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Understanding the Clinical Complexity of Psychosis and Trauma in Severely Impacted Youth

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Childhood Trauma and Psychosis



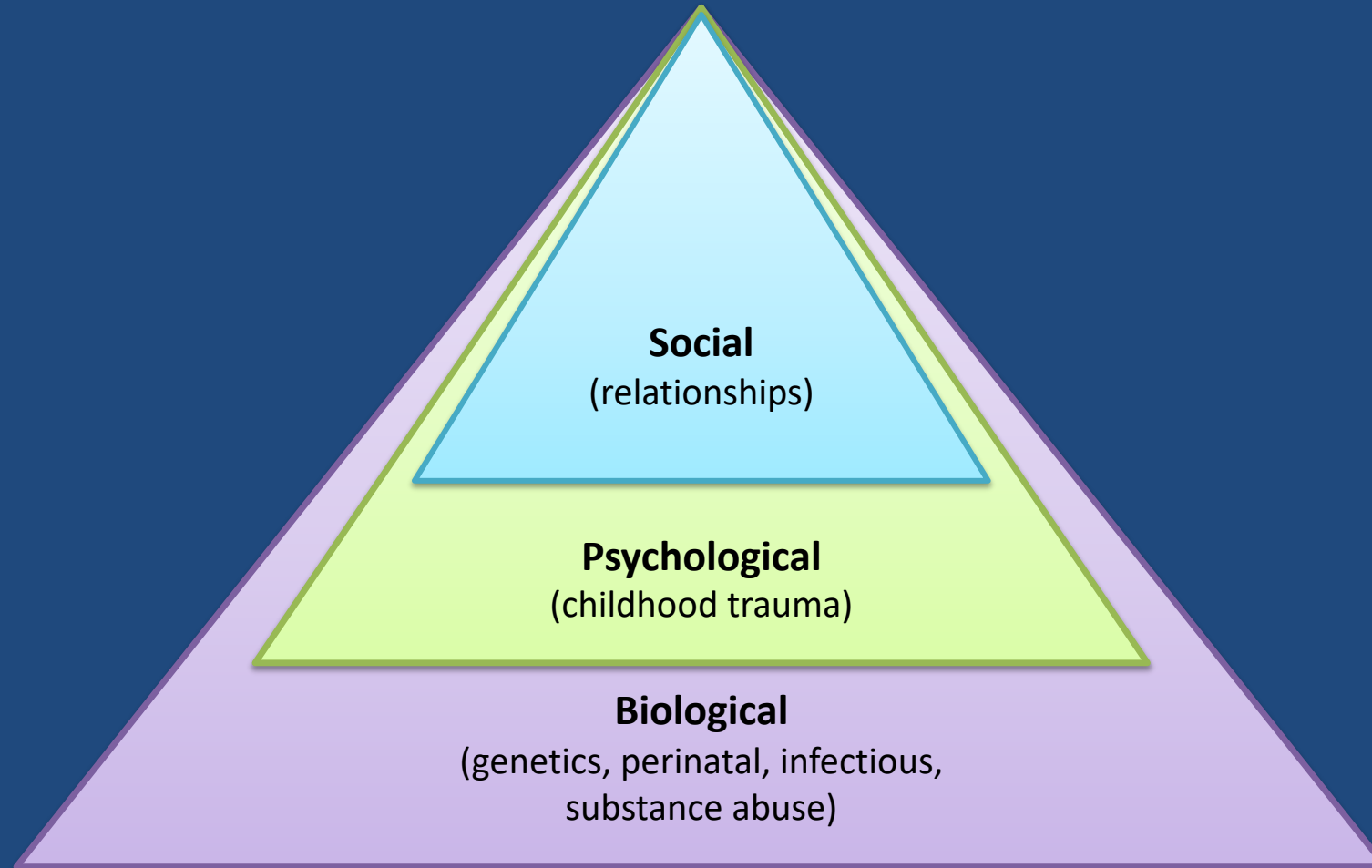
Outline

- Introduction
- Evidence for the relationship between CT and psychosis in adults and adolescents
- CT impact on psychosis (symptoms and illness course)
- Environment, genes, neurocognition
- Cooccurrence and diagnostic overlap

Introduction

- ¼ children experience a **traumatic event** before age 18
 - Physical abuse (PA)
 - Sexual abuse (SA)
 - Domestic/community/school violence
 - Traumatic death of significant others
 - Neglect, foster/institutional care
- Most children are resilient
- Some develop significant sequelae

Interplay Between Environment and Genetic Vulnerabilities



Does Childhood Trauma (CT) Increase Risk for Psychosis in Adults?

- Meta-analysis:
 - 18 case-control studies (n=2048 patients with psychosis and 1856 healthy controls)
 - 10 prospective and quasi-prospective studies (n=41,803)
 - 8 population-based cross-sectional studies from 6 countries (including U.S., U.K., Netherlands) (n=35,546)

Does CT Increase Risk for Psychosis in Adults?

- Significant associations between CT and psychosis across all research designs:
 - Trauma ↑ risk of psychosis (OR=2.8)
 - Patients with psychosis were 2.72 times more likely to have been exposed to trauma.
- If CT were removed as risk factor, n=psychosis would ↓1/3
- 9/10 studies found dose/response effect
- Parental mental illness does not attenuate associations between CT and psychosis.

Retrospective Reporting

- **Reliability stable** over a long period of time.
- Levels of psychosis at time of report do not influence likelihood of reporting CT.
- Rates of CT similar by different assessment instruments and clinical notes.

Does CT Increase Risk for Psychotic Symptoms (PS) in Adolescents?

- Assessed for PS and trauma history:
 - Psychosis-Like symptoms Semi-Structured Interview at ages 12 and 18.
 - Parent-completed 121-question assessment about traumatic events.
- At age 18:
- 83.8% with PS had traumatic experiences VS 62.6% without PS.
- CT by age 17: x2.91 more likely to have PS.
- 3 or more types of CT: x4.7 more likely to have PS symptoms.

Ultra High Risk and CT

- UHR ↑ CT rates (54%–90%) and ↑ trauma severity
- Bullying and victimization x3.9 compared with HC (33.3% to 66.7% across 3 countries)
- Strong evidence that CT, emotional abuse, childhood physical neglect, and high perceived stress were associated with UHR Transition To Psychosis (TTP)
- Link between childhood sexual trauma and TTP

CT Impact on Symptoms

- CT is associated with a more severe presentation of psychotic illness: perceptual disturbance, affective instability, suicidality, and substance use.
 - **Emotional neglect** associated with cooccurring MDD.
 - **Physical neglect** associated with cooccurring PTSD.
 - Any type associated with hopelessness.
 - **Negative symptom** severity associated with childhood neglect.
- There also is a clear dose-response effect with higher numbers of traumatic events:
 - ↑ severity of **positive psychotic symptoms** associated with **sexual abuse** and **physical abuse**.
 - ↑ severe suspiciousness, perceptual abnormalities, affective instability.

Trauma Type ↔ Psychotic Symptom

- **Hallucination (H):**
 - Sexual Abuse (SA), especially rape
 - Physical Abuse (PA) and bullying (verbal H)
 - 45% similar themes
 - 12.5% themes and content
 - Intrusive trauma and H
 - Association not explained by anxiety
- **Sexual content related SA**
- **Paranoia:**
 - PA
 - Bullying
 - Separation (foster care/institutions)
 - Association explained by anxiety

Presentation at First Episode Psychosis (FEP)

- n=658 patients FEP
- 34% exposed to Sexual Abuse (SA) and/or Physical Abuse (PA):
 - ↑ pre-psychotic posttraumatic stress disorder (PTSD) and/or substance use
 - ↑ history of suicide attempts
- ↓ pre-psychotic function and social adjustment
- ↑ affective and positive symptoms
- N=101 FEP 89% CT (HC=37%), psychosis risk x2.5 for any additional CT over 3

Impact on FEP outcomes

- CT ↓ Global Assessment of Functioning at baseline and less improvement over time; especially for **emotional neglect**, trend was present for **physical and sexual abuse**.
- ↑CT ↓ premorbid adjustment and longer duration of untreated psychosis.

Gender Differences in Effects of Childhood Trauma

- Gender differences in schizophrenia: slightly later age of onset in girls, more positive symptoms, less negative symptoms, and a less severe course, particularly in premenopausal girls.
- Gender may affect children's susceptibility to certain types of abuse, respond to trauma exposure differently based on gender, affecting psychosis course.
- Girls with FEP x2 likely to have experienced **childhood physical or sexual abuse** compared with female HC; no significant difference was found for boys.
- **Childhood sexual and physical abuse**: younger age of psychotic illness onset in girls only.

Thorup 2007, Fischer 2009, Comacchio 2019, Kocsis-Bogar 2018.

Bullying

- Youth (8-10 year) **bullied** ↑ **psychotic symptoms** in early adolescence
- Chronic/severe bullying ↑ correlation
- Twins (5-12 year) **bullied** ↑ **psychotic symptoms** at 12 year (regardless of when bullied)
- Independent of:
 - Psychopathology
 - Family psychosocial stressors
 - Intelligence Quotient (IQ)
 - Genetics (zygosity)
- Partially mediated by:
 - affective symptoms (depression and anxiety)

Bullying

- 1,112 school-based adolescents 13-16 assessed in Ireland as part of a study in 11 countries.
- Strengthening many of the conclusions presented so far:
 - Bidirectional relationship between CT and psychosis
 - CT strongly predictive of psychosis
 - Dose response relationship
 - First direct evidence that cessation of trauma including bullying predicted cessation of psychotic experiences

Environment vs. Genes

- Prospective study Dutch youth (n=2230), ages 10-16, attempted to separate contributions of:
 - Genetic (i.e. familial) factors
 - Environmental (i.e. CT) factors
- To the development of sub-threshold psychosis.
 - No interaction between general/psychotic parental psychopathology and CT
 - Both factors correlated with persistent psychosis

Environment vs. Genes

- n=184 (schizophrenia n=79, unaffected n=86) of 24 multiply affected families (schizophrenia associated with functional allele in NOS1AP gene)
- ↑ pre-psychotic CT in schizophrenia (OR=4.17), even after adjusting for:
 - NOS1AP risk phenotype
 - Parental history of schizophrenia
- Suggests **association independent of familial and genetic risk**

Genes

- BDNF – potential bio-marker for schizophrenia (low levels associated with higher risk)
- Val66Met (single nucleotide polymorphism) – common in schizophrenia.
- BDNF impacted by CT reduced levels with dose related effect, especially sexual trauma, and more so in women
- Those with Val66Met more likely to have positive psychosis symptoms.
- Those with COMT-Val158Met and CT more likely to experience psychosis.
- Epigenetic changes – FEP with CT had lower methylation of DNA repetitive sequences
- Hypomethylation in genes related to inflammatory response linked to increased stress reactivity and heightened risk for psychosis.

Mondelli 2011, Theleritis 2014, Aas 2013, Bi 2018, Alemany 2011, Ramsay 2013, Misiak 2015, 2017, Thomassi 2018, Janusek 2017

Neurocognition

- Magnetic resonance imaging (MRI), First Episode Psychosis (FEP) n=83 (45% schizophrenia, 55% other psychosis), Healthy Controls (HC) n=63:
- FEP:
 - ↓ Smaller amygdala
- FEP with Childhood Trauma (CT):
 - ↓ Cognitive performance (executive function, language, Verbal Intelligence Quotient)
 - ↓↓ Smaller amygdala mediates the relationship between CT and ↓ cognition
- Stress → Δ Hypothalamic-Pituitary-Axis (HPA) → structural changes



DIAGNOSTIC CHALLENGES: COOCCURRENCE AND DIFFERENTIAL DIAGNOSIS

PTSD



SCHIZOPHRENIA

- **Intrusion symptoms**
- **Negative cognition and mood**
 - Negative beliefs/emotions
 - constricted affect
 - ↓Interest
- **Alterations in arousal and reactivity**
 - Irritable/aggressive
 - Self-destructive/reckless
 - ↓Concentration
 - Sleep disturbance

- **Positive Symptoms**
 - Auditory hallucinations
 - Delusions
- **Negative symptoms**
 - Social withdrawal
 - Affective flattening
- **Disorganized speech**
- **Disorganized behavior**
- **Catatonia**

Diagnostic Cooccurrences

- CT associated with cooccurring anxiety disorders, mood disorders (including unipolar and bipolar depression), and psychosis.
- Metanalysis: diagnostic cooccurrence in adolescents/adults with psychotic illness and CT include anxiety, depression, mania, greater diagnostic complexity, substance use disorders, disruptive behavior disorders, and other attention and executive functioning challenges.

Psychosis Secondary to PTSD

- “Chronic PTSD with psychotic features” in veterans with combat related trauma.
- Paranoid delusions, delusions of reference, hallucinations, bizarre behavior: distinct from PTSD perceptual disturbances.
- Poor symptom differentiation vs. actual increased risk and/or comorbidity?
 - Intrusive recollections and flash backs may mimic delusions and hallucination.
 - Avoidance may mimic negative symptoms.

PTSD with Secondary Psychosis (PTSD-SP)

- Review of 24 studies in adults.
- PTSD with later psychosis not confined to episodes of re-experiencing.
- Distinct biological features:
 - Smooth Pursuit Eye Movement (SPEM) patterns
 - ↑ Corticotropin-releasing factor (CRF) in Cerebro Spinal Fluid (CSF)
 - ↑ Dopamine β -hydroxylase activity in plasma
- Distinction of PTSD-SP with Major depressive Disorder (MDD) vs. PTSD with MDD + psychotic features not established.

Clinical Presentation

- ↑ positive symptoms (trauma related) ↓ negative symptoms
 - Delusions: paranoid and persecutory
 - Content of hallucinations trauma related, accompanied by non-trauma related content
 - Bizarre behaviors
- Thought Process linear and relatively organized
- Affect: flat/blunted/depressed, irritable, anxious
- Insight: psychosis generally ego-dystonic

Borderline Personality Disorder (BPD) and Psychotic Symptoms

- CT is a contributing etiologic factor to developing BPD.
- BPD Diagnostic criteria include periods of **stress-related paranoia and loss of contact with reality**, lasting from a few minutes to a few hours, which can be distressing.
- Patients with BPD have high rates of co-occurring mood disorders.
- Cognitive and perceptual symptoms mediate the relationship between CT and severe dissociation and transient paranoid experiences in patients with BPD.

Increased prevalence of substance use in individuals with psychosis and CT

- RCT in FEP:
- Severe childhood **sexual abuse** was associated with increased lifetime cannabis use
- **Sexual and physical abuse** were associated with lifetime heroin use
- Severe **physical abuse** was associated with lifetime cocaine use.
- FEP who were severely sexually abused x5 more likely to be diagnosed with affective psychosis: mood symptoms (depression) may precede substance use.

Assessment Tools

Name	Instrument type	Purpose	Age	Time
CAPS-CA	Semi-structured clinical interview	Assess frequency and intensity of 17 PTSD symptom + effect on social, developmental, academic function	8-18yrs	<u>Admin:</u> 45 min <u>Score:</u> 25-30 min
UCLA PTSD Index	Self-report screening tool	PTSD screen	6-18yrs	<u>Admin:</u> 15-25 min <u>Score:</u> 5-10 min
CPSS	Self-report screening tool	PTSD screen	8-18yrs	<u>Admin:</u> 10 min <u>Score:</u> 5-10 min
TSCC	Self-report diagnostic measure	Assess PTSD symptom + general anxiety, depression, anger, sexual concerns, dissociation	8-17yrs	<u>Admin:</u> 10-20 min <u>Score:</u> 15-20 min
PANSS	Clinician-rated diagnostic measure	Assess positive and negative symptom of psychosis	≥18yrs	<u>Admin:</u> 30-40 min <u>Score:</u> 20 min

Psychopharmacology

- Evidence-based psychopharmacological treatment of PTSD and trauma effects in youth is sparse.
- Currently, the data does not support using selective serotonin reuptake inhibitors (SSRIs) as first-line treatments for PTSD in youth.
- Limited evidence (case reports) suggests brief use of **antiadrenergic agents, second-generation antipsychotics, mood stabilizers** may offer some PTSD symptoms relief in youth.

Takeaway Points

- Strong evidence: CT associated with ↑ risk for psychosis in adulthood, with a cumulative effect.
- Reported associations between bullying, and psychotic symptoms in childhood.
- **PTSD may be misdiagnosed as psychosis:** intrusive recollections and flash backs may mimic delusions and hallucination; avoidance may mimic negative symptoms.
- **Psychosis may cooccur in traumatized youth.**



Treating Childhood Trauma and Psychosis in Adolescents

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Clinical Manifestation

○ Cognitive Model

- Cognitive model suggests that the traumatic events drastically alter appraisal systems in children and adolescents, potentially priming them for development of negative appraisal systems
- Cognitive distortions influence the interpretation of internal and external experiences, laying the foundation for the themes of delusions and hallucinations

(Kilcommons and Morrison, 2005; Morrison, 2009)



Clinical Manifestation

○ Affective Model:

- Children with interpersonal trauma have a decreased capacity for emotion regulation, as well as increased occurrences of emotional dysregulation
- Affect dysregulation is strongly correlated with reality testing impairments and paranoia.
- Prolonged emotional dysregulation is associated with increased risk for psychosis as well (Misiak, Krefft, Bielawski et al., 2017)



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Clinical Manifestation

- Affective Model:
 - People with psychosis exposed to adverse childhood experiences tend to react to normal daily stressors with increased emotional sensitivity and with greater negative affect
 - Trauma exposures leads to emergence of affective sensitivity, subsequent emotional dysregulation, and marked cognitive distortions. (Misiak, Krefft, Bielawski et al., 2017; Kramer, et al., 2013)



From Trauma-Informed to Trauma Responsive Mental Health Care

- Those impacted by trauma represent the greatest proportion of people accessing public mental health, forensic health, and drug and alcohol services.
- Consumers who struggle with psychosis and trauma require treatment that avoids coercive practices, including the use of physical restraint, while also fostering greater awareness of the impact of trauma exposure on development and mental health
- Trauma-informed care is a paradigm of care that promotes three overarching organizational values (Muskett, 2013):
 - 1. Clients ought to feel connected to their treatment teams, informed and valued, and hopeful of recovery
 - 2. The relationship between childhood trauma and psychopathology is clearly understood by all organizational staff
 - 3. Organizational staff partner with consumers to promote and protect their autonomy



From Trauma-Informed to Trauma Responsive Mental Health Care

- **Moving to trauma-responsive care**
 - Being trauma responsive is *more than* having knowledge and awareness of the impact of trauma on adolescents
 - Trauma responsiveness requires that trauma informed approaches are fully incorporated into every part of organizational culture.
 - Trauma informed and responsive organizations are keenly aware that the quality of services delivered are profoundly impacted by organizational culture in which service providers are employed (Morales-Aboroa & Moore, 2021)



From Trauma-Informed to Trauma Responsive Mental Health Care

- In addition, organizations that implement Trauma Informed and Responsive Care must change existent practices to make sure that these guiding principals are embedded within every domain of the organization, including:
 - Domain 1: Organizational Leadership
 - Domain 2: Training and Workforce Development
 - Domain 3: Policy and Decision-Making
 - Domain 4: Physical Environment
 - Domain 5: Continuous Quality Improvement
- (Massachusetts Childhood Trauma Taskforce Framework, 2021)



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- Not aware of any empirical studies to date investigating the efficacy of psychotherapeutic interventions for the treatment of co-occurring trauma and psychosis in children and adolescents
 - There is, however, extensive research examining psychological treatment for child and adolescent PTSD
 - There is also emerging evidence exploring the efficacy of 'third wave' cognitive-behavioral interventions for young adults with trauma and psychosis, as well as cognitive behavioral interventions for youth considered ultra-high risk for developing psychosis.



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- Findings from a large meta-analysis of 135 studies yielded the largest effect size for cognitive-behavioral treatments for pediatric PTSD.
- Those demonstrating strongest efficacy included Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), Prolonged Exposure (PE), and Cognitive Behavior Therapy for PTSD (CBT for PTSD, aka CR for PTSD)



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

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Psychological Treatments for Symptoms of Posttraumatic Stress Disorder in Children, Adolescents, and Young Adults: A Meta-Analysis

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Abstract Meta-analyses of the treatment of posttraumatic stress disorder (PTSD) in childhood and adolescence are restricted to specific trauma, selected interventions, and methodologically rigorous studies. This large meta-analysis quantifies the effects of psychological treatments for PTSD symptoms in children and adolescents. An extensive literature search yielded a total of 13,040 articles; 135 studies with 150 treatment conditions ($N = 9562$ participants) met the inclusion criteria (psychological interventions with children and/or adolescents with PTSD symptoms that report quantitative measures of symptom change). The mean effect sizes (ESs) for PTSD symptoms ranged from large to small, depending on the control condition. Cognitive behavioral therapy (CBT) yielded the highest ESs. Age and caretaker involvement were identified as moderators. CBT, especially when conducted in individual treatment with the inclusion of parents, is a highly effective treatment for trauma symptoms. Psychological treatments need to be modified to address younger patients' specific needs.

Keywords Posttraumatic stress disorder · Children · Adolescents · Psychological treatment · Meta-analysis · Childhood

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Introduction

Traumatic events are highly prevalent in childhood and adolescence (Copeland et al. 2007). Approximately 15 % of youth who have been exposed to traumatic events meet the diagnostic criteria for posttraumatic stress disorder (PTSD) (Giaconia et al. 1995).

There is an ongoing debate about whether the symptoms used to diagnose PTSD adequately capture posttraumatic stress in children (Scheeringa et al. 2006; Scheeringa et al. 2011). In the past, the inadequacy of the diagnostic criteria may have led to an underestimation of the number of young patients with PTSD (D'Andrea et al. 2012). Therefore, subclinical or differing forms of PTSD should be included in research on the effects of treatment in children. PTSD is often chronic and has immense personal and social costs, and the prognosis for recovery without adequate treatment is poor (Kessler 2000; Marciniak et al. 2005). Therefore, early and effective treatment is important.

Existing Meta-Analyses and Empirical Reviews for Posttraumatic Stress Symptoms in Children and Adolescents

In the following paragraphs, recently conducted meta-analyses and reviews within the field of PTSD treatment for children and adolescents are summarized.¹ Usually, studies on youth up to 18 years of age are included. The number of studies included is given as NS, next to further information about the studies included.

¹ For the sake of comparability, pre-post ESs (rather than pre-follow-up effects) are reported.



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- There is a small but growing literature on the feasibility and efficacy of psychotherapeutic treatment of comorbid PTSD and psychosis in adults.
 - Single blind RCT exploring PE vs EMDR
 - Participants in the PE condition and the EMDR condition more likely to no longer meet diagnostic criteria for PTSD (van den Berg, et al., 2015)



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- Mueser and colleagues (2008) evaluated a CBT for a PTSD program for individuals with comorbid PTSD and psychosis.
- When compared with subjects assigned to the treatment-as-usual condition, participants in the CBT condition showed statistically significant reduction in symptoms of PTSD, depression, anxiety, and negative trauma-related beliefs



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Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

Dartmouth PRG HAZELDEN
Evidence-Based Resources for Behavioral Health

Coping with Stress

A CBT Program for Teens with Trauma



M. Kay Jankowski, Ph.D. Harriet J. Rosenberg, M.A. Stanley D. Rosenberg, Ph.D. Kim T. Mueser, Ph.D.



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- In a similar study, van der Gaag and colleagues (2012) evaluated the efficacy of a CBT intervention designed to target maladaptive cognitive biases in adolescents deemed at ultrahigh risk for developing psychosis, many of whom had trauma exposure.
- When compared with treatment as usual, subjects within the CBT condition showed a statistically significant reduction in their risk for developing psychosis.



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- Results also showed a reduction in subclinical psychotic symptoms as well.
- In addition, Birchwood and colleagues (2018) found that cognitive therapy for command hallucinations (CTCH) resulted in significant reduction of “harmful compliance with auditory hallucinations, as well as a marked reduction in the power of the voices.



Evidence-based Psychotherapeutic Approaches for Trauma and Psychosis

- Emerging evidence for 'third wave' cognitive-behavioral treatment targeting psychosis and trauma
- Acceptance and Commitment Therapy for Trauma and Psychosis
 - Spidel and colleagues (2018) evaluated effectiveness of ACT for treating patients who have both a psychotic illness and history of childhood trauma.
 - ACT group participants demonstrated increased emotion regulation and acceptance strategies, decreased symptom severity, and improved treatment engagement at treatment conclusion and at three month follow up.



Case Example: Sarah

- Sarah was an 17 year old female with a history of repeated sexual assault including forced sexual touching by a peer, rape, and coercion to send nude erotic pictures
- She also presented with profound symptoms of major depressive disorder, auditory command hallucinations, recurrent self-harming behaviors, multiple suicide attempts, social anxiety, and significantly elevated symptoms of PTSD.



Case Example: Sarah

- To target NSSIB and suicidal behavior:
 - Marked enhancement in emotion regulation and distress tolerance skills
 - Anti-rumination activities
 - Multi-sensory strategies for emotion regulation
 - Completion of daily Diary Cards facilitated by staff and clinicians
 - Motivational Enhancement Interventions and positive behavioral supports



Case Example: Sarah

- To target intermittent command auditory hallucinations:
 - Bolstering distraction skills through implementation of physical and mental grounding techniques
 - Providing repeated psychoeducation regarding the relationship between trauma and AH to help defuse the power of said voices
 - Creation of a “voices response plan” with staff and youth



Trauma-Focused CBT

- TF-CBT is a ‘components based’ psychosocial treatment model that integrates elements of CBT with attachment theory, client-centered psychotherapy, and family therapy interventions.
- Research evaluating the effectiveness of TF-CBT has shown it to be more effective at reducing symptoms of PTSD, disruptive behaviors, anxiety, and depression than:
 - Treatment as usual
 - Client-centered psychotherapy
 - No treatment
 - Other trauma-focused treatments (i.e., EMDR)



Trauma-Focused CBT Modules

- Specific components of TF-CBT are summarized by the acronym PRACTICE
- P: Psychoeducation and Parental Guidance
- R: Relaxation and Stress Management
- A: Affect Recognition and Modulation
- C: Cognitive Coping and Reprocessing I
- T: Trauma Narrative
- I: In-vivo Mastery
- C: Cognitive Coping II (Cognitive Restructuring) and Conjoint Parent-Child Sessions
- E: Enhancing Future Safety

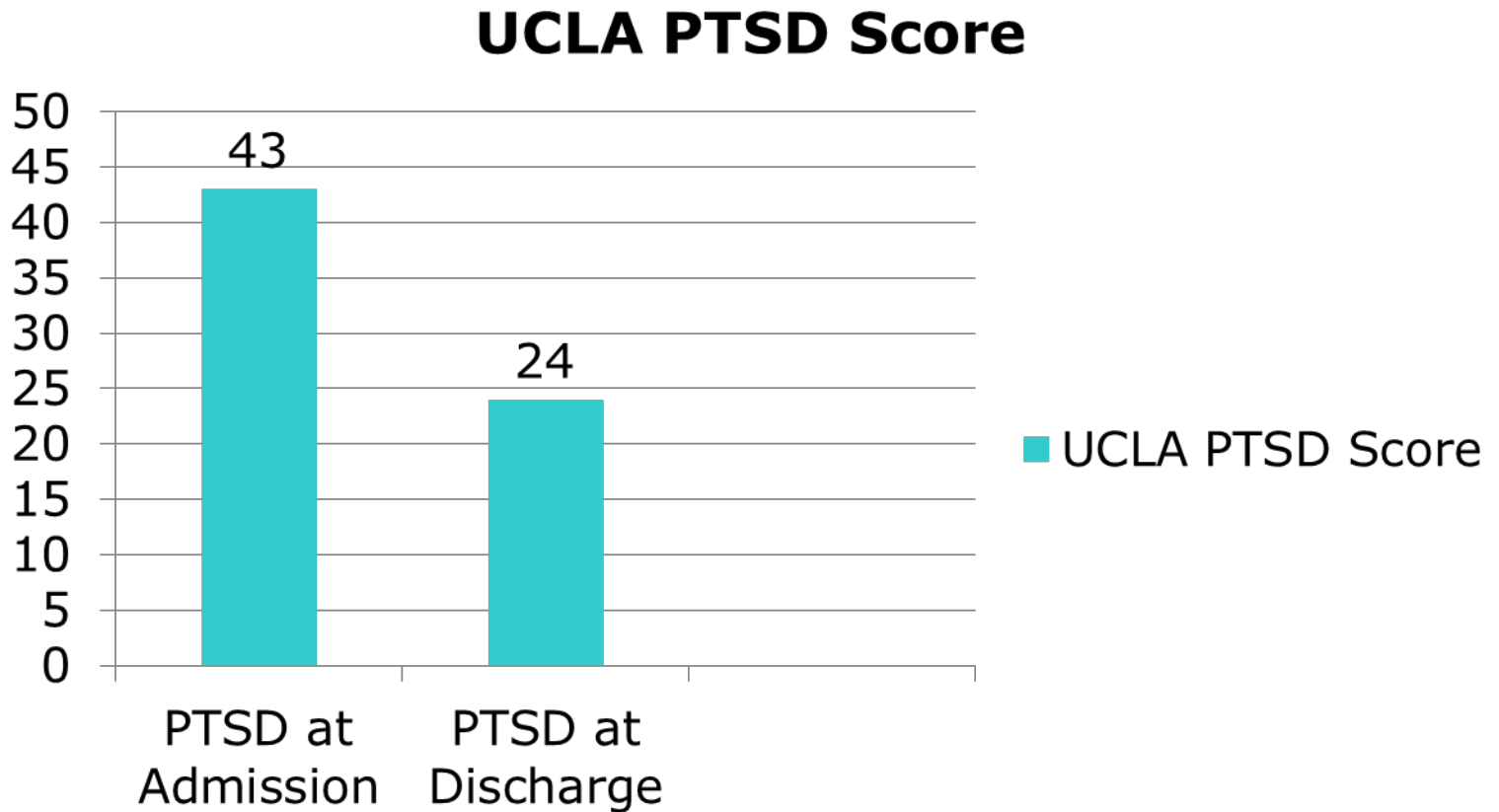


Case Example: Sarah

- Course of TF-CBT with this youth:
 - Stress Reduction and Relaxation Training
 - Use of Mindfulness Meditation
 - Use of Physical and Mental Grounding
 - Affect Recognition and Modulation
 - Psychoeducation and Parental Guidance
 - Cognitive Coping 1
 - Trauma Narrative
 - Cognitive Coping II
 - Enhancing Future Safety



Case Example: Reduction in PTSS





Case Example: Child Behavior Checklist Results

