

EMPIRICAL ANALYSES OF COMPLEX POSTTRAUMATIC STRESS IN CHILDHOOD AND  
EXPLORATION OF FACTORS IMPACTING THE IMPLEMENTATION OF TRAUMA-INFORMED  
CARE FOR FAMILIES EXPERIENCING HOMELESSNESS

Bethany Watson

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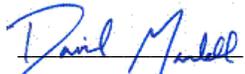
Supervisor of Dissertation



Sara R. Jaffee, PhD

Professor, The Department of Psychology at the University of Pennsylvania School of Arts and Sciences

Graduate Group Chairperson



David Mandell, ScD

Kenneth E. Appel Professor of Psychiatry at the University of Pennsylvania Perelman School of Medicine

Dissertation Committee

Martha Farah, PhD, Annenberg Professor of Natural Sciences, The Department of Psychology at the  
University of Pennsylvania

Janette Herbers, PhD, Assistant Professor, Villanova University Department of Psychological and Brain  
Sciences

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## ABSTRACT

### EMPIRICAL ANALYSES OF COMPLEX POSTTRAUMATIC STRESS IN CHILDHOOD AND EXPLORATION OF FACTORS IMPACTING THE IMPLEMENTATION OF TRAUMA-INFORMED CARE FOR FAMILIES EXPERIENCING HOMELESSNESS

Bethany Watson

Sara R. Jaffee, PhD

Child maltreatment is a significant public health problem, with estimates suggesting that as many as one in four children are exposed to maltreatment during their lifetimes. Child maltreatment has been associated with negative consequences including impacts on physical and mental health. Efforts have been made to codify the impacts of child maltreatment on children's development via the proposed diagnosis of Childhood Complex Posttraumatic Stress Disorder (Complex PTSD). The focus of Chapters 1 and 2 was the application of a data-driven approach to assessing the construct validity of the Childhood Complex PTSD diagnosis as currently specified using exploratory factor analysis and latent profile analysis. Results indicated that many symptoms specified by complex trauma theory meaningfully clustered into distinct factors, representing different areas of impairment in functioning that may be observed in children with chronic trauma exposure. Specific symptoms constituting each area of impairment diverged significantly from the theoretical criteria in several cases, and some symptoms specified by the theory of complex trauma were not meaningfully related to any factor. Notably, a class with impairment across all proposed domains of functioning was not observed in the data, suggesting that changes in the diagnostic conceptualization of Childhood Complex PTSD may be warranted.

Additionally, further assessment of the most effective ways to serve trauma-exposed populations is critical. Children experiencing homelessness are at increased risk for exposure to potentially traumatic events. Despite the existence of evidence-informed, trauma-informed care (TIC) interventions to mitigate the impacts of such trauma, families experiencing homelessness rarely receive TIC. Investigators used a community-based participatory research framework to complete 20 semi-structured qualitative interviews with shelter staff assessing the acceptability, appropriateness, and feasibility of implementing TIC in the family homeless shelter setting. Participants expressed generally positive attitudes toward TIC and viewed it as aligned with the mission of their organization, indicating strong support for acceptability and appropriateness. With regard to feasibility, participants identified unique context-specific barriers to which implementation strategies could be tailored.

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## INTRODUCTION

The impact of traumatic life experiences on mental health was first recognized by the American Psychiatric Association in 1980 when the diagnostic category of Posttraumatic Stress Disorder (PTSD) was added to the 3<sup>rd</sup> edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III). When the PTSD diagnosis was first conceptualized, a traumatic event was defined as being outside the range of the usual human experience, and was limited to events such as torture, war, natural disasters, sexual assault, and human-made disasters. When the PTSD diagnosis was first formulated in 1980, it was not believed to be relevant to children. Since the recognition of PTSD as a diagnosis in the DSM, the PTSD criteria have been modified and expanded in a variety of ways. Although initially debated, the Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised (DSM-III-R) expanded PTSD to include developmental considerations for the assessment and diagnosis of traumatic sequelae in children (Dyregrov & Yule, 2006). While the potential impact of traumatic events in children's mental health is no longer an active area of disagreement, whether or not the PTSD criteria adequately capture these impacts when children face severe or ongoing traumatic experiences remains an area of significant debate (Cook et al., 2005).

Psychological sequelae of trauma that extend beyond the symptoms captured by the PTSD diagnosis have been recognized by trauma theorists (Cook et al., 2005; Van der Kolk et al., 2005). In particular, symptoms extending beyond those captured by the PTSD diagnosis have been noted in individuals exposed to ongoing traumatic events such as child maltreatment, as opposed to single-incident traumatic events (Cloitre et al., 2013; Cook et al., 2005; Van der Kolk et al., 2005). A number of attempts to capture this type

of psychological presentation have been made, including the proposed diagnosis for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) of “Complex PTSD” or “Disorders of Extreme Stress Not Otherwise Specified” (DESNOS). These proposed diagnoses have drawn significant criticism due to their lack of clear operationalization and lack of rigorous empirical construct validation. While heavily debated, both DESNOS and Complex PTSD were denied inclusion in the 5<sup>th</sup> edition of the DSM (DSM-5) for these reasons (Resick et al., 2012).

Based on proposed theory, Childhood Complex PTSD includes seven different domains of functioning that are believed to be impacted by ongoing traumatic experiences, such as child maltreatment: (1) Self-Concept, (2) Affect Regulation, (3) Behavioral Control, (4) Attachment, (5) Cognition, (6) Biology, and (7) Dissociation (Cook et al., 2005). Each domain of functioning contains a number of possible symptoms, for a total of 47 potential diagnostic criteria. To the knowledge of investigators, the internal consistency of these domains of functioning has not been empirically examined. To this end, investigators conducted an exploratory factor analysis of the domains of Complex PTSD as proposed by Cook et al., 2005 in Chapter 1 of the current thesis.

Another component of the childhood complex PTSD diagnosis that would also benefit from empirical validation is determining whether there is a group of individuals with experiences of maltreatment, or another ongoing traumatic exposure, who can be identified based on demonstrating deficits across these domains of functioning. In Chapter 2 of the current thesis, investigators utilized latent profile analysis, a statistical technique that has been used to conduct a similar analysis in adults (Cloitre et al., 2013)

to determine whether a class of children showing a complex trauma presentation (i.e. impairment across all domains of functioning identified in Chapter 1) could be identified, and if so, whether class membership was predictive of longitudinal outcomes.

In addition to refining the diagnostic criteria to best capture the impacts of trauma on children, another issue in the field of clinical psychology includes determining the best ways to bring evidence-based treatments (EBPs) to trauma-exposed populations. The ability to successfully bring EBPs to the individuals who needs them most is just as important as the effectiveness of the intervention itself. In general, factors, such as poverty, that increase the risk of an individual being exposed to trauma, also present significant barriers to accessing evidence-based mental health care (González, 2005). In Chapter 3 of the current thesis, investigators explored the family emergency and transitional housing context as novel environment in which evidence-based trauma interventions could be implemented. The family emergency and transitional housing environment was selected due to the associations between experiences of homelessness and exposure to trauma (Radcliff et al., 2019), as well as due to the potential of this setting as a way to overcome barriers to accessing care by providing care to vulnerable families in the same space where they reside. Investigators utilized community-based participatory research methods to build partnerships with community stakeholders and conducted qualitative interviews assessing stakeholder perspectives regarding the acceptability, appropriateness, and feasibility of implementing an evidence-informed trauma-informed care intervention in this setting. Setting-specific barriers and facilitators to which implementation strategies could be matched were identified.

The overarching goal of the current thesis was to generate knowledge about the best ways to serve children with ongoing trauma exposure, both in terms of empirically valid ways to conceptualize the emotional and behavioral difficulties the child may display, and by assessing ways to reduce barriers to the delivery of interventions seeking to mitigate the impacts of trauma. Thus, Chapters 1 and 2 focused on the assessment of construct validity for the proposed Childhood Complex PTSD diagnosis, while Chapter 3 focused on specific considerations for the provision of services to trauma exposed families residing in emergency and transitional housing facilities. Implications for the findings of the three thesis chapters, when taken together, are discussed in the General Discussion Section.

CHAPTER 1

An Exploratory Factor Analytic Approach to Examining Domains of Impairment in

Complex Traumatic Stress in Children

Bethany Watson

## Abstract

**Background:** Many children are exposed to potentially traumatic experiences such as child maltreatment, witnessing domestic violence, or exposure to violence in the community. Discrete traumatic experiences, such as being in a car accident, are conceptualized as having a different impact on children's development than more ongoing and chronic adverse experiences, such as child maltreatment. These difficulties that children experience following ongoing chronic adversity, which extend beyond a classic Posttraumatic Stress Disorder presentation, are currently conceptualized "childhood complex traumatic stress" (Cook et al., 2005). Complex trauma in childhood is conceptually broken down into 7 different domains of impairment: (1) Self-Concept, (2) Affect Regulation, (3) Behavioral Control, (4) Attachment, (5) Cognition, (6) Biology, and (7) Dissociation (Cook et al., 2005). To our knowledge, this conceptualization of symptom clusters has not been empirically validated. Investigators seek to take a data driven approach to examining the complex traumatic stress presentation in a large sample of children with alleged maltreatment exposure in order to inform our understanding of whether or not these symptoms cluster together into meaningful domains of functioning as theorized.

**Methods:** A large representative dataset in which these domains of functioning were broadly assessed, The National Study of Child and Adolescent Well-being (NSCAW-I, Restricted Release – Waves 1-5 [Dataset]; RTI International (2008)), was identified. A subsample of the full dataset on whom the analyses could be conducted were identified (N=1832; age 6 to 16 years). Items assessing the domains of complex trauma as conceptualized by Cook et al., (2005) were selected by investigators and assessed for face-validity through consultation with clinicians serving a maltreatment-exposed population. Items that were poorly defined or not assessed due to the age of the sample were excluded from the analysis. An exploratory factor analysis was conducted to determine whether the symptoms of complex trauma, as they are currently grouped, assess meaningful and internally consistent domains of impairment. Factors were extracted using principal components analysis and common factor analysis. Factors were then rotated to achieve simple structure and improve interpretability.

**Results:** All pre-check tests indicated that the data are amenable to factor analysis (KMO = .978; Bartlett's Test of Sphericity  $p < 0.05$ ). Principal axis factoring (PAF) was then conducted for the 6-factor solution, the 5-factor solution, and the 4-factor solution. Based on convergent evidence from visual examination of the Scree plot and examination of the items in each factor for theoretical interpretability, the 6-factor solution emerged as the best solution. The 6-factor solution was interpreted as below.

**Conclusions:** Many symptoms specified by complex trauma theory meaningfully cluster in distinct factors, representing different areas of impairment in functioning that may be observed in children with chronic trauma exposure. These areas of impairment do broadly map onto several of the areas of functioning specified by Cook et al. (2005), although specific symptoms that make up each area of impairment diverge significantly from the criteria set forth by Cook and colleagues in several cases. Additionally, some symptoms specified by the theory of complex trauma do not demonstrate empirical support for having a meaningful relationship with any domain of the complex trauma phenotype. The six factors that emerged in the present analysis include (1)

Depression/Low-Self Esteem, (2) Externalizing Behavior Problems, (3) Interpersonal Difficulties, (4) School Problems, (5) Cognition, and (6) Biology/Somatic Symptoms.

## **Introduction**

Many children are exposed to potentially traumatic experiences such as child maltreatment, witnessing domestic violence, or exposure to violence in the community (Fantuzzo & Mohr, 1999; Hussey et al., 2006; Stein et al., 2003; Wildeman et al., 2014). Recent evidence suggests that maltreatment, operationalized as neglect, physical abuse, sexual abuse, or emotional abuse, will be confirmed for 1 in 8 children in the United States by the time they reach 18 years of age (Wildeman et al., 2014). It is broadly accepted that these types of potentially traumatic experiences have impacts on children's emotions, behavior, and adaptive functioning (Boney-McCoy & Finkelhor, 1995; Buka et al., 2001; Friedrich et al., 1986; Margolin & Gordis, 2000; Moylan et al., 2010; Trickett & McBride-Chang, 1995; Turner et al., 2006).

Discrete single-incident traumatic experiences, such as being in a car accident, are conceptualized as having a different impact on children's development than more ongoing and chronic adverse experiences, such as child maltreatment (Cook et al., 2005; Dyregrov & Yule, 2006; Kassam-Adams & Winston, 2004; Wamser-Nanney & Vandenberg, 2013). The impact of discrete single-incident traumatic experiences on psychological functioning are best captured by the American Psychiatric Association's Diagnostic and statistical manual of mental disorders (5th ed.) Posttraumatic Stress Disorder (PTSD) diagnosis, which specifies that the individual has been exposed to a potentially traumatic event that includes actual or threatened death, serious injury, or sexual violence and that the individual displays at least one symptom in each of the following symptom domains: (1) Intrusion symptoms associated with the traumatic event and beginning after the traumatic event(s) occurred, (2) Persistent avoidance of stimuli

associated with the traumatic event(s), (3) Negative alterations in cognitions and mood associated with the traumatic event, and (4) Marked alterations in arousal and reactivity associated. In order to receive a PTSD diagnosis, these symptoms must cause the individual clinically significant distress or impairment and must begin or worsen after the traumatic event (DSM-5; American Psychiatric Association, 2013).

In clinical settings, many children who have experienced maltreatment, a form of adversity that is likely to be ongoing rather than discrete, present with symptoms that are not accounted for by the domains of the classic posttraumatic stress disorder (PTSD) diagnosis. It has been argued that, while PTSD is an appropriate diagnosis for single-incident traumas, PTSD symptoms are superseded in frequency and intensity by other psychological symptoms in samples exposed to more chronic traumatic events (Ackerman et al., 1998; Putnam, 2003; Van der Kolk et al., 2005). These other impacts on psychological functioning often occur in place of PTSD symptoms (Ackerman et al., 1998). Deficits in functioning that may be observed in children with maltreatment exposure include increases in both internalizing and externalizing behavior problems, as well as other deficits in functioning such as developmental regression and sleep problems (Ackerman et al., 1998; Cook et al., 2005; Buka et al., 2001; Friedrich et al., 1986; Margolin & Gordis, 2000; Moylan et al., 2010; Trickett & McBride-Chang, 1995). Due to these deficits, maltreated children are often diagnosed with multiple co-morbid mental health conditions, such as attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and major depressive disorder (MDD), although these diagnoses do not wholly capture the range of symptoms that may be observed within children with maltreatment exposure (Cook et al., 2005). Children with chronic trauma exposure often

do not fit neatly into these diagnostic categories, and these characteristic patterns of comorbidity, tend to co-occur and cluster together in predictable ways. The combination of all the impacts of maltreatment or other ongoing trauma in children is referred to as “Complex Traumatic Stress” (Cook et al., 2005). It is important to note that not all children exposed to maltreatment experience subsequent mental health challenges that warrant a diagnosis (Bolger & Patterson, 2003). Thus the “Complex Traumatic Stress” diagnosis aims to capture the symptom constellation observed in the subset of children with chronic trauma exposure who experience mental health dysfunction, in contrast to the lack of functional impairment observed in children who are resilient to the impacts of maltreatment (Bolger & Patterson, 2003; Cook et al., 2005).

Despite the recognition of clinicians and advisory bodies such as the National Child Traumatic Stress Network that there are impacts on some children’s development that extend beyond classic PTSD following ongoing adversity such as child maltreatment, the “complex trauma” diagnosis has not been formalized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013; Resick et al., 2012; Sar, 2011). This is likely impacted by the lack of clarity and the various definitions of “complex trauma” that exist in the literature, making it difficult to reach consensus on diagnostic criteria for this presentation (Resick et al., 2012). Indeed, as it stands, the term “complex trauma” is used to refer to both the ongoing/chronic exposure to adversity, and to refer to the resulting behavioral, emotional, developmental, and cognitive difficulties that children may display (Cook et al., 2005). For the purpose of clarity, for the remainder of this paper, investigators will refer to the experiences of

ongoing adversity and maltreatment as “chronic trauma” and will refer to the resulting phenotypic presentations in those with mental health challenges as “complex trauma.”

The foundational theoretical framework for complex trauma in children and adolescents was laid out in the *Psychiatric Annals Special Issue on Child Complex Trauma* (2005) written by a workgroup on complex trauma led by Alexandra Cook, PhD and Joseph Spinazzola, PhD. This conceptualization is based on the DSM-IV Field Trial (American Psychiatric Association, 1994) for the proposed diagnosis of Disorders of Extreme Stress Not Otherwise Specified (DESNOS) in adults (Van der Kolk et al., 2005). The subcategories of symptoms proposed by Van der Kolk et al. (2005) for DESNOS in adults include Alterations in the Regulation of Affect and Impulses, Attention or Consciousness, Self-Perception, Perception of the perpetrator, Relations with Others, and Systems of Meaning, as well as Somatization. Cook and colleagues generated domains of impairment likely to be observed in children based on the proposed DESNOS criteria and a comprehensive review of the literature on complex trauma in children (Cook et al., 2005).

Cook et al., (2005) have proposed that complex trauma in childhood is conceptually broken down into 7 different domains of functioning: Attachment, Biology, Affect Regulation, Dissociation, Behavioral Control, Cognition, and Self-Concept (Cook et al., 2005). Given this wide range of domains of possible impairment, the current conceptualization of complex trauma essentially states that chronic trauma can impact almost all areas of functioning in a wide variety of ways. Across these domains of functioning, there are 46 different possible symptoms (Table 2). Within each symptom, there are different examples of ways that the symptom may manifest, suggesting that the

number 46 is actually an underestimate of the number of specific difficulties that are considered to be part and parcel of complex trauma. For example, under the “Biology” domain, one specific symptom is defined as “increased medical problems across a wide span (e.g. pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures).” There are no formalized diagnostic criteria specifying how many domains of functioning must be impacted for a child to be considered to meet criteria for complex trauma, nor is there an agreed upon number of symptoms within each given domain that must be displayed for the domain to be considered to be impaired. Given this diffuse definition, the concept of complex trauma does not translate into clearly operationalizable diagnostic criteria, as it simply states that, when a child experienced ongoing chronic adversity, a whole broad host of areas of functioning and development may be impacted. While this has the useful effect of normalizing and de-stigmatizing behavioral, emotional, developmental, and cognitive difficulties that children with chronic trauma or maltreatment histories may display, the lack of clarity and diffuse definition of complex traumatic stress leaves the phenotype with limited clinical utility. Furthermore, to the knowledge of investigators, this conceptualization of the domains of functioning impacted in complex trauma have not been rigorously empirically examined.

Thus, investigators seek to take a data driven approach to examining the complex traumatic stress presentation in a large sample of children with alleged maltreatment exposure in order to inform our understanding of whether or not these symptoms cluster together into meaningful domains of functioning. More specifically, investigators seek to answer the questions: are the symptoms of complex trauma, as they are currently grouped, assessing meaningful and internally consistent domains of functioning? Or,

might a data driven approach to diagnostic conceptualization generate a different grouping of symptoms than what has been theorized in the literature, which might have more validity and more clinical utility? Given the large and somewhat unwieldy number of symptoms currently considered to be part of a complex trauma presentation in children, an additional goal of the present work is to refine the list of symptoms to remove any symptoms that do not seem to meaningfully cluster into a symptom domain presenting in children exposed to chronic trauma. The broader goal of the present work is to refine the complex trauma diagnosis to increase the clinical utility of this phenotype in order to guide both diagnostic conceptualization and the development of treatment approaches. To our knowledge, this is the first theoretically agnostic, data driven, empirical approach to examining the domains of children's functioning that might be impacted following a history of complex trauma.

## **Method**

### *Dataset and Item Selection*

Investigators first consulted the literature on the various domains of functioning believed to be impacted by chronic trauma exposure, specifically focusing on the symptom domains identified for a complex trauma presentation in children, as conceptualized by Cook et. al. (2005). Investigators then identified a large existing dataset of children with alleged maltreatment exposure, The National Survey of Child and Adolescent Well-being (NSCAW-I, Restricted Release – Waves 1-5 [Dataset]; RTI International (2008)), where these domains of functioning were broadly assessed, on whom this exploratory analysis could be conducted.

### *NSCAW Protocol and Participant Demographics*

The NSCAW-I data were collected by the Administration on Children, Youth, and Families and the Office of the Assistant Secretary of Planning and Evaluation, and includes a nationally representative longitudinal dataset of children and families who have had contact with the child welfare system for maltreatment reports. Oversampling was completed on the basis of children with allegations of sexual abuse and on the basis of age (younger). Of note, cases are included whether substantiated or not, as substantiation status has been shown to be unrelated to the consequences of child maltreatment in the domains of school-based impairment and delinquency-related outcomes, which investigators concluded suggests that substantiated reports of maltreatment are no more impactful on children's development than unsubstantiated reports (Kohl et al., 2009; Leiter et al., 1994). Data were collected from children, current caregivers, caseworkers, teachers, and agency administrative records. The NSCAW-I data collection began in 1999 and initially included 6,200 participants, age birth to 16 years at the time of sampling, with five waves of data collection completed in December 2007. The present analysis focused on assessment of complex trauma in children age 6 to 16 years ( $M = 10.1$ ;  $SD = 2.71$ ). This age range was selected as it represents a gap in the literature. The impacts of chronic interpersonal trauma on young children are captured by the DSM-5 addition of a preschool subtype of classic PTSD as well as the diagnosis of Reactive Attachment Disorder, which similarly captures some of the affect regulation and interpersonal difficulties represented in Complex PTSD as they apply to young children (American Psychiatric Association, 2013). Although not included in the DSM, the impacts of chronic trauma in older adolescence and young adulthood is captured by the proposed diagnosis of DEPNOS as described in the Introduction (Van der Kolk et al.,

2005). Children age 6 to 16 represent an age group for whom no other specified diagnostic label has been developed to capture the impacts of chronic trauma aside from the non-specific complex trauma label and were thus selected as the population of focus. The subsample of the data used in the present analysis was further refined to include participants who completed the full data protocol for all measures used in the present analysis. A total of 839 participants were excluded from the current study due to missing data. The vast majority of participants with incomplete data were coded as “legitimate skip” (71.5%) by the dataset administrators, which is described in the Data File User’s Manual (DFUM) as being based on the skip logic within a section of an instrument. Of note, the skip logic of the measure with the largest amount of missing data included specifications that the child needed to be in school in order for the measure to be administered, which may have contributed to the missing data. The next most common reason for missingness was coded as “non-interview” (18.2%). The most common reason for non-interview described in the DFUM was described as refusal by to participate in the interview. Other reasons for missingness on various items were described as “partial interview,” “refused” (to answer the specific question), and “don’t know.” See Table 1 for detailed sample characteristics (N = 1832).

### *Item Selection*

Investigators conducted a comprehensive review of all items assessed in the NSCAW sample to map measures that were assessed as part of the NSCAW data collection on to specific complex trauma symptoms. Rather than using existing scales, such as the internalizing and externalizing behavior problems subscales on the Child Behavior Checklist, investigators conducted the factor analysis at the item level to more

specifically assess the items included on the list of complex trauma symptoms and to avoid including extraneous symptoms in the factor analysis. Items were selected from measures and testing batteries including the Children's Depression Inventory (CDI; Kovacs, 1992), the Child Behavior Checklist (CBCL; Achenbach et al, 1983), Peer Relationships Questionnaire (adapted for NSCAW from the Loneliness and Social Dissatisfaction Questionnaire for Young Children; Asher & Wheeler, 1985), The Social Skills Rating System (SSRS; Gresham & Elliot, 1990), School Engagement Questionnaire (Adapted for NSCAW from the Drug Free Schools Community Act (DFSCA) Outcome Study Questions; US Department of Education: Office of the Under Secretary), caregiver reported health and medical problems (sum of all chronic health concerns endorsed), the Woodcock-McGrew-Werder Mini Battery of Achievement (MBA; Woodcock et al., 1994) a subset of the Woodcock-Johnson Psychoeducational Battery Revised (WJ-R), and the Kaufman Brief Intelligence Test (K-BIT; Kaufman, 1990).

There were several complex trauma symptoms that were not able to be included in the exploratory factor analysis due to poor definition and unclear operationalization in the literature, which were not included in the present analysis (e.g. "pathological self-soothing behaviors" does not define what would be considered to be pathological; "excessive compliance" does not clearly distinguish between typical rule following behavior and compliance that would be deemed "excessive"). Further conceptual clarity would be needed to develop measures for these symptoms that could be included in such an analysis, which presents an area for future study. All complex trauma symptoms, along with the items used to assess them or the reasons they were not assessed, are

outlined in Table 2. Reasons symptoms were excluded from the factor analysis include constructs being poorly defined, constructs not measured in the NSCAW data, and symptoms that are only developmentally relevant to a narrow portion of the age range assessed in the present study. All conceptual domains of functioning in complex trauma were included in the factor analysis with the exception of Dissociation. The Dissociation domain includes distinct alterations in states of consciousness, amnesia, depersonalization and derealization, two or more distinct states of consciousness, and impaired-memory for state-based events. Although trauma symptoms were measured at Wave 1, the Dissociative symptoms subscale was not administered until later waves of the NSCAW data collection. Thus, it was not possible to assess dissociative symptoms at the same timepoint as the other symptoms included in the present analysis without significant reduction in power due to attrition between Wave 1 and Wave 5 (the timepoint at which a measure of such symptoms was included in data collection).

Investigators conducted several meetings during which possible items for inclusion in the factor analysis were reviewed collaboratively between the principal author and a senior investigator. Once investigators collaboratively developed a list of items to be included in the factor analysis, this list was further refined based on face validity through consultation with an experienced senior clinician who specializes in the treatment of children who have experienced maltreatment at a large academic medical center focused on the provision of services to children with alleged experiences of sexual and physical abuse. See Table 2 for a list of all symptoms and the corresponding items used to assess them, as well as reason not assessed for symptoms that were not included in the current exploratory factor analysis.

### *Exploratory Factor Analysis (EFA)*

Investigators used SPSS to conduct an exploratory factor analysis. Factors were extracted using principal components analysis and common factor analysis. Factors were then rotated to achieve simple structure and improve interpretability.

#### *Pre-check and Principal Components Analysis*

First, investigators conducted a pre-check to ensure that sample size was adequate and that the list of items assessing each domain of functioning were sufficient to ensure that there were at least 3 items per probable factor. To further confirm sample size adequacy, the Kaiser-Meyer-Olkin (KMO) Test, which provides a measure of the proportion of variance among variables that might be caused by underlying factors, was completed to measure sampling adequacy for each variable in the model and for the complete model. Higher KMO values (closer to 1.0) are generally indicative of a dataset that is amenable to factor analysis, while values less than 0.50 typically suggest that the results of a factor analysis are unlikely to be useful.

Principal components analysis was used only to generate the scree plot, as PCA assumes that common variance takes up all total variance, which is generally unrealistic in the social sciences due to measurement error and high likelihood of unmeasured variance. Specifically, in social science research, it is generally unlikely that all of the possible variance is accounted for by all items in a given model, making Principal Access Factoring a more appropriate analytic method for subsequent analyses (UCLA: Statistical Consulting Group, Accessed July 2019).

Bartlett's test of sphericity was used to further assess whether or not meaningful factors emerged at the principal components analysis level. Significant results ( $p < 0.05$ )

for Bartlett's test suggest that factor analysis would be useful given the data structure, while non-significant results for Bartlett's test indicate that variables are unrelated and therefore unsuitable for structure detection. After establishing that data structure is amenable to factor analysis, eigenvalues were then used to construct a Scree plot to determine the optimal number of factors given the structure for the data. Visual inspection of the Scree plot, which involves looking at the Scree plot to locate an "elbow joint" after which it is not considered to be beneficial to continue factor extraction, was used to determine the number of factors. The number of components to the left of the "elbow" are typically used to determine the number of factors. Investigators also considered other criteria to determine the ideal number of factors, including total variance explained and interpretability. In social sciences 50-60% of variance explained by extracted factors is considered to be standard. Factors explaining less than 2% of the variance are generally not considered to be useful (UCLA: Statistical Consulting Group, Accessed July 2019).

#### *Principal Axis Factoring*

Principal axis factoring (PAF) was then conducted for all likely solutions as indicated by visual inspection of the Scree plot in the Principal Components Analysis. Unlike PCA, PAF assumes that all items in a dataset have not been measured perfectly and that variance can be partitioned into unique variance (error variance; not explained by factor structure) and shared variance (explained by the unobserved/latent variable (factor)). PAF was selected due to the assumption of the current study that there are distinct complex trauma component factors (symptom domains), while acknowledging that the items assessing complex trauma may be poorly measured in some cases and that

the factors are unlikely to explain all of the shared variance among items in the model, necessitating modeling the unique variance as well.

The solution was then rotated using the Promax rotation to achieve simple structure as defined by Pedhazur & Schemlkin (1991) which specifies that in a simple structure factor analysis, each item has high loadings on one factor only and each factor has high loadings for only some of the items (Hendrickson & White, 1964). The Promax rotation, which is an oblique rotation, was selected due to the theoretical assumption of the model that the factors are unlikely to be completely uncorrelated due to the belief that symptom clusters are likely to be at least somewhat correlated due to being different components of one diagnostic category.

## **Results**

### *Pre-check and Principal Components Analysis*

All pre-check tests indicated that the data are amenable to factor analysis (KMO = .978; Bartlett's Test of Sphericity  $p < 0.05$ ). Bartlett's test was significant, suggesting that significant factors were able to be identified. No negative eigenvalues were observed. The presence of negative eigenvalues would have implied that the model was ill conditioned. Due to the positive indicators observed on the above listed tests, investigators continued with the factor analysis as described below.

Principal components analysis was completed to determine the number of factors that should be extracted using principal axis factoring. Visual inspection of the Scree plot provided evidence for a 4- to 6-factor solution. As such, investigators made the decision to conduct common factor analyses for the 6-, 5-, and 4- factor solutions to be examined

for theoretical interpretability to determine which solution was most appropriate. See Figure 1 for Scree Plot from Principal Components Analysis.

#### *Principal Axis Factoring*

Principal axis factoring (PAF) was then conducted for the 6-factor solution, the 5-factor solution, and the 4-factor solution. The Scree plot was re-examined, and models best supported by the results of the Scree plot remained the 4-factor solution and the 6-factor solution. Interpretation of the Scree plot includes identification of “elbow joints” on the plot after which it is not considered to be beneficial to continue factor extraction. A possible “elbow joint” was observed between the 4- and 5-factor solutions and the 6- and 7-factor solutions, while the Scree plot is relatively flat between the 5- and 6-factor solutions. Thus, the 5-factor solution was eliminated and the communality patterns for the 4-factor solution and the 6-factor solution were then assessed for theoretical interpretability. In accordance with the best practices in EFA as laid out by Osborne & Costello (2005), a communality threshold of 0.4 was used to determine which factor a given item loaded on to based on common variation (Osborne & Costello, 2008). Although it has been suggested by some that a communality threshold as low as 0.2 can be interpreted as being salient, the more stringent communality threshold of 0.4 was used to obtain a cleaner solution more aligned with Thurstone’s simple structure (Tucker, 1955). No items were observed to cross load on to more than one factor based on this communality threshold in either the 4-factor solution or the 6-factor solution. With regard to theoretical interpretability, special attention was paid to whether or not factor loadings made sense based on what might be expected in the context of existing complex trauma theory. Based on convergent evidence from visual examination of the Scree plot and

examination of the pattern of items that loaded onto each factor for theoretical interpretability, the 6-factor solution emerged as the best solution. Specifically, the Scree plot supported interpretation of the 4-factor solution or the 6-factor solution as described above. When alternative interpretations of the Scree plot provide evidence for multiple solutions, the solution that is most interpretable based on existing theory is selected. The 6-factor solution contained item clusters that made more theoretical sense than the 4-factor solution, and was thus selected as the best solution. See Table 3 for the pattern matrix for the 6-factor solution (the solution used for subsequent analyses) and Table 4 for a Factor Score covariance matrix. Investigators continued with interpretation of the factor analysis as described below.

Interpretation of the 6-factor solution showed some evidence for the 6 symptom domains of complex trauma as conceptualized by Cook et al (2005) which investigators aimed to capture in the exploratory factor analysis: (1) Attachment, (2) Biology, (3) Affect Regulation, (4) Behavioral Control, (5) Cognition, and (6) Self-Concept. Although the empirical evidence roughly emerged for each of the 6 domains, there were some notable differences in the items contained in each domain from what might be expected if all symptoms as conceptualized by Cook et al. were included in their pre-specified category. Additionally, there were items that are included in the theoretical conceptualization of complex trauma which did not meaningfully cluster in any symptom domain. As such, the 6-factors were re-labeled by investigators to better capture the domain of functioning that emerged from the data. The 6 factors were labeled by investigators as (1) Depression/Low-Self Esteem (rather than self-concept), (2) Externalizing Behavior Problems (rather than behavioral control), (3) Interpersonal

Difficulties (rather than attachment), (4) School Problems (not included in Cook et al.'s conceptualization), (5) Cognition (unchanged), and (6) Biology/Somatic Symptoms (rather than simply Biology). See Table 3 for a summary of items that loaded on to each factor and all factor loadings.

The Depression/Low Self-Esteem Factor included negative perceptions about self and depressive symptoms as reported by the child (largely items from the Children's Depression Inventory (CDI)). Specific items that loaded onto this factor were as follows: self-reported feelings of social isolation; self-reported difficulties getting along with others; self-reported feelings of doing everything wrong and of not being able to do what is instructed; feeling unloved; worries about aches and pains; feeling as if the child did not eat well; feelings of self-hatred; feeling as if nothing would work out; self-blame for negative things that may have occurred; negative social comparison to other children, self-reported difficulty sleeping; feelings of ugliness; and feeling as if the child was "bad all the time."

The Externalizing Behavior Problems factor included items assessing aggression, impulsivity, inattention, distrust and suspiciousness; and mood lability. Of note, these items could be conceptualized as representative of both difficulties with behavioral control and difficulties with affect regulation which is a separate domain in the Cook et al. conceptualization. Specific items that loaded on this factor are as follows: cruelty, bullying, and meanness to others; threatening others; disobedience in the home; impulsivity/acting without thinking; getting in frequent physical fights/attacking others; temper tantrums/"hot temper"; destruction of the child's own property; argumentativeness; stubborn, sullen, or irritable; disobedience at school; difficulty getting

along with other children; difficulty sitting still/restlessness/hyperactivity; mood lability (sudden changes in mood or feelings); inattention and difficulty with concentration; teasing others frequently; not seeming to feel guilty after misbehavior; cruelty to animals; suspiciousness; and feeling as if others are out to get him/her.

Items included in the Interpersonal Difficulties factor represent difficulties with assertiveness (expressing wants and needs appropriately) and difficulties in relationships with family and friends, and include the following items: Difficulty politely refusing unreasonable requests; responding inappropriately when hit by other children; low levels of spontaneous cooperation with family members; responding inappropriately to teasing; low self-confidence in social situations; difficulty making new friends; difficulty controlling temper in conflict with caregivers; not well-liked by others; difficulty accepting friends' ideas in play; difficulty independently joining group activities; excessive compliance (no questioning of unfair household rules); and difficulty controlling temper when arguing with other children. While these items do not directly reflect attachment as described by Cook, these items reflect challenges in the child relating to others, which may be a more developmentally appropriate way to measure attachment-related concerns given the age of the children included in the analysis.

The School Problems factor included various measures of child and caregiver-perceived difficulties in the school environment, including feelings of social isolation at school and perceptions of academic challenges. Items that loaded onto this factor include the following: loneliness at school and having no one to play with; difficulty making friends at school and difficulty gaining social approval from peers; feeling left out at school; feeling as if there is no one to go to when help is needed; difficulty working

cooperatively with other children at school; perceived failure to complete assignments; perceived difficulty with homework completion; and perceptions that the child finds schoolwork to be too difficult.

The Cognition Factor included tests of both academic achievement and IQ across verbal and non-verbal domains. Diagnosable learning difficulties (assessed via caregiver reported presence of a diagnosed learning challenge) and attention problems were not included with this factor, suggesting that organic learning difficulties and the impacts of complex trauma on cognitive abilities are likely to be distinct. Specific subscales that loaded onto this factor include the Woodcock-Johnson Tests of Achievement Reading Subscale; the Woodcock-Johnson Tests of Achievement Mathematics subscale; the Kaufman Brief Intelligence Test Vocabulary Subscale; and the Kaufman Brief Intelligence Test Matrices (non-verbal reasoning) subscale.

Items included in the Biology/Somatic Symptoms factor include various non-specific somatic complaints without mention of specific medical diagnoses. The somatic complaints that loaded on this factor include the following: nausea; stomachaches or cramps; aches and pains in the body; vomiting; headaches; and being overtired/fatigued.

Additionally, items that are included as symptoms of complex trauma, which did not meaningfully cluster in any symptom domain, include tearfulness, poor coordination/clumsiness, self-harm and suicidal behavior, complaints of loneliness, clinginess, sleep disturbance, secondary enuresis, speech and learning delays, poor eating, rashes or other skin problems, dizziness, nightmares, social withdrawal, medical problems (e.g. parasomnias, problems with eyes, medical diagnoses), and sexual self-stimulatory behavior.

## Discussion

Many symptoms specified by complex trauma theory meaningfully cluster in distinct factors, representing different areas of functioning in which impairment may be observed in children with chronic trauma exposure. These areas of functioning do broadly map onto several of the areas of functioning specified by Cook et al. (2005), although specific symptoms that make up each area of functioning diverge significantly from the criteria set forth by Cook and colleagues (2005) in several cases. Additionally, some symptoms specified by the theory of complex trauma are observed to meaningfully cluster into a symptom domain, while others do not demonstrate empirical support for having a meaningful relationship with any domain of the complex trauma phenotype. Similarities and differences between the domains of impairment in complex trauma as conceptualized by Cook et al. (2005) and the factors that emerged in the data are discussed below.

The six domains of complex trauma as conceptualized by Cook et al. include (1) Self-Concept, (2) Affect Regulation, (3) Behavioral Control, (4) Attachment, (5) Cognition, and (6) Biology. Dissociation is also included by Cook et al., (2005) as a 7<sup>th</sup> domain, but was not included in the current study due to lack of measurement in Wave 1 of the NSCAW data. The six factors that emerged in the present analysis include (1) Depression/Low-Self Esteem (rather than self-concept), (2) Externalizing Behavior Problems (rather than behavioral control or affect regulation), (3) Interpersonal Difficulties (rather than attachment), (4) School Problems (not included in Cook et al.'s conceptualization), (5) Cognition (unchanged), and (6) Biology/Somatic Symptoms (rather than simply Biology).

### *Self-Concept*

The Self-Concept domain is described by Cook and colleagues (2005) as a lack of a continuous, predictable sense of self, poor sense of separateness, disturbance in body image, low self-esteem, and shame and guilt. Of these symptoms, low self-esteem and shame and guilt were measured in NSCAW and included in the EFA, and were observed as having significant loading on a factor in the data. The Depression/Low-Self Esteem factor in the present analysis is the factor most closely related to the Self-Concept factor in existing complex trauma theory, as it contains these items, among other items not specified by the Self-Concept domain. While many of the depressive symptoms in this domain were related to low self-esteem (e.g. self-hatred; feeling as if the “I (the child) do everything wrong”), other depressive symptoms included in this domain present as unrelated to self-concept such as trouble sleeping, feelings of social isolation, and worries about aches and pains. As such, there was not a “sense of self” related domain that emerged empirically as separate from these depressive symptoms.

Of note, the lack of continuous sense of self and the poor sense of separateness described by Cook et al. are reminiscent of the “confusion about self” domain used in case conceptualization for adolescent dialectical behavior therapy (DBT-A; Miller et al., 2007). While generally difficult to assess in the current analysis due to difficulties in operationalization (i.e. it is unclear which specific criteria would need to be met to represent “poor sense of separateness”) these symptoms may be more readily assessed as children mature into late adolescence and become more able to articulate confusion about self. Thus, it is possible that, later in development, a symptom domain that measures this “sense of self” related domain separate from depressive symptoms may emerge.

Considerations for reliable and valid ways to operationalize “confusion about self” remain a challenge regardless of age range. In DBT-A case conceptualization, there is a significant role for clinical judgment in determining whether an adolescent evidences these challenges, introducing an element of subjectivity. Additionally, the need for a trained clinician to administer a full clinical interview to determine whether an adolescent meets criteria for “confusion about self” also introduces feasibility concerns for the type of large sample needed for factor analysis.

#### *Behavioral Control and Affect Regulation*

The Externalizing Problems factor could be conceptualized as being closely related to either the Behavioral Control or Affect Regulation domains of complex trauma. The Behavioral Control domains of complex trauma as described by Cook and colleagues (2005) includes symptoms of impulsivity, self-destructive behavior, aggression toward others, pathological self-soothing behaviors, sleep disturbances, eating disorders, substance abuse, excessive compliance, oppositional behavior, difficulty understanding and complying with rules, and reenactment of trauma in behavior or play (e.g. sexual, aggressive). The Affect Regulation domain of complex trauma includes difficulty with emotional self-regulation, difficulty labeling and expressing feelings, problems knowing and describing internal states, and difficulty communicating wishes and needs. The Externalizing Problems factor contains items reflecting inattention, impulsivity, and oppositionality in tandem with items assessing emotional lability. It is understandable that these two domains did not emerge as empirically distinct, as affect regulation and behavioral dysregulation are often viewed as inseparable conceptually due to behavioral

dysregulation typically being the observable behavioral component of unobservable internal difficulties with emotion regulation.

Some items that were included in the EFA that did not load on this factor that are conceptualized by Cook et al. (2005) as being related to Behavioral Control include eating disorders, reenactment of trauma in behavior or play, self-destructive behavior (e.g. deliberately harming self or attempting suicide), and sleep disturbances. Items related to Affect Regulation domain that did not load on to this factor include items assessing assertiveness (described by Cook et al. as “difficulty communicating wishes and needs”), which instead loaded on to the Interpersonal Difficulties Factor. Similar to the idea of the “lack of continuous sense of self” in the Self-Concept domain being reminiscent of the areas of impairment that are assessed in Adolescent DBT (e.g. “feelings of emptiness/confusion about self”), the idea of difficulty knowing and describing internal states and feelings is another area of impairment included in DBT case conceptualization that was not able to be operationalized and assessed in the present sample, but which might emerge more robustly later in adolescence and which may load on to this Externalizing Problems factor, or perhaps even a separate sense of self/confusion about internal states factor. Future studies should include a measure such as the Toronto Alexithymia Scale to assess such difficulties.

Items that were not conceptualized by Cook and colleagues as being related to Affect Regulation and Behavioral Control that did load onto this factor include items assessing distrust and suspiciousness, which Cook et al. conceptualize as part of the attachment domain. This may suggest that distrust and suspiciousness may be driving some of these externalizing behaviors. This conceptualization is justifiable from a face

validity perspective, as often, even in cases of aggressive behavior in psychotic disorders, paranoid and fear/suspiciousness ideation is often viewed as a driver of aggressive or violent behavior, although this underlying driver of the observed behavior is often overlooked (Darrell-Berry et al., 2016). Other symptoms that loaded on to the externalizing problems factor that are conceptualized by Cook et al. as being related to a separate area of functioning includes difficulties with attention regulation and concentration. Cook et al. include attentional symptoms as a part of the “Cognition” domain. The observed result that inattention instead loads on to the Externalizing Problems factor is consistent with evidence from prior literature that symptoms of inattention and impulsivity tend to be related and that while attention may impact school performance, it is a separate construct from general cognitive ability (i.e. IQ; Ek et al., 2013).

### *Attachment*

The “Attachment” symptom domain as conceptualized by Cook et al. includes problems with boundaries, distrust and suspiciousness, social isolation, difficulty attuning to other people’s emotional states, and difficulty with perspective taking. Attachment in the classic sense (e.g. the strange situation paradigm; Ainsworth, 1979) is typically assessed in younger children, however, early attachment is believed to be the relationship from which humans develop working models for relating to others which are carried forward into future relationships (Collins & Read, 1990). Thus, it is reasonable to expect that attachment difficulties with a primary caregiver may manifest as problems in relationships later in life, including relationships with peers and with family members. As such, investigators included measures of social difficulties and interpersonal problems in

the current analysis in an effort to assess the consequences of disrupted attachment as manifested in middle childhood, although these measures of interpersonal difficulties do not directly assess attachment per se. Items that were hypothesized a priori as likely to load on an “attachment”-related factor were caregiver reported distrust and suspiciousness, child-reported feelings of social isolation with peers, clinginess/overdependence, assertiveness (or lack thereof), child-reported difficulties in interpersonal relationships/friendships, caregiver reported social withdrawal, and caregiver reported demonstration of prosocial skills (e.g. cooperation).

Items that empirically loaded on to the attachment factor assess cooperation, self-confidence in social situations, amicability, controlling temper during arguments with caregiver, and assertiveness (e.g. questioning unfair household rules; politely refusing unreasonable requests) among others. Items assessing distrust and suspiciousness and social isolation instead loaded on to other factors in the analysis, and other items did not load on to any factor at all (e.g. clinging to others or being too dependent). Of note, the items that loaded on to the Interpersonal Difficulties factor as observed in the data are more related to difficulties with social skills, assertiveness, and cooperation rather than disruption of interpersonal relationships with peers. The items assessing difficulty relating to peers and perceived social isolation, instead, loaded on to the School Problems factor, as described below. This observed difference in the factor onto which items loaded may suggest that interpersonal difficulties within the home setting are distinct from interpersonal difficulties at school, which are more related to the socioemotional demands of interacting with others outside of the immediate family in a school setting. It is also possible that this observed difference is attributable to a reporter-level confound in

that child-report of social difficulties and parent-report of social difficulties diverge. Future studies should include measures as reported by a third observer (i.e. a teacher) or assess caregiver difficulties and peer difficulties as perceived by both the child and the caregiver.

### *School Problems*

The School Problems factor was distinct from the areas of functioning described by Cook et al. and includes various areas of potential impairment specific to the school setting including feelings of social isolation at school, difficulty making friends at school, perceived failure to complete school assignments, perceived difficulties with homework completion, and finding homework to be “too hard”. The items that loaded on this factor were included in the analysis by investigators due to hypotheses that the interpersonal items such as difficulties with friendships would load on to the Attachment domain, and that the schoolwork related items would load onto the Cognitive domain. Of note, perceptions of difficulty completing school-work and school-work being “too difficult” did not load on the same factor that measures achievement/cognition as expected, and instead loaded on to the School Problems factor. This suggests that these perceptions of difficulty in school may not be objective, as they do not load onto the same factor as measures of intelligence and academic achievement as might be expected.

School is an inherently socioemotional experience where, in order to succeed, children must not only know the information and have the cognitive capacity to complete the work, they must also be able to abide by classroom rules and relate to teachers and peers while also sustaining mental effort and avoiding behavioral outbursts. Historically, poor school performance and academic achievement in children exposed to chronic

trauma has been conceptualized as being indicative of learning problems or cognitive delays which are a result of trauma exposure. This divergence of symptom domains in a sample of children exposed to chronic trauma suggests that these children may experience school problems while still maintaining their cognitive capacity to perform well in a one-on-one setting, and that these academic difficulties may be suggestive of difficulties with other aspects of the experience of going to school that impact academic performance. Given that the full sample included in the current study have allegedly been exposed to maltreatment, replication in a sample of non-maltreatment exposed children is warranted to determine whether there is specificity to this finding, or whether it reveals something more generalizable about the way in which domains of functioning might cluster. Also of note, the presence of a separate factor for school-based difficulties suggests that a similar criterion to the “impairment across at least two settings” qualifier used in diagnosing ADHD, which specifies that difficulty must be observed across settings to ensure that the reported difficulties are not context dependent, might be helpful in developing concrete diagnostic criteria for complex trauma.

### *Cognition*

The Cognition factor as described by Cook et al. (2005) includes difficulties with attention and regulation of executive functioning, lack of sustained curiosity, problems with processing novel information, problems focusing and completing tasks, problems with object constancy, difficulty planning and anticipating, problems understanding responsibility, learning difficulties, problems with language development, and problems with orientation in time and space. One question considered by investigators when beginning this analysis was whether loading on this factor would include measures of

Achievement, measures of intelligence, or both. For example, in this population of chronic-trauma exposed youth, it would be interesting if performance on achievement testing and intelligence testing did not load on the same factor. This divergence did not occur, but as noted above, there was significant divergence between measures of school functioning (both academic and social) and cognitive abilities, as these items did not load on to the same factor. It is possible that this is an artifact of perception and interpretation as compared to more objective testing. However, one might imagine that there would be an association between child/caregiver report that school is easy for the child and that the child seems to understand schoolwork and performance on measures of academic achievement. In future examination of how these domains can be used to classify individuals, it is possible that children with chronic trauma exposure may show deficits in school functioning, but not in cognitive ability, as these domains emerge as distinct in the present analysis. If this is that case, and if the divergence between these two conceptually-related constructs persists in replications and is not a measurement artifact, it may suggest that children exposed to chronic trauma have comparable cognitive and achievement-based capacity to succeed in school as non-maltreated children, but that there are other aspects of the school environment that are impacted by chronic trauma and which preclude engagement in school or feelings of academic success (which thus perpetuate school difficulties and lower rates of educational attainment).

### *Biology*

The Biology domain, as conceptualized by Cook et al. (2005), includes sensorimotor developmental problems, analgesia, problems with coordination, balance, and body tone, somatization, and increased medical problems across a wide span (E.g.

pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures). One particularly notable difference between this symptom domain as conceptualized by Cook et al. (2005) and this symptom domain as indicated by the factor analysis is that, while non-specific somatic problems did load on this factor, medical diagnoses that might explain these somatic complaints did not. This suggests that the biological symptoms observed in children with complex trauma may have a psychophysiological component and may be more representative of non-specific somatic concerns rather than diagnosable physical conditions with an identifiable medical etiology. This distinction makes theoretical sense, as it is unlikely that experiences of maltreatment would make a child more likely to have asthma or eczema, however, it is possible that stress-related reactions in the body might exacerbate existing medical conditions and lead to greater levels of somatic complaints without an identifiable medical etiology.

One reason that problems such as autoimmune disorders, asthma, and skin problems may have been included in the original conceptualization could be an artifact of poverty (e.g. impoverished neighborhoods having higher rates of these problems due to the impact of poor living conditions on physical health). For example, there is a documented association between poor air quality and housing conditions in lower-income neighborhoods and higher rates of asthma (Krieger et al., 2000; Neidell, 2004). While there may be a correlation between these poverty-associated medical conditions and exposure to complex trauma, this does not mean that these difficulties are *symptoms* of complex trauma. Another reason these medical problems may have been included in the original conceptualization could be that experiences of complex trauma and the associated heightened physiological arousal/stress-response may exacerbate existing

medical conditions or may decreased distress tolerance and cause children to be less able to tolerate the physical discomfort caused by these medical conditions.

There may be some rare cases in which exposure to complex trauma may in fact impact physical health in a way that is distinct from emotional health. For example, in cases of significant physical neglect, children may become malnourished or may not have their medical needs met, thus causing their physical health to worsen. These experiences in early childhood may indeed lead to physical-health related consequences later in life, however, these are conceptually distinct from “complex trauma” and may be better conceptualized as neglect-related health concerns rather than being included as part of a DSM-based mental diagnosis. Thus, while children with complex trauma histories may be less likely to receive medical attention early in life due to caregiving challenges (which may result in persistence of otherwise benign or easily addressed medical conditions), and while they may experience exacerbation of conditions such as eczema due to stress, there is less of a direct association between chronic trauma exposure and the root cause of conditions such as eczema or asthma. So, indeed, while we may expect to see higher rates of conditions such as asthma and eczema among children with complex trauma histories, these are likely to represent third variable correlations rather than being symptoms of complex trauma in their own right.

#### *Items Not Associated with Any Factor*

Many of the symptoms named by complex trauma theory as likely complex traumatic stress reactions were not necessarily associated with any factor, suggesting that many of these symptoms may be extraneous. Items that did not load onto any factor include tearfulness, poor coordination/clumsiness, self-harm and suicidal gestures,

complaints of loneliness, clinging to adults or presenting as too dependent, sleeping less than other children, self-isolative behavior as observed by parents, not eating “well”, sexually reactive behavior, enuresis, speech difficulties as reported by the caregiver, learning disability. Several of these were unsurprising to investigators. For example, although somatic problems emerged as a distinct factor, there are several reasons that items assessing medical problems across a broad range may not have not loaded onto this factor as discussed above.

Some symptoms that are assessed in routine clinical care, such as clinginess, problems with eating/appetite, problems with sleep (more broadly), sexually reactive behaviors, and nightmares did not meaningfully load onto any of the factors. It is possible that these items do not meaningfully assess a domain of functioning assessed by complex trauma and that the areas of functioning assessed in routine clinical care should be modified. It is also possible that these may be more representative of a more acute traumatic stress presentation, which is distinct from complex trauma. For example, it could be that immediately following incidence of maltreatment or disclosure of maltreatment, children may display disturbances in appetite and sleep, but that these changes are not longstanding and by the time the children in the present sample engaged in data collection, these acute changes in functioning had resolved. This observation from the present analysis may be helpful in disentangling the two concepts (complex traumatic stress and acute stress following an incident of maltreatment or disclosure of maltreatment) to prevent them from being conflated. This observation also raises the additional question of what the timeline for duration of symptoms should be for a child to meet criteria for complex trauma. In the DSM-5 criteria for a PTSD diagnosis, it is

specified that symptoms must have been present for at least 1-month. Those with symptoms lasting less than 1-month are diagnosed with Acute Stress Disorder rather than PTSD (American Psychiatric Association, 2013). The longstanding and chronic nature of maltreatment (and other chronic trauma events) make questions of timeline more complex, as the starting point from which the duration should be measured remains unclear. Nonetheless, complex trauma and the immediate sequelae of disclosing chronic trauma (e.g. maltreatment) may benefit from a similar distinction as that observed in PTSD and Acute Stress Disorder.

Another possible interpretation for the failure of some items to load onto a factor could also be that these symptoms simply have very low base rates, but are still related to exposure to chronic trauma. While investigators do not rule out the possibility that some things could be impacted by chronic trauma exposure in rare situations (e.g. suicidal gestures), an argument could be made that these more rare/low-base rate symptoms are not appropriate for inclusion in diagnostic criteria due to their infrequent occurrence.

### **Limitations**

There are several limitations of the present study. First, maltreatment represents only one type of chronic trauma. Although children with maltreatment histories may be exposed to other potentially adverse experiences, such as neighborhood violence and poverty, an additional examination of the impacts of ongoing chronic trauma on children with exposure to other chronic stressors, but without alleged maltreatment, may be beneficial to further distinguish between the impacts of chronic adversity that is external to the child-caregiver relationship (e.g. war or ethnic cleansing) and the impact of adversity that occurs within the primary attachment relationship (i.e. maltreatment).

Unlike single-incident traumatic events, which have a clear “before” and “after,” maltreatment is often an ongoing experience, making it difficult to determine when exposure began and to establish temporal precedence of the maltreatment and the symptom onset. Thus, an argument could be made that children with chronic experiences of maltreatment may exhibit the symptoms that are conceptualized as complex trauma at baseline. Another significant limitation of the current study is the absence of a non-maltreated matched control group. All children in the sample had alleged experiences of maltreatment. Thus, it is not possible to draw conclusions about the effects of experiencing chronic trauma as compared to not experiencing chronic trauma. Furthermore, the absence of a matched control group does not allow investigators to control for third variables that may be associated with both maltreatment and the various symptoms of complex trauma, such as poverty. This further limits the ability of investigators to draw causal inferences.

Investigators in the present study examined a wide age range so as to capture the full scope of possible symptoms that children may exhibit. It is possible that this broad approach may have prevented associations between certain symptoms that are specific to a well-defined developmental stage (e.g. early adolescence) and the factors in the present analysis from being detected. If the diagnostic presentation for complex trauma looks significantly different at different stages in development, it raises the additional question of whether complex trauma, in its many manifestations, is better understood as one diagnostic category that changes throughout development, or several distinct diagnostic categories broken down by age (e.g. reactive attachment disorder in young children).

Further empirical analysis of the phenotypic presentation of complex trauma at different ages would be an important contribution to the literature.

Methodologically, the current study presents with notable strengths (e.g. the inclusion of a large representative sample with data collected on a wide variety of areas of functioning) and various areas of weakness (e.g. the possibility that items may cluster together due to the respondent's response style on a given measure or due to other reporter-related artifacts rather than a true relationship between the constructs). Although items on some measures, such as the CBCL, loaded on to a variety of factors (or did not load at all), some items from measures loaded on to only one factor (e.g. the "School Problems" factor). It could be that the domain assessed in that measure mapped cleanly on to one domain of complex trauma, or that the items clustered together due to being pulled from the same measure (i.e. measurement artifact). As such, replication of these findings is needed to determine whether the factors remain the same when items are drawn from different measures or are asked in different ways or at different times throughout a clinical interview.

### **Future Directions and Clinical Implications**

Self-destructive or self-injurious behavior was considered to be part of the Behavioral Control domain by Cook et al. (2005). While suicidal gestures and self-injurious behavior did not load on to any factor in the present analysis, suicidal ideation was not assessed nor was it included as being conceptually related to complex trauma by Cook et al (2005). It could be that suicidal and self-injurious behaviors did not load on to any factor because these observable behaviors present later in development. However, even in the absence of identifiable suicidal gestures, suicidal ideation has been observed

in school-aged children, and even children as young as 4 or 5 years (Dervic & Oquendo, 2018; Luby et al., 2009). It has also been speculated that the incidence of suicidal ideation and suicidal gestures in younger children may be undercounted due to adults discounting children's reports of these thoughts or attributing these behaviors and thoughts to "accidents" in younger children (Martin et al., 2016). Future analysis should include more sensitive measures of suicidal ideation to assess whether this symptom did not load due to being truly unrelated to complex trauma, or if the association was not able to be detected when operationalized as self-destructive *behavior* rather than suicidal *ideation*, as ideation has higher base rate than self-destructive behavior. If an association between suicidal ideation and/or gestures and complex trauma is found, it would also be important to assess whether these symptoms are best conceptualized as being related to impulsivity and behavioral dysregulation, or to a more internalizing presentation, as support for either conceptualization of these behaviors could be made.

Other constructs that were not included in the current analysis due to not being included in Cook et al.'s (2005) conceptualization of complex trauma were symptoms of anxiety. Although many symptoms that were assessed are likely to be related to anxiety symptoms (e.g. somatic concerns, clinginess), anxiety itself is not explicitly included. Future analyses should determine whether anxiety does indeed load onto the internalizing factor that contains depressive symptoms, or some other factor.

In addition to the above listed future directions, now that meaningful symptom clusters have been identified and the number of items assessing different areas of possible impairment have been refined, the next step in increasing the clinical utility of the complex trauma diagnosis through additional construct validation is further assessing

whether these symptom clusters can be used to meaningfully identify individuals with a distinct complex trauma presentation (i.e. impairment across all symptom clusters). A person-centered approach will prove useful in determining whether some individuals have clusters of elevated symptoms across these domains of functioning, and whether certain clusters of symptoms are associated with poorer outcomes than others.

Additionally, the groupings of symptoms of complex trauma as observed may have implications for diagnostic conceptualization and treatment development to serve the population of children who are exposed to chronic trauma who may display deficits in the above listed areas of functioning.

Table 1: Sample Characteristics: Means and (Standard Deviations) or Percentages and (n's)

Variable	Mean (SD; range) or % (n)
Child Age	10.1 (2.71; 6.0 – 16.0)
Child Gender (male)	47.5% (871)
Child Ethnicity (white)	54.6% (1000)
Child Ethnicity (black)	30.2% (533)
Child Ethnicity (Asian/Hawaiian/Pacific Islander)	2.6% (47)
Child Ethnicity (American Indian)	7.6% (139)

Table 2: All Complex Trauma Symptoms and Items Included in Exploratory Factor Analysis to assess these symptoms

Symptom	Included/Not Included	Items Used to Assess	Reason Not Included
<b>I. Attachment</b>			
Problems with Boundaries	Included	“Clings to adults or too dependent” (Child Behavior Checklist)	---
Distrust and Suspiciousness	Included	“Suspicious” (Child Behavior Checklist) “Feels others are out to get him/her” (Child Behavior Checklist)	---
Social Isolation	Included	“Child complains of loneliness” “Child would rather be alone than with others” “Withdrawn, doesn’t get involved with others” “I feel alone at school” “I have nobody to talk to at school” “I find it hard to make new friends” “I don’t have anyone to play with at school” “I feel left out of things at school” “there are no kids at school I can go to when I need help” “I’m lonely at school” “I don’t have any friends at school”	---
Interpersonal Difficulties	Included	“I do not want to be with people at all” (Children’s Depression Inventory) “I do not have any friends” (Children’s Depression Inventory) “I feel alone all the time” (Children’s Depression Inventory) “I get into fights all the time” (Children’s Depression Inventory) “Doesn’t get along with other kids children” (CBCL) “Politely refuses unreasonable requests” “Responds appropriately when hit by other children”	---

		<p>“Cooperates with family members without being asked”</p> <p>“Responds appropriately to teasing”</p> <p>“Self-confident in social situations”</p> <p>“Makes friends easily”</p> <p>“Control temper in conflict with caregiver”</p> <p>“Well-liked by Others”</p> <p>“Accepts friends ideas for playing”</p> <p>“Joins group activities on own”</p> <p>“Questions unfair household rules”</p> <p>“Controls temper when arguing with other children”</p> <p>“Lonely at school”</p> <p>“Good at working with other kids at school” (child reported)</p> <p>“Hard to get kids at school to like me” (child report)</p> <p>“No one to go to at school when I need help”</p> <p>“I don’t get along with other kids at school”</p> <p>“Easy to get other kids at school to like me” (child report; reverse coded)</p>	
Difficulty attuning to other people’s emotional states	Not Included	---	Not measured in NSCAW/Poorly defined construct
Difficulty with perspective taking	Not Included	---	Not measured in NSCAW/Poorly defined construct
<b>II. Biology</b>			
Sensorimotor developmental problems	Not Included	---	Only assessed in younger children
Analgesia	Not Included	---	Not measured in NSCAW
Problems with coordination, balance, body tone	Included	CBCL “poorly coordinated or clumsy”	---
Somatization		<p>“I worry about aches and pains all the time” (child report)</p> <p>“Feels dizzy”</p> <p>“Overtired”</p> <p>“Physical Problems without known medical cause” including:</p>	

		<ul style="list-style-type: none"> <li>- "Nausea, feels sick"</li> <li>- "Stomach aches or cramps"</li> <li>- "Headaches"</li> <li>- "Aches and pains (not headaches)"</li> <li>- "Problems with eyes"</li> <li>- "Rashes or other skin problems"</li> <li>- "Stomach aches or cramps"</li> <li>- "Vomiting, throwing up"</li> <li>- "Other physical problems without known medical cause"</li> </ul>	
Increased medical problems across a wide span (e.g. pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures)	Included	Count variable including the following items on general health questionnaire: <ul style="list-style-type: none"> <li>- Asthma</li> <li>- Eczema/Other Skin Disease</li> <li>- Epilepsy/Fits/Convulsions</li> <li>- Other Health Problems</li> </ul>	---
<b>III. Affect Regulation</b>			
Difficulty with emotional self-regulation	Included	"Sudden changes in mood or feelings" "Temper tantrums or hot temper" "Cries a lot"	---
Difficulty labeling and expressing feelings	Not Included	---	Not measured in NSCAW
Problems knowing and describing internal states	Not Included	---	Not measured in NSCAW/Poorly defined construct
Difficulty communicating wishes and needs	Not Included	---	Poorly defined construct
<b>IV. Dissociation</b>			
Distinct alterations in states of consciousness	Not Included	---	Not measured in NSCAW
Amnesia	Not Included	---	Not measured in NSCAW
Depersonalization and derealization	Not Included	---	Not measured in NSCAW
Two or more distinct states of consciousness	Not Included	---	Not measured in NSCAW/Poorly defined construct

Impaired memory for state-based events	Not Included	---	Not measured in NSCAW/Poorly defined construct
<b>V. Behavioral Control</b>			
Poor modulation of impulses	Included	“impulsive or acts without thinking” “can’t sit still, restless, or hyperactive”	---
Self-destructive behavior	Included	“deliberately harms self or attempts suicide” “destroys his/her own things”	---
Aggression toward others	Included	“Argues a lot” “cruelty, bullying, or meanness to others” “gets in many fights” “physically attacks people” “teases a lot” “threatens people” “cruel to animals”	---
Pathological self-soothing behaviors	Not Included	---	Poorly defined as to what constitutes “pathological”
Sleep disturbances	Included	“Sleeps less than most kids” “Sleeps more than most kids during day and/or night” “Trouble sleeping” “wets the bed” “nightmares” “talks or walks in sleep” “I have trouble sleeping” (child)	---
Eating disorders	Included	“overeating” “overweight” “doesn’t eat well” (parent) “many days I do not feel like eating” (child)	---
Substance Abuse	Not Included	---	Not developmentally relevant: Assessed in older children, plan to use as an outcome measure in adolescence
Excessive compliance	Not Included	---	Poorly defined as to what constitutes “excessive” compliance
Oppositional behavior	Included	“Disobedient at home” “Disobedient at school” “Stubborn, sullen, or irritable”	---

		“Argues at lot” “I never do what I am told” (child report)	
Difficulty understanding and complying with rules	Not Included	---	Poorly defined construct: difficulty complying with rules captured under oppositional behavior, difficulty “understanding” rules challenging to operationalize
Reenactment of trauma in behavior or play (e.g. sexual, aggressive)	Included	“Plays with own sex parts in public” “Plays with own sex parts too much”	---
<b>VI. Cognition</b>			
Difficulties in attentional regulation and executive functioning	Included	“can’t concentrate, can’t pay attention for long”	---
Lack of sustained curiosity	Not Included	---	Challenges in operationalization and measurement
Problems with processing novel information	Included	Kaufman Brief Intelligence Test Matrices standard score	---
Problems focusing and completing tasks	Included	“fails to complete assignments” “fails to complete homework”	---
Problems with object constancy	Not Included	---	Not assessed
Difficulty planning and anticipating	Not Included	---	Not Measured in NSCAW
Problems understanding responsibility	Included	“doesn’t seem to feel guilty after misbehaving”	---
Learning difficulties	Included	“finds school work too hard” Woodcock-McGrew-Werder Mini Battery of Achievement (MBA) Reading Standard Score MBA Mathematics standard score “Diagnosed Learning Disability” (caregiver report)	---
Problems with language development	Included	“speech problem” (caregiver report) Kaufman Brief Intelligence Test Vocabulary standard score	---

Problems with orientation in time and space	Not Included	---	Not assessed/challenges in operationalization
<b>VII. Self-concept</b>			
Lack of a continuous, predictable sense of self	Not Included	---	Poorly defined construct
Poor sense of separateness	Not Included	---	Poorly defined construct
Disturbances in body image	Not Included	---	Not measured in NSCAW/Poorly defined construct
Low self-esteem	Included	"I hate myself" "I look ugly" "nothing will ever work out for me" "nobody really loves me" "I do everything wrong" "I can never be as good as other kids" "I am bad all the time"	---
Shame and guilt	Included	"I feel that bad things that happen are my fault"	---

Table 3: Pattern Matrix for Six Factor Solution

Pattern Matrix<sup>a</sup>

	Factor					
	1 Depression/Low Self Esteem	2 Externalizing Problems	3 Interpersonal Difficulties	4 School Problems	5 Cognition	6 Biology/Somatic Symptoms
I do not have any friends	.988					
I feel alone	.986					
I get along with people (reverse scored)	.984					
I do everything wrong	.982					
I do what I am told (reverse scored)	.982					
nobody really loves me	.980					
I worry about aches and pains	.977					
I do not want to be with people at all	.977					
I eat pretty well (reverse scored)	.977					
I hate myself	.974					
Nothing will every work out for me	.973					
I felt bad things were my fault	.969					
I can never be as good as other kids	.968					
I have trouble sleeping	.960					
I look ugly	.959					
I am bad all the time	.958					
destroys things belonging to family members		.723				
cruelty, bullying, meanness to others		.721				
threatens people		.710				
disobedient at home		.701				
impulsive or acts without thinking		.692				
gets in many fights		.667				
temper tantrums or hot temper		.664				
destroys his/her own things		.638				
argues a lot		.623				
physically attacks people		.612				
stubborn, sullen, or irritable		.592				
disobedient at school		.580				

doesn't get along with other kids	.572		
can't sit still, restless or hyperactive	.550		
sudden changes in mood or feelings	.549		
can't concentrate and can't pay attention long	.532		
teases a lot	.522		
doesn't seem guilty after misbehaving	.506		
cruel to animals	.447		
suspicious	.446		
feels others are out to get him or her	.416		
Politely refuses unreasonable requests (reverse scored)		.995	
Responds appropriately when hit by other children (reverse scored)		.994	
Cooperates with family members without being asked (reverse scored)		.993	
Responds appropriately to teasing (reverse scored)		.993	
Self confident in social situations (reverse scored)		.992	
Makes new friends easily (reverse scored)		.992	
Controls temper in conflict with caregiver (reverse scored)		.991	
Liked by others (reverse scored)		.991	
Accepts friends ideas for playing (reverse scored)		.990	
Joins group activities on own (reverse scored)		.990	
Questions unfair household rules (reverse scored)		.990	
Controls temper when arguing with other children (reverse scored)		.989	
Lonely at school			.968
No one to play with			.965
Nobody to talk to at school			.962
Hard to make friends at school			.962
Feels alone at school			.961

Hard to get kids at school to like me				.960		
Don't have any friends				.958		
Feels left out of things				.957		
No kids to go to when need help				.956		
Don't get along with other kids				.955		
Good working with other kids (reverse scored)				.942		
Gets along with other kids at school (reverse scored)				.940		
Easy to make new friends at school (reverse scored)				.932		
Well liked by other kids at school (reverse scored)				.928		
Can find a friend when needed (reverse scored)				.926		
Have lots of friends at school (reverse scored)				.924		
Fails to complete assignments				.547		
Gets homework done (reverse scored)				.531		
Finds schoolwork too hard				.515		
W-J MBA Reading Standard Score					.810	
W-J MBA Math Standard Score					.773	
KBIT: Vocabulary Standard score					.738	
KBIT: Matrices Standard score					.625	
Nausea						.723
Stomach aches or cramps						.680
Aches and pains (not headaches)						.572
Vomiting/throwing up						.570
Headaches						.534
Overtired (fatigue)						.404
rashes or other skin problems						
feels dizzy						
nightmares						
problems with eyes						
overweight						
trouble sleeping						
overeating						
withdrawn, doesn't get involved with others						
talks or walks in sleep						

sleeps more than other kids during day and/or night plays with own sex parts in public Count of reported health problems poorly coordinated or clumsy deliberately harms self or attempts suicide complains of loneliness  clings to adults or is too dependent sleeps less than most kids would rather be alone than with others doesn't eat well plays with own sex parts too much wets the bed  cries a lot  Learning Disability Speech Problem						
---	--	--	--	--	--	--

Extraction Method: Principal Axis Factoring. Factor Matrix Oblique no Kaiser Suppressing Communalities than .4 correlation for visual clarity  
 Rotation Method: Oblimin without Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 4: Factor Score Covariance Matrix

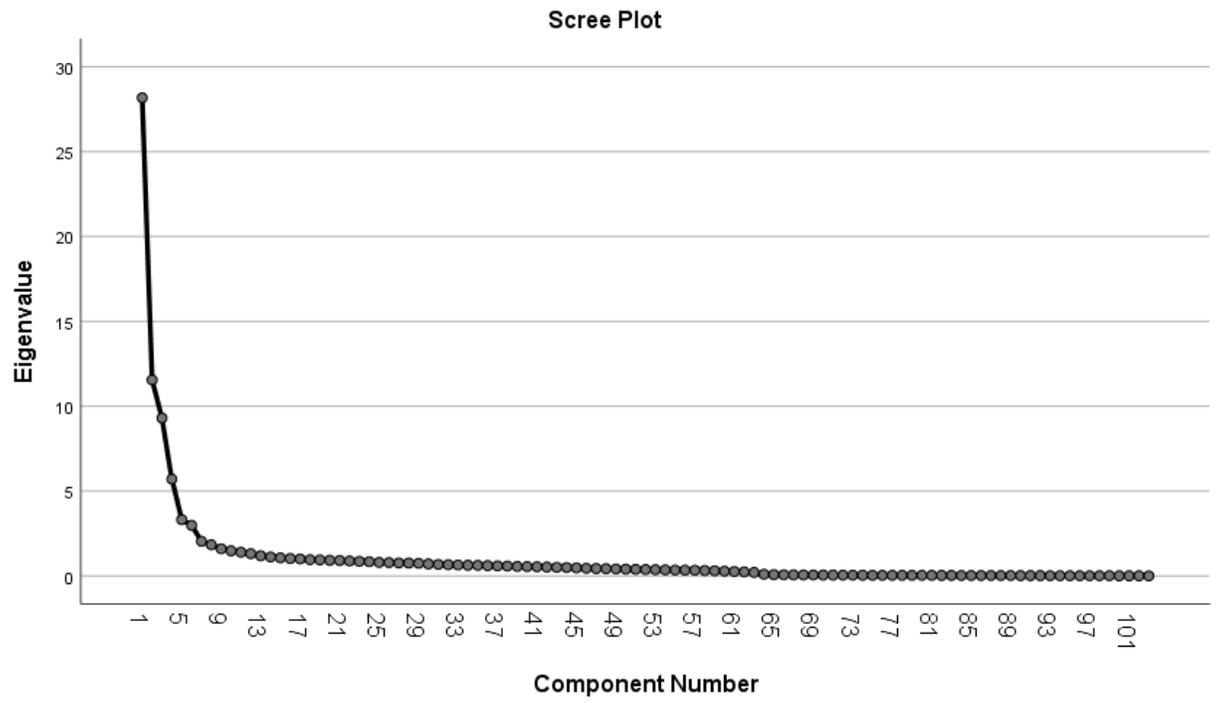
<b>Factor Score Covariance Matrix</b>						
Factor	1	2	3	4	5	6
1	1.553	.537	1.712	-.037	.008	2.499
2	---	1.401	-.662	-.296	1.941	2.010
3	---	---	3.181	.969	.008	.896
4	---	---	---	1.423	-.322	-.832
5	---	---	---	---	4.063	1.791
6	---	---	---	---	---	4.680

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin without Kaiser Normalization.

Factor Scores Method: Regression.

Figure 1: Scree Plot from Principal Components Analysis



## CHAPTER 2

### A Latent Profile Analysis of Complex Posttraumatic Stress in Children

Watson, B., Jaffee, SR.

## Abstract

**Background:** The American Psychiatric Association's Diagnostic and statistical manual of mental disorders (5th ed.; DSM-5) includes several updates from the 4th edition, including separating trauma and stressor related disorders into a new category. Notably absent from these updates to the DSM-5 is a diagnosis that was considered for, and ultimately denied inclusion in, the DSM-5: Complex Posttraumatic Stress (Complex PTSD; Cook et al., 2005). Examinations of construct validity for the proposed diagnosis of complex PTSD ultimately determined that the available evidence did not support a new diagnostic category at the time of evaluation (Reisck et al., 2012). An exploratory factor analysis of the proposed domains of impairment in complex trauma utilizing a national sample of children with alleged maltreatment exposure, the National Survey of Child and Adolescent Well-Being ((NSCAW-I, Restricted Release – Waves 1-5 [Dataset]; RTI International (2008)) yielded symptom domains that vary somewhat from the original complex trauma conceptualization proposed by Cook et al. (2005) (Chapter 1). In addition to evaluating whether the domains of complex trauma as specified can be detected in an exploratory factor analysis, another facet of the Complex PTSD diagnosis as proposed by Cook et al. (2005) that requires empirical validation is determining whether the symptom domains proposed by Cook and colleagues can be used to meaningfully identify individuals with a complex trauma presentation (i.e. impairment across all proposed domains of functioning).

**Methods:** Investigators utilized latent profile analysis to determine whether the factors identified in Chapter 1 can be used to identify youth presenting with a Complex PTSD presentation (N =1832). Patterns of mean elevation on factor scores across classes were interpreted and classes were labeled in accordance with these patterns of elevation. Demographic differences across classes were explored, and regression models were used to examine associations between class membership and longitudinal variables that have been associated with the negative impacts of child maltreatment, including risky sexual behavior, cigarette smoking, alcohol use, and chronic health problems.

**Results:** A 3-class solution emerged as the best solution in the latent profile analysis. Classes detected were labeled as “Low Impairment,” “Moderate Impairment,” and “High Impairment” based on the number of functional domains with elevated levels of impairment relative to other maltreatment-exposed peers. No distinct Complex PTSD class (i.e. elevation across all symptom domains) was observed in the data based on the latent profile analysis. The “High Impairment” class showed elevations on the interpersonal problems, internalizing problems and school problems domains. Age was predictive of class membership. Class membership in the “High Impairment” class was not associated with cigarette smoking and no other longitudinal outcomes.

**Conclusions:** A class with impairment across all domains of functioning was not observed in the data. Thus, the results of the current study do not validate the construct of childhood Complex PTSD as currently specified. Additionally, the class with the largest number of areas of impairment was associated with only one of five hypothesized longitudinal outcomes. This may indicate that the Complex PTSD construct as currently specified is invalid. It is also possible that methodological limitations prevented investigators from capturing this construct. Finally, it is possible that the construct of Complex PTSD is valid, but that either (1) the current diagnostic conceptualization requires modification to increase construct validity or (2) the construct should be

reconceptualized in a framework separate from a discrete diagnosis-based DSM-style classification system (e.g. through a more flexible developmental psychopathology framework such as the case conceptualization model used in adolescent dialectical behavior therapy).

## **Introduction**

The American Psychiatric Association's Diagnostic and statistical manual of mental disorders (5th ed.; DSM-5) includes several updates from the 4<sup>th</sup> edition, including separating trauma and stressor related disorders into a new category. In the prior edition, the DSM-IV, Posttraumatic Stress Disorder (PTSD) and Acute Stress Disorder (ASD) were categorized as anxiety disorders. This reconceptualization of various diagnoses as stress-response syndromes in reaction to specific triggering events groups PTSD and ASD with other diagnoses including Adjustment Disorder, Reactive Attachment Disorder (RAD; diagnosed only in children), Disinhibited Social Engagement Disorder (diagnosed only in children), Other specified trauma- and stressor-related disorder, and Unspecified trauma- and stressor-related disorder. Changes were also made to the PTSD diagnosis including the addition of a preschool subtype of PTSD and a dissociative subtype of PTSD (Kurtz, 2013).

Notably absent from these updates to the DSM-5 is a diagnosis that was considered, but ultimately denied inclusion in the DSM-5: Complex Posttraumatic Stress (Complex PTSD; Cook et al., 2005). In order for a new diagnosis to be added to the DSM, a high standard of evidence is required, including a clear definition of the disorder, reliable and valid assessment measures, support for convergent and discriminant validity, and incremental validity with respect to treatment planning and outcomes. Examinations of construct validity for the proposed diagnosis of complex PTSD ultimately determined that the available evidence did not support a new diagnostic category at the time of evaluation (Reisck et al., 2012).

Complex PTSD attempts to capture the complex self-regulatory and relational impairments that children with experiences of chronic trauma, such as maltreatment, may display and includes seven domains: (1) attachment (i.e. problems with boundaries), (2) biology (i.e. increased medical problems such as pseudoseizures), (3) affect regulation (i.e. difficulty with emotional self-regulation), (4) dissociation, (5) behavioral control (i.e. aggression, oppositional behavior), (6) cognition (i.e. learning difficulties), and (7) self-concept (i.e. low self-esteem and shame and guilt) (Cook et al., 2005; Greeson et al., 2011). These challenges are not captured by the traditional PTSD diagnosis. The terms “Complex PTSD” and “Complex Trauma” are used interchangeably in the current study to refer to the impacts of ongoing traumatic experiences, such as maltreatment, on children’s development. The term “chronic trauma” is used to refer to ongoing environmental exposure to potentially traumatic experiences. An exploratory factor analysis of the proposed domains of impairment in complex trauma utilizing a national sample of children with alleged maltreatment exposure, the National Survey of Child and Adolescent Well-Being ((NSCAW-I, Restricted Release – Waves 1-5 [Dataset]; RTI International (2008)) yielded symptom domains that vary somewhat from the original complex trauma conceptualization proposed by Cook et al. (2005) and include (1) Depression/Low-Self Esteem, (2) Externalizing Behavior Problems, (3) Interpersonal Difficulties, (4) School Problems, (5) Cognition, and (6) Biology/Somatic Symptoms (Chapter 1). Dissociation was not assessed due to dissociative symptoms being captured in the DSM as a subtype of the classic PTSD diagnosis, as the exploratory factor analysis sought to include only symptom domains that were not currently captured in the DSM under another specified trauma and stressor related disorders.

As noted above, the ultimate purpose of any diagnostic criteria is to be able to meaningfully identify individuals who present with the diagnosis as described so that interventions can be tailored to meet the individual's needs based on the diagnostic criteria. In addition to evaluating whether the domains of complex trauma as specified can be detected in an exploratory factor analysis, another facet of the Complex PTSD diagnosis as proposed by Cook et al. (2005) that requires empirical validation is determining whether the symptom domains can be used to meaningfully identify individuals with a complex trauma presentation (i.e. impairment across all proposed domains of functioning). In the current study, investigators utilized latent profile analysis to determine whether the factors identified in Chapter 1 can be used to identify youth with maltreatment exposure presenting with a Complex PTSD presentation who demonstrate impairment across all domains of functioning comprising the conceptual definition of childhood Complex PTSD.

In addition to the primary goal of the present analysis, which was to further assess the clinical utility of the childhood complex trauma diagnosis as proposed, a secondary goal was to determine whether there are children who are resilient to the effects of chronic trauma as it relates to Complex PTSD symptomatology relative to their maltreatment-exposed peers (i.e. low levels of impairment across symptom domains) could be identified. Finally, investigators explore whether class membership is predictive of longitudinal outcomes. Experiences of child maltreatment have been associated with a variety of negative outcomes in later life including physical health problems in adulthood (Felitti et al., 1998), early alcohol use in adolescence (Hamburger et al., 2008), smoking (Topitzes et al., 2010), and risky sexual behavior in adolescence (Boyer & Fine, 1992).

An additional component of validating the construct of childhood Complex PTSD is determining whether or not class membership is predictive of these outcomes.

## **Method**

### *NSCAW Protocol and Participant Demographics*

Analyses were conducted on a subsample of the National Survey of Child and Adolescent Well-Being (N = 1832; NSCAW-I, Restricted Release – Waves 1-5 [Dataset]; RTI International (2008)). Children ranged from 6 to 16 years of age (Mean age = 10.1 years) at the time of Wave 1 data collection, which occurred 2 to 6 months after the conclusion of the child protective services investigation. The sample was ethnically diverse (54.6% White) and roughly equally divided by gender (47.5% male). For longitudinal analyses, Wave 5 data was used. The Wave 5 follow-up took place in five staged cohorts 59-97 months after the investigation. Of note, there was significant attrition from Wave 1 (N=1832) to Wave 5 (N = 750). See Chapter 1 for a description of the full data collection protocol and detailed sample characteristics.

### *Measures*

Items assessing the domains of complex trauma as theorized by Cook et al. (2005) were identified in the NSCAW data through an exploratory factor analysis as part of Chapter 1. Factors extracted in Chapter 1 include: (1) Depression/Low-Self Esteem, (2) Externalizing Behavior Problems, (3) Interpersonal Difficulties, (4) School Problems, (5) Cognition, and (6) Biology/Somatic Symptoms. Factors were mean centered on zero.

The Depression/Low Self-Esteem Factor included negative perceptions about self and depressive symptoms as reported by the child (largely items from the Children's Depression Inventory (CDI)). The Externalizing Behavior Problems factor included items

assessing aggression, impulsivity, inattention, distrust and suspiciousness; and mood lability. Items included in the Interpersonal Difficulties factor represent difficulties with assertiveness (expressing wants and needs appropriately) and difficulties in relationships with family and friends. The School Problems factor includes various measures of child and caregiver-perceived difficulties in the school environment, including both feelings of social isolation at school and perceptions of academic challenges. The Cognition Factor included tests of both academic achievement and IQ across both verbal and non-verbal domains. Items included in the Biology/Somatic Symptoms factor include various non-specific somatic complaints without any identified medical etiology. Factor scores extracted from SPSS for each of the six factors were included as indicators in the latent profile analysis. See Chapter 1 for a detailed description of all items used to calculate each factor score.

Traditional PTSD symptoms were not included in the current latent profile analysis. The measure used to assess traditional PTSD symptoms in the NSCAW data was the Trauma Symptom Checklist for Children (TSCC; Briere, 1996), which requires that a child be at least 8 years of age for administration. Thus, inclusion of this measure would limit the age-range of children eligible for inclusion in the current study and would further constrain the sample size included in the current analysis, significantly reducing power. Furthermore, examination of the distribution of scores on this measure revealed that 11.5% of the children surveyed presented with clinically significant PTSD symptoms. Prior literature suggests that the lifetime prevalence of PTSD among victims of child maltreatment ranges between 30% and 86% (Polusny & Follette, 1995; Saigh et al., 1996; Thompson et al., 2000; Widom, 1999). Thus, the prevalence observed in the

current sample is notably lower than the prevalence that might be expected due to the high-risk nature of the sample. Other response patterns suggested possible underreporting on the Trauma Symptom Checklist. For example, of all children surveyed, 37.4% endorsed never experiencing bad dreams or nightmares, which are generally regarded as common childhood experiences affecting a majority of children at least occasionally (Muris et al., 2000). Additionally, only a subset of the full TSCC battery was administered. The full TSCC includes items that assess anxiety, depression, anger, dissociation, and sexual concerns in addition to posttraumatic stress symptoms, and which allow the derivation of two validity subscales: underresponse and hyperresponse. Because the full measure was not administered, standardized evaluation of patterns of responding were not able to be further assessed for possible underreporting to further explain these unexpected results. Thus, given concerns about data validity due to possible underreporting on the TSCC, the lack of available validity subscales to demonstrate that underresponse was not a significant issue, and concerns about limitation of age range and power if this measure were included, PTSD symptoms were not included in the current analyses.

Longitudinal outcome variables included measures of smoking, alcohol use, chronic health problems, and sexual activity measured at Wave 5 as described above. The measure of smoking item asked how many days in the child's lifetime the child reported having smoked cigarettes. Similarly, for alcohol use, the measure used in the current study included child reported lifetime number of days having consumed an alcoholic beverage. Sexual activity was measured based on whether or not the child reported ever having had sexual intercourse. The measure of chronic health problems included child

report of whether or not the child was diagnosed with any chronic health problem. See Table 1 for descriptive statistics for all study variables.

### *Latent Profile Analysis (LPA)*

Latent profile analysis, the primary analytic technique used in the current analyses, is a variant of latent class analysis. Latent class analysis (LCA) is a statistical modeling technique based on the idea that individuals can be divided into subgroups based on an unobservable construct. Latent class analysis is similar to factor analysis in that it seeks to group independent observations based on a construct that cannot be directly measured. However, while factor analysis seeks to classify *items or variables* that measure a latent construct into subgroups, latent class analysis seeks to classify *people* within a population into unseen subgroups based on specified indicators. Thus, factor analysis is a *variable-centered* approach, while latent class analysis is a *person-centered* approach (Masyn, 2013). Latent class analysis uses categorical indicators. Latent profile analysis is a version of latent class analysis that uses continuous, rather than categorical, indicators of the latent class variable (Masyn, 2013; Oberski, 2016). The indicators that investigators selected to be used to identify hidden subgroups in the current analysis were the factor scores derived from the exploratory factor analysis in Chapter 1 of the current thesis. Because factor scores are continuous in nature, latent profile analysis was used for the current analyses.

Initial analyses for the latent profile analysis (LPA) were conducted in MPlus, a statistical package used for the analysis of latent variables (Muthén & Muthén, 2007). In latent profile analysis, general guidance suggests that models cease to be interpretable or useful when the number of classes exceeds the number of indicators. Thus, solutions

including up to six classes were evaluated. The optimal number of classes was evaluated using convergent evidence from the Vuong-Lo-Mendell-Rubin likelihood ratio test (LMR), the bootstrap likelihood ratio test (BLRT), and the Bayesian Information Criterion (BIC), criteria which have demonstrated consistency in estimating the number of classes (Nylund et al., 2007). Consideration was also given to theoretical interpretability. General practice in LPA is to evaluate the fit of the two-class model and systematically increase the number of classes until adding more classes is no longer warranted based on evidence from these indicators. The LMR compares the current solution to the solution with  $c - 1$  classes, with a  $p$ -value of  $<0.05$  indicating that the currently specified model provides a better fit to the data relative to a model with one-fewer class. Similarly, a  $p$ -value of  $< 0.05$  for the BLRT suggests that the current solution fits the data better than a model with 1-fewer class. The BIC provides information about model fit with lower relative values indicating improved model fit. Entropy, a measure of classification uncertainty, was also considered. An acceptable entropy value for adequate class separation is 0.85, with entropy closer to 0 suggesting more classification uncertainty and entropy closer to 1.0 indicating lower classification uncertainty.

The default in MPlus is to assume equal variance across latent class indicators. Follow up analyses were conducted using the R package *mclust*, which allows for more flexible model specification, including allowing the clusters/classes to vary across three parameters: volume (size and amount of variance), shape, and orientation (Haughton et al., 2009; Scrucca et al., 2016). The mean value of each factor score across each class was examined to determine patterns of elevation. Interpretation of patterns of elevation

observed for each class was completed and classes were labeled based on these patterns of elevation.

#### *Sociodemographic Descriptive Analyses*

Ordinary least squares regression models were estimated in SPSS to determine whether there was any association between class membership and demographic characteristics including age, race, and gender. The class membership variable was dummy coded with Class 1 (the class identified below as having the lowest level of impairment) as the reference category. The race variable was dummy coded with “white” as the reference category. One-way ANOVAs were performed to further explore significant differences in demographic characteristics across the classes identified in the LPA.

#### *Longitudinal Analyses*

Hierarchical ordinary least squares regression models were estimated in SPSS to determine whether or not class membership was predictive of longitudinal outcomes controlling for demographic characteristics (age, race, gender). The race variable was dummy coded with “white” as the reference category. The class membership variable was dummy coded with Class 1 (the class identified below as having the lowest level of impairment) as the reference category. Covariates were entered at the first step and the dummy coded class membership variables were entered at the second step. Longitudinal outcome variables were assessed at Wave 5 in the NSCAW Restricted Release Data and included child report of having any chronic health problems, number of days in the child’s lifetime that the child reported drinking alcohol, number of days in the child’s

lifetime that the child reported smoking cigarettes, and whether the child reported ever having had sexual intercourse.

## Results

Initial analyses in M-Plus suggested empirical support for no more than 4 classes due to lack of replication of the best loglikelihood value suggesting that the  $p$ -value for any solution attempting to extract 4 or more classes may not be trustworthy due to local maxima. Due to this constraint, the four- five- and six- class solutions were not considered in final model selection. Indicators supporting the 3-class solution include the BLRT ( $p < 0.05$ ) and the BIC (lower) Indicators supporting the 2-class solution include the LMR ( $p < 0.05$ ). Entropy was high among both solutions. The three-class solution was selected due to the presence of two indicators supporting the three-class solution compared to one indicator supporting the two-class solution. Theoretical interpretability was considered, with the three-class solution presenting as more interpretable. See Table 2 for fit indices for the two- and three-class models as indicated by initial analyses in M-Plus.

Follow-up analyses completed in R supported the extraction of 3 classes over 2 classes with evidence based on BIC supporting the interpretation of the most flexible model, which included clusters with variable volume, orientation, and shape (ellipsoidal rather than spherical). Patterns of mean elevation on factor scores across classes were interpreted and classes were labeled in accordance with these patterns of elevation. As noted above, factor scores included as indicators in the present analysis assessed 6 domains of functioning including (1) Depression/Low-Self Esteem, (2) Externalizing Behavior Problems, (3) Interpersonal Difficulties, (4) School Problems, (5) Cognition,

and (6) Biology/Somatic Symptoms (Chapter 1) with higher scores indicating higher levels of impairment. See Tables 3 and 4 for patterns of mean elevation across factors for the 2-class solution and the 3-class solution.

Class 1, which included 470 children (25.7% of the full sample), was characterized by lower than average internalizing problems on the Depression/Low-Self Esteem Factor, average externalizing behavior problems, **higher than average interpersonal difficulties**, lower than average school problems, average cognition, and slightly lower than average biology/somatic symptoms. Due to only one symptom domain showing an elevated mean, Class 1 was labeled as the “Low Impairment” class relative to the full sample of maltreatment-exposed children.

Class 2, which included 784 children (42.8% of the full sample), was characterized by slightly **higher than average internalizing problems** (Depression/Low-Self Esteem Factor), average externalizing problems, lower than average interpersonal problems, **higher than average school problems**, average cognition, and average biology/somatic symptoms. This class was labeled as the “Moderate Impairment” relative to the full sample of maltreatment-exposed children.

Class 3, which included 578 children (31.5% of the full sample), was characterized by slightly **higher than average internalizing problems**, average externalizing problems, **higher than average interpersonal problems, higher than average school problems**, average cognition, and average biology/somatic symptoms. No class showing patterns of elevation across all six symptom domains was observed in the data. As such, Class 3, which showed the largest number of elevations across factors as compared to the full sample of maltreatment-exposed children, was labeled as “High

Impairment.” Similarities between the patterns of elevation observed in Class 3 and the patterns observed in a similar analysis in adults (Cloitre et al., 2013) are discussed below under Discussion. See Figure 1 for a visual depiction of mean elevations across classes.

### *Demographic and Longitudinal Analyses*

Race was not predictive of class membership. Class 2 (Moderate Impairment) was associated with female gender. Age was significantly predictive of class membership. Children in the Low Impairment class tended to be younger (Mean age = 7.12; SD = 2.00), children in the High Impairment class tended to be in middle childhood (Mean age = 8.98; SD = 0.82), and children in the Moderate Impairment class tended to be in the pre-adolescent to adolescent age group (Mean age = 12.66; SD = 1.30). These differences in age were found to be statistically significant ( $F_{2, 1829} = 2527.93; p < 0.001$ ). See Table 5 for a summary of demographic variables broken down by class identified in the LPA. Class membership was not predictive of alcohol use, sexual activity, or chronic health problems. Membership in class 3 (High Impairment) was associated with cigarette smoking ( $p < .05$ ). See Table 6 for full results of longitudinal regression analyses.

### **Discussion**

Based on the latent profile analysis, no distinct Complex PTSD class (i.e. elevation across all symptom domains) was observed in the data. These results could be interpreted as evidence that there is limited validity to the construct of Complex PTSD as currently described. This could indicate that Complex PTSD simply is not a valid diagnostic category. It is also possible that the Complex PTSD construct as specified simply was not able to be detected in the current analysis due to methodological limitations. Finally, it is possible that there are limitations to the construct validity of

Complex PTSD as specified, and that modifications to the way Complex PTSD is specified might have greater clinical utility. For example, perhaps the construct of Complex PTSD as currently described includes indicators with low discriminant validity, suggesting that the proposed diagnostic criteria should be revised. The lack of construct validity for Complex PTSD may also be due to a fundamental misspecification in the way the model of Complex PTSD is conceptualized. Specifically, perhaps the impacts of maltreatment and other types of chronic trauma exposure on children's development are better conceptualized through a dimensional developmental psychopathology frame, rather than a threshold- and label-driven discrete diagnostic framework. This might indicate that attempts to fit Complex PTSD into a discrete diagnostic framework, such as the DSM, might not be indicated, and that a more flexible way of conceptualizing the domains of impairment observed in children with maltreatment exposure might be more appropriate. These various interpretations of the results are described in more detail below.

First, it is possible that a Complex PTSD class was not identified in the current analysis because Complex PTSD is not a valid diagnostic category. This interpretation of the current results would suggest that the reason Complex PTSD has not been included in prior editions of the DSM is not due to lack of research, but rather due to a true lack of construct validity. This interpretation of the current results is supported by the lack of predictive validity of class membership for all longitudinal outcomes with the exception of cigarette smoking, which was predicted by membership in the "High Impairment" class. The conclusion that Complex Trauma simply does not exist based on the current results would be inconsistent with more than a decade of theory, research, and clinical

observations (Cook et al., 2005; Van der Kolk, 2017). Thus, to avoid throwing the proverbial baby out with the bathwater, more nuanced interpretations of the current results include that the domains of impairment used to describe individuals with Complex PTSD should be further refined, that Complex PTSD among children was unable to be detected due to methodological limitations, or that a more flexible way of conceptualizing the impacts of maltreatment on children's development might be indicated.

Because no class with elevations across all domains of impairment was observed in the data, it may be helpful to consider including only the symptom domains that reliably distinguished groups of individuals as a way to refine diagnostic criteria for a possible Complex PTSD diagnosis. Indeed in a study of adults seeking treatment for chronic and single-incident traumatic experiences, Cloitre et al., 2013 conducted latent-profile analysis and concluded that they detected a class of individuals with a Complex PTSD presentation due to patterns of observed impairment in three domains of "self-organization": affect regulation, negative self-concept, and interpersonal problems, in contrast to the proposed 6 to 7 domains of impairment specified by childhood Complex PTSD theory (Cook et al., 2005). The three symptom domains that differentiated individuals in the current analysis were the Depression/Low Self-Esteem factor, the Interpersonal Problems factor, and the School Problems factor. Factors that did not differentiate between classes include the Biology/Somatic Symptoms factor, the Cognition factor, and the Externalizing problems factor. Similarities and differences between Complex PTSD as described by Cloitre et al., (2013) and the "High Impairment" class detected in the current analysis are described below.

Cloitre et al., (2013) operationalized interpersonal problems as “never feeling close to another person” and “feeling distant or cut off from other people”. Negative self-concept was assessed using items assessing feelings of worthlessness or feelings of guilt. Affect regulation was operationalized as “temper outburst that (the respondent) could not control” and “(the respondent’s) feeling easily hurt.” Although not labeled in the same fashion, the Depression/Low Self-Esteem factor from Chapter 1 included items assessing several of these symptoms including self-reported feelings of social isolation (similar to Cloitre et al.’s “interpersonal problems), as well as self-blame for negative occurrences and the child reporting feeling as if they are “bad all the time” (similar to Cloitre et al.’s “negative self-concept). Temper outbursts and mood lability loaded onto the Externalizing Problems factor, which was not elevated across any of the classes in current analysis. Thus, some similarities and some differences emerge between the evidence that Cloitre et al., 2013 used to support the conclusion that an observable class of individuals with Complex Trauma could be detected and the current analysis. Specifically, the items used by Cloitre et al., to measure “self-organization,” which is believed to be impacted in Complex PTSD, were captured by the Depression/Low-Self Esteem factor, which was one of the domains of impairment observed in the “High Impairment” class. Areas of divergence include additional observed domains of functional impairment in the “High Impairment” class in current analysis on measures of assertiveness and challenges in relationships with others, as well as in socioemotional functioning in the school domain. Additionally, the disturbances in affect regulation observed by Cloitre et al., (2013) were not replicated in the current analysis. Cloitre et al. (2013)’s sample included treatment seeking adults with histories of both chronic trauma and single-incident trauma and

assessed symptoms of traditional PTSD and Complex PTSD concurrently. Thus, differences in the sample and methodological differences between the two studies may explain differences in findings. The consistency in observed challenges in the area of self-concept and feelings of closeness with others in individuals with maltreatment exposure when measured in both child and adult populations suggests convergent evidence that these areas of impairment may be particularly important in the conceptualization of Complex PTSD.

As noted above, unlike in Cloitre et al.'s (2013) analysis, the externalizing problems factor, which measures mood lability and affect regulation in addition to measures of impulsivity and inattention, did not differentiate classes. It is possible that externalizing problems were underreported in the sample due to the context in which the data were collected. Participants in NSCAW were identified following a report of alleged maltreatment to a child protective services agency, introducing the possibility that caregivers may have a lower likelihood of endorsing externalizing symptoms to researchers who are perceived as being associated with a child welfare investigation due to concerns about loss of custody or impression management following child protective services involvement. It is also possible that the school problems factor may indicate challenges with affect regulation or externalizing behavior problems. The cognition factor, which included standardized measures of intelligence and achievement, did not differentiate between classes, but the school problems factor (which assesses more socioemotional aspects of engaging in school-based activities) did differentiate between classes. Thus, it is possible that the increase in socioemotional problems at school might be a proxy for externalizing problems, as caregivers may be less likely to endorse

challenging behaviors at home due to the above listed concerns, but may be more comfortable indicating that these challenges exist in the school setting.

As noted above, the cognition factor did not differentiate between classes, while the school problems factor did differentiate between classes. This provides evidence that children who present with behavioral challenges following maltreatment exposure relative to their maltreatment exposed peers who experience comparably lower levels of psychosocial dysfunction are unlikely to have significantly impacted core cognitive abilities associated with these behavioral challenges when cognitive functioning is assessed in a one-on-one setting (e.g. on an IQ test). This divergence suggests that future research should explore whether associations in the literature between cognitive limitations/academic challenges and other symptoms of Complex PTSD could be due to the academic disruptions caused by maltreatment, as well as the impact of attention and other aspects of the socio-emotional experience of attending school and learning (Kurtz et al., 1993; Leiter & Johnsen, 1994; Slade & Wissow, 2007) rather than disruptions in core cognition as currently implied. For example, children who experience maltreatment are more likely than non-maltreated peers to be absent from school (Hagborg et al., 2018). It remains possible that there is a role for limited child-directed speech early in life for children with experiences of neglect impacting cognitive function later in life, although the lack of differentiation between classes based on cognitive ability suggests that this would be a lower base-rate symptom of Complex PTSD if included in a diagnostic specification at all.

The biology and somatic symptoms factor also did not differentiate classes. Based on the results from the exploratory factor analysis, this symptom domain has been refined

to include non-specific somatic symptoms rather than the wide range of medical problems theoretically included in the “Biology” symptom domain (Cook et al., 2005). Investigators hypothesized that the observed associations between these medical problems and maltreatment may be attributable to a third variable, such as poverty-related health disparities, and that somatic symptoms without a clear medical etiology more accurately capture a possible psychophysiological impacts of chronic trauma (Chapter 1). Current results indicate that even the refined version of the biology symptom domain did not meaningfully differentiate classes of individuals. It is possible that the incidence of somatic symptoms in children with complex trauma exposure is lower than theorized. It is also possible that these medical challenges emerge later in development, or in adulthood, due to the wear and tear of chronic stress on the body over time.

Class membership was significantly associated with differences in age. The class labeled “High Impairment” was more likely to be in middle childhood, while children in the resilient class were likely to be younger, and children showing challenges in internalizing problems and school problems only were likely to be adolescents. It is important to consider that data were collected 2 to 6 months after the close of a child protective services investigation, providing temporal association between the disclosure of maltreatment, and thus subsequent action to protect the child from further maltreatment, and the time at which the data were collected. It is possible that younger children are more resilient and less likely to experience ongoing functional impairment following experiences of maltreatment. This could be due to younger children being inherently more resilient, or due to the shorter duration of time exposed to maltreatment when the maltreatment is identified at a younger age. Is it also possible that complex

trauma waxes and wanes throughout development, with fewer symptoms evidenced in younger children, a peak in symptoms in middle childhood, and a reduction of symptoms as the child matures into adolescence. It is also possible that different measures would be better suited to assess complex trauma in younger children and teenagers as compared to children in middle childhood. Additional research is needed to determine which of these hypotheses is most likely to be driving the observed predictive nature of age in determining class membership. Additionally, membership in the “High Impairment” category was associated with female gender, suggesting that the patterns of functional impairment observed in this class may be more prominent in girls than in boys. Race was not associated with class membership.

When controlling for age, race, and gender, class membership was not predictive of longitudinal outcomes including alcohol use, sexual activity, and chronic health problems. Membership in the “Moderate Impairment” class was associated with increase cigarette smoking behavior. The “Moderate Impairment” class was associated with adolescent age, introducing the possibility that this observed association may be confounded by age. Regarding the lack of predictive validity of class membership, it is also possible that the time scale is too large, and that class membership may be predictive of outcomes closer in time to the measurement of the indicators used to determine class membership.

### *Clinical Implications*

The current study seeks to determine whether the theoretical construct of childhood Complex PTSD can be empirically validated in order to provide evidence supporting inclusion in a formalized diagnostic classification scheme such as the DSM-5. The ultimate goal of this work was to provide information about the most effective way

to move the field of child complex trauma forward in terms of increasing the clinical utility of this diagnostic category and developing evidence-based treatments tailored to meet the specific needs of children with such a presentation. No such unseen subgroup was identified in the current analyses. Thus, the current study does not provide evidence for the construct of childhood Complex PTSD as theorized as a set of distinct diagnostic criteria. It is possible that Complex PTSD simply does not exist as specified, which would suggest a limited role for exploration of possible clinical implications. As noted above, this conclusion would be inconsistent with more than a decade of complex trauma theory and research (Cook et al., 2005, Van der Kolk et al, 2017). One possible explanation for the observed discrepancy may be that attempting to fit the construct of Complex PTSD into a discrete DSM-adjacent framework may be, in essence, attempting to fit a proverbial square peg into a round hole. It is possible that the Complex PTSD construct may be more effectively explicated through a more flexible dimensional framework rooted in developmental psychopathology.

The finding that maltreated children show different symptom profiles based on age provides evidence in support of the idea that a discrete DSM-based diagnosis is not the best model for understanding the impacts of chronic trauma on children's development. Trauma exposure during different sensitive periods may interrupt normative development in different ways and across different domains of functioning based on the developmental period in which the trauma exposure occurs (Andersen et al., 2008; Dunn et al., 2008). A mental health condition that varies across these types of parameters is not well-suited for discrete diagnostic specification, as one would need to include numerous qualifiers based on the age of exposure to the environmental stressor

and the age at which symptoms are being assessed, which would be difficult to capture in a discrete DSM diagnosis. Thus, the finding that maltreated children show different symptom profiles based on age provides empirical evidence that a discrete DSM-diagnosis might not be the most effective way to capture the impacts of chronic trauma exposure on children's development.

Due to the limitations observed when attempting to fit childhood Complex PTSD into a discrete DSM-based schema including inability empirically detect a class of individuals with a Complex PTSD presentation and observed variability in diagnostic presentation by age, another avenue that could be pursued includes taking a more flexible approach to conceptualizing mental health challenges observed in children with experiences of chronic trauma. This could include generating domains of impairment, without cutoffs indicating clinically significant symptomatology, which could be codified and assessed in clinical settings. Further supporting a more flexible approach to case conceptualization includes a current trend, in which the field of clinical psychology at large is moving away from discrete diagnosis-based treatment to a more "areas of impairment"-based treatment design. This trend can be observed in the development of competing nosologies to capture various aspects of psychopathology in ways that significantly diverge from the DSM-5, including the Research Domain Criteria framework (Rdoc; Cuthbert, 2014) and the Hierarchical Taxonomy of Psychopathology (HiTOP; Kotov et al., 2017), as well as in the development of treatment protocols that use a more dimensional approach rather than a discrete diagnosis-based approach, such as MATCH-ADTC (Chorpita & Weisz, 2009) and the Unified Protocol (Barlow et al., 2017). Complex trauma theory could learn from these modes of thinking rather than

trying to fit into a DSM-based classification. This idea of flexibility in treatment design and case conceptualization does not render the current study, which seeks to gain clarity about possible diagnostic criteria for a complex traumatic stress diagnosis, irrelevant. Rather, the poor fit between Complex PTSD and attempts to validate the construct as a discrete DSM-based diagnosis suggests that perhaps further refining the domains of impairment, without the need to establish thresholds and cutoffs, and developing treatments to address these domains of impairment might be a more appropriate way to advance the study of childhood Complex PTSD.

One such model that might be relevant to look to is the way in which cases are conceptualized in Adolescent Dialectical Behavior Therapy (DBT-A; Crowell et al., 2009; Miller et al, 2007), as it is notable that there is significant overlap between the emerging evidence for domains of impairment in complex trauma and the domains of impairment assessed in DBT-A (referred to as “problem areas”). DBT-A is an evidence-based treatment that includes skills modules specifically tailored to improve adolescents’ effectiveness at navigating difficulties in these problem areas (Miller et al, 2007). The five problem areas that are assessed for appropriateness of fit for adolescent dialectical behavior therapy include (1) confusion about self, (2) difficulties with emotion regulation, (3) impulsivity, (4) interpersonal difficulties, and (5) community/family challenges. Several of these five problem areas are notably similar to the 6 factors that emerged in the exploratory factor analysis, although they are grouped slightly differently, and the cognitive function and somatic/biological domains of impairment remain distinct. Of note, cognition and biological/somatic domains of functioning were the two factors that were not useful in differentiating between classes, while factors that are captured in

DBT case conceptualization were useful in distinguishing between classes. The interpersonal difficulties factor is comparable to the interpersonal difficulties “problem area” in DBT-A while the School Problems factor could be considered to be one part of the community/family struggles problem area, and the Depression/Low Self-Esteem construct could be related to aspects of the confusion about self or emotion regulation problem areas (although they are not as directly linked).

Other theoretical links between case conceptualization in DBT-A and complex trauma are notable. The underpinning of DBT is the biosocial theory of emotion dysregulation, which conceptualizes chronic difficulties with emotion regulation as a natural consequence of the interplay between biological sensitivity to intense emotional experiences and environmental invalidation (Crowell et al., 2009). Complex traumatic stress also has a similar way of being conceptualized, as an environmental exposure (e.g. maltreatment) and the interplay between the environmental exposure and individual-level characteristics are central to the etiology of complex trauma-related pathology (Cook et al., 2005). All domains of complex trauma could be interpreted through a lens of core deficits in the child’s capacity to self-regulate. This similarity in theoretical underpinnings, which include a developmental psychopathology conceptualization of the ways in which observed areas of impairment are the result of biological predispositions and environmental exposures that potentiate over time, as well DBT’s status as a highly regarded evidence-based treatment, provides additional evidence that flexible frameworks such as guidance for case conceptualization in DBT-A may be helpful in codifying the impacts of complex trauma rather than attempting to conceptualize Complex PTSD as a distinct DSM-based disorder.

In addition to informing diagnostic conceptualization, the commonalities between the complex trauma domains of functioning and DBT-A problem areas may point to possible avenues for clinical intervention, such as a possible complex PTSD adaptation to DBT-A. Indeed, anecdotally, many psychiatric inpatient units that serve a chronic-trauma exposed population with significant mental health needs provide DBT-based group interventions, suggesting that frontline clinicians have recognized this overlap. DBT has also been identified as a model that may be useful in the treatment of adults with chronic trauma exposure (Wagner et al., 2007). One possible barrier to such a fusion of conceptual models is that adherent full-model DBT is often an inaccessible or cost prohibitive treatment due to its comprehensive nature and the extensive training that clinicians must undergo to obtain certification. These implementation challenges should be considered if adapting DBT interventions to serve a complex trauma population is identified as an avenue for future program development.

Another less-intensive model that could provide a starting place for developing evidence-based interventions for children with chronic trauma exposure of the Attachment, Self-Regulation, and Competency framework (ARC; Kinniburgh et al., 2017) which has been used to treat youth with maltreatment histories. The ARC framework is theoretically-grounded and “evidence-informed,” but has not been rigorously tested to establish whether or not this framework shows empirical evidence for efficacy with chronic-trauma exposed children compared to treatment as usual. Modifications to the ARC model and other existing theoretically grounded treatments in light of the evidence presented in the current study presents a promising avenue for future

exploration that may be beneficial in developing rigorously tested evidence-based treatments for youth exposed to chronic trauma.

### **Limitations and Future Directions**

Data were collected from a sample of children and caregivers who have come to the attention of child protective services, leading to inherent limitations in the validity of the data that must be considered when interpreting results. Involvement with child protection agencies may lead to feelings of being surveilled, judged, and intruded upon. It is reasonable to expect that these feelings might impact caregiver willingness to report child behavior problems or other family challenges due to impression management. While these concerns are present in all self-report data collection, it is likely that the confounding role of impression management is heightened in families with ongoing contact with caseworkers and the child protection system. When conducting studies of maltreatment in children, even if children aren't sampled based on involvement with child protective services, if a researcher is working with a sample of children who have unreported experiences of maltreatment, it is the researcher's ethical responsibility to ensure that the incidences of maltreatment are subsequently reported. Alternative models, such as studies looking at traumatic sequelae in adults who retrospectively report experiences of childhood maltreatment, present with limitations due to retrospective bias. These limitations are not specific to the current study, and rather represent a limitation of maltreatment research in general. Thus, maltreatment researchers must generally contend with these limitations to data validity when attempting to gather data on large samples of children with maltreatment exposure.

As noted in Chapter 1, the full sample of children included in the current study have alleged maltreatment exposure. As such, in the absence of standardized measures assessing the domains of functioning believed to be impacted in complex trauma with established norms that have been tested in the general population, determinations about “higher than average” levels of impairment across domains of functioning were made relative to the full sample of maltreatment-exposed children. Complex trauma aims to describe the patterns of impairment observed in the subset of chronic-trauma exposed children with impairment in functioning, as compared to their more resilient maltreatment-exposed peers and children without maltreatment exposure. While the current study design allowed investigators to draw conclusions about the level of impairment in each class relative to the full sample of children with maltreatment exposure, conclusions about the impact of maltreatment on children’s functioning as compared to their non-maltreated peers were not able to be drawn. Further research comparing children with and without maltreatment exposure is needed to gather additional information about whether children’s functioning is objectively impaired.

PTSD symptoms were not included in the current study due to methodological limitations and concerns about the validity of reporting on the PTSD measure included in the NSCAW data. Now that internally consistent domains of impairment and possible patterns of elevation in complex trauma have been identified, future studies should examine the co-occurrence, or lack thereof, of Complex PTSD and classic PTSD. Additional considerations for future analyses seeking to examine Complex PTSD and classic PTSD include limitations in the assessment of complex PTSD due to the above noted limitations, as well as additional limitations in assessment of classic PTSD. The

hallmark of PTSD is avoidance of thoughts, feelings, and reminders of past traumatic events. This can involve avoiding talking about past traumas and avoiding acknowledging lasting impacts of these experiences. As such, a brief measure assessing PTSD, particularly in the context of the lack of trust of researchers that may be evidenced in a family with reported maltreatment and child protective services involvement, may not accurately capture the full scope of possible PTSD symptoms.

Finally, with regard to methodological limitations, as noted in Chapter 1, is it challenging to establish temporal precedence of experiences of maltreatment and symptom onset due to the chronic nature of maltreatment, the secrecy surrounding maltreatment that makes determining the timeline for the onset of maltreatment challenging, and the interactive nature of behavioral challenges and experiences of maltreatment. Additionally, the current study includes secondary data analysis of longitudinal data collected over several years. As is often a challenge in longitudinal design, significant attrition from wave 1 to wave 5 was observed. Missingness or opting out of later waves of data collection may have been correlated with higher levels of impairment, suggesting that the longitudinal sample may underrepresent the levels of impairment that children with chronic trauma exposure may experience.

More research is needed to further explore the associations between complex trauma and age. Due to the exploratory nature of the current body of work, findings should be replicated in an independent dataset to assess reliability and stability of factors and classes. Future directions may include a latent transition analysis to test the developmental hypothesis described under discussion regarding children moving between classes at different ages.

Table 1: Descriptive Statistics for all study variables

Variable	Mean (SD; range) or % (n)
Child Age	10.1 (2.71; 6.0 – 16.0)
Child Gender (male)	47.5% (871)
Child Ethnicity (white)	54.6% (1000)
Child Ethnicity (black)	30.2% (533)
Child Ethnicity (Asian/Hawaiian/Pacific Islander)	2.6% (47)
Child Ethnicity (American Indian)	7.6% (139)
Internalizing Factor	0.00 (1.0, -3.06 - .63)
Externalizing Factor	0.00 (0.97, -3.74 – 4.16)
Interpersonal Factor	0.00 (1.0, -1.26 – 1.08)
School Problems Factor	0.00 (1.0, -2.29 – 1.10)
Cognitive Factor	0.00 (0.93, -4.18 – 3.06)
Biology and Somatic Symptoms Factor	0.00 (0.92, -11.79 – 5.45)
Wave 5 Sexual Activity (yes)	35.9% (260)
Wave 5: Days Cigarette Smoked (> 1)	36.6% (266)
Wave 5: Days Alcohol Consumed (> 1)	39.5% (286)
Wave 5: Chronic Health Problems	10.4% (191)

Table 2: Latent profile models and fit indices

Model	Log-likelihood	BIC	Entropy	LMR p-value	BLRT p-value
2 classes	-11212.658	22568.066	1.0	<b>0.000</b>	0.000
3 classes	-8669.752	<b>17534.846</b>	1.0	0.270	<b>0.000</b>

Table 3: Symptom characteristics of classes in the 3-class solution (Mean Factor Score; mean centered on 0)

Factor	Class 1: Low Impairment <i>n</i> =470	Class 2: Moderate Impairment <i>n</i> =784	Class 3: High Impairment <i>n</i> =578
Internalizing	-1.09	0.37	0.38
Externalizing	-0.01	0.03	-0.02
Interpersonal problems	0.71	-1.09	0.90
School problems	-1.65	0.55	0.60
Cognitive	-0.09	0.00	0.07
Biology and Somatic	-0.13	0.06	0.02

Table 4: Symptom characteristics of classes in the 2-class solution (Mean Factor Score)

Factor	Class 1 <i>n</i> =1048	Class 2 <i>n</i> =784
Internalizing	-0.28	0.37
Externalizing	-0.03	0.03
Interpersonal problems	0.82	-1.09
School problems	-0.41	0.55
Cognitive	-0.00	0.01
Biology and Somatic	-0.05	0.06

Table 5: Demographic characteristics by class (three class solution)

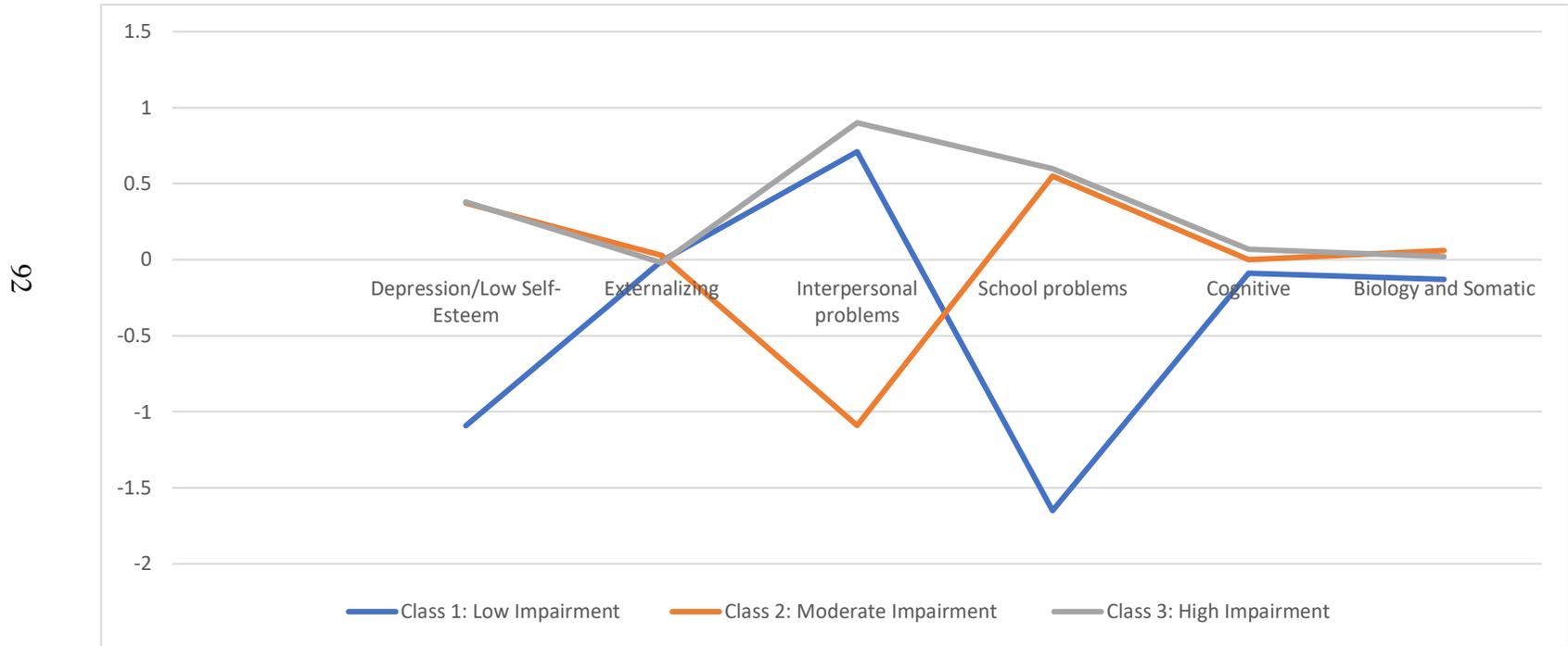
Class from LPA	Age Mean (SD)	Gender (Male) % (n)	Race (White) % (n)
Class 1 (Low Impairment)	7.17 (2.00)	51.5% (242)	56.6% (266)
Class 2 (Moderate Impairment)	12.66 (1.30)	42.1% (330)	54.1% (423)
Class 3 (High Impairment)	8.98 (0.82)	51.2% (299)	53.8% (311)

Table 6: Regression Results for Longitudinal Outcome Variables

	Longitudinal Outcome Variable: b (SE)			
	Sexual Activity	Chronic Health Problems	Cigarette Smoking	Alcohol Use
Age	<b>-.11 (.02)</b>	.01 (.02)	.04 (.12)	-.23 (.13)
Gender	.02 (.03)	-.04 (.03)	.07 (.19)	<b>-.46 (.20)</b>
Race	<b>-.13 (.03)</b>	.01 (.03)	.02 (.19)	.03 (.20)
Class Membership (Class 2; Moderate Impairment)	.02 (.12)	-.02 (.11)	-1.39 (.71)	-.68 (.77)
Class Membership (Class 3; High Impairment)	-.06 (.06)	.01 (.06)	<b>-.83 (.35)</b>	-.49 (.37)
Model R <sup>2</sup>	.171	.003	.024	.051

Note: Bold text indicates a statistically significant finding at the  $p < .05$  level.

Figure 1: Patterns of Mean Elevation Across Classes



## CHAPTER 3

### Assessing the Potential of Family Homeless Shelters as a Novel Setting for Implementing Evidence-Informed Interventions for Trauma-Exposed Families

Watson, B., Sun, C., Schriger, S., Mandell, D., Herbers, J., Jaffee, SR.

## Abstract

**Background:** Children experiencing homelessness are at increased risk for exposure to potentially traumatic events that are associated with subsequent psychiatric distress, such as posttraumatic stress disorder and other behavioral difficulties (Anooshian, 2005; Guarino & Bassuk, 2010). Despite the elevated rate of traumatic experiences among families experiencing homelessness, and the existence of evidence-informed, trauma-informed interventions to mitigate the impacts of trauma on children and families, families experiencing homelessness rarely receive trauma-informed care due to stakeholder-reported challenges in organization-wide implementation. The present study assesses the acceptability, appropriateness, and feasibility of implementing an evidence-informed trauma training intervention, such as the *Sanctuary Model* (Bloom & Sreedhar, 2008) or the *Think Trauma* curriculum (Olafson et al., 2016), for all staff in family emergency and transitional housing facilities. The family emergency and transitional housing environment presents unique implementation challenges due to the daily adversity and stressors that families and staff face, but also unique opportunities for interventions to be delivered to vulnerable populations, as providing interventions in this setting would greatly reduce many of the traditional barriers to engagement, such as attendance. Assessing unique barriers and facilitators to the implementation of evidence-based practices in this setting presents as an important area of opportunity with direct policy and service-delivery implications.

**Methods:** We adhered to the principles of community-based participatory research by treating community stakeholders as equal partners in the research process and empowered shelter staff to serve as experts on their setting. Investigators built strong foundational relationships with community partners, facilitating the completion of 20 semi-structured qualitative interviews with shelter staff assessing intentions, attitudes, norms, and self-efficacy, as well as systemic barriers, to the provision of trauma-informed care in family homeless shelters. These domains of inquiry were selected based on the Theory of Planned Behavior [5]. Specifically, qualitative interviews assess organizational culture, openness to change, current protocols for managing trauma, and the acceptability, appropriateness, and feasibility of implementing an evidence-informed trauma training protocol for all staff.

**Results and Conclusions:** Participants expressed generally positive attitudes toward TIC and viewed TIC as being in line with the mission of their organization, indicating strong support for the acceptability and appropriateness of the implementation of trauma-informed interventions in family homeless shelters. With regard to feasibility, unique context-specific barriers to which implementation strategies could be tailored have been identified. Participants described modifications that could be made at the intervention level, the individual level, and the organizational level, that would facilitate successful implementation of TIC.

Keywords: context, feasibility, acceptability, appropriateness, trauma-informed care, homelessness, children

## **Introduction**

### *Trauma and Families Experiencing Homelessness*

According to the 2013 census, there were 2.5 million children residing in family homeless shelters at that time, representing one in every 30 children in the United States (The National Center on Family Homelessness, 2014). It is well-established that children with experiences of homelessness are at increased risk for experiencing potentially traumatic events that are associated with the development of mental health conditions, such as posttraumatic stress disorder (PTSD), as well as other behavioral problems (Anooshian, 2005; Guarino & Bassuk, 2010).

Indeed, children experiencing homelessness represent the farthest end of the spectrum of poverty, and children who live in poverty are more likely than their more advantaged peers to experience an adverse childhood experience (ACE) (Radcliff et al., 2019). Due to the prevalence of traumatic experiences among families experiencing homelessness, it is important for shelter-providers to utilize trauma-informed approaches to best support the families in their care.

### *Trauma-Informed Care*

The Substance Abuse and Mental Health Services Administration (SAMHSA)'s Trauma and Justice Strategic Initiative describes a "trauma-informed approach" as a program, organization, or system that (1) realizes the widespread impact of trauma and understands potential paths for recovery; (2) recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; (3) and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and

(4) seeks to actively resist re-traumatization (Substance Abuse and Mental Health Services Administration, 2014). The 6 key principles of Trauma Informed Care (TIC) are identified by SAMHSA as (1) Safety, (2) Trustworthiness and Transparency, (3) Peer Support, (4) Collaboration and Mutuality, (5) Empowerment Voice and Choice, and (6) Cultural Historical and Gender Issues (Substance Abuse and Mental Health Services Administration, 2014). Efficacy and effectiveness trials have developed specific evidence-based interventions to utilize TIC to mitigate the impacts of trauma on children's development at both the organizational and individual level, including the Sanctuary Model (Bloom & Sreedhar, 2008), the "Think Trauma" curriculum (Olafson et al., 2016), and Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; Silverman et al., 2008). Despite the elevated rate of traumatic experiences among children in family homeless shelters, and the existence of evidence-based trauma-informed intervention protocols for traumatized children, preliminary conversations with community stakeholders indicated that it is rare for children in family homeless shelters to receive trauma-informed care due to stakeholder-reported challenges in organization-wide implementation of such protocols. An organizational structure that promotes healing and actively resists re-traumatization is the necessary foundation to support the provision of other trauma-informed interventions, such as TF-CBT. As such, the present study focuses on organization-level trauma-informed care interventions, a necessary precursor to implementing other types of trauma-related interventions, such as TF-CBT.

In addition to the key principles of trauma-informed care, SAMHSA identifies ten implementation domains to consider when implementing a trauma-informed approach across a wide range of settings. These implementation domains include (1) Governance

and leadership, (2) Policy, (3) Physical Environment, (4) Engagement and Involvement, (5) Cross Sector Collaboration, (6) Screening, Assessment, Treatment Services, (7) Training and Workforce Development, (8) Progress Monitoring and Quality Assurance, (9) Financing, (10) Evaluation (SAMHSA, 2014). Preliminary evidence suggests that trauma training protocols and interventions, including the Sanctuary Model, TF-CBT, and Think Trauma, can be implemented in diverse settings, such as community mental health centers (Beidas et al., 2016), juvenile justice facilities (Olafson et al., 2016) and one selected community mental health satellite located in an emergency housing facility (Wenocur et al., 2016), yet these practices are not widespread in the family homeless shelter setting. Additionally, when utilized, trauma-informed care interventions have been shown to improve measurable outcomes for at-risk populations in a variety of settings, including youth psychiatric inpatient settings, juvenile justice facilities, and community mental health clinics (Azeem et al., 2011; Beidas et al., 2016; Olafson et al., 2016). For example, when successfully implemented, trauma-informed care interventions have decreased the use of coercive practices such as seclusion and restraints in youth inpatient psychiatric settings (Azeem et al., 2011). Greater understanding of the shelter environment is needed to determine whether these models can be applied more broadly in the family emergency and transitional housing setting.

### *The Current Study*

The current study aims to examine barriers and facilitators to the implementation of trauma-informed care interventions (TIC), in this specific high-need setting: family emergency and transitional housing facilities. This novel setting presents unique challenges as well as some possible advantages in the provision for evidence-based care.

Specifically, the family homeless shelter environment presents the opportunity to reach vulnerable families who may not otherwise be able to receive evidence-based interventions due to systemic barriers to accessing care. For example, families experiencing poverty have historically faced barriers to accessing mental health services due to inability to pay out-of-pocket for services or lack of health insurance coverage, challenges in attending appointments during the workday due to inflexible schedules and lack of paid time off, limited availability of culturally competent services, and the physical and emotional barriers to arranging ongoing transportation to mental health appointments (which are often located in geographically inconvenient locations) (González, 2005). Bringing care to families in the homeless shelter setting would significantly mitigate several of these barriers.

The current study focuses specifically on TIC as a necessary foundation for creating an environment that would support the provision of other trauma-related mental health services (e.g. TF-CBT) in the family homeless shelter setting. Similar efforts to bring care to people in the community by implementing mental health services in schools has demonstrated that implementation efforts in an environment that does not view supporting the emotional and behavioral health of clients as part of the organization's mission, that lacks administrative or institutional support, or that is plagued by other barriers such as professional burnout, are unlikely to be successful (Han & Weiss, 2005; Langley et al., 2010). Thus, successful uptake and sustainment of trauma-based mental health services in the family homeless shelter environment necessitates organizational structure and culture that supports such efforts. Thus, implementation of an organizational TIC intervention represents an important first step. TIC was selected in

place of a more general mental health curriculum for organizations due to the high incidence of trauma in the family homeless shelter setting (Radcliff et al., 2019).

The Exploration, Preparation, Implementation, and Sustainment (EPIS; Aarons et al., 2011) framework, the guiding framework for the current study, breaks the implementation process down into four well-defined phases. During the Exploration phase, a research group and/or community stakeholders consider emergent or existing healthcare needs in a specific community or patient population and work to identify the best evidence-based practices to address those needs while considering what might need to be adapted for successful implementation. Factors are considered that might impact implementation at the system, organization, and individual level, as well as possible adaptations to the intervention itself. The primary objectives of the Preparation phase are to identify specific barriers and facilitators to implementation, further assessed the need for intervention adaptation, and to determine ways to capitalize on facilitators and address potential barriers. The implementation phase consists of initiation of the intervention implementation process. The Sustainment phase includes maintenance of implementation supports initiated in the Implementation phase continue the successful utilization of the intervention, with adaptations as necessary. Throughout all phases of the implementation process, multiple factors that may impact implementation are considered including the inner context (e.g. organizational characteristics, characteristics of individuals within the organization), the out context (e.g. funding, policy, client characteristics), innovation factors (e.g. changing the system to fit the intervention, changing the intervention to fit the system), and bridging factors that acknowledge the interrelated nature of the outer and inner contexts (Aarons et al., 2011; Aarons et al.,

2014). The current study seeks to inform the Exploration and Preparation portions of the EPIS model, which represent necessary precursors to any implementation efforts in the family homeless shelter setting due to limited knowledge of the context. The first goal of the present work is developing a working definition of what trauma-informed care means to professionals serving families in emergency and transitional housing environments. Next, additional information about current practices, organizational structure, organizational culture, barriers, facilitators, intervention adaptations, and possible implementation strategies was solicited from participants through non-directive open ended semi-structured interviewing.

Interview structure was informed by the Consolidated Framework for Implementation Research (CFIR), a conceptual framework that was developed to guide systematic assessment of multilevel implementation contexts to identify factors that might influence intervention implementation and effectiveness (Damschroder et al., 2009; Keith et al., 2017). The five major domains that are evaluated according to the CFIR include (1) intervention characteristics (i.e., features of the intervention that might influence implementation such as complexity), (2) the inner setting (i.e., features of the implementing organization that might influence implementation), (3) the outer setting (i.e., features of the external context, such as citywide policies that might impact implementation), (4) characteristics of individuals involved in the implementation process (e.g. beliefs about the intervention), and (5) the implementation process itself (i.e., strategies or tactics that might influence implementation, such as engaging appropriate individuals in the implementation process) (Damschroder et al., 2009; Keith et al., 2017). Questions prompting interviewees to share perspectives across all five

domains were included in the interview. Interviews also seek to assess stakeholder attitudes toward TIC, perceived norms across the organization regarding the utilization of TIC strategies, and perceptions of behavioral control and self-efficacy regarding using TIC strategies. These domains of inquiry were chosen based on the Theory of Planned Behavior, which has demonstrated the ability to account for considerable variance in actual behavior (Ajzen, 1991). The implementation outcomes examined in the present study include the acceptability, appropriateness, and feasibility (Proctor et al., 2011) of implementing an evidence-informed trauma training intervention for all shelter staff, such as the Sanctuary Model (Bloom & Sreedhar, 2008) or the “Think Trauma” curriculum (Olafson et al., 2016).

The current study aims not only to increase knowledge of ways to implement trauma-informed care interventions in the family homeless shelter setting to best serve families in need, but also to increase our understanding of ways to implement evidence-based practice in this setting more broadly by gathering information about the general acceptability, appropriateness, and feasibility of using various implementation strategies (e.g. training, restructuring, incentives) in the family homeless shelter setting. This will further the science of implementation by increasing our knowledge about which strategies might work best in novel and challenging contexts.

### **Method**

Methods are reported in accordance with guidance from the COREQ (COnsolidated criteria for REporting Qualitative research) Checklist (Tong et al, 2007). See Appendix V for full COREQ checklist.

#### *Participants*

Participants were recruited using a snowball sampling method embedded in the larger framework of community-based participatory research methodology (Shiu-Thornton, 2003; Sullivan et al., 2003). Specifically, the principal investigator, who conducted all interviews, spent approximately 18 months attending community meetings and volunteering with communities and organizations serving families experiencing homelessness with the ultimate goals of learning about the setting from an ethnographic perspective to inform research questions, cultivating community partnerships, and building connections to facilitate recruitment. Throughout the completion of the study, community stakeholders were treated as equal partners in the research process and assisted in tasks including providing feedback on interview questions, providing introductions to potential participants to promote engagement and participant retention, and assisting the principal investigator in identifying appropriate participants who would be knowledgeable on the interview subject matter from a variety of different perspectives.

All participants were staff members from a variety of disciplines recruited from emergency and transitional housing facilities in Philadelphia, a large northeastern urban center. Emergency housing facilities were defined as short term residential centers receiving city funding to house families. Eligibility criteria were: Participants must be English-speaking adults employed by a family homeless shelter in Philadelphia. Staff at facilities that house single people experiencing homelessness or unaccompanied youth experiencing homelessness were not included in the current study. The scope of the study was also limited to shelter providers within the greater Philadelphia area, with housing providers outside of this geographic area not included in the present study. Some

emergency housing facilities housed women and children only, while others housed full families (inclusive of men). Two of the emergency housing facilities represented in the sample specialize in serving victims of domestic violence of all genders.

Qualitative data saturation determined the sample size of 20 interviewees.

Participants were recruited from all 12 city-funded emergency housing facilities within Philadelphia, with participants representing 10 of the 12 city-funded emergency housing facilities ultimately completing interviews. Extensive outreach was attempted to the last 2 agencies, with participants either presenting as non-responsive or ultimately declining participation. In addition to conducting outreach via e-mail, investigators also leveraged connections of interviewees to obtain a warm introduction and attended various community meetings at which in-person recruitment was conducted.

Staff from a variety of disciplines were included in the sample in order to facilitate gathering multiple perspectives, and due to lack of standardization in organizational structure across organizations. Roles and responsibilities of those interviewed included resource specialist, director, case manager, chief operating officer, and mental health manager/therapist.

Consistent with the demographic makeup of staff in emergency and transitional housing facilities in the greater Philadelphia area, participants largely identified as female (N= 19). Participants were represented in approximately equal measure from African American (N = 10) and Caucasian (N = 9) backgrounds, with one additional participant identifying as Latina (N = 1).

Average participant age was 37.74 with ages ranging from 23 years of age to 60 years of age.

Perhaps more importantly, participants reported a wide range of amount of experience working in emergency housing, with the average number of years spent serving families experiencing homelessness at approximately 7 years (6.98). Two participants reported working in emergency housing for less than 1 year, and 5 participants reported working in emergency housing for greater than 10 years. This wide range of demographic characteristics and intentional selection of participants with differing backgrounds was conducted to allow investigators to hear diverse perspectives and to facilitate representation for staff from emergency housing facilities of differing backgrounds.

### *Interview Guide*

A CFIR-informed semi-structured interview guide was developed based on preliminary conversations with community stakeholders working in emergency housing for both youth and families, who worked with investigators to identify potential pain points for the intervention of TIC interventions, as well as ways in which language could be tailored to best elicit productive responses from interviewees. Interview questions were refined through collaboration with other investigators on the study team to create a concise interview guide that combines both areas of interest identified by stakeholders and conceptual domains of interest guided by the CFIR framework. Interviews included open-ended non-directive questions and aimed to gather information about the subject's lived experience serving families experiencing homelessness. Questions sought to elicit stakeholder perspectives on three outcomes important to the pre-implementation phase: Acceptability, Appropriateness, and Feasibility. With regard to acceptability, the interviewer sought to gather information about whether TIC interventions would be well-received by staff in emergency and transitional housing, whether staff like the idea of

attending a training on this subject, and whether staff would feel comfortable taking such an approach to supporting families. With regard to appropriateness, the interviewer sought to elicit perspective about whether staff view this type of intervention as appropriate to the setting and in line with both the purpose and mission of their organization. With regard to feasibility, barriers and facilitators were identified. Throughout, interviews assessed stakeholder intentions, attitudes, norms, and self-efficacy regarding the provision of trauma-informed care in family homeless shelters.

The interview guide began with questions about the person's role in their organization, their responsibilities in that role, and how long they have been serving in that role. After gathering demographic descriptions, the TIC-related portion of each interview began with presenting an open-ended question about what the term "trauma-informed care" means to the interviewee. Once a mutual understanding of TIC was established, interviewees were asked to share their impressions of the culture around TIC (for both staff and clients), as well as to identify barriers and facilitators to the provision of TIC in the family emergency and transitional housing setting. Barriers and facilitators were assessed at the level of the provider, the inner setting, and the outer setting. The interview concluded with questions assessing participant perspectives on intervention adaptability, as well as identification of key stakeholders who would be involved in the implementation process and other potential interviewees who might be able to provide a knowledgeable perspective. See Appendix II for full interview guide.

#### *Data Collection Procedure*

The interview guide was tailored flexibly during interviews depending on the specific institution's familiarity with trauma-informed care to ensure understanding of the

subject matter while maintaining rapport. For example, when interviewing participants in agencies with active trauma-informed care programs, questions such as “have you heard of any attempted to implement TIC?” were modified to “tell me about your agency’s implementation of TIC.” Interviews ranged in length from 25 minutes to 89 minutes depending on participants level of expressiveness and verbosity.

All interviews were conducted by the principal investigator, Bethany Watson, MA, a mixed-race cisgender female clinical psychology doctoral candidate. Ms. Watson was a full time PhD candidate at the University of Pennsylvania at the time the interviews were conducted as part of her dissertation. Ms. Watson previously conducted qualitative interviews for a study on the implementation of behavioral sleep interventions in urban primary care practices (Williamson et al., 2020), as well as taking coursework on implementation and receiving mentorship from researchers experienced in qualitative interviewing prior to conducting the semi-structured interviews in the current study. The interviewer met 18 of the 20 participants during recruitment efforts and had a prior relationship with 2 participants through brief meetings while volunteering at an emergency housing facility. Participants were given information about the reasons for doing the research. Participants were not told about the interviewer’s personal opinions or goals beyond being told that the investigator was interested in learning about their opinions and hearing their perspectives. See Appendix III for sample recruitment materials.

Interviews were audio-recorded in a private location on-site at family emergency and transitional housing facilities (e.g. the participant’s office when available). The location in which the interview was conducted was identified by the participant. The

participants were given the option of conducting the interview in a private office at The University of Pennsylvania, which no participants accepted. Only the participant and the interviewer were present during 19 of the 20 interviews. During one interview, the participant expressed the desire to conduct the interview in a shared office with a preferred co-worker. No repeat interviews were conducted. The study team also gathered demographic information via an electronic survey (age; race/ethnicity; sex). Interviewees were compensated with \$25 in cash. Interviews were transcribed verbatim by volunteer undergraduate and masters level research assistants into word documents and uploaded into NVivo 12 for analysis.

### *Analytic Approach*

Transcribed interview data was analyzed using thematic analysis. Thematic analysis includes the identification, analysis, and interpretation of patterns of meaning derived from qualitative data via “themes.” In thematic analysis, each theme is meant to capture something important about the data in relation to the research question (Braun & Clarke, 2006). Themes are evaluated in terms of the “size” of the theme (determined based on prevalence, both in terms of space within each data item (i.e. interview) and prevalence across the entire data set), and “keyness” of the theme in terms of whether or not the theme captures something important in relation to the overall research question. The six phases in thematic analysis include (1) familiarizing oneself with the data, (2) generating initial codes and making inferences about what the codes mean, (3) combining codes into overarching themes that accurately depict the data, (4) reviewing the data and adding themes as needed, (5) definition of themes and distillation of what is interesting

about the theme, and (6) deciding which themes make meaningful contributions to understanding what is going on within the data (Braun & Clarke, 2006).

Qualitative data analysis followed an integrated approach. Two types of codes were developed: a priori CFIR-related codes based on existing TIC and implementation science theory, and grounded theory codes that emerged from the data. In grounded theory, the theory is “grounded” in the data itself, meaning that the analysis and development of theories about the data happens iteratively as data is collected, rather than theories being specified a priori. In grounded theory the investigator is encouraged to avoid preconceived theories, to focus on learning from the data, and to use theoretical sensitivity to detect subtle messages and meaning from the qualitative data generated by participants (Corbin & Strauss, 1990; Strauss & Corbin, 1994). Standard procedure in grounded theory includes generating “codes” based on observations in the data (rather than relying on pre-specified theories), inductively labeling and categorizing these codes, refining categories using theoretical sampling, and integrating categories into a larger theoretical framework based in the data. Grounded theory emphasizes the important of fluidity, as theories should be modified throughout data collection to integrate new observations in the data. As noted in the introduction, the interview guide was created with theoretical foundations based on The CFIR and the EPIS framework. Thus, the current analytic method is considered to be an integration of grounded theory (themes and codes based in the data) and existing theory, as fully adherent grounded theory is not possible when investigators have preconceived ideas about themes that are likely to emerge from the data.

There were three research team members who participated in the coding phase of data analysis: Bethany Watson, MA the principal investigator who conducted all interviews, Chaoran Sun, MA, a research assistant, and Simone Schriger, MA, a second-year clinical psychology doctoral student. Research team members (BW, CS, SS) first separately coded two transcripts via open coding, compared their coding, and developed an initial codebook. Investigators created an operational definition for each code and decision rules for each code's application. The codebook was then applied to one additional transcript, coding was compared across coders, and further refined. Coding disagreements were resolved through discussion. Twenty percent of the interviews (N=4) were coded for reliability. The remaining 16 interviews were divided equally among the three interviewers (5 interviews each) with the exception of the master coder (BW), who coded 6 transcripts individually. Weighted kappa was 0.71 (good agreement) across coders.

Specific outcomes examined in thematic analysis included participants' attitudes toward the intervention (acceptability), assessment of whether the intervention would fit the setting (appropriateness), and what might facilitate or inhibit the implementation of the intervention (feasibility). Particular attention was paid to setting-specific considerations for implementation, guided by SAMHSA's ten implementation domains. Through this process of thematic derivation, NVivo's analytic tools were used to discern conclusions about possible barriers and facilitators to the provision of trauma-informed care in family homeless shelters to which implementation strategies could be tailored. Specifically, NVivo was used in the search for broader themes through examination of ways that individual codes combine to form an overarching theme.

Preliminary findings were presented to an audience of community stakeholders, which included several interview participants, on two occasions via didactic presentations at the Office of Supportive Housing and at a day-long seminar on early childhood for shelter providers. These presentations also included other didactic content that was of interest to community stakeholders and served as a way to give back to the community in addition to providing an avenue for community stakeholders to provide feedback on findings.

## **Results**

Results are presented first with respect to the primary goals of the current study: to establish a working definition to TIC in the family emergency and transitional housing setting, and to assess acceptability, appropriateness, and feasibility. These initial analyses were completed in a deductive fashion whereby investigators extracted themes from the data based on existing implementation science theory. Themes that emerged from the data in an inductive (or bottom-up) fashion using grounded theory are then described. See Table 3 for representative quotes for all grounded theory themes. See Figure 1 for a visual depiction of recurrent word usage in interview data.

### *Defining Trauma-Informed Care*

SAMHSA defines TIC as a program, organization, or system that (1) realizes the widespread impact of trauma and understands potential paths for recovery; (2) recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; (3) and responds by fully integrating knowledge about trauma into policies,

procedures, and practices, and (4) seeks to actively resist re-traumatization. The 6 key principles of TIC according to SAMHSA include (1) Safety, (2) Trustworthiness and Transparency, (3) Peer Support, (4) Collaboration and Mutuality, (5) Empowerment Voice and Choice, (6) Cultural Historical and Gender Issues.

Participant-generated definitions of TIC in response to the open-ended question “what does trauma informed care mean to you?” were generally consistent with the SAMHSA definition, although the specific language used by participants to describe the components of TIC varied. In particular, participants described TIC in terms of education, knowledge, and awareness about trauma, providing non-judgmental care, recognizing that client behavior may be due to trauma, avoiding taking client behavior personally, and leading with empathy. Several participants also referenced the idea of asking “what happened to you?” rather than “what is wrong with you?” when making attributions about client behavior. With regard to the key principles of TIC, many participants described TIC in terms of collaboration and mutuality, describing TIC as “meeting clients where they are” (ID 120) and providing “client centered services” (ID 104). The concept of safety was also mentioned, with one participant (ID 124) noting that a component of TIC is making a plan to keep client “emotionally safe, physically safe, (and) psychologically safe.” Participants also made reference to empowerment, describing the importance of respecting and honoring the client’s experiences and the client’s right to self-determination (ID 104). The importance of trust was also acknowledged, with one participant (ID 109) noting that one setting-specific application of TIC, can be observed in the process of entry into a shelter through staff aiming to “establish a level of trust and rapport with those residents coming in so that it helps to

decrease the levels of anxiety and stress, and all the things that come with people who have suffered trauma.” Of note, while all participants described TIC as it relates to staff support of residents, few participants acknowledged the aspects of TIC that are designed to support staff well-being (i.e. peer support). Although cultural, historical, and gender issues were rarely noted when defining TIC, these emerged as a salient theme throughout interviews, and are described in more detail under the thematic analysis. Full text of participant responses when asked what trauma-informed care means to them are included in Table 2.

*Outcomes: Acceptability and Appropriateness*

Participants expressed generally positive attitudes toward TIC, indicating high acceptability and appropriateness. In particular, participants expressed positive views toward trauma-informed care as a general concept, while noting some limitation to specific TIC models. Participants viewed providing TIC as being in line with the mission of their organization, and shelters were generally described as places for both housing and healing. For example, one participant (ID 111) described the role of shelter providers using the metaphor of a hospital, stating:

“A family shelter is like a hospital in that everybody who comes here has been injured (i.e. trauma) in some type of way. So in a hospital, when they come in a hospital, they’re sent to triage. Here, they are sent to get their intake done. So before you see the actual doctor, you got to see other people. So in that way you find out actually what their sickness is, what’s wrong in it, and how you can help. Because you wouldn’t bring the heart surgeon over to talk to somebody who may have Arthritis in here...I think that is the best metaphor to understand that everybody is recovering from something, you don’t just recover from drug abuse, you recover from multiple things, and I think...once (staff) kinda get the understanding of recovery being very large in that area, I think they will be more understanding.”

Other participants described TIC as being central to their organization's strategic plan, or noted alignment between TIC and the general mission and values of their organization. In several instances, the alignment between TIC and organizational values was described by interviewees working in emergency or transitional housing facilities run by a religious organization. While several of the participants who spoke about TIC as central to the organizational mission were in administrative roles, positive attitudes toward TIC were expressed by providers of all positions.

Several participants also described the view that TIC is particularly important in family emergency and transitional housing because they view the experience of homelessness in and of itself as potentially traumatic. For example, a participant (ID 116) stated:

“It's about the environment... coming into a shelter is already you know, a lot of times it's rock bottom. They're already coming with a host of other issues and other traumas that they're experienced. And while they're here, this is a trauma, so how do we provide a supportive and nurturing environment so that they can acknowledge that trauma, acknowledge the trauma that is occurring...and continue to move forward, and hopefully into the independent housing.”

Even when participants expressed some hesitation about using TIC, they noted that their concerns were more rooted in the way that the model was implemented rather than in opposition to the model itself. For example, when expressing some reservations about using a trauma-informed approach, one participant (ID 120) stated:

“I like the idea of what of they are trying to incorporate with the trauma informed model, do you know what I mean? I think the idea is there. But when you have like higher ups... who haven't really been frontline workers or done frontline work in a while, the message kind of gets lost in translation.”

Specific reservations were expressed about certain specific aspects of trademarked or branded interventions such as the Sanctuary Model. In particular, some of

the language used in the Sanctuary Model was viewed as inappropriate for the client base and for staff. For example, when asked about intervention adaptation, a participant (ID 113) described modifying the language of the Sanctuary Model when servicing clients, describing the importance of “simplifying it because the words, even though the words are not that complicated, just kind of dumbing it down...you have to like go to college to understand the psychoanalysis of all this stuff. And like how it's supposed to help people.” Another participant (ID 104) reported making similar modifications when describing the agency’s current TIC training policies, noting that the agency focused on “representing that information in a way that is digestible for folks who aren’t mental health providers.”

*Outcome: Feasibility*

Participants reported a number of modifications at different levels that could be made in order to increase feasibility. Participants described intervention adaptations that would allow TIC to better fit the setting, changes that individuals within the organization would need to make for the setting to be more amenable to TIC, and changes that would need to be made at the organization level to facilitate the successful implementation of TIC.

Organizational level changes described focused on providing additional organizational support to facilitate the implementation of TIC, such as appointing a point-person or committee to champion implementation. Participants also noted the importance of flexibility, specifically describing ways in which the rules of the organization could be changed to reduce barriers to interacting with clients in a collaborative, trauma-informed way. For example, Participant ID 119 described how her organization recently entered

into a collaborative discussion with residents regarding modifying shelter rules that interfered with providing TIC. This participant noted that staff were told by residents that smoking a cigarette provides stress relief for some clients struggling with PTSD or depression, and that shelter policies prohibiting smoking after midnight were interfering with client ability to access this coping skill. The participant reported that the shelter staff responded to this participant requesting using a flexible and collaborative approach, including working with the clients to find a solution that would ensure that children were supervised during nighttime smoking breaks.

In contrast to the calls for increased flexibility, the need for consistency in messaging at the organizational-level was also noted, suggesting that there is somewhat of a dance between flexibility and fidelity that is necessary for successful implementation. For example, a participant (ID 114) described challenges with initial uptake of TIC that were mitigated by repetition and consistency: “Oh, I would say the first, the first year it was a challenge to stay up (on TIC) just because it was something new. But I just think through repetition, just from us, you know, calling red flag meetings when necessary. Just being more sensitive to our needs, and our emotions and things of that nature. To be able to help them we keep our own emotions in check. And we become better listeners over time.”

A sub-theme in the domain of feasibility related to intervention adaptation, with participants offering specific suggestions to modify the ways in which TIC trainings are delivered. Overall, participants noted the need for ongoing supervision, training, and support, describing single online trainings as insufficient to change. Many participants highlighted the need for the use of active learning strategies in future TIC trainings and

the need for creative ways for staff to engage with the material. Active learning strategies suggested included role plays, case scenarios, interactive small group activities, testimonials from current or former residents, and focus on providing relatable anecdotes. Participants reported that an online training or being lectured to would not be as effective in facilitating the acquisition of knowledge about TIC. One such suggestion came from participant ID 109 who described online trainings as insufficient, citing the need for “interaction. The ability to really ask questions, share scenarios that you may have encountered at work and get a response.” Participants also noted the need for a dynamic person to lead such a training in order for it to be effective. An example of this was expressed by participant ID 118:

“If you are fire what do you bring to the meeting? Fire. If ... you come on the ball, they respond on the ball. So you gotta keep in mind because if you talk to me, and you go to another shelter, you talk to another person about this, these programs and ideas and pedagogies are only as good as the facilitator you have. You can't separate it. You can't say this is a dynamic program, and then you send a docile person to facilitate it. So it's not the program (that is the barrier).”

With regard to changes at the level of individual workforce members, participants noted the importance of building buy-in amongst individuals in the organization and clearly communicating that TIC is part the culture of the organization to create a norm of TIC utilization. For example, a participant (ID 124) reported that:

“People come from other places not completely understanding or having the personality to like (TIC). Some people take a lot of reminding, like you need this is how we are here. It doesn't matter. This is not how you've done it in the past...this is what we're doing. We are trauma informed and there's no ifs, ands or buts around it. Yeah, man, like employees really have to be receptive to the idea in order for you to execute it.”

Several participants noted that personality traits and the genuine desire to help, as well as openness to change, are important factors of a workforce in which TIC could be

effectively implemented. For example, participant ID 117 noted the following when asked about aspects of the workforce that would facilitate the implementation of TIC: “I think temperament, probably...personal experience, maybe just understanding trauma more...And I think also ...compassion, wanting to be here to serve this population.”

Some participants noted that for TIC to be successfully implemented, there would need to be significant changes in workforce composition if certain members of the workforce do not have the above listed characteristics. Participants specifically noted that workforce members must be open to change for TIC implementation to be successful. This focus on openness was observed in terms of shelter directors describing how frontline staff who were not on board with TIC eventually left the organization following implementation, and in terms of staff describing challenges using TIC while working under a director who was not open to change. As noted, many participants described the need for cohesive organizational culture in which TIC is considered to be normative in order for implementation to be successful, highlighting the importance of all individuals in an organization approaching TIC implementation with openness and curiosity.

*Theme: The need for multi-level collaboration and engagement between leadership, frontline staff, and residents*

Participants frequently described the need for collaboration and engagement between staff in leadership roles and frontline staff for TIC to be effectively implemented across an organization. This included frontline staff wanting their perspectives to be acknowledged, administrators recognizing the need to collaborate with staff, staff reporting that administrators are uninformed about the realities faced by frontline staff, and administrators reporting resistance from other administrators at the same level of

seniority. For example, when describing resistance from administrators in implementing TIC at one agency, a participant (ID 116) described the administrator's limitations in understanding TIC stating "she has a social services heart but she's not a social worker" suggesting that the administrator presents with limitations despite the best of intentions and that there is an important role for social workers in the implementation process. Participants also described the need for collaboration with current or former residents in shelter to develop culturally sensitive TIC training and to build empathy and buy-in among staff by helping staff to better understand the lived experience of residents, which may facilitate increased uptake of TIC.

Several participants also extended this theme, describing the need for collaboration between policymakers and shelter-providers to implement the intervention effectively, noting that policy-makers who do not have direct service experience often create policies that underfund shelter-providing agencies or generate policies that are not sensitive to the needs of families experiencing homelessness and those servicing them. The implementation strategy of increased collaboration and engagement between staff and policy makers was proposed as a way to overcome this barrier.

*Theme: The central role of caring for staff to facilitate staff caring for clients*

One major principle of TIC is that a trauma-informed organization should implement TIC at multiple levels including staff caring for clients and administration caring for staff. The need for staff to feel cared for in order to effectively care for clients emerged as a major theme across interviews. Staff noted that a sense of social safety (i.e. being able to acknowledge challenges experienced at work or express concerns to supervisors without fear of repercussions or retribution) was essential for staff to be able

to effectively service clients. Staff and administrators noted that the direct service positions are very challenging roles where staff are often underpaid and undertrained while being expected to manage the most challenging situations with clients on a 24-hour basis. Participants described both the need for decreased workload for frontline staff and increased wellness programming to mitigate the emotional toll of frontline work.

Participants also described the prevalence of past traumatic experiences among staff and self-care as important considerations to facilitate staff being able to effectively care for trauma-exposed families. Several interviewees described current policies to support staff (e.g. red flag meetings, a component of *The Sanctuary Model*) as inadequate. Promoting insight and self-reflection in staff, as well as providing space for staff to process their own history of traumatic experiences, emerged as possible implementation strategies to facilitate staff being able to implement TIC.

Participants also noted direct experiences of trauma at work and secondary trauma as major factors contributing to professional burnout, turnover, and challenges using TIC for frontline workers. Staff described the role that these experiences play in depleting emotional resources as a significant barrier to implementing TIC in the family homeless shelter setting. In particular, several participants described feeling unsupported by administration and having depleted emotional resources (e.g. feeling like an “emotional punching bag” to clients) as the most important considerations in implementing TIC effectively. One participant (ID 120) described the intersection of experiences of trauma at work and lack of support as factors contributing to challenges utilizing TIC strategies:

“So much trauma is going on here with staff as well because we've experienced stuff...clients being killed by partners, clients killing children...we've had serious stuff happen. One of the buildings got shot up through the door like so that that's the stuff that's happening so just like I said the clients have trauma we have

trauma too because as much as clients want to feel safe when they're here, we want to feel safe too...I like the idea of (TIC). But sometimes I think when it's in the moment is very hard to do it...We had the red flag meetings and then our supervisor is now like "you good?" like, okay...no, I'm not good because I'm sad because this woman killed her kids. And you know, to me, I remember those kids. I remember her being pregnant, like, you know, memories flash back. But what can you do?"

*Theme: Racial Discordance and Cultural Considerations*

Cultural considerations, particularly regarding race, emerged as a major theme in several interviews. Some participants described racial discordance between administrative staff and frontline staff as a source of tension. Other participants described experiences of racism at work from clients and feeling unsupported by administration when facing these experiences due to the administration's focus on client-centered services. Other participants described the central role of cultural competence as a component of TIC or noted cultural factors as barrier to implementation.

Racial discordance between staff and clients was described as a barrier in the provision of TIC. At one site, participants described racialized incidents where staff felt discriminated against by residents due to perception among residents that white staff were more helpful, leading to residents of all ethnic backgrounds refusing to work with staff who were people of color. Staff also noted being discriminated against on the basis of religion, describing a Muslim co-worker being "targeted" by residents. One participant (ID 113) who was white, described such tensions, stating "sometimes the white clients feel like they're too good to be here that ... they deserve everything and they need the best service and they're above everybody here. And that is just...even if they're not directing it towards any staff...kind of triggering to be around someone who's acting that way. Who thinks they're better than people just because of their race." In these incidents,

staff reported feeling as if administration sided with the clients and did not take staff complaints seriously.

Racial discordance between staff at various levels of seniority was also identified as an organizational barrier to the implementation of TIC. Staff described the majority of frontline staff as people of color (POC), and the majority of administrative leadership as being white. Because of this racial divide, residential frontline staff reported that administrators were unable to fully appreciate the experiences of frontline staff or to understand the needs of frontline staff, which sometimes resulted in selection TIC interventions and implementation strategies with low acceptability to a majority POC workforce. Another participant in an administrative role (ID 116) described this same tension between white administrative staff and frontline staff who are largely people of color in implementing TIC from the perspective of a white administrative staff member, noting ultimate success overcoming this barrier:

“There's a lot of kickback. Oh, that's a hippy dippy way of thinking, that's a white model, that's a white way to talk...there was...class, there was race, there was you know, generational there's all these things that are piling in negatively on why this was not going to work...However, I'm happy to say...everybody that's gone through the SELF training has loved it and has asked for more. (It) gives them an understanding on why we taught what why we use trauma informed care and what safety looks like and how to support residents and people experiencing homelessness. It gives them an outlet to talk about things that are frustrating. It gives them tools when they're feeling frustrated, or when they're feeling triggered: what they can do instead of responding. So, it was really enlightening for them and they've asked for more self-trainings and more trauma informed training. So, I'm starting to see a trickle effect with the staff members thinking like, okay, like, this isn't just a white thing. This is not a hippy dippy thing, this is not a rich people way of speaking, this is a way that we can form a helpful, supportive community, even though they don't understand that the same thing as trauma informed care. They just didn't like the language. They didn't understand the language that we were using at first.”

Participants described the central role of cultural competence in servicing families effectively in a trauma-informed way. Understanding the client’s culture was described as an important component of actively resisting re-traumatization. This was connected with the theme of workforce diversity, with interviewees noting that the administration needs to be more diverse not only to facilitate better connection with frontline staff, but also to facilitate administration being more in tune with the needs of clients. For example, one participant describing how understanding culture and family dynamics in the African American community is necessary for staff to be able to effectively work with families with non-traditional family structures:

“The majority of the clients that we serve are of African American. I personally believe (in) trauma informed care we...need to become more culturally sensitive. I say this—I know race is a big thing right now—but because I’m African American, I can speak to that culture. I would say for African Americans...I have examples as small as the family dynamic of African American families. A lot of times you will see children being raised by their grandparents. And our counterparts--Caucasian, white Americans—typically majority have mom and dad. That’s what you see. Majority African American families are not. Their dynamics are not like that. Different people hold the power. A lot of times we could have an aunt that’s playing the mom role. And you know when she’s playing a role, you may immediately think well that’s the mom, I’m gonna talk to her as if she’s the mom, but there’s information in the idea that it’s the aunt taking care of the child and not the mother. Not the person that birthed you. So when you talk about cultural sensitivity with trauma informed, we have to—as much as we don’t wanna see race—in order to inform our families about how to get over depression, getting over depression for a black man vs. a white man is totally different. And...we just have to accept that for what it is. I do believe in color blind—I do believe in all that. I don’t judge people based off the color of their skin. However, I do approach people differently because of which, race, (or) ethnicity, they come from. So I think if we do some more research on just like I said the example of family dynamics—just one small fragment into the differences amongst groups of people.”

*Theme: Framing TIC as an explanation rather than an excuse*

Several participants expressed concerns that TIC can be misinterpreted by those implementing it, resulting in people viewing experiences of trauma as an excuse for client

behavior rather than simply as an explanation (without excusing the action itself). Frontline staff noted that some administrator’s interpretation of TIC “ride(s) the fine line of empowerment versus enabling” and expressed concerns that the low-barrier model as a disservice to clients due to not holding clients accountable for developing independent living skills. Participants in administrative roles expressed similar concerns from the opposite perspective, noting that the view of TIC as “too lenient” or as an excuse for client behavior is a misperception, and that staff complaints of lack of client accountability are rooted in a fundamental misunderstanding of TIC. For example, Participant ID 116 shared the following perspective:

“...In the sanctuary model, just because we're trauma informed doesn't mean that we don't hold people accountable for their actions. We give them a space to grow, we give them tools, we provide support, but at the end of the day you are responsible for your own actions. If you go through all the training when we talk about it, and you still go and smack somebody,...you can't live with us, it's just not going to work. It's not safe. So I think people sometimes, again, that's a misconception that sanctuary and trauma informed you can do whatever you want. No, no, no, there are rules and regulations. It's just the way we make (and) implement them. That makes the difference, I think in making it less about rules or regulations, and (more about) what is important to the community and how does the community live and grow together?”

Convergent reports from both frontline staff and administrators that, if not implemented carefully, TIC can be misperceived as an excuse for client behavior. This suggests that ensuring that TIC is appropriately framed, so the nuances of the intervention can be understood by all parties, is a particularly important consideration for implementation.

*Theme: The Importance of Flexibility*

Participants noted the need to be flexible in multiple ways, including implementing TIC flexibility to fit a given client’s needs, being flexible in the workplace

in order to accommodate the demands of working in a 24-hour facility, flexibility and individualization across interactions as a component of TIC, and the need for flexibility in TIC models to fit the shelter-provider setting. Participants described the need to be flexible to meet the needs of client who have been traumatized both by life experiences (e.g. domestic violence) and by systems of care that have proved to be untrustworthy or unable to meet the client's needs. Participants described the need to be flexible in shifting style when relating to clients in order to maintain appropriate professional boundaries while also presenting as human and being able to build rapport.

A subtheme under the broader theme of flexibility includes the need for setting-specific adaptations to existing interventions. TIC interventions, if applied straight from the manual, may not provide guidance regarding dilemmas that are specific to the shelter environment. These setting-specific considerations for resisting re-traumatization and other aspects of providing TIC were proposed as suggested add-ons to existing TIC interventions when implemented in the shelter setting. For example, participants noted that a shelter-specific TIC training might include specific guidance about the management of client property and belongings in a respectful way, an aspect of TIC that is not part of existing interventions. Additional setting-specific modifications that were noted include the need for trainings to be delivered at multiple times of day due to the shift-work nature of the work force. In particular, participants noted that all staff should receive the training directly (rather than secondhand from co-workers) and that the training would have to be held during regularly scheduled shift hours, which may necessitate the need for a daytime training and a nighttime training.

*Theme: Staff experiences of homelessness as both a barrier and facilitator*

Several participants described staff member's experiences of homelessness as a factor that may impact the implementation of TIC. Some participants expressed ambivalence, acknowledging the positive and negative aspects of having staff who, themselves, have experienced homelessness. Other's attributed their ability to empathize with and connect with clients to their own experiences of homelessness; describing having staff who have experienced homelessness as a major strength in providing TIC. Other participants described staff experiences of homelessness as a barrier to TIC, noting that staff can sometimes present with resentment or jealousy when observing current residents being treated in a trauma-informed way because that is not the way they were treated when they experienced homelessness.

The theme of staff members' own experiences of homelessness was connected to the theme of the crucial nature of self-care and implementation of TIC in the way that the organization cares for staff in addition to the way that staff care for clients. This was described by Participant ID 107:

"I think it really boils down to people...making sure we have the appropriate people to deal with some of these deep-rooted issues that folks come in with. Family shelters and emergency shelters in particular and not just \*\*\*, but across the city and across the spectrum, we tend to hire from very similar communities that some of our folks are coming from. And so we have staff that are dealing with some of the very same issues that some of our residents are dealing with and oftentimes there is a difficulty in separating the two. So having staff that not only are empathetic to it, but don't feel that they are, you know, feel(ing) like "how can I help someone when I am dealing with the same situation?" You know and that's tough to do. And an example of that very unfortunately is that we give out a ton of toys around Christmas time. I mean literally a ton of toys and so, so much so that some of our families are receiving trash bags, I mean huge huge huge trash bags of brand new toys wonderful toys and you know, some staff think that that's unfair because they are not able to provide that sort of amount of toys you know to their families. And because there's such a thin line between a lot of our staff and a lot of our residents, sometimes the envious part kind of shows up a lot more than the helpful part in our staff. And so I think you know again when we talk about trauma-informed care so much that it is self-help and being able to really

figure out that professional line of how to not literally bring your stuff into work. And so I think it goes both ways. A lot of it is very much focused on our residents. But I think we really need to do just as much work in working with our staff to ensure that they can work with the residents.”

Interestingly, within this theme, one participant (ID 109) connected frontline staff experiences of homelessness with more punitive practices against current residents as a way for the staff to feel empowered due feeling powerless in other areas of their lives:

“Unfortunately there are not many staff in my opinion who really really know how to effectively engage clients. They’re coming from a place of hurt that hasn’t healed themselves, many of them. And so to be able to say “I’m gonna write you up if you don’t do what you’re supposed to do” they just don’t feel like they have power, they still don’t feel like they have authority. And um so, being in a staff position is one of the ways that they boost their own self esteem as opposed to seeing that position from a perspective of ‘I want to help these individuals,’ it’s more of a position of power because I’m the monitor. And that’s just an example, and so when we look at the sanctuary model, there’s not an approach that lets them go ‘hm let me think about how this person is feeling and let me ask them what they need, let me ask them how I can help.’..... I think it’s still linked to self-esteem but where they come from, the source they come from. If I’m coming from a background where no one’s affirmed me and no one’s showed me what helping somebody looks like, then a job is a job.”

This participant suggested that finding other ways to empower frontline staff and boost self-esteem would be essential in effectively providing TIC.

*Theme: Trauma-informed care as a way to increase efficiency and effectiveness*

Several participants noted that, not only is TIC recommended due to its ability to help people to feel supported, but also because TIC can improve efficiency and effectiveness in emergency and transitional housing settings. In particular, participants noted that, by providing TIC, staff are able to facilitate clients addressing the root cause of their current experience of homelessness to work through these core issues to promote increased housing stability for clients after they leave the shelter provider. Participant (ID 104) described the impacts of TIC on promoting adaptive long-term outcomes for clients

describing TIC as "...the opportunity to establish trust and really have the relationship that is sometimes required to work on the hard issues" noting that the absence of TIC "doesn't give us or the families (the) opportunity to really address some of the barriers to stability that led to homelessness to begin with and kind of sets them up to return back into the system again later." Interviewees also noted that use of TIC can increase frontline staff feelings of self-efficacy and thus reduce burnout and high turnover for frontline staff

*Theme: Things being mandatory as both an implementation strategy vs choice as a component of trauma informed care*

Participants expressed divergent views about the idea of making certain trainings for staff or services for clients mandatory. One participant (ID 113) described providing clients with choice as an important component of TIC, particularly with clients who have experienced domestic violence:

"Our services are optional. And we encourage you to participate because they will benefit you. but we're not gonna, you know, because we don't want them to feel like they're back in their abuse situation, where their abuser is forcing them to do this and forcing them to do that. So we've heard that sometimes they're like, I feel like I'm back in my abusive relationship, because you guys are forcing me and there's so many rules, you know, kind of like, well, life needs structure. So kind of but then also, you're right, like you need to keep mind of that kind of thing."

Participant (ID 106) described ways in which mandatory meetings have been replaced with meetings that are described as "vital to attend" to give clients a sense of agency while communicating the importance of the meeting. This participant contrasted the current policies with prior punitive policies whereby residents would lose privileges for not engaging with services or attending workshops. Other participants expressed the opposing view that clients would not utilize the services offered to them if service

engagement is not made mandatory. While opinions on whether or not client engagement with services should be mandatory were divided, overall, participants seemed to agree that trainings for staff on TIC should be mandatory.

### *Selected Ethnographic Observations*

Although not explicitly endorsed by multiple participants, the interviewer noted a significant role for the competing demands placed on shelter staff due to shelter providers servicing their population of residents 24 hours per day. This will likely play a role in impacting the ability of shelter providers to implement new models or interventions. For example, during the 45-minutes of scheduled interview time, which was scheduled at a time endorsed as preferable by participants, many participants were interrupted, either by a phone call or by a resident or colleague coming to their office to ask for assistance with something that could not wait until the conclusions of the interview. For example, one participant (ID 104) took a call and described the content the phone call, noting that there was an emergency with a resident who was gone for days leaving her teenage son unattended (who then assaulted another child). When validation for the challenging nature of the work was provided, the participant responded “well, it’s always challenging, but this is part of the day to day.”

Other behavioral observations that may impact implementation include noting that several participants appeared to have initial hesitations about speaking openly on the topic of implementing TIC, noticeably lowering their voices when speaking or asking for assurances about confidentiality. This occurred both in shelters operating under a TIC model when participants expressed unfavorable views toward aspects of the model, and in shelters attempting to implement TIC when speaking about the barriers to

implementation posed by organizational culture. While participants became increasingly comfortable as the interview progressed and did appear to answer questions openly and honestly, this hesitation to openly share concerns may present as a barrier to implementing TIC in this setting.

## **Discussion**

Participants presented as open and collaborative throughout the qualitative interviews, generating rich qualitative data and identifying numerous barriers, facilitators, intervention adaptations, and potential implementation strategies for implementing TIC in the family homeless shelter setting. Overall, participants described high levels of acceptability and appropriateness for TIC in the family emergency and transitional housing setting. Participants noted several barriers to implementation, which impact feasibility. Despite these barriers, participants presented as hopeful that these barriers could be overcome and generated numerous implementation strategies for barriers that were identified. Participants generated ideas for intervention adaptation, organizational level changes, and individual level changes that would facilitate the successful implementation of TIC. Participants also shared their perspectives on what TIC meant to them (Table 2), reporting definitions similar to the formal SAMHSA criteria. Some shelter-providers reported being *Sanctuary Model* certified, although there was significant variation in implementation and utilization of TIC principles across interviewees, even within the same organization. Other interviewees described their organization as utilizing pieces of evidence-informed TIC without full certification, or described their organization as being in the beginning stages of considering ways to implement TIC. Several interviewees reported familiarity with the idea of TIC, but were

not aware of any formal effort to implement such a system at the organizational level.

This suggests a large amount of variability and inconsistency in the likelihood of families receiving TIC and the fidelity to TIC across sites, and even within sites.

Themes identified in the data included the need for collaboration and engagement between leadership and frontline staff, the central role of organizations caring for staff to facilitate staff being able to care for clients, racial discordance and cultural considerations as a barrier to implementation, framing TIC as an explanation rather than an excuse, the importance of flexibility, staff experiences of homelessness as both a barrier and facilitator, trauma-informed care as a way to increase efficiency and effectiveness, and things being mandatory as an implementation strategy and choice as a component of trauma informed care.

Shelter-provider organizations supporting staff more effectively emerged as a particularly salient theme. Adequate care for staff was described as a necessary foundation for implementing evidence-informed interventions, such as TIC, in the family homeless shelter setting. Across interviews, staff expressed the need for additional emotional support to assist staff in processing their own experiences of trauma. This need was expressed with regard to staff experiences of early-life trauma as they impact coping with stress in general, secondary trauma from hearing residents' stories, and direct experiences of trauma encountered in the family shelter setting. High rates of professional burnout, turnover, and compassion fatigue were described across agencies in the family emergency and transitional housing setting. Employee turnover is a significant factor that directly interferes with the implementation of workforce-level interventions. If a person is trained in an intervention, such as TIC, then quickly leaves the organization,

depending on the timeline on which training is able to be offered, that person's replacement may not receive the training for some time if at all. High turnover also presents a barrier to cohesive organizational culture in which norms of using interventions such as TIC can be established. Thus, caring for staff to reduce burnout is important in both providing staff with the emotional resources to provide TIC to clients, and in reducing staff turnover to increase workforce competence and to reduce the need for re-training new staff. It is important to note that, when properly implemented, TIC is meant to be implemented at the full organizational level and applies to both administration's interactions with staff and staff interactions with clients. Based on interviewee perspectives, it appears that current efforts to implement TIC have focused disproportionately on staff providing TIC to clients while neglecting components of TIC meant to care for staff. Ensuring that staff feel cared for and that their perspectives are heard is a crucial step that should be completed as part of the pre-implementation process. This could either be accomplished by implementing TIC intervention components at the staff level first, or by working collaboratively with staff to identify other ways to ensure that staff feel supported.

In further support of the central role of caring for staff, other identified barriers frequently connected back to staff wellness and the organization caring for staff as the foundation of TIC. Increased efficiency and effectiveness in supporting clients in obtaining sustainable housing by using TIC was tied back to the ways in which this outcome would increase feelings of self-efficacy for staff. During discussions of the role or racial discordance between staff and residents or between administrators and staff, the main barriers to continued use of TIC that were noted were staff not feeling supported

during these conflicts. Thus, ways to care for staff should be a primary consideration in any TIC implementation efforts in the family homeless shelter setting.

Collaboration and engagement emerged as a related and similarly salient theme. Staff collaboration and engagement with administrators, as well as administrator collaboration and engagement with policymakers, present avenues for stakeholders to feel heard and empowered. These feelings of empowerment are likely to build buy-in and to facilitate more effective implementation of TIC. Increased empowerment also presents as a possible facilitator to TIC intervention as it pertains to the theme of reducing burnout and helping staff to feel valued, heard, and acknowledged as crucial parts of the organization.

The theme of collaboration and engagement was also particularly important in relation to cultural considerations. Participants described a difference in demographics between administrative staff, who are more likely to be white, and frontline workers, who are more likely to be people of color, which can lead to tension when implementing new practices or making organizational changes. This characteristic of the family homeless shelter context is important to consider in future implementation efforts. It was suggested that frontline staff should play a role in implementing new practices to provide their valuable perspective from both a professional and cultural lens. Administrative staff also noted anticipating significant cultural barriers that would need to be overcome for TIC to be effectively implemented. Thus, convergent evidence suggests that the theme of collaboration and engagement between frontline staff and administrators presents as an important implementation strategy to overcome these cultural barriers. Cultural considerations should also include acknowledgment of socioeconomic differences (or

similarities) between staff and residents, in addition to considering racial discordance between frontline staff and administrators.

Other themes focused on more specific considerations and adaptations in the family emergency and transitional housing setting. Staff noted that, for a training to be effective, there must be ongoing supervision and support, and the training must be interactive, relevant, and engaging. Interviewees also expressed mixed perspectives on whether having staff with their own experiences of homelessness is a barrier or facilitator to the provision of TIC. Some interviewees proposed that having the perspective of someone who has been a resident in the facility provided invaluable insight into the best ways to support residents. Others expressed concerns that some staff with past experiences of homelessness may resent residents or aim to use their role as being in charge of the resident to assert a sense of control through enforcing rules in a non-trauma-informed way. The theme of staff member's own experiences of homelessness also connected back to the need for staff members to feel cared for by the organization. Participants noted that staff experiences of homelessness could be advantageous and promote empathy if staff felt cared for, or they could be problematic and divisive if staff felt that their own needs within the organization were not being met.

Final takeaways from thematic analysis include the importance of flexibility in implementation, the need for active learning strategies to engage staff members when implementing TIC, and the importance of clarifying that TIC is not meant to excuse client behavior, but rather to explain client behavior so that staff can interpret the behavior in a more empathic frame. Several frontline staff expressed concerns that TIC “walks the fine line between empowerment and enabling” and several administrators

expressed concerns that such a misperception of what TIC is meant to be might exist. The current study suggests that clarification around this issue when delivering a TIC training, and directly acknowledging these concerns that staff may have, is likely to have a significant positive impact on the uptake and organizational penetration of TIC. Finally, based on interviewer observations of participant behavior throughout the interview, development of strategies to assist shelter staff in managing competing demands and increasing social safety so that staff feel empowered to share their perspectives openly represent additional areas worthy of consideration regarding implementation.

With regard to the CFIR, barriers and facilitators in the five major domains were identified by participants. One intervention characteristic that was frequently mentioned by participants was the need to simplify the complexity of the language in interventions such as *The Sanctuary Model* to better fit the setting. Numerous inner setting organizational factors were described by participants, such as perceived hierarchy, racial discordance, and organizational policies that staff perceive as unsupportive. With regard to the outer setting, the need for collaboration between policymakers and those on the front lines serving families experiencing homelessness was noted. Participants also expressed positive views of TIC and described it as a priority despite conflicting guidance from government officials at the time of data collection, who had instituted a “Housing First” mandate which encouraged shelter-providers to focus their efforts on finding permanent housing for families as a top priority over providing other social services. Individuals who would be in the role of providing the intervention noted generally positive opinions toward and beliefs about TIC. Other individual level characteristics that warrant further consideration include the best ways to ensure that

staff experiences of homelessness present as a facilitator to building empathy for clients, rather than as a barrier, and ensuring that staff are able to process their own traumatic experiences. Finally, collaboration and engagement between stakeholders and the prioritization of aspects of TIC that increase staff wellness were identified as aspects of the implementation process that are likely to have positive impacts on intervention uptake

With regard to the EPIS Framework, barriers and facilitators at the level of the inner and outer context were identified as noted above. Aspects of the inner context that emerged as particularly salient included organizational characteristics and characteristics of both leadership and individual staff members that are likely to influence implementation. TIC adaptations, such as more active learning strategies and ongoing training and support, as well as changes in organizational culture were identified as ways to address these inner context barriers. With regard to the overlap between organizational culture and the Theory of Planned Behavior, although generally positive attitudes toward TIC were expressed, an important aspect of implementation at the inner context level is creating an organizational culture in which TIC usage is normative. The service environment and policies were salient outer context factors, and collaboration and engagement across systems was identified as a possible way to bridge this gap. Thus, thematic analysis provided several useful conclusions from the Exploration and Preparation phases to inform a future Implementation phase.

One concept that emerged unexpectedly infrequently was discussion of funding or other financial factors. Although several interviewees mentioned the lack of funding in passing, more substantial time was spent discussing the emotional challenges of servicing families experiencing homelessness. Thus, the implementation strategy of using financial

incentives to change treatment provider behavior is unlikely to be successful in the absence of social incentives or other interventions to help staff feel valued. Indeed, when incentives were mentioned, it is notable that proposed incentives were not financial incentives despite staff expressing some concerns about inadequate pay. Instead, participants focused on incentives that would improve staff self-efficacy and feelings of being cared for.

To the knowledge of the investigators, this is the first systematic study of barriers and facilitators to implementing any evidence-based intervention in the family homeless shelter environment. This setting is of particular interest due to the higher incidence of unmet behavioral and physical health needs in the family shelter environment. For example, there is evidence that children residing in emergency housing present with increased rates of asthma (Cutuli et al., 2010). The broader knowledge gained about implementation barriers and facilitators specific to this setting have the potential application to a wide range of types of interventions across both physical and mental health disparities. Consideration of the family homeless shelter setting as a possible setting for implementation of evidence-based treatments is important due to the sheer scope of family homelessness in America and the potential of the family homeless shelter setting to allow interventionists to reach some of the country's most vulnerable populations in a convenient, collaborative, and compassionate way by bringing care to people where they are.

Some scholars and advocates consider the experience of homelessness itself to be a potentially traumatic event (PTE; Goodman et al., 1991). Others do not consider homelessness itself to be a PTE, but acknowledge that the events that frequently lead to

experiences of homelessness are potentially traumatic (e.g. incidents of domestic violence, house fires, poverty; Wong et al., 1997). Regardless of whether homelessness itself is considered to be a PTE, scholars generally agree that families experiencing homelessness are more likely to have been exposed to adversity and trauma than higher-income housed populations (Guarino et al., 2007). It has been argued that families experiencing homelessness are no more at risk for adverse outcomes than families experiencing extreme poverty, and that some individuals may be represented in a population of families experiencing homelessness or of low-income housed populations dependent on the time of data collection. Even if these are the same families being assessed at different time points, it is likely that the families might present with increased vulnerability during periods of homelessness due to having run out of social support networks that might have otherwise housed them. Thus, experiences of homelessness can be considered to be a particularly sensitive period for a population that is highly vulnerable at baseline.

Additionally, whether or not the premise of homelessness as a sensitive period is accepted, one fact that scholars agree on is that significant barriers exist to providing interventions to highly vulnerable low-income high-risk populations. For example, stressors that negatively impact mental health, such as domestic violence, can also negatively impact ability to engage in mental health treatment due both material and psychosocial barriers (i.e. difficulty reaching sites at which mental health support is delivered due to limited finances and transportation options, lack of availability of child care for siblings of the identified patient or to facilitate parents seeking their own mental health support, overwhelming stress leading to vegetative symptoms of depression, lack

of mental health literacy or lack of information about the availability of mental health resources) disproving the “if you build it, they will come” mentality. Thus, we must be thoughtful in determining the best ways to provide interventions to these populations regardless of their current housing status. Investigators in the present study argue that reaching families in the shelter setting during periods of homelessness could provide one such avenue for intervention delivery.

Thus, whether or not experiences of homelessness in their own right are considered to be traumatic, or whether or not families experiencing homelessness are viewed as being at higher risk than low-income housed populations, it can be reasonably concluded that it is important for families experiencing homelessness to receive trauma-informed care and that family emergency and transitional housing settings remain a promising avenue to reach a vulnerable population. This highlights the importance of the current study and the need for additional research assessing this novel context for the implementation of TIC and other evidence-informed healthcare practices. In addition to specific insights gained through assessment of a novel setting, through future research, more generalizable conclusions can be drawn about the implementation of interventions in community settings, particularly community settings that serve high need families.

### **Limitations and Future Directions**

The current study represents only the first step in the implementation process, and thus focuses more on the identification of contextual factors that may influence a future implementation effort as well as barriers and facilitators that will inform the selection of implementation strategies. This is limiting in that the proposed study will not allow investigators to test implementation strategies or measure family-level outcomes in a

hybrid trial, which is the ultimate goal of these efforts. Given our limited understanding of the context of family homeless shelters, this step is necessary, but is not likely to have any direct and immediate implications for family care/outcomes, which is the ultimate goal of implementation science as field.

Additionally, because the “Think Trauma” curriculum and Trauma-Focused Cognitive Behavioral Therapy, for which readiness for implementation is being assessed, have not been tested in effectiveness trials in this specific population, it is possible that, even if stakeholders successfully implement the intervention and shelters with high levels of fidelity and adherence, we cannot be certain that we will see improvements in family outcomes until the effectiveness data from the hybrid trial is reviewed. Although the current study is cross-sectional and observational in nature, the future implementation studies that would be built on the foundations would be both quasi-experimental and longitudinal.

Finally, there were shelter providers that were either non-responsive or declined to participate. The pattern of missingness in the data is non-random in that those who did not participate declined to participate or were non-responsive. It is possible that the same barriers that led to non-participation may be associated with different views of TIC.

Table 1: Participant Demographics

Variable	Mean (range) or % (n)
Age	37.74 (23-60)
Gender (female)	95% (19)
Ethnicity (white)	45% (9)
Ethnicity (black)	50% (10)
Ethnicity (latinx)	5% (1)
Years working in housing services	6.98 (0.75 – 25)

Table 2: Defining Trauma-Informed Care

<p>Substance Abuse and Mental Health Services Administration, (2014): a program, organization, or system that is trauma-informed (1) realizes the widespread impact of trauma and understands potential paths for recovery; (2) recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; (3) and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and (4) seeks to actively resist re-traumatization.</p>	
Participant ID	Definition of TIC Quote
101	<p>“I would say just understanding that we all come from different backgrounds and ... we all have experienced different traumatic experiences... treating everyone as a human being and not categorizing them depending on what traumatic experience they have experienced. Being thoughtful, being empathetic. Being able to provide individualized care and meeting people where they are to help them get to whatever level they want to successfully get to... just making sure that a person is trauma-informed aware. And what that could potentially look like—not taking things personally. Knowing that It’s not about you if a person you know potentially lashes out on you. Or, you know, does not want to take the services that you are gonna provide. I’ve learned—you know working in this field—that I might not necessarily be the person that is going to take that person to the next step but I am you know a stepping stone for that person. And I don’t take any of it personally. I do as much as I can. And I try to look at everybody as an individual and not at their homelessness because at the end of the day, we’re all individuals and I can be homeless, you know, if my house burns down. So I definitely try to empathize and you know treat them like I would want to be treated. So I try to incorporate that into my work and just realize that a lot of families have experienced a lot of traumatic excuse me traumatic experiences. So I do keep that in the back of my mind. And just have general conversations with people not just so much around the services I’m providing just to get a better idea of where they come from and what services they need. And just try to listen. I’m very big on listening to what they’re saying. And body language a lot of times you know so just being empathetic, listening, trying to stay up-to-date on you know new practices, different reactions and responses to trauma and what that looks like”</p>
102	<p>“The first thing that comes to my mind is um I think comes from the sanctuary model of like to do no additional harm Um and then the second has been the phrase instead of asking why someone’s doing something, is like what happened, and how they come to survive that experience and like keeping that in mind when talking with them or trying to like understand their behavior”</p>
103	<p>“Let’s break it down. So the trauma part I think has a lot to do with childhood experiences. I think we use the word trauma to basically define negative childhood experiences that people encounter in our life.</p>

	<p>Informed care is more so for the practitioners and the case managers or the psychologists I guess for us to use the information we have about negative childhood experiences to be informed of them and to be knowledgeable about what those impacts are and what the effects are. We are in a position where we are working with somebody—a client, a participant, how you wanna label them—we know how to appropriately address them, how to understand and empathize with them. Not just sympathize but empathize. To understand that while you may not have agreed with some of the decisions they have made and I think that’s a big part so I guess trauma informed care—being knowledgeable as a practitioner about what negative childhood experience—how they’re related to adulthood and how to help them understand that this is trauma that you’re dealing with this wasn’t a good thing. It should not have been like this. Therefore, your experiences do not necessarily mean that you have to live life and continue to make certain choices based on your experiences.... I definitely think about it as if we trying to understand how your experiences have made you who you are today. And try to find ways that if you are making bad decisions right now—um, I’m using kindergarten words—but if you are making bad decisions right now, how to explain to you how to make good ones and why you’re making bad ones.”</p>
104	<p>“It means client centered services, where we are making every effort to account for many of the experiences that have contributed to family instability or intergenerational poverty. Circumstances that led to homelessness frequently have something to do with a traumatic history of trauma and (***) resulting in behavioral health struggles or addiction and things along those lines. So trauma informed care is making a deliberate effort to account for the ways in which those experiences impact the families that we work with. And how do we as a staff make sure that we are respectful, honoring of that experience. Depersonalizing any negative interactions that we might have and do have realistically. And honoring self-determination, you know that everything we ask of our residents is of their own free will. Communicating transparently with them about what our expectations are or potential ramifications of decisions made. What are all of their options and really working in partnership rather than dictating to them.”</p>
105	<p>“So to me providing trauma informed care has a lot to do with meeting families where they are. Um just really having an understanding that everybody has something going on and you may or may not be aware of it. And so just really approaching anybody or any situation with um just a lot of sensitivity and no judgment um just being very open and allowing people to um you know share things that ---if and when they want and um just approaching things with a lot of sensitivity and understanding that um especially in the homeless system there’s been a lot of trauma that lead families to coming here and even the experience of homelessness in and of itself is ---can be a traumatic experience and so just to relate, provide support, and show that --like the lack of judgement and depersonalization of any kind of challenging behaviors and just to show them that you’re there for them and to help them if and when they’re ready”</p>

106	<p>“Trauma informed care you know to me is being sensitive of and again re-phrasing the question from what’s wrong with you and that judgment to what’s happened. It’s being sensitive to trauma-histories.”</p>
107	<p>“I guess at its basic level it’s...meeting people where they are. Um, and understanding how their, their circumstances and things that have happened to them um play a very specific and intentional role in where they are right now. Um and using that not as a crutch for them but as a way to best service them and push them through to the next step.”</p>
109	<p>“Staff servicing the homeless population, because that is who we service, um being informed of how to utilize various approaches for those who have suffered trauma or may have suffered trauma so that we can provide services more efficiently and more effectively for that type of person... I think it includes everything from how they are housed in the shelter, their unit, where they eat their meals, how they’re approached by staff, to making certain that its ensured that they have their required life skills and assistance to discern and figure out why they are where they are and how they can come out on the other side and find themselves in permanent and stable housing... It may very well require some special approaches depending upon the individual because of whatever trauma they may have experienced, and it could very well be a situation where the trauma they’re experiencing is the shelter itself. So, in my opinion, that means staff needs to be well informed so they’re approaches and the ways in which, not just the ways in which they engage the residents but also how they start the process of entry into shelter, allows them to establish a level of trust and rapport with those residents coming in so that it helps to decrease the levels of anxiety and stress, and all the things that come with people who have suffered trauma.”</p>
110	<p>“Trauma informed care to me is trying to be more neutral and understanding and nurturing and supportive to families who have suffered trauma. Every individual that we have here including babies, infants, toddlers, moms, and their children have suffered trauma so just trying to give them care and we’re able to distinguish – you know we don’t wanna treat them as if they haven’t suffered trauma, so we wanna try to give them care, nurturing, things like that to make them feel like and understand that we know what they’ve been through. Without being like, you know, negative or bringing our issues or judges onto them, or even judging them because you know sometimes they’re gonna make mistakes or they’re gonna do things because of what they’ve been through. You know they’re not gonna trust us, they’re gonna have days where they have ups and downs because of things they’ve been through. They may have triggers that we’re not aware of, and just trying to be open and aware of those types of possibilities and still giving them ultimate care while they’re here regardless of what the circumstances may be.”</p>

111	<p>“knowing that, certain situations is what cause trauma, some people think of it, like, i.e., get shot, hit by a car, trauma. But certain things, meaning, the uproot of, like you might have been in a house for a while, and you are uprooted, that is something that has changed your stabilities, things that change your everyday thinking, um I think that’s something I will tell my co-workers, that it’s something has, that has been out of your norm, somethings that has been abruptly shifted or changed, in your normal everyday life...Trauma-informed care for me? Means kind of...Like...looking outside the box, kind of, not kind of looking entire picture, instead of isolating instances, umm, I kinda, yeah, looking at it from a different perspective... To be able to acknowledge the trauma. Cause some of us picking knowledge but not know what it is. Like I said, that’s where the kind of misbehaving comes in.”</p>
112	<p>“I think um it is just kinda like a thoughtful approach, it’s like understanding that you don’t know someone’s history, or that if you do that like you are kinda tracking slowly, and you know, being empathetic as possible, and trying to take a lot of different things into account when you are dealing with them.”</p>
113	<p>“to me it means trying to come, I guess come from a knowledgeable position about how people’s past and their experience affected how they act now, and trying to stay present as where you are and trying to meet people where they are at.”</p>
114	<p>“Sandy Bloom” (creator of the Sanctuary Model)</p>
115	<p>“So it really just means like, not not taking things personally, understanding understanding that people's behaviors, especially those ones that we often see as quote and quote, negative or, or, you know, unsavory a lot of times they do come from a place of trauma. And we don't always know what that trauma is. Um I look, I really look at trauma informed care more so like, how is responding to a person as opposed to the reasons why they're doing what they're doing? I might not ever know, I might not know their history, I might not know the individual things that are have happened to them. But it's really about me recognizing that behaviors come from somewhere, and I cannot take it personally, I need to keep those things in mind as I provide care.”</p>
116	<p>“Um, trauma informed care is a way that we provide our services to our families. It's a way that we think a way that we behave in a way that we speak to folks to not re-traumatize them and just support them to the best of our ability.”</p>

117	<p>“I guess the first thing I think of is sort of taking a look at the person as like a whole, a whole system. It doesn't mean just focusing on one aspect of the system in that person's life. So we're not just looking at the past. We're not just looking at the future. We're sort of looking at everything, but mainly it's what's in front of me. It's focusing on Okay, this person is escalated in the moment, we're going to work on de-escalating them. So it's a very hands on approach. And it's very much like uh what's going on right now, because trauma is something that impacts people sort of after the event.”</p>
118	<p>“It means intentional help, guidance and or assistance with our families who may have been a participant or recipient of some sort of trauma, whether emotionally physically, mentally, yes.”</p>
119	<p>“When I hear trauma informed care, to me, that is mounds of information. Saying consider, consider all people, including myself, of having experienced some type of catastrophe. That is what I, that's where I go to some type of catastrophe in life.”</p>
120	<p>“I think it's understanding where the client is coming from. Knowing that it's not a lot of times it's not from a personal place. It's what they've been through what they seen what they're currently experiencing, and just giving them I guess, the respect of, you know, respecting what they've been through and respecting, basically meeting them where they are. And sometimes it is difficult, because we don't know how trauma is going to play out, you might have somebody that comes in and they're calm, and they just motivated to do what they need to do. And then you have other people who were they haven't addressed their trauma. So it's the different plays out differently. Maybe they it's not that they're not motivated. They just don't. It just takes them a little bit longer to kind of pick up and do what they need to do.”</p>
124	<p>“Trauma informed care is a really big umbrella term. I guess when you break it down specifically to how it affects me in my role. It's kind of difficult to articulate. So it gives, it has to do a lot with how we enforce or do not enforce policy. So as a case manager, like I said, sometimes I get stuck with the role of policy enforcer with that a lot of other locations that are not trauma informed have like a write up policy where if you violate this, you get two write ups, then you're discharged. We don't have that we have safety planning. It's something that I do when I first meet with my clients are in the intake process. So I asked them, hey, like, what, are there any situations that you could possibly foresee happening in a community setting that would trigger you evoke some sort of emotional response either positive, negative, angry, sad, happy, glad, whatever. And how, what are the steps that we're going to put in place so that we have a plan for when that happens, how we're going to keep yourself emotionally safe, physically safe psychologically safe all that.”</p>

Table 3: Themes from Grounded Theory Thematic Analysis and Sample Quotations

<i>Theme</i>	Representative Quote
<i>The need for multi-level collaboration and engagement between leadership, frontline staff, and residents</i>	102: “Having that option of talking with families that are open about their stories and what their struggles are...I had the chance to talk to a mom that had been through the shelter system and she explained what it was like and she’s now on her own but she like expressed how much of a difficulty it was to meet up with her child’s father because he wasn’t allowed in a certain building like they had to meet at like a McDonald’s or something. So, that frustration alone. It’s not something I would have considered if I hadn’t had that direct contact but it’s not something that our staff could necessarily get from people in the moment experiencing”
<i>The central role of caring for staff to facilitate staff caring for clients</i>	120: “giving us the same rights as clients. Yeah, we’re professionals. Yeah, we’re supposed to set the tone, but just back us up. That’s all. Back us up. And validation...maybe have groups for staff that you can go to?...Just more unity, if I could make a perfect world...just more support overall, so that we can support the clients because compassion fatigue is real...turn over here is crazy. It’s crazy...But yeah, just helping us more with supporting the client...better compensation in essence, I think that would change the attitude of a lot of staff members here.”
<i>Racial Discordance and Cultural Considerations</i>	120: “employee wise when you look at the makeup of the company, there is a contrast between admin and residential, so people in admin tend to be more, “majority” (white) than minority, so then when you get here (to the front lines) it’s mostly minorities. Yes. So even with our clients, like from a programmatic level, not saying that majority don’t understand the gripes of like what our clients are experiencing, but it varies. So it will be beneficial to have more minorities...in admin to be able to accurately relate what’s actually happening.”
<i>Framing TIC as an explanation rather than an excuse</i>	104: “it takes a really proactive effort for us to secure buy-in from some of our long standing staff who maybe don’t understand why—in their eyes they may think we’re quote unquote being lenient or that there aren’t consequences for behavior in the way that 10 or 15 years ago that used to be the case. And why do we let the residents do XY and Z. So that kind of attitude still persists sometimes. Not always, and there are certainly folks who have been really receptive to kind of shifting their mindset about it, but it varies.”
<i>The Importance of Flexibility</i>	“101: “A lot of times the people that we serve have been through so many other systems and they’ve kind of built up this defense. They don’t

	<p>necessarily want to talk to you, especially if they feel like it's all business with you. And you're not empathetic to their needs or you're not building a rapport with them. So, you know still maintaining boundaries but um as I said seeing them as a person and you know just letting them know that we all do have different experiences you know we all need help sometimes. Sometimes we need more help, sometimes other people need less help. But you know trying not to focus on the traumatic experience of you being homeless but you know what it is that you need to get you back to where it is that you wanna go. So I would just say that being empathetic and being able to be flexible. That it is not necessarily going to work out the way that you planned it. Like you know we have schedules but they change from day to day. Like I just told you I had an emergency situation that came up. That's kinda what it looks like because the families live here. So anything can happen. Anything can arise...are you going to be flexible enough to help them through that whatever emergency situation that has you know come up while they're here?"</p>
<p><i>Staff experiences of homelessness as both a barrier and facilitator</i></p>	<p>107: ""There's an example that I'm really trying to figure out if it is better or worse. People who formerly experienced homelessness. I have seen it both work so wonderfully and then so poorly. So, in the wonderful situation there's kind of there's this empathy there's this understanding there's almost this comradery. Um but I've also seen it where people have said well I've done it so they should be able to do it and I didn't have all of these extra supports and I was able to do it um and so there's kind of this 50-50 that I've noticed in ...staff, who have been formerly homeless. I know a lot of agencies are really looking to have that expertise on staff...so much so I think a lot of boards - I don't know if there's a mandate but it's pretty close to a mandate -- that you need to have that voice on your board. But again I think that ... it can be good and bad and you know people want to compare other people's situations to theirs and I think that that's somewhat unfair because it needs to be a very unique approach per person."</p>
<p><i>Trauma-informed care as a way to increase efficiency and effectiveness</i></p>	<p>115: "giving (staff) that basic knowledge of what trauma is, and how it can affect people throughout their whole lives. Even if that doesn't, you know, um help explain things on individual basis for them, it might help them to do their jobs better, and in a way that like, they don't take it personally when people are, you know, breaking rules. And were, you know, not doing anything about it because that's what they that's a lot of the things that we heard was we're not doing anything about x y &amp; z."</p>
<p><i>Things being mandatory as both an implementation strategy vs choice as a component of trauma informed care</i></p>	<p>106: ""first thing I did as program director was the notion of involuntary/mandatory programming was stopped. We made um</p>

	<p>programming totally voluntary, we stopped and we listened to what it is people that wanted to do we took we went...and that was hard because my executive director was like “what?” -- I had to explain it to her... and I was like know what, trust me, trust the process. So that was a big one like it’s okay you don’t need to get into these power struggles with the clients, empower them they will come around and they will meet you...Even those that isolate and, you know, that are kind of aggressive and quick to flare up...sometimes it takes a lot for people to get from 0 to 60 but those people that have been traumatized they’re at a forty all the time. So it just takes them like that to get to 100. Just, like, ready to pounce all the time but you know what even with a caring learning non-punitive team around and a community you know those folks could be very successful. They really can”</p>
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## Appendix I: Coding Manual

### GENERAL CODING RULES:

- **Start coding block by at the beginning of the interview guide question**
- **Code at the QUESTION (paragraph) level.** This means code full paragraphs as opposed to sentences. If there are large segments of text where interviewer is saying “uh-huh” or there is an interjection without changing content, then lump this into one paragraph.
  - Even if interviewer is repeating the question and asking “anything else” or “what gets in the way” then you code this at the paragraph level and continue to code within the same block.
  - If the interviewer asks a question and the participant needs it to be repeated, still start paragraph at the first question (not the repetition)
  - Always code until the end of the block and the beginning of the next question even if there are no content codes.
- Use an index code any time there is an instance of the index code idea. For example, if a paragraph refers to both empathy and trust, you can apply both
- Similarly, use as many codes as apply to a particular paragraph. For example, if a staff member describes the impact of a limited financial resources and stress due to lack of support, the material resources code and the emotional resources code.
  - You can also use as many index codes in conjunction with content codes as apply.
- For the first 2 questions (occupation/role and length of time working in shelter) do not apply codes unless the person elaborates in a meaningful way beyond simply answering the question.
- Only code based on stated/explicit things that are said by the interviewee, not things that are implied or said by the interviewer

Index codes	Index code name	Definition	Specifications/examples
General rule for index codes: Use as a tag for text, just marking it off. All text does not need an index code. Index codes can be double coded (i.e., coded alongside other codes); Use any time the concept comes up			
	Safety	Any reference to safety or lack thereof. Includes feeling of staff safety, residents feeling unsafe due to past experiences etc, notes safety concerns, safety to voice opinions freely. Also includes any reference to safety-focused intervention characteristics	e.g. 124 “And how, what are the steps that we’re going to put in place so that we have a plan for when that happens, how we’re going to keep yourself emotionally safe, physically safe psychologically safe all that.”
	Flexibility-Rigidity	Any reference to the need for or presence of flexibility (e.g. individualization; adapting to different circumstances) or the ability/inability of institutions to change and adopt new ways of operating	e.g. 101 “So I would just say that being empathetic and being able to be flexible. That it is not necessarily going to work out the way that you planned it. Like you know we have schedules but they change from day to day. Like I just told you I had an emergency situation that came up. That’s kinda what it looks like because the families live here. So anything can happen. Anything can arise...are you going to be flexible enough to

			help them through that whatever emergency situation that has you know come up while they're here?"
	Empathy	Any reference to taking the perspective of others, understanding where others are coming from etc	e.g. 102: "I would want all of our direct care staff or like people that engage directly with our families to be able to empathize more and think to themselves okay if I had to live in this situation with that rule how would I feel about it and be able to like recognize that like that's part of the struggle of living here and like"
	Competing Demands	Any reference to balancing competing demands or priorities (e.g. a person's role subsuming multiple other roles, trying to balance providing programming and housing to families etc)	e.g. 104 after taking a phone call ""well, it's always challenging, but this is part of the day to day."
	Trust	Any reference to trust or lack thereof, can refer to client lack of trust in organizations and systems, staff trust in each other or institutions (or lack thereof)	e.g. 109 "So, in my opinion, that means staff needs to be well informed so they're approaches and the ways in which, not just the ways in which they engage the residents but also how they start the process of entry into shelter, allows them to establish a level of trust and rapport with those residents coming in so that it helps to decrease the levels of anxiety and stress, and all the things that come with people who have suffered trauma."
	Respect	Any reference to respecting clients' individual choice and autonomy to make decisions independently. Approaching clients in ways that make them feel respected (i.e. not talking down to them). Also includes reference to inter-staff respect (e.g. staff feeling valued), staff feeling disrespected by clients, clients feeling disrespected by staff or by one and other. Conducting interactions in a respectful and <b>professional</b> manner (or vice versa). Key words: "rude" "disrespect" or "respect" "valued"	e.g. 120 "It's what they've been through what they seen what they're currently experiencing, and just giving them I guess, the respect of, you know, respecting what they've been through and respecting, basically meeting them where they are."
	Conflict-Cooperation	Any reference to conflicts between individuals, ideals, etc.; this could include conflict between staff and residents, conflict between residents and residents, conflict between frontline staff and administration. Can also refer to lack of conflict (e.g. working together to achieve a certain mission)	e.g. 116 ""There's a lot of kickback. Oh, that's a hippy dippy way of thinking, that's a white model, that's a white way to talk...there was...class, there was race, there was you know, generational there's all these things that are piling in negatively on why this was not going to work"
Broad theme	Codes <ul style="list-style-type: none"> <li>Possible subcode</li> </ul>	Definition	Specifications/examples

General rule for Intervention characteristics (CFIR) codes: Use when the interviewee is talking about what trauma informed care is or means to them, or when they talk about what is important about trauma informed care			
Intervention characteristics (CFIR)	Rapport and Relationships	<p>Reference to relationship building as a foundation of trauma-informed care or a vehicle to provide trauma-informed care</p> <p>Being genuine, getting to know the person, building a relationship before asking questions about history of trauma, demonstrating to clients that staff have genuine care for them</p> <p>Reference to listening with or without specific reference to empathy</p> <p>Specific to interactions with clients, not interactions/relationships between staff</p> <p>Key words are “just listen” “relationship” and “get to know” “friendliness” “kindness”</p> <p>ALSO USE when participants talk about staff having relationships with clients that are too casual and too close (lack of boundaries)</p>	e.g. ID 109 “Once they see somebody who is really taking a genuine interest in what is happening to them...even if it’s just a smile if they’re not ready to completely open up, eventually they do.”
	Transparency and Communication	<p>Reference to open communication and sharing of information, transparency (or lack thereof e.g. opacity or decisions made behind closed doors), inability to share opinions without fear of retribution (e.g. getting in trouble for a staff member telling their supervisor they made a mistake)</p> <p>Can include open communication between staff to talk with people at their same level (e.g. staff members communicating about work and supporting each other at work)</p> <p>Key words: “open” “honest”</p>	110: “And we’re human. So we all get offended. Yeah. And it’s good to be able to, you know, express that to each other. Yeah. Instead of expressing it to the clients and making them know that they offended you.”
	Client-centered services	<p>Reference to individualized or collaborative care.</p> <p>Any reference to building a plan with a client collaboratively or to providing care that is directed by the client (e.g. meeting them where they are)</p> <p>Also includes any reference to individualization and tailoring interventions to meet clients’ specific needs</p> <p>Specific to interactions between staff and clients</p> <p>Key words: “individualized”</p>	e.g. 101 “Being able to provide individualized care and meeting people where they are to help them get to whatever level they want to successfully get to”

	Education, Knowledge, or Awareness	<p>Any reference to increasing a staff's <b>understanding</b>, awareness, or knowledge of the impact of <b>trauma</b> on individuals, must talk about understanding of trauma and its impacts specifically, not just general learning about unrelated things</p> <p>OR</p> <p>Can also include psychoeducation about trauma for clients and increasing clients' own awareness of the impact of past traumas on their functioning</p> <p>OR</p> <p>Any reference to trauma informed care being knowing about trauma or knowing how trauma can impact people's thoughts feelings or actions</p> <p>Key words: "understand" with reference to how trauma impacts people or "aware"</p> <p>DO NOT USE when talking about the educational level (e.g. high school only) of staff working in the shelter, INSTEAD code "workforce characteristics"</p>	e.g. 101 "I would say just understanding that we all come from different backgrounds and ... we all have experienced different traumatic experiences"
	Non-judgmental Care	<p>Any reference to providing care without judgment</p> <p>Can also be talking about seeing a person for more than their homelessness, not categorizing, not making assumptions, not judging people</p> <p>Specific to STAFF not judging CLIENTS</p> <p>DO NOT USE for reference to staff communicating with each other openly (instead code Organizational culture and/or Transparency and Communication) or staff communicating openly with their supervisors (instead code Transparency and communication)</p>	e.g. 101 "treating everyone as a human being and not categorizing them depending on what traumatic experience they have experienced. Being thoughtful, being empathetic."
	Insight and Self-reflection	<p>Any reference to staff reflecting on either their own experiences (and what they subsequently bring to the table in interactions with clients) or reflecting on their own trauma histories as a way of understanding trauma as experienced by clients</p> <p>Must be related to STAFF introspection on their own history or biases, not used when discussing staff insight into client characteristics</p>	e.g. 110 ""staff has trauma including myself. Some people still have to work on themselves, you know, I think for staff as a way of self-care, you have to take care of yourself. You have to get your own therapy, you got to work on yourself."

	Depersonalization	Any reference to not taking things personally and understanding that client reactions may be a reflection on the client's own experience, not necessarily anything intrinsic to the staff member	e.g. 101 "And what that could potentially look like—not taking things personally. Knowing that It's not about you if a person you know potentially lashes out on you. Or, you know, does not want to take the services that you are gonna provide. I've learned—you know working in this field—that I might not necessarily be the person that is going to take that person to the next step but I am you know a stepping stone for that person. And I don't take any of it personally. I do as much as I can."
	Behavior and Crisis Management	Any reference to trauma-informed ways to manage crises or other difficult behaviors (e.g. trauma-informed safety plans, de-briefing after a crisis that occurs in shelter, ways to approach clients that takes their trauma history into account etc) Also includes references to the opposite (i.e. a more authoritarian or non-trauma-informed way of managing behavior or enforcing rules) Use whenever "red flag meeting" is mentioned	e.g. ID 109 "so to be able to say "I'm gonna write you up if you don't do what you're supposed to do"...as opposed to seeing that position from a perspective of 'I want to help these individuals,' it's more of a position of power because I'm the monitor"
General rule for barriers or facilitators codes: Use when the interviewee talks about things that might get in the way of trauma informed care or that make it easier to be trauma informed			
Barriers OR facilitators	Organizational Structure	Any reference to structural characteristics of the organization that either promote or preclude the use of trauma-informed practices (e.g. people work in shifts and not everyone is here at the same time, the onboarding process, bureaucracy, length of stay, multiple locations with different policies)  Formalized, might be written in a handbook, can include rules and policies  Can include roles and committees that aim to change organizational culture (in these cases code both)  ASK yourself: is this procedural and explicit?	e.g. 119 ""there's one rule that is discounting (to TIC): the smoking policy. The smoking policy is that at 12 o'clock the shelter pretty much closes that shuts down. But there are some people that have PTSD, major depression, whatever issues they may have that they may feel as though they need a cigarette after that 12 o'clock. And for now, it's kind of like okay guys, until we can think of a safe way to kind of revise that. It will have to stay the way it is because now how it stands is at 12 o'clock most people are asleep so if it looks people are asleep, who's going to keep an eye on your child when you're outside smoking, right? So it's like we have to kind of come up with a safe way to do that. However, we haven't closed it down. It's still on the table and we're asking them to help us figure it out...it is working two ways because we didn't shut it down. But neither did we change it right now. So sometimes a rule can impede (TIC)..."
	Organizational Culture	Any reference to organizational culture and the impacts on the ability to be trauma-informed (e.g. Perceived hierarchy, social support from co-workers, buy-in, resistance to change, receptivity to change, attitudes toward trauma-informed care)	e.g. 120 ""giving us the same rights as clients. Yeah, we're professionals. Yeah, we're supposed to set the tone, but just back us up. That's all. Back us up. And validation...maybe have groups for staff that you can go to?...Just more unity, if I could make a perfect world...just more support overall, so that

		ASK yourself: is this a more implicit attitude rather than a policy?	we can support the clients because compassion fatigue is real...turn over here is crazy. It's crazy...But yeah, just helping us more with supporting the client...better compensation in essence, I think that would change the attitude of a lot of staff members here.”
	Emotional Resources	Value neutral. Any reference to self-care, references to burn out or people being in this job for the right reasons/finding the work to be fulfilling, frustration, helplessness, feeling overwhelmed STAFF emotional resources Key words: “self-care” or “burn out” “bogged down” or “stress” talking about staff’s feelings	e.g. 120 ““everybody has their own stuff. But sometimes it's just like, well, I don't want to put up with that stuff today because...I'm not your emotional punching bag... I know that you're having a tough time and I'm sorry that you were you've experienced what you've experienced, but I'm not your emotional punching bag.”
	Material Resources	Financial costs, reference to interventions of policies being labor intensive (e.g. requiring more people), space on site or lack thereof, city funding for training (or lack thereof); also includes reference to dedicated paid positions working on enhancing trauma-informed services or lack thereof, references to being short staffed due to budgetary limitations ORGANIZATION material resources  DO NOT USE when referencing client economic challenges (e.g. clients don't have money saved”0	e.g. 103: “Funding, I think I’ve mentioned that as well. We get. We get funding for a lot of things, but not things we actually need. We get um so the program that just started reparation housing. To me, my opinion, is no different than sectioning. The only difference is they’re given a voucher. The similarities is we’re paying a subsidy toward your rent. The only difference is that there’s a case manager. And in the job as the case manager I’m supposed to visually see them once a month to get proof of income.”
	Workforce Characteristics	Staff member individual differences e.g. staff’s own experiences of homelessness, staff level of education, anything attributed to being <b>intrinsic to the person</b> Can include inter-individual difference or descriptions of the workforce Demographics and attitudes of the workforce	e.g. ID 109 “what we’re pulling from is that population of people that have probably – possibly, just cycled out of homelessness themselves.”
	Client characteristics	Anything inherent to the client or resident that either makes being trauma informed easier or more challenging Demographic things that impact being trauma informed  Can include descriptions of client mental health or emotional resources, client conceptualization of the origins of their difficulties	e.g. ID 110: “They don’t think that their issues is an issue to deal with, something that’s important to deal with. They don’t think their mental health is important or that it needs to be worked on, or that you can work on healing or that you can work on your trauma and that you don’t have to be this way you don’t have to hurt this way, you don’t have to deal with regret or thinking that something is your fault when most of the time what you’re dealing with was not your fault. But they’re not able to understand that or articulate that because they’re just so, I don’t know I really, sometimes it just blows my mind honestly. Just some of the mindsets and the things that people

		THINGS THAT ARE TRUE ABOUT THE CLIENT AS AN INDIVIDUAL THAT WOULD STILL BE TRUE EVEN IF THE PERSON WAS NOT IN SHELTER (personality traits, statements about race or education level)	tell me and the things that people say. And I know a lot of it is generational, it's just people knowing that you can go to a shelter just to see what you can get and you don't have to do much to get it."
	Legislation and Policy	References to legislation or city/state/national policy and its impact on the ability to be trauma-informed  Can include the housing first mandate and various thoughts on its impact on the family housing system. Can also include other more systems level factors or policies.  Can also include recommendations or reference to system level changes such as changes in the broader administration/policy → code any time "OHS"/"Office of Homeless Services" is mentioned	109: ""part of the issue is that we have policy makers and people in these places who do not interact with the population so they're not sensitive to what we see here in the trenches watching these people come in and out. So, sometimes I think, it ends up affecting how they fund us as well as the policies and procedures they create that might really not work for the population that we service, and they don't know because they're not engaging them. So, if that's the case, then we're looking at, in many instances, providers who are underfunded, so that means we're going to have a lack of staff. That means we're going to be limited in what we can pay the staff"
	Cultural Attitudes and Beliefs (Cultural considerations)	Factors that might impact implementation relating to cultural attitudes and beliefs, includes racial discordance and racial tension between staff and residents, views of trauma-informed care as a "white person thing", clients interpreting TIC as "nosy" due to cultural beliefs around privacy Can include any reference to the role of race or SES etc in TIC	103: "So you have homelessness as a big population of people. However, if we could find—maybe get some coalition of people—and as much as people may not like this, but a coalition to bring different types of persons to the table. A black man, a black woman. A Hispanic man, a Hispanic woman. A white woman, a white man. And that (are) all dealing with those same issues of homelessness. I think that you can get a lot of information, because...I'm African American. I can't really speak on a different race in family systems because I haven't lived it. Through knowledge and research and just school period I have learned a lot, but I think we really need to dive into the differences within different races and what trauma looks like for different people... It's about those past experiences that have basically created who you are today in the world."
General Rule for Implementation Strategies Codes: Use when the interviewee talks about HOW to get people or organizations to be more trauma-informed (will often be co-coded with Adaptations codes)			
Implementation strategies	Training	Training/workshop/didactic presentation without specifically noting any ongoing component that involves supervision	e.g. 109 "ID 109: "I know that for myself we've been required to do like online trainings for those types of things, but I don't think that's enough."

		CAN indicate repeating the same training more than once for incoming staff without necessarily triggering the ongoing supervision and support code. The training code and the ongoing supervision and support code can be co-coded.	
	Ongoing Supervision and Support	Reference to follow up to training to providing support, supervision, or reinforcement (i.e. booster trainings)	e.g. 124 ““people come from other places not completely understanding or having the personality to like (TIC). Some people take a lot of reminding, like you need this is how we are here. It doesn't matter. This is not how you've done it in the past...this is what we're doing. We are trauma informed and there's no ifs, ands or buts around it. Yeah, man, like employees really have to be receptive to the idea in order for you to execute it.”
	Collaboration and engagement	Client/stakeholder involvement in or feedback on the implementation process; Reference to consulting with shelter staff to design interventions, building buy-in, senior level staff collaborating with frontline staff, reference to involving clients in the process of developing trauma-informed care interventions etc	e.g. ID 109 “Part of the issue is that we have policy makers and people in these places that do not interact with the population so they're not sensitive to what we see here in the trenches...it ends up effecting how they fund us as well as the policies and procedures they create that might really not work for the population we service, but they don't know because they're not engaging them.”
	Trademarked/Branded intervention certification	Reference to the implementation of a branded/trademarked intervention with specific training and language (E.g. the sanctuary model) Code any time “sanctuary” is used	e.g. 113 “with Sanctuary Model, yeah, just simplifying it because the words even though the words are not that complicated, just kind of dumbing it down...you have to like go to college to understand the psychoanalysis of all this stuff. And like how it's supposed to help people.”
	Choice	Reference to engaging with TIC interventions or behavioral health services as being mandatory or optional, both for staff and for clients	e.g. 113 ““our services are optional. And we encourage you to participate because they will benefit you. but we're not gonna, you know, because we don't want them to feel like they're back in their abuse situation, where their abuser is forcing them to do this and forcing them to do that. So we've heard that sometimes they're like, I feel like I'm back in my abusive relationship, because you guys are forcing me and there's so many rules, you know, kind of like, well, life needs structure. So kind of but then also, you're right, like you need to keep keep mind of that kind of thing.”
	Efficiency and Effectiveness	Reference to the link between being trauma informed and increased effectiveness or efficiency of the organization as a whole	e.g. 104 ““it gives us the opportunity to establish trust and really have the relationship that is sometimes required to work on the hard issues. And the system has changed where we're now receiving referrals from office of homeless services, which all of our families come through the office of homeless

		<p>(i.e. recognition of the connection between TIC and a better-quality experience for both staff and families, ways in which TIC actually makes the jobs of shelter staff easier rather than more burdensome)</p> <p>Can also refer to how trauma-informed care would allow the organization to better meet their larger goals (e.g. the link between stable housing for clients and TIC, helping clients solve their problems so they don't come back into shelter)</p> <p>Key words: "recidivism"</p>	<p>system to us...And people are also here for a shorter period of time than they used to be. Which you know in some ways is obviously a good thing. But it also I think sometimes doesn't give us or the families opportunity to really address some of the barriers to stability that led to homelessness to begin with and kind of sets them up to return back into the system again later."</p>
	Incentives	<p>Any reference to incentives as a method of motivating staff to engage in trainings or implement TIC (can include financial and social incentives)</p> <p>Can also include use of incentive to facilitate client involvement in TIC-interventions</p>	<p>e.g. 109: "I think what would be great if there was some incentive that might be offered to providers, no matter how minor, something, even if they said at the end of the training 'we want to present you with a certificate and we're having a luncheon where all the providers that participated and have followed through with their training where they come and network and meet each other' you know, whatever, some type of incentive, to help boost self-esteem too. You know, the staff needs it just as much as the clients, and I think that if the staff member knew – you know staff are coming in and some are limited as far as their educational level and things that nature in the end of the day, if I'm not gonna get something that said look I completed this training and I did this training and it meant something to the city of Philadelphia, then I think that could really prove beneficial. I mean I really could see that being a means and a way to keep providers engage."</p>
	Monitoring and Evaluation	<p>Use of data, goals, or metrics to motivate organizational change; measurable outcomes</p>	<p>103: "Say XXX our CEO was to have a trauma informed care training. Have a follow up. Just like clients follow up we need follow up. Have you encountered anything you know anything that you've learned in this course has it while you've talked to your clients for the past week, have you had to you know have you had a thought back to what you've learned."</p>
<p>General Rule for Adaptations Codes: Use when the interviewee is talking about WHAT would have to CHANGE for trauma informed care to work?</p>			
Adaptations	Intervention Adaptation	<p>Modifications to existing trauma-informed care models or current shelter practices to better fit the setting or to increase engagement (e.g., active learning strategies, relatable examples etc)</p>	<p>e.g. 119 "ID 119: "Where would I start...Well, for one thing, I would probably give them two case scenarios...Now, if you had one group of people over here that had the information that ... most people in life have experienced some type of traumatic</p>

		<p>With specific reference to CHANGE of intervention from the way it is currently specified and delivered (change in structure of training, adding a component)          Making a specific suggestion about how current trauma-informed care training would need to be changed          DO NOT USE when staff talk about how more people need to get the training that already exists          INSTEAD code “Organizational level changes”</p>	<p>situation, right. And with that...they're trying to get it together. They're trying to heal, they're trying to move forward. But for some reason, they may be experiencing some challenges right? Now you have those people over there, they're trying whatever level but they're trying... know this information (regarding trauma) about them. And knowing this information, in my opinion, will prompt someone to deal and engage and work with their person in a more compassionate way and have that environment versus an environment over here that no one expects anything. No one is informed of anything and people are steady coming into the facility and you are just free falling it. Which environment do you think is going to be more productive? Which environment do you think that you would more likely be willing to work in and feel safe? I would make sure I used the word safe. I think I would have to use some examples because all the talking, you know...so I think I would use to case scenarios as the examples”</p>
	Individual level changes	<p>Any changes that a person would need to make to be able to be trauma informed, or references to people who are unable to fit the new culture/intervention no longer being a good fit for working at the organization          With specific reference to CHANGE in attitude/staffing/perspective          Making a specific suggestion about how people within the organization would need to change</p>	<p>117: “I think temperament, probably...personal experience, maybe just understanding trauma more. So, having the research around trauma and training on that. And I think also just wanting, like compassion, wanting to be here to serve this population.”</p>
	Organizational level changes	<p>Changes at the organization level that would need to be made for trauma-informed care intervention to be successful. This includes structural and cultural adaptations. this includes changes in leadership or changes in the attitudes of leadership          With specific reference to CHANGE not just description of the culture or structure that imply change (must be explicit)          Making a specific suggestion about how the organization would need to change</p>	<p>114 ““Oh, I would say the first, the first year it was a challenge to stay up (on TIC) just because it was something new. But I just think through repetition, just from us, you know, calling red flag meetings when necessary. Just being more sensitive to our needs, and our emotions and things of that nature. To be able to help them we keep our own emotions in check. And we become better listeners over time.”</p>

## Appendix II: Interview Script

### Shelter Director Interview Questions

*We are interested in hearing your thoughts about the best ways to support the families in your care in terms of their behavioral, emotional, and mental health, and how such intervention might fit within the existing family emergency housing system. Specifically, we would like to talk to you about trauma-informed care.*

*I'm interested in your perspective on the appropriateness and acceptability of Trauma-Informed Care for family emergency and transitional housing facilities, and what it would take to launch, implement, and maintain this type of service. I'm particularly interested in your thoughts about how easy it would be to put it in place; what might keep or stop SHELTER\_NAME from using it; and what its advantages and disadvantages might be, from your perspective. It's important for you to know that there are NO right answers. I'm really interested in your opinion.*

#### **Part 1: General Questions**

##### **Participant Information**

Q: First, could you tell me your job title and briefly explain what you do in this position?

Q: How long have you been in this role? How long have you worked in family services and emergency housing?

##### **General Mental Health Questions**

Q: What are some of the top priorities at SHELTER\_NAME right now in terms of serving residents? What are your primary concerns when it comes to serving the families in your care (i.e. pain points)?

Q: I'd like to hear your thoughts about the role of emergency housing facilities and family emergency and transitional housing facilities in supporting the behavioral, emotional, and mental health of residents.

Q: What are some of the top priorities related to the emotional, behavioral, and mental health of residents right now? What do behavioral, mental, and emotional health services for residents look like now? Specifically for mothers? What about for children?

**Interviewer: Prompt if the participant seems to be talking exclusively about the mental health of the parent. Repeat a modified version of this prompt as necessary throughout if it is unclear whether the respondent is referring to mothers or children.**

(It sounds like you are talking about the parent, is that correct? That is very helpful to know. I would also like to hear your thoughts about opportunities for supporting the behavioral, emotional, and mental health of the children living at SHELTER\_NAME.)

Q: In terms of supporting the mental, behavioral, and emotional health of residents, what has gone well?

Q: What are the biggest challenges you face in terms of supporting the behavioral, mental, and emotional health of residents?

Q: Tell me your thoughts about the culture around mental health services in the community and population your shelter serves. What about among staff members?

## **Part 2: Trauma-Informed Care-Specific Questions & C-FIR Informed Questions**

Q: What do the words “trauma-informed care” mean to you?

*Because the term “trauma” can be used to mean many different things, I want make sure we are speaking the same language. When I say “trauma” I am talking about traumatic life experiences. This includes psychological trauma, which refers to intense recurring or prolonged events that threaten to cause harm to a person’s emotional and/or physical well-being (such as witnessing the death of a loved one), physical trauma, which includes a multitude of physical injuries that require immediate care (for example, car accidents), and adverse childhood experiences, a term which encompasses emotional, physical, and sexual abuse, and neglect, and has recently been expanded to include things like witnessing parental drug abuse, poverty and witnessing community violence. The goal of trauma-informed care is to support people who have had these types of experiences in managing their emotional, behavioral, and mental health.*

Q: What are the essential components (or bare bones) of trauma-informed care in your opinion?

Q: Tell me your thoughts about the culture around trauma-informed care in the community and population your shelter serves. What about among staff members?

Q: Are you aware of any efforts to use any type of trauma-informed care model in the family homeless shelter system? What have your experiences with attempting to implement trauma-informed care been like (e.g. The Sanctuary Model, the ARC model, etc)?

Q: How do you think trauma-informed care could be implemented most effectively in family emergency and transitional housing facilities?

Q: What types of things would be necessary to implement this kind of system in SHELTER\_NAME specifically?

Q: If you had to pick one thing off that list, where would you begin? Where would you start?

Q (Barriers): I’d like to hear your thoughts about any potential barriers to implementing this intervention. By barriers, we mean anything that you anticipate might get in the way of launching, implementing or sustaining it in your setting. Think about barriers to providing trauma-informed care in the family emergency and transitional housing setting.

**Interviewer: Make sure to probe for barriers at the intervention, provider, organization, or system level.**

Q (Facilitators): Next, I’d like to hear your thoughts about any potential facilitators to implementing this intervention. By facilitators, we mean anything that might make it easier to launch, implement, or maintain the intervention in your setting. Think about facilitators to providing trauma-informed care in the family emergency and transitional housing setting.

**Interviewer: Make sure to probe for facilitators at the intervention, provider, organization, or system level.**

Q (Provider Level): Now I would like to ask you about characteristics of the providers and staff at your setting that might affect launching this intervention, implementing it from day to day, and maintaining it in your setting over time. Tell me about staff factors which may affect implementation of trauma informed care your setting.

**Interviewer: Make sure to probe for knowledge, self-efficacy, and confidence.**

Q (Inner Setting): What about characteristics of your setting or organization that might affect launching Trauma-Informed Care, implementing it from day to day, and maintaining it in your setting over time? Tell me about factors pertaining to your setting which may affect implementation of trauma informed care in your setting.

Q (Outer Setting): What about characteristics of your larger context (i.e., local, state, or national-level) that might affect launching this intervention, implementing it from day to day, and maintaining it in your setting over time? Tell me about factors pertaining to your larger system context which may affect implementation of trauma-informed care in family emergency and transitional housing facilities.

Q (Adaptability): If you have previously attempted to implement trauma-informed care, what kinds of changes or alterations to the intervention do you think would be needed for you to use it effectively?

Q: Who would be involved in the process of adopting, implementing, and sustaining trauma-informed care in family emergency and transitional housing facilities? Who chooses or makes decisions about what types of models are used in serving the families in your facility?

Q (Anything else): Is there anything else you'd like to add before we conclude with the interview?

Q (identifying non-shelter director staff members): We are also hoping to connect with a few other staff members in each shelter to hear about their lived experience serving homeless families and their opinions on trauma-informed care. We are specifically interested in speaking with a staff member who would be enthusiastic about implementing a model of trauma-informed care, and one who may be a bit more cynical or resistant ("less enthusiastic" think of substitute words). It has been suggested the easiest way to identify these individuals would be to ask shelter directors like you. Does anyone come to mind that might be interested in participating in an interview like this?

If so, we have an email blurb describing the study that we can send to you so that you can forward to them. If they are interested in learning more about the study, the email blurb would provide them with our information so they could contact us directly. Would you be willing to do this?

### **Part 3: Demographics**

1. Your age?	_____
2. Your gender?	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Non-binary <input type="checkbox"/> Prefer not to disclose

3. Do you identify as Hispanic and/or Latino?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to disclose
	<input type="checkbox"/> American Indian/Alaska Native		<input type="checkbox"/> White
4. What is your race? you can choose more than one:	<input type="checkbox"/> Asian		<input type="checkbox"/> Multiple Races
	<input type="checkbox"/> Black or African American		<input type="checkbox"/> Other: _____
	<input type="checkbox"/> Native Hawaiian or Other Pacific Islander		<input type="checkbox"/> Prefer not to disclose

### Appendix III: Recruitment Materials

#### Recruitment Script for e-mail introductions:

Hello NAME,

You are receiving this e-mail because you were identified by COLLEAGUE (or “a colleague”) as someone who might be interested in participating in a research study. My name is Bethany Watson, and I am a 5<sup>th</sup> year clinical psychology PhD Student at the University of Pennsylvania. My research focuses on learning from the lived experience of staff at emergency and transitional housing programs that serve families to determine the best way to support both the staff in these facilities, and the populations they serve. Specifically, I am interested in hearing your thoughts about trauma-informed care.

As someone who works in family shelters each day, you are the expert. Participation in the study would not involve making any changes in SHELTER NAME, it would only involve a conversation in which my goal would be to learn from your expertise.

If you agree to participate in the study, I will come and meet you at SHELTER NAME, or, if you prefer, there are offices on Penn’s campus where we could conduct the interview. The Interview should take approximately 1 hour, and you will be compensated with a \$25 gift card for your time. If you are not interested in participating in the study, please let me know, and I will not contact you via e-mail again.

I hope to hear from you soon, and I look forward to hearing your valuable perspective!

Best,  
Bethany Watson

#### Recruitment Script for In-person recruitment efforts:

“Hello,

My name is Bethany Watson, and I am a 5<sup>th</sup> year clinical psychology PhD Student at the University of Pennsylvania. I am conducting a research project that involves interviewing directors and staff at family emergency and transitional housing programs in the greater Philadelphia area.

My research focuses on learning from the lived experience of staff at emergency and transitional housing programs that serve families to determine the best way to support both the staff in these facilities, and the populations they serve. Specifically, I am interested in hearing your thoughts about trauma-informed care.

As someone who works in family shelters each day, you are the expert. Participation in the study would not involve making any changes in SHELTER NAME, it would only involve a conversation in which my goal would be to learn from your expertise.

If you are interested in participating in the study, I will come and meet you at SHELTER NAME, or, if you prefer, there are offices on Penn's campus where we could conduct the interview. The Interview should take approximately 1 hour, and you will be compensated with a \$25 gift card for your time. My goal is to speak to a leader from each shelter that serves families in the greater Philadelphia area. If you have colleagues who might be interested in participating, please let me know, and I will reach out to them via e-mail. Thank you for your time and consideration"

Recruitment Script for e-mail follow up to in-person introductions:

Hello NAME,

It was great meeting you at MEETING. I am writing to follow up on our conversation about my dissertation study, which involves interviewing directors of family emergency and transitional housing programs in the greater Philadelphia area. Can you please let me know some times that might work well for you to conduct the interview? I will come and meet you at SHELTER NAME, or, if you prefer, there are offices on Penn's campus where we could conduct the interview. The Interview should take approximately 1 hour, and you will be compensated with a \$25 gift card for your time. Please let me know what would be most convenient for you.

Thank you for agreeing to participate in my study. I look forward to hearing your valuable perspective!

Best,  
Bethany Watson

## **Appendix IV: Informed Consent Document**

**Title of the Research Study:** Assessing Context for the Implementation of Trauma-Informed Care in Family Emergency and Transitional Housing Facilities

**Protocol Number:** To be assigned.

**Principal Investigator:**

Sara Jaffee, PhD  
425 S. University Ave  
Room 464  
Philadelphia, PA 19104  
215-746-4566  
[srjaffee@psych.upenn.edu](mailto:srjaffee@psych.upenn.edu)

**Other Investigator:**

Bethany Watson, MA  
425 S. University Ave  
Room 463  
Philadelphia, PA 19104  
267-536-5440  
[watsonbe@sas.upenn.edu](mailto:watsonbe@sas.upenn.edu)

**Emergency Contact:**

Sara Jaffee, PhD  
425 S. University Ave  
Room 464  
Philadelphia, PA 19104  
215-746-4566  
[srjaffee@psych.upenn.edu](mailto:srjaffee@psych.upenn.edu)

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You are being asked to take part in a research study. This is not a form of treatment or therapy. It is not supposed to detect a disease or find something wrong. Your participation is voluntary which means you can choose whether or not to participate. If you decide to participate, or not to participate, there will be no loss of benefits to which you are otherwise entitled. Before you make a decision, you will need to know the purpose of the study, the possible risks and benefits of being in the study, and what you will have to do if decide to participate. The research team is going to talk with you about the study and give you this consent document to read. You do not have to make a decision now; you can take the consent document home and share it with friends and/or family.

If you do not understand what you are reading, do not sign it. Please ask the researcher to explain anything you do not understand, including any language contained in this form. If you decide to participate, you will be asked to sign this form and a copy will be given to you. Keep this form. In it, you will find contact information and answers to questions about the study. You may ask to have this form read to you.

**What is the purpose of the study?**

The purpose of the study is to partner with you to understand more about serving families in emergency and transitional housing facilities. Specifically, we are interested in hearing your perspective on how to support the behavioral, emotional, and mental health of the families in your

care. We are also interested in hearing your perspective on trauma-informed care, and barriers and facilitators to the provision of this type of intervention in your setting.

**Why was I asked to participate in the study?**

You were asked to participate in this study because you work in an emergency or transitional housing facility that serves families, or have been identified by a colleague or collaborator as someone who may have useful knowledge about trauma-informed care in emergency and transitional housing facilities. We are recruiting stakeholders from all emergency and transitional housing program in Philadelphia that serve families. You may only participate in this part of the study if you agree to us audio-recording this interview.

**How long will I be in the study? How many other people will be in the study?**

Your participation will be in the form of a one-time hour interview. You will be one of approximately 18 people in the study.

**Where will the study take place?**

The study will take place in the convenience of your own office or private space. You will not have to leave your organization or travel to participate in the study. However, if you prefer, the study can be conducted in an office on the University of Pennsylvania's campus.

**What will I be asked to do?**

You will be asked to respond to a semi-structured interview conducted by our trained research investigator. This interview will ask you about your perceptions of current systems for supporting the behavioral, emotional, and mental health of the residents in your housing facility. The interview will also ask about your attitudes and opinions on trauma-informed care.

**What are the risks?**

The possible risks of participating in this study include breach of confidentiality, which may impact employment. As described below, we will take many steps in this study to protect your privacy and confidentiality.

**How will I benefit from the study?**

There is no direct benefit to you. However, your participation could help us understand how to best implement evidence-based practices (e.g., treatments shown by research to work) for trauma-informed care, which can benefit you indirectly.

**What other choices do I have?**

Your alternative to being in the study is to not be in the study.

**What happens if I do not choose to join the research study?**

You may choose to join the study or you may choose not to join the study. Your participation is voluntary.

There is no penalty if you choose not to join the research study. You will lose no benefits or advantages that are now coming to you, or would come to you in the future. Your employer will not penalize you for your decision with regard to your employment or compensation.

**When is the study over? Can I leave the study before it ends?**

The study is expected to end after all participants have completed all visits and all the information has been collected. The study may be stopped without your consent for the following reasons:

- The PI feels it is best for your safety and/or health – you will be informed of the reasons why.

- You have not followed the study instructions.
- The PI, the sponsor, or the Office of Regulatory Affairs at the University of Pennsylvania can stop the study anytime.

You have the right to drop out of the research study at any time during your participation. There is no penalty or loss of benefits to which you are otherwise entitled if you decide to do so. Withdrawal will not interfere with your future employment.

If you no longer wish to be in the research study, please contact Bethany Watson, MA, at [watsonbe@sas.upenn.edu](mailto:watsonbe@sas.upenn.edu), (267)536-5440 and take the following steps: inform her you no longer wish to be enrolled. There are no consequences to dropping out of the study. Digital recordings of the interviews will be destroyed within 2 years of transcription.

### **How will confidentiality be maintained and my privacy be protected?**

This information will only be accessed by the principal investigator, Dr. Jaffee, the research staff, and the associated IRBs. Please note, de-identified data (i.e., data with all names removed) may be shared with others for research purposes. We will transcribe all audio-recordings and ensure that all transcriptions are de-identified (i.e., no names will be on the transcriptions). However, we will not de-identify the recordings. We will delete the recordings after they have been transcribed. We will do our best to make sure that the personal information obtained during the course of this research study will be kept private. However, we cannot guarantee total privacy. Your personal information may be given out if required by law. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used

We will maintain your confidentiality by ensuring that:

- No information will be shared with other staff, supervisors, or leadership in your employment system
- Subject identity will be masked using numeric codes and will be locked in a confidential filing cabinet in the Risk and Resilience Lab at the University of Pennsylvania
- Data will be entered directly into password-protected files
- Files containing transcribed interview responses will be de-identified using the numeric code or subject number described above, and will not contain identifying information.
- After transcription, digital recordings will be destroyed to prevent identification of participants by voice.

An exception to confidentiality is if you report child abuse or neglect or if you report significant suicidal or homicidal ideation or intent to the research team. Any information about child abuse or intent to harm self or others **will** be reported to authorities, as required by law.

### **What happens if I am injured from being in the study?**

It is unlikely that you will be injured as a result of participating in the study. However, we will offer you the care needed to treat injuries directly resulting from taking part in this research. We may bill your insurance company or other third parties, if appropriate, for the costs of the care you get for the injury, but you may also be responsible for some of them. You may also visit the emergency room, your primary care physician, or a therapist for injuries sustained while part of the study.

There are no plans for the University of Pennsylvania to pay you or give you other compensation for the injury. You do not give up your legal rights by signing this form.

If you think you have been injured as a result of taking part in this research study, contact Sara Jaffee, PhD, at [srjaffee@upenn.edu](mailto:srjaffee@upenn.edu), (215) 746-4566 as soon as possible.

**Will I have to pay for anything?**

You will not have to pay anything to participate in this study.

**Will I be paid for being in this study?**

You will be compensated \$25.00 for completing the interview. This payment will be provided via a gift card in addition to the wages that you make, and you will be free to complete this interview during your work time pending approval from your supervisor, or on your own time. The gift card that you will receive is called a ClinCard. To receive your ClinCard, you will be asked to fill out a form called a “C-2 Human Subjects Voucher,” which is like a receipt that confirms we have paid you for your participation in research. The C-2 form will ask you to provide your name and the last 4 digits of your Social Security Number. In order to provide payment for subjects for participating in research, the University of Pennsylvania is required to submit this form to the IRS. You may decline to provide this information and decline participation in the study if you wish. If you choose to participate, the information on the C-2 form will be given to The University of Pennsylvania’s Psychology Department business office and will not be linked to your interview data or stored in the same place as your interview data. A ClinCard works like a debit card and can be used anywhere you would use a credit card. It can be used for any online or in-store purchases; however, if it is used to withdraw cash at an ATM, a fee will apply. This ClinCard cannot be used immediately because study personnel must load funds onto it, but it should be ready to use by the end of the next business day. If you have any problems accessing the funds on your ClinCard, please contact Bethany Watson, MA at [watsonbe@sas.upenn.edu](mailto:watsonbe@sas.upenn.edu) or 267-536-5440.

**Who can I call with questions, complaints or if I’m concerned about my rights as a research subject?**

If you have questions, concerns or complaints regarding your participation in this research study or if you have any questions about your rights as a research subject, please contact Sara Jaffee, PhD, at [srjaffee@psych.upenn.edu](mailto:srjaffee@psych.upenn.edu), (215)746-1759. If a member of the research team cannot be reached or you want to talk to someone other than those working on the study, you may contact the Office of Regulatory Affairs with any question, concerns or complaints at the University of Pennsylvania by calling (215) 746-4566.

When you sign this document, you are agreeing to take part in this research study. If you have any questions or there is something you do not understand, please ask. You will receive a copy of this consent document.

Signature of Subject: \_\_\_\_\_

Print Name of Subject: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix V: COREQ (COnsolidated criteria for REporting Qualitative research) Checklist (Tong et al., 2007)

No	Item	Guide questions/description
<b>Domain 1: Research team and reflexivity</b>		
Personal Characteristics		
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?
2.	Credentials	What were the researcher's credentials? <i>E.g. PhD, MD</i>
3.	Occupation	What was their occupation at the time of the study?
4.	Gender	Was the researcher male or female?
5.	Experience and training	What experience or training did the researcher have?
Relationship with participants		
6.	Relationship established	Was a relationship established prior to study commencement?
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? <i>e.g. personal goals, reasons for doing the research</i>
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? <i>e.g. Bias, assumptions, reasons and interests in the research topic</i>
<b>Domain 2: study design</b>		
Theoretical framework		
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? <i>e.g. grounded theory, discourse analysis, phenomenology?</i>
Participant selection		
10.	Sampling	How were participants selected? <i>e.g. purposive, convenience, consecutive, snowball</i>
11.	Method of approach	How were participants approached? <i>e.g. face-to-face, telephone, mail, email</i>
12.	Sample size	How many participants were in the study?
13.	Non-participation	How many people refused to participate or dropped out? Reasons?
Setting		
14.	Setting of data collection	Where was the data collected? <i>e.g. home, clinic, workplace</i>
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?
16.	Description of sample	What are the important characteristics of the sample? <i>e.g. demographic data, date</i>
Data collection		
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?
20.	Field notes	Were field notes made during and/or after the interview or focus group?
21.	Duration	What was the duration of the interviews or focus group?

22.	Data saturation	Was data saturation discussed?
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?
<b>Domain 3: analysis and findings</b>		
Data analysis		
24.	Number of data coders	How many data coders coded the data?
25.	Description of the coding tree	Did authors provide a description of the coding tree?
26.	Derivation of themes	Were themes identified in advance or derived from the data?
27.	Software	What software, if applicable, was used to manage the data?
28.	Participant checking	Did participants provide feedback on the findings?
Reporting		
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. <i>participant number</i>
30.	Data and findings consistent	Was there consistency between the data presented and the findings?
31.	Clarity of major themes	Were major themes clearly presented in the findings?
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?

## Discussion

Experiences of adversity in childhood, including child maltreatment and experiences of homelessness, represent a serious public health issue that warrants continued attention. The three chapters of the present thesis utilized a multi-faceted approach to further our understanding of the impacts of such traumatic experiences on children's development, and the ways to best serve trauma-exposed youth. In Chapter 1, a proposed theoretical framework describing domains of functioning which are believed to be impacted when children experience ongoing traumatic experiences (e.g. maltreatment) was empirically examined using exploratory factor analysis. The domains of functioning that were observed in the factor analysis had some notable similarities and difference as compared to the theorized domains of functioning. Of note, several of the symptoms that are assessed in routine clinical care (e.g. clinginess, poor appetite, trouble sleeping) did not show a meaningful association with any factor, suggesting that the assessment of these symptoms may not be warranted. It remains possible that these symptoms represent more of an acute stress presentation that directly follows experiences of trauma or disclosure of maltreatment, suggesting continued clinical utility in specific contexts. Regardless, these symptoms do not seem to be associated with Childhood Complex PTSD as theorized. The symptom domains that did emerge included collapsing of the separate domains of behavioral control and affect regulation, and the addition of a school problems factor that measures socioemotional aspects of attending school separate from objective measures of academic ability. These differences are not unexpected, as loss of behavioral control in children is often directly related to challenges with affect regulation, and the experience of school attendance involves not only completing work, but also navigating a complex socioemotional landscape. The factors that emerged in chapter 1 that were most consistent with the theorized domains of functioning were the Depression/Low Self Esteem factor, the Cognition factor, the Interpersonal Problems factor, and the Biology/Somatic symptoms factor.

Chapter 2 further assessed the construct validity (and thus clinical utility) of the proposed Childhood Complex PTSD diagnosis by taking a person-centered approach to identifying individuals with a Complex PTSD presentation. Latent profile analysis was used in an attempt to identify individuals with a Complex PTSD presentation based on the factors identified in Chapter 1. Classes with low, moderate, and high impairment were identified. Membership in the high impairment class was not predictive of longitudinal outcomes that have been associated with experiences of child maltreatment in the literature, including risky sexual behavior, substance use, and chronic health problems. Thus, the results of Chapter 2 do not provide evidence for the construct validity of Childhood Complex PTSD as currently specified. Although evidence for a specific diagnosis did not emerge, investigators propose that concluding that Complex PTSD does not exist based on these results may not be warranted. It is also possible that that, perhaps, the reason for the lack of construct validity for Complex PTSD may be due to fundamental misspecifications in the way the diagnosis is conceptualized. It is possible that a more flexible dimensional framework may better explain the areas of challenge observed in children with maltreatment histories. As the field of clinical psychology generally moves away from discrete diagnosis-based treatments to developing more dimensional nonspecific nosologies and treatments (e.g. Rdoc, HiTOP, MATCH-ADTC), further assessment of the ideas proposed in Childhood Complex PTSD theory may benefit from re-examination. Additionally, the low, moderate, and high impairment classes were characterized by different age groups, with the low impairment group tending to include younger children while the moderate impairment group tended toward adolescents, and the high impairment group was characterized by children in middle-childhood. This developmental differentiation provides further evidence that a rigid-DSM based criteria attempting to capture the impacts of ongoing traumatic experiences such as maltreatment is unlikely to capture the nuances of this clinical presentation, such as variability by age. This provides further evidence that a more flexible model with roots in developmental

psychopathology might better explain observed areas of challenge in children with reported maltreatment histories.

Finally, in Chapter 3, investigators assessed a novel context in which interventions to serve trauma-exposed youth could be delivered: the family emergency and transitional housing setting. Results suggested that providing trauma-informed services in this setting was viewed as acceptable and appropriate to a sample of community stakeholders. One notable conclusion from this chapter was that, in order to facilitate the implementation of trauma-informed care for residents, it is important that organizations provide trauma-informed care to their staff members. This is consistent with the old adage encouraging those in helping professions to “put their own oxygen mask on first” before helping others. Thus, while the ultimate goal of any implementation effort may be to improve client outcomes, a necessary precursor to these efforts in the family shelter setting is ensuring that staff feel cared for and that staff burnout and turnover are addressed. Thus, caring for the caregiver was identified as the first step in implementing trauma-informed care interventions in the family homeless shelter setting. Taken together, the findings from the three chapters of this thesis include an empirical examination of the often cited nonspecific Childhood Complex PTSD diagnostic criteria, which ultimately do not yield evidence for construct validity, and an exploration of a rarely cited setting in which evidence-based practices could be implemented, the family homeless shelter setting. While the findings of this thesis suggest perhaps going back to the drawing board with regard to conceptualizing Childhood Complex PTSD, a promising way forward in terms of bringing evidence-based practices to vulnerable populations facing significant barriers to accessing care has been identified.

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