2022). The example is accommodated well within IRT theory in that copy process and GOL concepts apply. However, the example of James appears to represent an unusual pathway toward suicidality among CORDS patients.

The occurrences of copy process examples, and their GOLs in the qualitative results allowed us a closer and deeper understanding of the idea that a person’s psychopathology, including vulnerability to suicide, is a result of “attachment gone awry” (Benjamin, 2003/2006, p. v). Overall both quantitative and qualitative data indicated high levels of interpersonal specificity in attachment-based links.

Clinical implications and strengths of the study

Our study highlighted the interpersonal specificity of relational patterns learned in attachment relationships, particularly the internalized aggression, in suicidality, and has important clinical implications. Our finding is particularly helpful for clinicians working with suicidal individuals, including those with chronic/recurrent suicidality, in terms of case conceptualization, treatment and safety planning. In particular, IRT emphasizes tailored interventions using a case formulation, based on interpersonal copy process theory, that explores and connects suicidal behaviors with patterns of affect, cognition,

and behavior (and attempts to adapt to current perceptions of threat and safety using lessons) learned and internalized in close attachment relationships (Critchfield et al., 2021). Our findings reinforce IRT as a meaningful framework for conceptualizing suicidality and optimally tailoring interventions to address suicidal thoughts and behaviors.

During the beginning stages of therapy, the CF and treatment goals are developed collaboratively with the client; this involves outlining patterns in the present, seeking evidence of copy process to identify key attachment figures, articulating the GOL hypothesis for clients, and identifying treatment implications (2003/2006). Once the connections between suicidal gestures and copied patterns and the gift of love are explored, understood and agreed upon, working with the GOL is instrumental in IRT. This involves recognizing the origins of the repeated relational patterns relevant to suicidality and their present functions. IRT enables patients to gain this awareness through careful reflection of symptom-linked patterns, their willingness to change, and eventually to separate from maladaptive patterns and internalized loved ones, and learn healthy, new patterns involving adaptive self-concepts and interpersonal behaviors. In addition, in the context of suicidality, risk assessment and safety planning, the case formulation is consistently utilized to guard against unsafe behavior as an ongoing part of the treatment process, which can help develop long-term resilience against suicidality.

Critchfield and colleagues (2021) provide a case example to illustrate the unique features of IRT treatment and safety planning. They further suggest clinicians to stay attuned to the client's CF, context and meaning for a patient's suicidality to tailor and refine interventions. As an example:

The patient who plans suicide as self-punishment has a different copy process from one who feels trapped or forced to endure pain or feared events if they continue living. Still other variations might involve the desire to reunite with loved ones in an afterlife, to seek justice by showing others the hurt they have caused, to make others happy by removing themselves as a burden, or to maintain a sense of order and control (p. 3).

Each of these copy process contexts involves a different learning history with key attachment figures, and therefore require different, tailored, interventions.

IRT is also particularly useful for working with suicidal individuals since it has been developed and tested primarily with CORDS sample (Critchfield et al., 2015). As a principles-based integrative treatment, clinicians may borrow techniques from any evidence-based approach or theoretical orientation as long as these techniques match the patient needs and treatment goals outlined by the CF. Relatedly, while IRT framework has the features relevant to our finding, clinicians from other orientations, especially those emphasizing interpersonal, attachment-based therapies or integrative therapies can use some of the elements described in this section to work with suicidal individuals. While this study sample represents more acute, chronically suicidal, and psychiatrically hospitalized individuals, these principles can be just as valuable when considering interventions for individuals with less severe suicidal thoughts and behaviors or those at risk for suicidality. For instance, Harvell-Bowman and colleagues' study on the psychological processes associated with suicidal ideation among college students (2022) highlight the role of maladaptive relational patterns on suicidality in this population.

Many clinicians find working with suicidal clients one of the most challenging, emotionally taxing and anxiety-provoking experiences, given the high-stakes context, and our study hopes to provide support around working with suicidality. In addition, this study is first of its kind, that utilizes quantitative data and qualitative data to identify and explain in depth the specific associations between childhood maltreatment and later suicidality and builds on the literatures around these topics.

Limitations of the study and future directions

There are several limitations to the study. While the ACE Questionnaire is very well-cited in the literature and well-known in the field of psychology and healthcare, there are limitations to the measure itself. A known and primary limitation is that ACE scores rely on retrospective accounts, which may particularly be affected by factors like recall bias among depressed participants (Scott et al., 2020; Fergusson et al., 2000), and thus need to be interpreted in light of that fact. In our case, it is also likely limited by the interviewer's separate agenda to develop a CF rather than to comprehensively assess for ACEs. However, the nature of the data will be consistent with what is available to clinicians working with adult patients, and so will have the greatest applicability to that setting.

In addition, due to the phrasing of certain items of the ACE questionnaire, individuals may not meet the criteria for questions related to abuse and neglect, particularly sexual abuse, as discussed in the earlier section. In the context of emotional neglect, an individual could have had an unresponsive, emotionally unavailable and unaffectionate caregiver or caregivers, and not meet the criteria because a sibling loved them or thought they were important. Similarly, either caregiver could have considered

the individual important or special only in the context of their talents and not given them the parental attunement, love, affection, and validation so important for a healthy trajectory; that deprivation however, would not be enough for a person to get a positive score for emotional neglect. These problems were highlighted in the context of our participants not meeting criteria for ACE due to specifications in the questions, like "no one" or "often" or age differences or due to double-barreled questions.

Another considerable limitation of this scale mirrors that of the ACEs literature in general, which is an absence of items assessing exposure to other traumatic experiences and chronic stressors, including racism, systemic oppression, gun violence and traumatic loss, which disproportionately impact African Americans, and which have been linked to negative outcomes and higher suicidality in this population (Bamwine et al., 2020; Hampton-Anderson et al., 2021; Woods-Jaeger et al., 2021).

Using the ACE measure in a psychiatrically severe sample, and not having a less clinical sample, led to potential restriction of range of scores and, thus, reduced power to detect associations. However, arguing against concerns about restricted range, the ACEs scores spanned in this sample (0-8.5) also allowed the study to be highly clinically relevant. Small sample size for analyses involving a restricted range of suicidality measures, including single-item indices, was also a limitation of the study. In addition, the qualitative sample was a subset of the quantitative sample, leading to a smaller, unequal sample.

While purposeful sampling method was feasible and less time-consuming due to the small sample size for qualitative analysis, it relied on the researcher's judgment, which has potential to introduce bias into the study. However, the judgments were based

on theoretically grounded rationale that met research goals, was guided by empirical findings, and helped diversify and enrich the narratives, as explained earlier, in terms of its strong advantages for generating pragmatically useful knowledge. Furthermore, this study relied on case summary reports for the qualitative data analysis instead of actual interviews with the participants. The interviews conducted for the purpose of this study could have allowed closer insight into participant experiences within the context of suicidality; these include perceptions and feelings around the interpersonal hostility from attachment figures, and experiences around adverse childhood experiences as listed on the ACE questionnaire. The reports did, however, include significant direct quotes relevant to suicidality and interpersonal hostility from key figures.

Yet another limitation is that generalization of the results to other genders and racial groups must be made tentatively and contextualized by findings outside the present work, given that the participants are primarily White (95%) and female (75%). The qualitative data, however, include a diverse collection of male, female, White, Japanese American and Hispanic participant narratives.

In terms of continued research efforts, this study may be replicated within a similar setting as well as within other treatment environments, to assess the associations between early history variables and adult suicidality with a bigger sample and additional, diverse, clinical populations, including those with marginalized identities and particularly the Black population considering the ACEs-related health disparities. Future researchers could use additional indices of suicidality, and particularly, other measures of childhood maltreatment, considering the challenges and limitations of the ACE questionnaire. In addition, qualitative data can be incorporated, in future studies, using direct interviews

with the participants and utilizing other methods, such as thematic analysis, to illuminate the experiences embedded within the variables assessed in this study.

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Appendix A: Tables

Table A1

Varimax PCA solution for abuse and dysfunction items in ACE scale

ACE items	Factor 1: Household dysfunction	Factor 2: Abuse
Did a household member go to prison?	**0.687**	-0.053
Did you live with anyone who was a problem drinker or street drug user?	**0.641**	0.128
Did you **often** feel that you didn't have enough to eat, had to wear dirty clothes, had no one to protect you/take care of you or take you to the doctor if needed?	**0.611**	0.238
Were your parents ever separated or divorced?	**0.513**	-0.045
Was your mother/stepmother **often** get physically assaulted (pushed, grabbed, slapped, kicked, hit) or ever threatened with a gun or knife?	0.467	0.348
Was a household member depressed or mentally ill or did a household member attempt suicide?	0.363	-0.168
Did a parent/other adult in the household **often** push, grab, slap, or throw something at you or ever hit you so hard that you had marks or were injured?	-0.022	**0.784**
Did a parent/adult in the household **often** swear at you, put you down, humiliate you or act in a way that made you afraid that you might be physically hurt?	0.048	**0.698**
Did an adult or person at least 5 yrs older than you **ever** touch you or have you touch them in a sexual way or try to/actually have oral, anal, or vaginal sex with you?	-0.133	**0.635**
Did you **often** feel that no one in your family loved you, thought you were important/special or that your family didn't support/look out for/feel close to each other?	0.227	0.389
Eigenvalue	2.2	1.62
% of variance	22.03	16.22

Note: 1. Values in bold represent items assigned to each underlying factor based on loadings with values greater than 0.50. 2. Table includes abbreviated ACE questions

Table A2

Multiple regression using ACE abuse, ACE household dysfunction, and SASB-defined interpersonal hostility as predictors of number of lifetime suicide attempts

Predictor variables	Model 1			β	*p (one-tailed)*	*r*
	F	*p (one-tailed)*	R^2			
	2.41	0.06	0.16			
ACE dysfunction				0.17	0.06	
Excluded variables						
ACE abuse				0.26	0.01*	0.26
SASB-defined interpersonal hostility				0.18	0.05*	0.18
	Model 2					
	F	*p (one-tailed)*	R^2			
	4.29	0.01*	0.30			
ACE abuse				0.26	0.01*	
ACE dysfunction				0.17	0.053	
Excluded variables						
SASB-defined interpersonal hostility				0.06	0.32	0.05

N=103, * = $p<0.05$

Table A3

Multiple regression using ACE abuse, ACE household dysfunction, and SASB-defined interpersonal hostility as predictors of CF-based SASB-defined self-attack

Predictor variables	Model 1					
	F	*p (one-tailed)*	R^2	β	*p (one-tailed)*	*r*
	2.29	0.06	0.02			
ACE dysfunction				0.15	0.07	
Excluded variables						
ACE abuse				0.3	0.002*	0.3
SASB-defined interpersonal hostility				0.53	<0.001*	
	Model 2					
	F	*p (one-tailed)*	R^2			
	21.79	<0.001	0.31			
ACE dysfunction				0.1	0.11	
SASB-defined interpersonal hostility				0.53	<0.001*	
Excluded variables						
ACE abuse				0.004	0.49	0.004

N=103, * = p<0.05

Appendix B: ACEs Clinical Observer Rating Scale (ACE-CORS)

ACEs Clinical Observer Rating Scale (ACE-CORS)
A brief manual for coding ACEs based on clinical reports

Overview

The Adverse Childhood Experiences (ACE) questionnaire is a self-report measure that assesses exposure to 10 categories of childhood adversity. The instructions in this manual are intended to provide a structure to facilitate measuring ACEs through descriptive narratives of an individual's childhood available on clinical reports and interviews, when they are not available to answer the questions.

Step 1: Familiarize yourself with the ACE questionnaire

The ACE questionnaire includes 10 categories of childhood adversity:

1. Emotional abuse
2. Physical abuse
3. Sexual abuse
4. Emotional neglect
5. Physical neglect
6. Parent separation or divorce
7. Physical abuse in parents' marital relationship
8. Household substance abuse
9. Household mental illness
10. Incarcerated household member

Step 2: Coding

Read the clinical report and assign a score of 1 (Yes) or 0 (No) for each ACE category based on the criteria specified on the ACE questionnaire.

Step 3: Paying attention to ambiguities

If the details described in the report are ambiguous, unclear, or incomplete, it is difficult to determine whether an experience meets the criteria for an item assessing that adversity, as per the specifications on ACE questionnaire. In these circumstances with nuances, is recommended that a conservative approach is taken and a score of 0 is given to the pertinent item.

- **Age specification** on the item assessing sexual abuse: The questionnaire specifies that the age of the abuser has to be *"at least 5 years older"* than the abused. It is recommended that this

criterion for scoring be retained and a score of 0 be assigned if the age is not specified in the narratives or if the age difference is less than 5 years.

- Exception: When the sexual abuse is violent in nature and/or had a clear impact on the individual, a score of 1 can be assigned, even if the specifications for age are not met.
- *Note*: Researchers or clinicians should pay attention to details in the narrative that may provide more context and help clarify the age of the individual during the time of the sexual abuse.

- **"No one" and "often"** on the item assessing emotional neglect**:** The questionnaire specifies that the individual *"often" felt that "no one" in their family loved them or thought they were important or special.* It is recommended that this criterion for scoring be retained and a score of 0 be assigned in general.
- Exceptions: If the extent of emotional neglect from one caregiver had a significant impact, a score of 1 can be assigned, even though the other caregiver showed love or affection; if the affection within the family only came from siblings while both caregivers were emotionally distant, unaffectionate or unresponsive (and therefore not meeting the criteria for "no one"); if the caregivers/family thought they were special only in the context of certain talents or similar specific contexts

- **Physical abuse**
- **person:** The questionnaire mentions a *"parent or other adult in the household"* in the context of physical abuse. There may be circumstances when an older sibling, for instance, is often significantly physically aggressive to the individual; however, may not be old enough to be an adult. It is recommended that a score of 1 is assigned.
- **frequency:** The questionnaire specifies *"often"*, and the information may not be clear enough to specify the frequency. While a conservative scoring approach is recommended, clinical judgment would be helpful to determine the impacts even if the frequency is not clear. Greater impacts on the individual would warrant a score of 1.

- **Gender** on the item assessing physical abuse in parents' marital relationship: The questionnaire specifies "mother or stepmother" in the context of physical abuse in parents' relationship. In some cases, it might be the father, stepfather or either parent's significant other. It is recommended that a score of 1 is assigned.

- **Nuances** around physical neglect: The questionnaire specifies that *"you didn't have enough to eat, had to wear dirty clothes,* ***and*** *had no one to protect you".* It is recommended that a score of 1 is assigned if it is very clear from the narrative that the individual had no one to protect them and were taking on the role of a caregiver/protector instead, for example. In addition, clinician judgment is recommended for the other question related to neglect: "*your parents were too drunk or high to take care of you…"* , if the details are not clear and to find other examples in the narrative to get a clearer idea of neglect or unresponsiveness led by substance abuse.

- **Household substance abuse:** The questionnaire specifies if the individual lived with anyone who is a *"problem drinker or alcoholic or who used street drugs"* and does not include other forms of abuse, including prescription drug abuse. It is recommended that a score of 1 is assigned if the narrative describes other such kinds of drug abuse.

- **Age at time of experience:** In cases where the age of the individual is not specified, but other details of the narrative suggest the age range of 18 or close, a score of 1 is recommended.

- **"Nothing fit the criteria enough to be counted as 1":** This final point, a quote from one of the original coders, is added to highlight the idea that an individual may experience impactful negative life events but may still score a 0 based on the specifications of the ACE criteria. It is therefore important that clinicians consider these nuances, and use flexibility and clinical judgment, while assigning narrative-based ACE ratings.