

Complex Trauma Care Pathway: Results of a 12-Month Pilot

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ABSTRACT

Introduction: Sustained, developmentally adverse experiences in childhood put survivors at risk for posttraumatic stress disorder and impairments in biological, affective, cognitive, and intra/interpersonal domains. Complex trauma symptoms are often treated in isolation without addressing their common root cause. The trauma-focused phased Complex Trauma Care Pathway (CTCP) was developed to address this care gap.

Methods: We piloted the CTCP in 2 medical centers for 12 months among 46 therapist-referred adults. Outcome measures collected every 3 months included standardized scales assessing anxiety, depression, suicidal thoughts, and disorders of extreme stress not otherwise specified (DESNOS).

Results: Statistically significant improvements occurred in mean scores for anxiety ($p = 0.003$), total DESNOS scores ($p < 0.001$), and 5 DESNOS domains: alterations in regulation of affect and impulses, alterations in regulation of attention or consciousness, alterations in self-perception, alterations in relationships with others ($p < 0.001$ for all), and alterations in systems of meaning ($p = 0.006$). In contrast, decreases in symptoms of somatization, depression, substance use, and suicidal thoughts were not statistically significant. Participant feedback was very positive.

Discussion: Many trials evaluate phased interventions for posttraumatic stress disorder, but much less evidence exists about effective interventions for complex trauma. Our study fills a knowledge gap.

Conclusion: The CTCP shows promising clinical efficacy and should be evaluated using a more rigorous design. Further research should also explore the relationship between the CTCP or similar interventions and chronic disease management, overall healthcare utilization, and suicide risk.

or torture; domestic violence; and human trafficking. In the case of adverse childhood experiences (ACEs), potentially traumatic experiences include physical, psychological, or sexual abuse; physical or emotional neglect; exposure to domestic violence; parental death, separation, or divorce; having a household member with mental illness or problematic substance use; and criminality in the home.⁴

More than 16% of US adults have experienced ≥ 4 types of ACEs, and women and Latinx and non-Latinx Black individuals are at greater risk of having experienced more ACEs.^{5,6} Childhood trauma is strongly associated with both adult morbidity (depression, cancer, diabetes, overweight and obesity, substance use disorders, and cardiovascular, pulmonary, and renal disease) and socioeconomic challenges (unemployment and low educational attainment).⁵ In addition, individuals with ≥ 4 ACEs are 12 times more likely to attempt suicide than are individuals with zero ACEs.¹

Experiencing sustained, developmentally adverse events as a child puts survivors at risk as adults for both posttraumatic stress disorder (PTSD) and impairments in biological, affective, cognitive, and intra/interpersonal domains that PTSD diagnostic criteria do not fully address.⁷ These sequelae are known collectively as disorders of extreme stress not otherwise specified (DESNOS) and are related to: 1) emotions and impulses, 2) attention and consciousness, 3) self-perception, 4) relationships with others, 5) somatization, and 6) systems of meaning.⁸

Although not all individuals with a history of ACEs experience complex trauma sequelae, many do.¹ The current standard of care is to treat individual conditions in isolated subspecialties (eg, cardiac conditions in cardiology, digestive issues in gastroenterology, anxiety and depression in mental health) without screening for and addressing complex trauma. Even within specialty mental health

INTRODUCTION

Twenty years ago, the Kaiser Permanente Adverse Childhood Experiences study created a paradigm shift in health care by shining a light on childhood trauma as the root cause of much physical and mental illness later in life.¹ Trauma is an interpersonal event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being.² Complex trauma results when such experience includes multiple events or event types, is prolonged, or both.^{3,4} Events identified as potentially traumatic include surviving or witnessing: natural disasters; ongoing armed conflict; forcible displacement (involuntary or coerced departure from home or home region); assault, rape,

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Abbreviations: ACE, adverse childhood event; CTCP, Complex Trauma Care Pathway; DESNOS, disorders of extreme stress not otherwise specified; GAD-2, Generalized Anxiety Disorder-2 item; KPNW, Kaiser Permanente Northwest; PHQ-9, Patient Health Questionnaire-9 item; SIDES-SR, Self-Report Inventory for Disorders of Extreme Stress

departments, care typically focuses on managing downstream symptoms of trauma (eg, depression, panic and anxiety, problems with anger, addiction to substances, self-harm behaviors, and suicidal thoughts and behaviors), rather than identifying and healing the underlying trauma that caused, connects, and perpetuates them. Fortunately, an increasingly robust body of evidence demonstrates the effectiveness of trauma-focused interventions at reducing complex trauma symptoms.⁹

At Kaiser Permanente Northwest (KPNW), mental health therapists with expertise in evidence-based, trauma-focused treatment developed a clinical pathway for adult complex trauma survivors called the Complex Trauma Care Pathway (CTCP). The results of a 12-month pilot focusing on its clinical efficacy are reported here.

METHODS

CTCP Model Development

To develop the model, we reviewed the literature and consulted with internal and external subject matter experts.^{10,11} To garner administrative support and funding for the project, we made multiple presentations to senior mental health leaders. We also engaged the Kaiser Permanente Labor Management Partnership structure, enlisting the support of 2 outpatient clinical teams that agreed to pilot the CTCP model as a unit-based team project (allowing them to refer eligible patients from their caseloads and elect the therapists who would provide the clinical intervention). In addition, we gathered member input via a questionnaire, inviting patients enrolled in an intensive outpatient program to provide feedback about pathway structure and content, patient communication materials, and the feasibility of the time commitments required by the pilot. Intensive outpatient program member feedback was uniformly positive. As one member noted, “One-on-one sessions weekly and plans catered to each patient’s needs are key.” Another member commented, “A group specifically for complex trauma within Kaiser is very much needed, and I suspect many patients will benefit from this group.”

The CTCP model was organized into 3 phases designed to match member needs and level of readiness with the appropriate clinical intervention. Phase I emphasized stabilization and skill building via a weekly 90-minute complex trauma skills group based on a curriculum developed specifically for complex trauma survivors.¹² Phase I also included biweekly 60-minute individual skills-coaching sessions.

Phase II focused on trauma memory reprocessing in biweekly or more frequent 90-minute therapy sessions using evidence-based trauma-focused approaches, primarily eye movement desensitization and reprocessing^{13,14} and internal family systems therapies.¹⁵ Phase II also offered members the option to participate in a weekly

60-minute mindful movement group based on trauma-sensitive yoga.¹⁶

Phase III was envisioned as ongoing support for members who had either met Phase I or II treatment goals or were otherwise taking a break from treatment. The Phase III weekly drop-in group and as-needed case management services were intended to help prevent relapse and further integrate progress made earlier in more active treatment.

In all phases, psychiatric medication management was provided through outpatient psychiatry. When members also needed substance use interventions, CTCP providers helped connect them with the appropriate Kaiser Permanente addiction medicine department and/or community resources.

The 2 outpatient mental health teams piloting the CTCP were located in Oregon and Washington. Four master’s degree-level therapists with professional training and expertise in eye movement desensitization and reprocessing who were also familiar with internal family systems were elected by their unit-based teams to test the CTCP. The first author met with both sponsoring mental health teams to provide details regarding inclusion/exclusion criteria, the referral process, and tools to help them discuss the pilot with prospective participants.

Elected therapists and the first author met before the pilot began to review the basic structure for both the initial orientation/onboarding session and subsequent Phase I coaching visits. CTCP therapists received multiple tools to guide their work with participants and support consistent implementation of the pathway and documentation in the electronic health record (Supplemental Table 1^a). During the pilot, the first author and CTCP therapists met each week to discuss clinical and administrative issues.

Participants and Design

Due to resource constraints for the pilot, referrals were limited to members in service with a therapist on the 2 sponsoring mental health teams. Referral criteria were: 1) adult member with a self-reported history of complex trauma; 2) two or more DESNOS symptoms⁸; 3) multiple admissions to higher levels of care and/or prolonged or acute symptoms with significant impacts on functioning (eg, missed work, unable to perform activities of daily living); 4) the ability to commit to a weekly group and biweekly individual sessions; and 5) willingness to participate in the year-long pilot. We did not limit participants to those identified with PTSD because not all complex trauma survivors needing treatment meet diagnostic criteria.⁷

After receiving a referral, a CTCP therapist contacted the member by phone to provide an overview of the pilot, discuss the risks and benefits of participation, answer questions, extend an invitation to participate, and complete

the informed consent process. Individuals interested in participating were scheduled to meet individually with a CTCP therapist to discuss their complex trauma-related treatment needs and goals and to complete baseline symptom inventories. Formal enrollment occurred after this initial assessment visit. We stopped accepting referrals when we reached capacity at each site, and all participants at each site started the program at the same time. We obtained data on participant demographics and diagnoses from the electronic health record.

Outcome Measures

Clinical efficacy was assessed in terms of decreased anxiety, depression, suicidal thoughts, and other symptom domains typical of complex trauma. To assess anxiety and depression symptoms, we selected 2 scales commonly used in clinical settings. The 2 items on the short Generalized Anxiety Disorder scale (GAD-2)¹⁷ assess the frequency of anxiety symptoms and are scored from 0 (not at all) to 3 (nearly every day). Possible total scores range from 0 to 6, and a total score ≥ 3 indicates a high likelihood of an anxiety disorder. Sensitivity and specificity for the GAD-2 are 76% and 81%, respectively.¹⁸ The 9-item Patient Health Questionnaire scale (PHQ-9)¹⁹ assesses the frequency of symptoms of depression and is scored from 0 (not at all) to 3 (nearly every day). Possible total scores range from 0 to 27, and scores of 5, 10, 15, and 20 respectively represent cut points for mild, moderate, moderately severe, and severe depression. The PHQ-9 has a sensitivity of 88% and a specificity of 88% for major depression.¹⁹ Number 9 on the PHQ-9 asks specifically, “Thoughts that you would be better off dead, or of hurting yourself in some way.” We added an additional question, “Since your last visit, how often have you had thoughts about killing yourself?”

The Self-Report Inventory for Disorders of Extreme Stress (SIDES-SR) is a 45-item instrument assessing 6 domains: 1) alterations in regulation of affect and impulses (affect regulation, modulation of anger, self-destructive behavior, suicidal preoccupation, and excessive risk taking); 2) alterations in attention or consciousness (amnesia, transient dissociative episodes, and depersonalization); 3) alterations in self-perception (ineffectiveness, permanent damage, guilt and responsibility, shame, nobody can understand, minimizing); 4) alterations in relationships with others (inability to trust, revictimization, victimizing others); 5) somatization (digestive system, chronic pain, cardiopulmonary symptoms, conversion symptoms, sexual symptoms); and 6) alterations in systems of meaning (despair and hopelessness, loss of previously sustaining beliefs).²⁰ Items in each dimension assess symptom presence using a dichotomous scale (yes/no) and symptom intensity using

Table 1. Participant characteristics

	N = 46
Age in years, mean (range)	46 (24-79)
Male, n (%)	2 (4.3)
Diagnosed with PTSD	34 (73.9)
Comorbidities	
Mental health conditions ^a	46 (100)
≤ 1 chronic health condition	13 (29.3)
≥ 2 chronic health conditions ^b	33 (71.7)

^aRecurrent major depressive disorder, depression not otherwise specified, persistent depressive disorder, bipolar, mood disorder not otherwise specified, attention deficit hyperactivity disorder, generalized anxiety disorder, social anxiety disorder, panic disorder, substance use disorders, bulimia.

^bIncluded obesity, sleep apnea, gastroesophageal reflux disease, irritable bowel syndrome, fibromyalgia, essential hypertension, asthma, migraine, other chronic pain diagnoses.

PTSD = post traumatic stress disorder.

a 4-point Likert scale. Total SIDES-SR scores range from 0 to 71, with higher scores indicating greater symptom severity. Internal consistency is good (Cronbach's alpha = 0.96).²⁰

The GAD-2, PHQ-9 (with the additional question about suicidal thoughts), and SIDES-SR were administered at baseline and every 3 months throughout the pilot. In addition, at least every 3 months during the pilot, CTCP therapists and participants formally discussed treatment goals and engaged in shared decision-making about the degree of progress toward goals and continuing needs for therapy or case management.

Statistical Analysis

Participants who completed the entire 12-month pilot were included in the analysis. Their characteristics were analyzed using descriptive statistics. The statistical significance of changes in quantitative outcome measures was assessed with Student *t*-test. Participants' written comments about the CTCP were categorized by DESNOS domains.

RESULTS

Forty-six members were referred to and agreed to participate in the CTCP pilot; their average number of ACEs was 6. They were predominantly female and had an average age of 46 years. Comorbid mental health conditions were ubiquitous, and most had comorbid physical conditions (Table 1).

Sixteen participants dropped out during the pilot, of whom more than half¹¹ did so during the first 6 months. Throughout the pilot, 9 participants left because they preferred their previous therapy, and 7 left because they lost their insurance, discontinued their Kaiser Permanente membership, or had work-related conflicts (Figure 1). Thirty participants completed 12 months in the pilot.

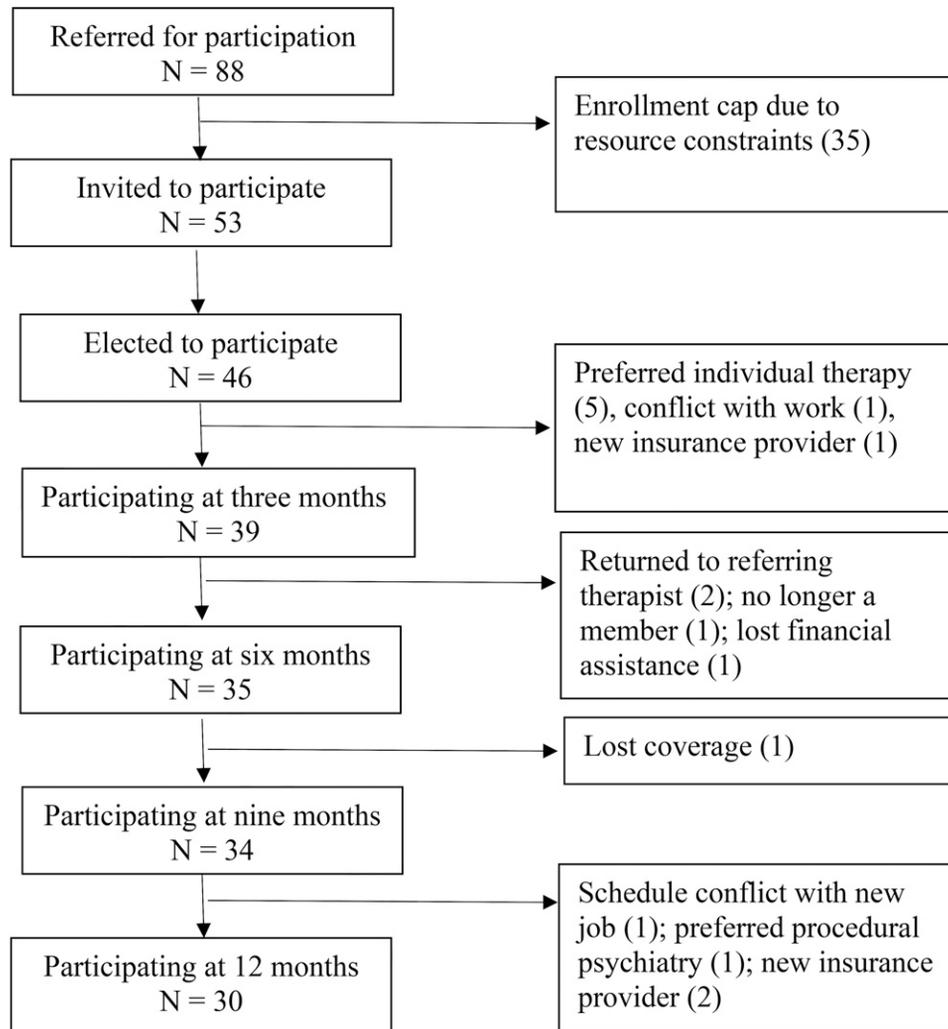


Figure 1. Participant flow diagram.

GAD-2 and PHQ-9

The average GAD-2 score among participants completing the pilot changed by a statistically significant -1.25 points (95% confidence interval [CI], -2.05 to -0.45) from 3.96 at baseline to 2.56 at 12 months.

The average PHQ-9 score among participants completing the pilot decreased by 2.50 points (95% CI, -5.57 to 0.57) from 13.64 at baseline to 10.84 at 12 months ($p = 0.11$). Mean scores on the combination of item 9 on the PHQ-9 and the follow-up question about suicidal thoughts decreased by 0.21 (95% CI, -0.36 to 0.06) from 1.04 at baseline to 0.80 at 12 months ($p = 0.06$).

SIDES-SR

From baseline to 12 months, the mean total score for disorders of extreme stress decreased by 21.48 points (95% CI, -28.14 to -14.82) from 38.12 at baseline to 17.58

($p < 0.05$). Baseline and 12-month SIDES-SR domain scores are reported in [Table 2](#). Statistically significant decreases over time were observed for alterations in the regulation of affect and impulses, alterations in attention and consciousness, alterations in self-perception, alterations in relationships, and alterations in systems of meaning. A decrease in the mean SIDES-SR somatization score of 0.5 points did not reach statistical significance.

Treatment Progress and Goal Achievement

By month 12, 11 (37%) participants had met their treatment goals and no longer required mental health treatment, as jointly determined by participants and their CTCP therapists. Another 17 (57%) individuals who participated in the CTCP for 12 months showed marked progress towards meeting treatment goals, reduced clinical symptoms, and improved overall functioning. However,

Table 2. Self-Report Inventory for Disorders of Extreme Stress scores at baseline and 12 months

	Mean score		Difference	95% CI	p
	Baseline	12 mo			
Total	38.12	17.58	-21.48	-28.14, -14.82	< 0.001
Alterations in regulation of affect and impulses	12.62	4.69	-8.56	-10.82, -6.30	< 0.001
Alterations in attention or consciousness	5.12	2.08	-3.04	-4.45, -1.63	< 0.001
Alterations in self-perception	7.62	4.38	-3.56	-5.43, -1.69	< 0.001
Alterations in relationships with others	4.46	2.5	-1.88	-2.90, -0.86	< 0.001
Somatization	4.08	2.04	-0.5	-1.08, 0.08	0.090
Alterations in systems of meaning	4.38	1.96	-2.52	-4.25, -0.81	0.006

CI = confidence interval.

these participants and their clinicians jointly determined that additional individual trauma-focused therapy or case management was both needed and clinically indicated after the pilot ended. CTCP therapists collaborated with these participants on individualized post-pilot treatment plans that included the option to participate in a drop-in Phase III support group and to either return to their referring outpatient mental health clinician's care or be referred externally for biweekly or more frequent trauma-focused individual therapy.

Participant Satisfaction with Treatment

In general, participants reported that the CTCP was superior to their previous care. One noted that, "This (CTCP) has changed and saved my life — after decades of treatment and 3 hospitalizations — I am RELEASED What a treasure for Kaiser. Don't lose this program — expand it with more help." Other comments from participants included:

This program has been one of the richest experiences of my life. It has affected every aspect: work, home, interpersonal relationships, etc, all for the better. Quantifiable results have (been receiving a rating of) exceeded expectations (highest mark) at my work review and a 21.5% pay increase I'm excited to feel like, after 20+ years of on/off counseling, I'm finally getting to the heart of the matter.

This program has exceeded my expectations. I have done much counseling in my adult life but have not made the progress I have since Phase II of CTCP. Skills group has provided me with tools and with self-understanding, especially around anger, that I didn't have. And the 1:1 processing has helped me better understand the impact of my trauma and to not feel so damaged and alone with it.

Additional quotes related to DESNOS domains are available in Supplemental Table 2^a.

Pilot participants also reported experiencing distress related to anticipated and unanticipated changes in the CTCP. At each site, a CTCP therapist went on unexpected medical leave during the pilot. Participants described the

process of "losing" their primary CTCP therapist and transitioning to the other participating therapist at the same site as quite difficult. Other examples of unexpected changes participants found distressing included uncertainty about continuing leadership support and funding during the first 6 months and discontinuing the mindful movement group at one site due to limited resources. Even the expected end of the pilot was challenging for some participants, particularly because limited resources significantly reduced the Phase III services that we had envisioned would help participants transition to usual care.

DISCUSSION

In a 12-month pilot, a trauma-focused phased intervention was associated with reductions in anxiety and symptoms of extreme stress. Mean scores for PHQ-9, somatization, and suicidal thoughts also decreased but not to a statistically significant degree.

The emerging nature of evidence related to treating complex trauma sequelae makes direct comparison to other reports challenging. In addition, PTSD diagnostic criteria are typically used to identify potential participants, while we did not limit enrollment in the pilot project to a specific diagnosis. Nevertheless, a meta-analysis of 112 randomized controlled trials of interventions for adults with PTSD symptoms found that psychological approaches are more effective than medication at reducing symptoms of PTSD and depression and improving sleep quality.³ Phase-based psychological interventions that included skills-based strategies along with trauma-focused strategies were the most promising interventions for emotional dysregulation and interpersonal problems.³ An earlier systematic review also found that phase-based interventions were more effective than non-phase-based approaches.²¹ A more recent meta-analysis of interventions for PTSD found that cognitive behavioral therapy, exposure (actual or imagined) to avoided thoughts, memories, or emotions, and eye movement desensitization and reprocessing were superior to usual care, while noting that the development of interventions for complex trauma that may or may not include

symptoms of PTSD is urgently needed.²² Complex trauma requires rethinking treatment duration and intensity. Treatments designed to be completed in 20–30 sessions may require additional sessions or repeating cycles of treatment.¹¹

Sixteen (35%) of 46 individuals who initially elected to participate in the CTCP dropped out. Nearly half (7, 44%) of those who left the CTCP did so in the first 3 months. Although discussion continues about the relationship between exposure-based therapies and dropout rates in PTSD treatment, a meta-analysis found that the degree of clinical attention paid to traumatic events does not appear to be a primary cause of dropout from active treatments.²³ The primary reason participants left the CTCP in the first 3 months was that they preferred individual therapy. Further exploration of preferences for group and individual therapy among adults with symptoms of complex trauma is warranted.

The decrease in mean score for suicidal thoughts approached but did not reach statistical significance. Strategies to prevent suicide include, among other community-based strategies, strengthening economic supports, promoting connectedness, and teaching coping and problem-solving skills.²⁴ DESNOS domains, such as alterations in regulation of affect and impulses, alterations in attention or consciousness, alterations in self-perception, alterations in relationships with others, and alterations in systems of meaning appear to be closely related to these protective factors. The statistically significant improvements in these domains we observed may confer a protective effect against suicide, and future research should examine the relationship between programs like CTCP, DESNOS domains, and suicide risk.

Pilot participants found transitions between therapists and the end of the CTCP quite challenging. The therapeutic alliance between client and therapist can be delicate and is a particularly important dynamic during treatment of complex trauma.^{25,26} Safety and trust in the therapeutic relationship provide the foundation for deeper trauma memory reprocessing and intra-psycho change. Stable funding and staffing help to establish and maintain effective therapeutic relationships and are essential to maximizing the benefits of complex trauma treatment. In addition, although their experiences were not a study focus, CTCP therapists noted that bearing witness to clients' experience of traumatic events could take a substantial toll. Secondary trauma is an occupational hazard for mental health therapists who serve survivors of trauma.⁹ Adequate time for team and individual consultation is essential, and the program budget should support clinical supervision provided by a seasoned therapist with expertise in trauma-focused treatment modalities.

Strengths and Limitations

Strengths of our pilot include the use of validated tools to assess efficacy. The SIDES-SR allowed us to assess

alterations in emotional, social, cognitive, and psychological domains that are typical of individuals with complex trauma. We did not limit participation to individuals with a diagnosis of PTSD, increasing the likelihood that similar outcomes could be reproduced among individuals with varying complex trauma sequelae.

Several limitations deserve mention. Resource constraints limited the number of participants we could enroll, which may have affected our ability to detect statistical significance of changes in some outcome measures. We did not have a comparison group. Unmeasured factors, such as duration and type of previous complex trauma treatment and medication changes, may have affected the findings in unknown ways. We did not formally assess clinician fidelity to the CTCP pathway. Unexpected transitions between therapists at both pilot sites may have affected our findings in unknown ways. CTCP therapists administered the surveys, introducing the potential for response bias. In a large study asking about ACEs as part of a comprehensive health appraisal with follow up in primary care, utilization of office and emergency room visits was lower in the subsequent year.²⁷ In our pilot, resource constraints precluded collecting data on healthcare utilization. Finally, our intervention took place within an integrated care delivery system. We cannot rule out the possibility that system characteristics affected our findings.

Since 2018, at least 31 states and the District of Columbia have enacted or adopted legislation that specifically addresses ACEs or childhood trauma, child adversity, or toxic stress.²⁸ Although this is a promising trend, significant progress remains to be made in increasing the commitment of healthcare systems to universal screening for complex trauma and offering evidence-based trauma-focused therapies for survivors needing treatment.

CONCLUSION

A trauma-focused phased intervention was associated with statistically significant reductions in anxiety and symptoms of extreme stress among survivors of complex trauma. Participants found the intervention highly acceptable. Further research is needed to explore whether the effects we observed are sustained over the long term and the relationship between the CTCP or similar interventions and chronic disease management, overall healthcare utilization, and suicide risk. ❖

Supplemental Material

^aSupplemental Material is available at: www.thepermanentejournal.org/files/2021/20.147supp.pdf

Disclosure Statement

The authors have no conflicts of interest to disclose.

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Author Contributions

Josephine Bilbao Bourke, LCSW, LICSW, served as the team lead for study design, development, and implementation and is the principle author of this manuscript. Jordan Dobrovlny, LCSW, LICSW, participated in study design, clinical intervention, and data collection and is a co-author of this manuscript. Melanie Eaton, LICSW, participated in study research and design, clinical intervention, and data collection and is co-author of this manuscript. Theresa Ferrante, LCSW, MPA:HA, participated in study design, clinical intervention, and data collection and is co-author of this manuscript. Megan Smith, LPC, participated in study research and design, clinical intervention, and data collection and is a co-author of this manuscript. All authors have approved the final manuscript.

Institutional Review Board Approval Statement

The quality improvement nature of the pilot did not meet criteria for institutional review board oversight.

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