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From Trauma Identification to Trauma-Focused Mental Health Care for Youth: Provider Factors Shaping Documentation, Referral, and Engagement

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From Trauma Identification to Trauma-Focused Mental Health Care for Youth: Provider Factors Shaping Documentation, Referral, and Engagement

A dissertation in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Yesenia Aguilar Silvan

2026

ABSTRACT OF THE DISSERTATION

From Trauma Identification to Trauma-Focused Mental Health Care for Youth: Provider Factors Shaping Documentation, Referral, and Engagement

by

Yesenia Aguilar Silvan

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2026

Professor Lauren C. Ng, Chair

Trauma exposure is prevalent among children and adolescents and is associated with broad and lasting consequences for mental health, development, and functioning. Despite the critical importance of early identification and treatment, many trauma-exposed youth do not receive timely or appropriate care. This dissertation examined the pathways through which trauma-exposed youth move from documentation and assessment to engagement in trauma-focused treatment, with particular attention to the provider factors that shape access and equity across the care continuum.

Study 1 used medical record data from a large healthcare system to examine how provider characteristics were associated with mental health documentation, screening, and referrals among trauma-exposed youth. Administration of the Patient Health Questionnaire was associated with greater odds of documenting trauma exposure and psychosocial adversity but

was not associated with the documentation of a formal trauma- and stressor-related diagnosis. Among youth with documented trauma, mental health needs, screening, and referral practices varied by provider gender, provider type, caseload composition, and departmental context, indicating that access to trauma-informed care within a single healthcare system is not uniformly distributed. These patterns may also reflect structural factors, including differences in insurance coverage, authorization requirements, and access to available behavioral health services.

Study 2 extended these findings through in-depth qualitative interviews with providers delivering trauma-focused treatment to Latiné youth and Spanish-speaking families. Providers described a complex, non-linear care pathway involving four stages: trauma recognition and referral routing, evaluation of trauma and contextual factors, treatment selection and planning, and treatment delivery and closure. Three major bottlenecks repeatedly disrupted progress. The first occurred at the point of referral, where language barriers, limited bilingual provider availability, and immigration- and insurance-related constraints often prevented families from reaching intake. The second occurred during mandated reporting, which represented an acute risk for family disengagement following disclosure. The third involved sustaining caregiver engagement during treatment, where logistical barriers, unresolved caregiver trauma, and doubts about treatment effectiveness repeatedly interrupted trauma-focused work.

Together, these studies demonstrate that disparities in trauma-focused care emerge through cumulative provider- and system-level barriers across the care continuum, from documentation and assessment through referral, intake, and sustained treatment engagement. Building more equitable, culturally responsive, and trauma-informed pathways to care for historically underserved youth and families will require strengthening each stage of this pathway rather than relying on any single point of intervention.

The dissertation of Yesenia Aguilar Silvan is approved.

Anna S. Lau

Han Du

Bruce Chorpita

Lauren C. Ng, Committee Chair

University of California, Los Angeles

2026

DEDICATION

To my undocumented, immigrant, and Latiné community: this work belongs to you. I began my academic journey in community college as an undocumented student, received DACA, and through a series of circumstances beyond my control, lost that protection and complete this dissertation, once again, as an undocumented student. The social, political, and structural conditions that have shaped the daily lives of the families whose stories inform my research have also shaped my own. What I have witnessed in our community, the way people show up every single day, the way gratitude and joy are practiced as quiet and deliberate acts of resistance, is the greatest lesson I have ever received. This work was born from the working-class neighborhoods of Los Angeles, inspired by the people of my city and by my own parents and brothers, whose labor and sacrifices have never been distant or abstract to me. Everything that follows in these pages carries that origin.

To my family, Má, Pá, Gordo, and Meño: you have been my foundation. You taught me how to find joy in the middle of hardship and how to keep moving when the ground shifts beneath you. I carry you with me in everything I do. And to Boston, my dog and mi fiel y leal compañero, for being there on the darkest of days, steady and warm, asking for nothing and giving everything. To Mely and Jessica, the sisters I chose and who chose me: thank you for holding me through the laughter, the tears, and the heartaches. You have seen me at my lowest and celebrated me at my highest, and I would not be standing here without you. To my extended family, mis primas, primos, tías, and tíos: thank you for always seeing me as I am and rooting for me with so much love.

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Esta es para ustedes.

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UCLA Dean's Office, Monica Salinas Award	2024
UCLA Grad Division, Graduate Summer Research Mentorship Fellowship	2023
UCLA Psychology, Monica Salinas Summer Fellowship	2022
Ford Foundation, Predoctoral Fellowship	2021
UCLA Grad Division, Graduate Summer Research Mentorship Fellowship	2021
UCLA Life Sciences Division, Monica Salinas Graduate Student Endowed Fund	2021
UCLA Center for Women, Irving and Jean Stone Fund	2021
UCLA, Eugene V. Cota-Robles Fellowship	2020
UCLA, Competitive Edge Graduate Summer Research Program	2020

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General Introduction

Trauma Exposure as a Public Health Concern Among Youth

Exposure to potentially traumatic events is a common experience among youth, with particularly high prevalence among racial and ethnic minority populations. Structural inequities, including poverty, community violence, discrimination, and limited access to safe environments, place racially and ethnically minoritized youth at disproportionate risk for trauma exposure. By age 17, approximately 46% of youth in the United States (U.S) will have experienced at least one potentially traumatic event, such as community violence, parental incarceration, or family separation (Sacks & Murphey, 2018). Among the various forms of trauma exposure, interpersonal trauma (i.e., including physical, sexual, and psychological abuse, neglect, and assault) is one of the most prevalent and developmentally disruptive categories experienced by youth, particularly those from racially and ethnically minoritized backgrounds (López et al., 2017; Marshall et al., 2020; Saunders & Adams, 2014). This represents a significant public health concern, as early exposure to trauma is associated with a range of negative outcomes, including the development of mental health disorders, poor physical health, and premature mortality in adulthood (Kalmakis & Chandler, 2015). Traumatic experiences demonstrate a dose-dependent relationship with health outcomes: as the number or severity of exposures increases, so too does the likelihood of adverse psychological and physical health effects.

Disparities in Trauma Exposure and Mental Health Service Use

Although trauma exposure is widespread, disparities in both exposure and access to care persist (Haider et al., 2013; Sacks & Murphey, 2018; Zhang et al., 2021). Youth from low-income, racial and ethnic minoritized, and immigrant backgrounds are more likely to experience multiple forms of adversity (Haider et al., 2013; Pumariega et al., 2022; Sacks & Murphey,

2018), yet remain less likely to access or receive mental health services following traumatic events compared to their non-Hispanic White peers (Haider et al., 2013; Zhang et al., 2021). These disparities contribute to long-term inequities in health and functioning, including increased risk for chronic illness (Ullman & Brecklin, 2002) and poorer academic and behavioral outcomes (Perfect et al., 2016). Importantly, these inequities persist despite the growing availability of evidence-based practices (EBPs) that effectively reduce trauma-related symptoms and improve functioning among youth.

Over the past several decades, implementation science has emphasized "push" strategies aimed at expanding the availability of effective mental health interventions through workforce training and dissemination efforts (Barnett et al., 2018; Gallo et al., 2013; Marques et al., 2019; Powell et al., 2012, p. 202; Proctor et al., 2013). As a result, a substantial number of EBPs (approximately 1,300) are now available for community implementation (Becker & Chorpita, 2023). However, increasing availability alone has not translated into improved access or sustained engagement in care (Gonzalez et al., 2018). Engagement remains a persistent challenge, with only one in three youth initiating treatment and a substantial proportion discontinuing services prematurely, with dropout rates ranging from 50% to 70% (Becker & Chorpita, 2023). These patterns suggest that the gap in care is not solely due to a lack of services, but rather to challenges in how youth are identified, referred, and engaged within healthcare systems.

Referral Pathways as the Gateway to Mental Health Care

Central to this process is the referral pathway, a critical determinant of access to and engagement with mental health services (Aguilar Silvan et al., 2025), as youth and families rarely self-initiate specialty care and instead rely on healthcare providers to identify concerns and

initiate referrals (Aarons et al., 2011; Stiffman et al., 2004; Thomas et al., 2020). Accordingly, providers function as a central "gateway" to care, with referrals, most often originating from primary care, serving as the primary entry point into services and self-referral remaining relatively uncommon (Aarons et al., 2011; Guevara et al., 2009; Hickling et al., 2024; Rocks et al., 2020; Stiffman et al., 2004; Thomas et al., 2020). In many cases, referrals are initiated when providers document trauma exposure or related mental health symptoms within the electronic health record (EHR), which then informs care coordination and follow-up (Singer et al., 2022; Zafari et al., 2021). However, trauma exposure and mental health needs are frequently under-identified, inconsistently documented, or omitted altogether in medical records, particularly for racially and ethnically minoritized youth (Becker-Haimes et al., 2023; Brown et al., 2021; Costello & Klein, 2019). This incomplete documentation may lead to fragmented care when critical information is unavailable to providers who rely on EHR documentation to coordinate services and initiate referrals (Colaiaco et al., 2018; Reitz et al., 2012).

After a referral is made, pathways to care do not end; rather, they extend into a series of subsequent steps that are often overlooked (Aguilar Silvan et al., 2025). Even when trauma is identified and referrals are initiated, many youth do not successfully engage in trauma-focused mental health services. However, research has largely focused on the initial referral while neglecting what follows (Gervasio et al., 2025). Entry into specialty care typically involves additional decision points, such as intake, screening, and assessment processes to determine appropriate treatment, yet these pathways remain underexamined (Aguilar Silvan et al., 2025). Emerging evidence suggests that variation in these post-referral pathways shapes engagement outcomes, with certain processes facilitating greater uptake of services among youth. Taken together, these findings highlight a critical gap: while prior research has identified who is less

likely to access services, far less is known about how youth move through the sequence of care from trauma recognition to engagement in trauma-focused treatment.

Provider-Level Determinants of Trauma Identification and Referral Pathways

Building on this gap, there is limited understanding of how provider-level factors shape care pathways, particularly during early stages of trauma identification and referral and as processes unfold across multiple decision points, delays, and bottlenecks that influence whether youth ultimately connect to and remain in care. Provider characteristics are central to the adoption and implementation of evidence-based practices, including trauma-informed care, as emphasized in implementation frameworks such as the Exploration, Preparation, Implementation, and Sustainment (EPIS) model (Aarons et al., 2011). Consistent with this, variation in trauma identification and referral practices is not random but may be shaped by provider characteristics, such as gender, professional role, department, and caseload, which are associated with differences in whether trauma histories and mental health concerns are recognized and documented (Candib et al., 2012; Kerker et al., 2016; Meredith et al., 2017; Ridings et al., 2022; Tink et al., 2017; Weinreb et al., 2010). These patterns may be further influenced by provider discomfort, time constraints, and concerns about documenting sensitive information in shared medical records (Kariotis et al., 2022).

Importantly, provider decision-making occurs within broader organizational contexts that shape how trauma identification, screening, and referral practices are implemented. In line with EPIS, provider behaviors interact with organizational factors, such as workflow structures, competing demands, and infrastructure for documentation and referral coordination, to influence whether trauma-informed practices are adopted and sustained (Aarons et al., 2011; Barnett et al., 2018; Damschroder et al., 2009; Harvey & Kitson, 2020; Purtle & Lewis, 2017; Thurston &

Eisener, 2006). These constraints often contribute to fragmented referral processes, including long waitlists, limited provider availability, and challenges navigating complex healthcare systems (Thomas et al., 2020), resulting in inefficient and discontinuous pathways to care. At the same time, providers must navigate family-level factors that shape engagement, including structural barriers, language differences, and variability in resources and readiness for care, which influence whether referrals are initiated, followed through, and sustained. As a result, pathways from trauma identification to treatment engagement reflect a dynamic interplay between provider decision-making, organizational context, and family-level barriers (Gervasio et al., 2025), with evidence suggesting that youth from different backgrounds (e.g., Spanish-speaking youth and those with public insurance) navigate these pathways differently (Aguilar Silvan et al., 2025). Despite this, existing research rarely examines how these multilevel factors intersect across stages of care, leaving critical gaps in understanding where and why breakdowns occur and how to improve linkage to and engagement in services for trauma-exposed youth.

Overview of the Dissertation

Despite growing recognition of the importance of trauma-informed care, there is limited understanding of how youth move through care pathways, from trauma identification and referral to engagement in trauma-focused treatment, particularly how this process is shaped by providers as central decision-makers operating within organizational systems and in response to family-level contexts and barriers. This dissertation addresses this critical gap through a multi-method investigation of trauma-informed care pathways within healthcare systems, integrating quantitative and qualitative approaches to examine both variation in provider characteristics and the processes through which youth connect to care. It conceptualizes engagement not as a single

outcome, but as a dynamic, multi-stage process shaped by provider decision-making, organizational context, and family-level constraints.

Study 1 examines how provider-level characteristics influence the likelihood of documenting mental health needs, administering mental health screening, and initiating referrals to mental health services among trauma-exposed youth using electronic medical record data from a large healthcare system. By leveraging large-scale clinical data, Study 1 identifies which providers are more or less likely to initiate key early steps in the pathway to care, addressing a critical gap by moving beyond patient-level explanations of disparities to examine how provider-level variation contributes to inequities in access to trauma-informed services. However, while Study 1 provides insights into patterns in mental health identification, screening, and referral, it does not capture how youth move through subsequent stages of care, including how treatment decisions are made, how families navigate referral processes, or where breakdowns occur between trauma identification, referral, and trauma-focused treatment engagement.

Building on these findings, Study 2 adopts a process-oriented, qualitative approach to examine how care pathways unfold after trauma identification and referral to mental health services. Drawing on interviews with providers delivering trauma-focused services to Latiné youth, this study uses process mapping to characterize the sequence of steps, decision points, and transitions from trauma identification to treatment engagement. It identifies key delays, drop-off points, and bottlenecks that shape whether youth successfully connect to care or disengage, with particular attention to how language, caregiver involvement, and structural barriers influence pathways for Spanish-speaking families. In contrast to prior work that has focused primarily on early identification or referral stages, this study examines the broader care continuum within healthcare systems and centers provider perspectives on how clinical and system-level processes

shape engagement. Conceptualizing care pathways as dynamic and non-linear, Study 2 highlights how multiple decision points, related to treatment appropriateness, language needs, caregiver involvement, and readiness for trauma work, interact to influence service engagement. By identifying where and why breakdowns occur, this study provides a more nuanced understanding of how engagement is constructed and disrupted across stages of care.

Study 1 - Trauma Identification in Youth Electronic Medical Records: Associations with Mental Health Concerns, Screening, Referrals, and Provider Characteristics

Trauma Exposure and Adversities among Youth

High rates of trauma exposure and low mental health service use among youth represent a major public health concern, given their associations with mental health disorders, poor physical health, and early mortality in adulthood (Kalmakis & Chandler, 2015). Trauma exposure in childhood can encompass both discrete interpersonal victimization experiences and broader forms of social adversity. Interpersonal trauma includes physical, sexual, and emotional abuse, neglect, domestic violence, assault, and other experiences involving threat or betrayal within caregiving and relational contexts (López et al., 2017; Marshall et al., 2020; Saunders & Adams, 2014). Youth are also frequently exposed to chronic social adversities, such as poverty, housing instability, community violence, discrimination, immigration-related stress, and family separation, which often co-occur with interpersonal trauma and compound its developmental impact (Hughes et al., 2017; Marshall et al., 2020).

Among traumatic experiences, interpersonal trauma is one of the most prevalent and developmentally disruptive forms of adversity, particularly for youth from racially and ethnically minoritized communities who are disproportionately exposed to both direct victimization and structural inequities (Marshall et al., 2020; Pumariega et al., 2022). Because interpersonal trauma often occurs within caregiving relationships or other trusted social contexts, it can profoundly disrupt attachment, emotional regulation, and core beliefs about safety and trust. Exposure to interpersonal trauma and related social adversity is strongly associated with elevated risk for posttraumatic stress symptoms, depression, anxiety, behavioral problems, and difficulties in

social and academic functioning across development (Hughes et al., 2017; Liming & Grube, 2018; Marshall et al., 2020).

Therefore, the progression from recognizing trauma exposure, identifying and documenting mental health needs (e.g., PTSD, anxiety, depression), and making referral decisions is essential for linking youth to care. Unfortunately, this diagnostic step is frequently missed. Mental health needs remain under-identified in healthcare settings (Zammit et al., 2018), even though approximately 16% of trauma-exposed youth exhibit elevated PTSD symptoms (Alisic et al., 2014). This phenomenon is common; a study found that only 11% of adult patients with PTSD identified via structured interview had PTSD documented in their medical record, whereas 51% had depression noted instead (Liebschutz et al., 2007), suggesting that providers may recognize distress but document it in ways that obscure trauma-specific concerns.

Disparities in Mental Health Care Use

Despite the well-documented consequences of trauma exposure, many youth with trauma-related mental health needs never receive appropriate care. Research examining disparities in mental health service use among trauma-exposed youth has overwhelmingly focused on patient-level explanations, such as demographic characteristics and personal health beliefs, to account for variation in service utilization (Derose et al., 2011). For example, numerous studies document that factors such as race/ethnicity, gender, and age are associated with whether youth access mental health services (Betancourt et al., 2017; Bridges et al., 2010; Choi et al., 2018; M. Kim et al., 2020). Among trauma-exposed youth, Hispanic/Latiné youth are less likely to use services compared to White youth (Bridges et al., 2010; Choi et al., 2018). Studies have also found that racially and ethnically minoritized groups may hold beliefs that discourage mental health service use, such as norms emphasizing self-reliance among Black men

(Bauer et al., 2020) or preferences among immigrant families to resolve distress within the family or through religious practices (Ellis et al., 2010). Conversely, trauma-exposed individuals who believe treatment is helpful and necessary are more likely to engage in services (Ghafoori et al., 2014). Although client-level factors are often used to explain disparities in mental health service use (Haider et al., 2013; Pumariega et al., 2022; Sacks & Murphey, 2018), this narrow focus overshadows the critical role of healthcare providers and clinical systems in determining whether trauma-related mental health needs are recognized, documented, and acted upon (Derose et al., 2011).

Provider Factors that Predict Identification of Trauma Exposure and Trauma- and Stress-related Diagnosis and Referral

Providers are typically the first point of contact for youth; they identify symptoms, initiate discussions about mental health, and decide whether and where to refer youth for further evaluation and services (Aarons et al., 2011; Stiffman et al., 2004). As such, providers serve as a central "gateway" within healthcare systems. Yet providers do not identify, diagnose, or recommend follow-up care consistently; their backgrounds, perceptions, and decision-making processes contribute to meaningful variation in trauma identification, diagnosis, and linkage to services (California Department of Health Care Services, 2023; McGuire et al., 2022). These findings highlight the critical role providers play in either narrowing or widening disparities in access to mental health services among trauma-exposed youth. Despite this influence, provider factors remain relatively understudied in the trauma identification and referral literature. Without a clear understanding of how provider factors shape trauma identification and referral practices, healthcare systems have limited capacity to intervene at a level central to the successful

implementation of trauma-informed initiatives (Aarons et al., 2011; Lui et al., 2022; Perez Jolles et al., 2021).

A critical bridge between trauma identification and referral decision-making (i.e., central goals of trauma-informed initiatives; National Institute for Children's Health) is the provider's determination of whether a youth has a clinically significant mental health need. Identifying trauma exposure alone does not justify a referral; researchers emphasize that referral decisions should be based on documented mental health symptoms or diagnoses, as relying solely on trauma exposure risks false positives, over-diagnosis, and unnecessary treatment (Anda et al., 2020; Finkelhor, 2018; McLennan et al., 2019). Among youth with documented trauma exposure, providers may differ not only in whether they assign a trauma- and stressor-related diagnosis, but also in the extent to which they document other co-occurring mental health concerns, such as internalizing distress, behavioral dysregulation, somatic symptoms, neurodevelopmental complexity, and acute risk (Alisic et al., 2014; Cruz et al., 2022; Darnell et al., 2019; Gerson & Rappaport, 2013). Examining these broader documentation patterns is important because they may represent clinical signals that often guide referral decisions and may help explain why some trauma-exposed youth are linked to mental health care while others are not (Carliner et al., 2017).

The EHR may provide a unique opportunity to examine this process as a sequence of provider-driven decisions reflected in routine documentation (Roehrs et al., 2017; Sarwal & Gupta, 2024; Singer et al., 2022; Zafari et al., 2021). First, providers recognize and document trauma exposure or adversity. Second, they determine whether the youth's clinical presentation is consistent with a trauma-related mental health diagnosis such as PTSD, or other co-occurring mental health concerns. Third, they may administer or document mental health screening tools.

Finally, they decide whether to refer the youth for additional mental health evaluation or treatment. Variation at any stage may influence whether trauma-exposed youth are accurately identified and linked to appropriate services.

Mental Health Screening and Trauma Documentation

Mental health screening practices may provide an important indicator of how providers and healthcare systems respond to trauma-related concerns. Screening tools, such as the Patient Health Questionnaire (PHQ; Gilbody et al., 2007), are increasingly embedded within pediatric and primary care workflows to identify emotional symptoms that warrant further assessment and possible referral (California Department of Health Care Services, 2023). Although these tools were not designed specifically to assess trauma, their administration may signal that a provider or clinic has recognized sufficient emotional distress to initiate a more structured evaluation. In this way, screening represents a measurable point in the clinical workflow where providers move from general symptom recognition toward diagnostic clarification and treatment planning. Despite the growing use of routine mental health screening, little is known about how these practices align with the documentation of trauma-related concerns in EHR. Providers may be more likely to administer screening when trauma exposure or trauma-related symptoms are suspected, and screening results may prompt additional questioning, diagnostic clarification, and referral during the same encounter. Conversely, youth may undergo repeated screening without trauma exposure or trauma-related diagnoses being documented, suggesting missed opportunities to recognize and record trauma-specific concerns. These patterns highlight the possibility that screening functions not only as a patient assessment tool, but also as a provider- and system-level process that shapes whether trauma-related needs are recognized and documented.

Provider Characteristics Associated with Trauma Documentation

Beyond youth clinical presentation and screening, providers themselves may shape how trauma-related concerns are recognized and acted upon. Consistent with the EPIS framework, individual provider characteristics are hypothesized to influence the adoption and implementation of clinical practices (Aarons et al., 2011). Medical records can be leveraged to help link provider characteristics to documented diagnoses, screening practices, and referrals (Abdulazeem et al., 2023; Das Gupta, 2014; Roehrs et al., 2017; Sadeh-Sharvit et al., 2022; Sarwal & Gupta, 2024; Singer et al., 2022; Stilwell et al., 2022; Zafari et al., 2021).

Provider Gender and Role

One provider factor that can be extracted from medical records is provider gender, which appears to shape trauma identification in interaction with professional role, rather than as an isolated characteristic. Across multiple studies, female providers are more likely than male providers to screen for trauma and inquire about exposure histories (Candib et al., 2012; Tink et al., 2017; Weinreb et al., 2010). This pattern is closely linked to the gendered distribution of healthcare roles (Data USA, 2022b, 2022a): female providers are disproportionately represented in nursing (approximately 88% female) and social work (approximately 84% female), positions in which trauma-related assessment and psychosocial care are more routinely integrated into clinical workflows. Consistent with this intersection of gender and role, within pediatric settings, nurses and social workers identify trauma exposure and initiate referrals more frequently than physicians (Ridings et al., 2022); a distinction that can be readily examined in medical records, where provider role and discipline are routinely documented. Experiential factors may further reinforce these patterns. Female providers report higher rates of personal ACE histories, which have been associated with greater comfort and confidence in discussing trauma with patients

(Candib et al., 2012; Tink et al., 2017; Weinreb et al., 2010). Together, this literature suggests that trauma identification practices reflect the combined influence of provider gender and professional role socialization. Accordingly, similar gender- and role-related patterns may be observed in the documentation of interpersonal trauma exposure, mental health needs, and referral decisions within electronic medical records, underscoring the importance of accounting for intersecting provider characteristics when designing workforce training and targeted implementation supports.

Departmental Context

In addition to provider gender and professional role, the department in which a provider practices plays a critical role in shaping trauma identification. Trauma inquiry may be more common in departments whose routine workflows naturally involve discussions of safety, mental health, or other sensitive experiences, most notably mental health settings (e.g., psychiatry), where clinical procedures support the assessment of trauma-related concerns (Cooper et al., 2020). Differences across clinical specialties may also reflect variation in exposure to trauma-related concerns, clinical workflows, and the extent to which screening and mental health assessment are incorporated into routine care (Amato et al., 2019; Behr & Diaz, 2016; Purtle, 2020). Although there have been widespread calls to incorporate trauma-informed care across healthcare settings (Stillerman et al., 2023), implementation has been uneven across clinical settings. Prior literature has highlighted departments, such as pediatrics, , as settings in which trauma-informed approaches may be particularly relevant because clinical workflows may involve discussions of developmental risk, safety, or sensitive health information. In particular, pediatrics has been identified as priority settings for trauma-informed care, given their longitudinal relationships with families and the increasing use of screening protocols (Chaudhri

et al., 2019; Gerber, 2019; Marsac et al., 2016)... Collectively, this literature suggests that clinical departments may be associated with variation in trauma identification, mental health documentation, screening, and referral, although these differences may reflect variation in clinical workflows and documentation practices rather than differences in trauma-informed care alone.

Caseload Composition and Exposure to Latiné Youth

Providers' exposure to Latiné youth and families may shape the likelihood of trauma identification and subsequent referral. Providers who serve larger proportions of minoritized youth, such as Latiné youth, particularly those from immigrant, Spanish-speaking, and low-income households, often report more frequent trauma inquiry, potentially reflecting greater awareness of the structural and contextual adversities that elevate trauma risk (Bruce et al., 2018; Haider et al., 2013; Meredith et al., 2017; Pumariega et al., 2022; Sacks & Murphey, 2018). Repeated exposure to these populations may increase providers' sensitivity to trauma-related presentations and promote more frequent inquiry about adverse experiences and associated mental health needs (Bruce et al., 2018; Haider et al., 2013; Meredith et al., 2017).

At the same time, providers with high concentrations of Latiné youth on their caseloads may encounter additional barriers to trauma identification, including limited availability of Spanish-language services, challenges engaging caregivers with competing work and family demands, and the need to address immigration-related concerns, stigma, and basic needs before initiating mental health referrals (Pumariega et al., 2022). These demands may increase workload complexity and contribute to emotional exhaustion, which has been associated with reduced use of evidence-based practices and lower adherence to recommended assessment procedures (J. J. Kim et al., 2018; Lau et al., 2020; Morse et al., 2012). Given these competing influences, the

proportion of Latiné youth on a provider's caseload is expected to be associated with the documentation of trauma, mental health needs, and referral patterns, although the direction of this relationship remains uncertain. Greater exposure to Latiné youth may enhance providers' cultural responsiveness and vigilance for trauma-related concerns, whereas the cumulative demands associated with serving structurally marginalized populations may reduce the consistency with which trauma is documented and acted upon.

Current Study: Aims and Hypotheses

The current study used EHR data from a large healthcare system to examine trauma identification as a provider-mediated clinical pathway. Rather than conceptualizing a trauma- and stress-related diagnosis solely as a function of patient characteristics, this study views documented diagnosis in the medical record as the product of both youth clinical presentation and potential indicators of provider decision-making (Wilk et al., 2016). The study is organized around three primary aims:

Aim 1 examined how mental health screening practices align with the documentation of trauma-related concerns (i.e., formal trauma- and stress-related diagnoses and any documented trauma including exposure or psychosocial adversity) within the EHR of a random sample of youth who had at least one mental health-related diagnosis or interpersonal exposure code documented in their medical chart (N = 10,000). At the encounter level, the administration of the PHQ was treated as an indicator of whether formal screening had been assigned during a specific visit. Based on the premise that mental health screening represents a provider- and system-level clinical process that creates structured opportunities to assess emotional symptoms and clarify diagnostic impressions, it was hypothesized that the administration of mental health screening would be positively associated with the documentation of trauma-related concerns in the EHR.

Aim 2 examined provider characteristics associated with encounter-level clinical documentation practices among the subset of 1,205 youth drawn from the original 10,000-patient cohort who had at least one documented trauma- and stressor-related disorder or interpersonal trauma exposure code. Provider characteristics of interest included gender, professional role, department, and the proportion of Hispanic/Latiné youth on the provider's caseload. Using this subset, we first described the distribution of these provider characteristics among those documenting trauma-related concerns. We then examined whether provider characteristics were associated with a) the administration of mental health screening and b) the mental health profiles (e.g., comorbid symptoms and diagnoses) documented for youth with trauma-related concerns.

Aim 3 uses the same subset of youth with already documented trauma- and stressor-related diagnoses or interpersonal trauma exposure (N = 1,205) in their medical records and examined whether the provider characteristics identified in Aim 2 were associated with the documentation of mental health referrals during the same clinical encounter.

For aims 2 and 3, it was hypothesized that provider characteristics would be associated with clinical documentation (i.e., mental health profiles and screening) and mental health referrals. Specifically, female providers and mental health professionals (e.g., psychologists, social workers, and psychiatrists)were expected to be more likely to document mental health-related concerns, administer mental health screening, and record referrals to mental health services. Provider department (i.e., pediatrics and mental health) was also expected to be associated with these outcomes, given differences across clinical specialties in patient population, clinical workflows, and the extent to which mental health and trauma-related concerns are incorporated into routine care. Concentration of Hispanic/Latiné youth on caseloads is also expected to be associated with these outcomes, although no directional hypothesis is

proposed given competing literature. These hypotheses were based on prior research suggesting that provider demographics, professional training, clinical setting, and patient population shape trauma inquiry, diagnostic decision-making, and linkage to care.

Methods

Study Site

This study was approved by the University of California, Los Angeles Institutional Review Board (IRB#20-001703) and utilized de-identified EHR data from patients receiving care within UCLA Health. Data were securely stored within the xDR cloud-based database in accordance with institutional data governance protocols. xDR is a large-scale clinical data warehouse that supports research data extraction and analysis, as well as clinical quality improvement efforts. The system is maintained by UCLA Health's Office of Health Informatics and Analytics and co-managed by the Biomedical Informatics Program.

UCLA Health is a large, integrated academic medical health system comprising multiple care settings, including Ronald Reagan UCLA Medical Center, UCLA Santa Monica Medical Center, Resnick Neuropsychiatric Hospital at UCLA, faculty practice group (FPG) outpatient clinics, and hospital-licensed community clinics. These sites collectively provide a continuum of medical and behavioral health services across inpatient, outpatient, and specialty care settings.

Mental health screening and behavioral assessment practices vary across these settings. In particular, UCLA Health implemented EHR-integrated mental health screening (i.e., the patient health questionnaire program) within primary care settings beginning in October 2018. This initiative initially focused on improving depression screening rates and subsequently expanded to include broader behavioral health screening, including anxiety, alcohol use, and drug use. The screening program incorporated customized EHR tools and operational workflows, as well as

training for physicians and clinics staff, to support implementation and use of patient-reported outcome measures. At the time of implementation reporting in December 2020, approximately 35 of 60 primary care clinics were at some stage of patient-reported mental health outcome measure implementation. Thus, documented mental health screening in the EHR may reflect a combination of system- and clinical-level screening workflow, in addition to individual provider practices. Insurance coverage represents an important system-level factor shaping access to behavioral health services within UCLA Health. Coverage for mental health and other behavioral health needs varies across insurance plans, and not all health plans provide behavioral health benefits. For plans that do not provide coverage, behavioral health benefits may be administered through a separate behavioral health organization. UCLA Health accepts several behavioral health insurance plans, including Aetna, Anthem Blue Cross, Blue Shield of California, Cigna, Magellan Health, MHN (a Health Net company), and U.S. Behavioral Health Plan, California. These plans may provide access to behavioral health services delivered by UCLA Health providers or at Resnick Neuropsychiatric Hospital at UCLA. Thus, access to behavioral health care may vary based on patients' insurance coverage and the organization responsible for administering their behavioral health benefits, potentially shaping available pathways to mental health services and referral.

The UCLA Health service area spans 28 ZIP codes across 18 cities and communities within Service Planning Area (SPA) 5 of Los Angeles County (UCLA Health, 2023). This region serves an estimated population of 656,748 individuals. The population is demographically diverse, with 15.7% children and adolescents (ages 0–17), 68.4% adults (ages 18–64), and 15.9% older adults (ages 65 and older).

Racial and ethnic composition of the service area is as follows: 59.2% White, 16.1% Latiné, 13.6% Asian, 5.8% Black/African American, and 5.3% identifying as Native American, Native Hawaiian/Pacific Islander, or other racial/ethnic groups. Socioeconomic indicators show that 10.6% of residents live at or below 100% of the federal poverty level, and 20.1% fall below 200% FPL. Additionally, 4.9% of the population is uninsured.

Sample Selection and Data Extraction

EHR data were extracted on May 9, 2022. The extraction timeframe spanned from February 5, 2001 to May 9, 2022, allowing for the inclusion of clinical data across multiple years. Importantly, although patient inclusion was based on encounters occurring within the 2019–2021 identification window, all available diagnostic records for selected patients were retained from the full extraction timeframe (2001–2022). Reference Table 1.

Patients were eligible for inclusion if they were 1) between the ages of 0 and 17 years and 364 days at the time of diagnosis and 2) had at least one outpatient encounter (in-person or virtual) occurring between January 1, 2019, and December 31, 2021. This timeframe was selected to capture care occurring before and after the implementation of California's Adverse Childhood Experiences (ACEs) screening mandate on January 1, 2020. However, as of the data extraction date (May 9, 2022), routine trauma screening aligned with the ACEs mandate had not yet been implemented within UCLA Health.

A two-phase sampling approach was used to construct the analytic cohort. In Phase 1, a pool of 10,000 unique patients was randomly selected from those who 1) had at least one qualifying outpatient encounter and 2) had been assigned at least one relevant diagnosis code during childhood or adolescence (i.e., prior to age 18) at any point within the available EHR timeframe (2001–2022). The qualifying diagnosis codes included a) mental, behavioral, and

neurodevelopmental disorders (ICD-10-CM codes F01–F99) and b) interpersonal trauma-related exposures, including physical, sexual, and psychological abuse (O9A.3–O9A.5; T74; T76), assault-related external cause codes (X92–X99; Y00–Y09), and codes reflecting maltreatment or adverse upbringing experiences (e.g., Z69; Z04, including Z04.4, Z04.7, Z04.81; Z62). For patients meeting these criteria, the initial data extraction included patient demographic information, comprehensive diagnostic histories, and vital sign records, which contained information on mental health screener administration (e.g., whether a PHQ screener was assigned during a given encounter).Thus, the sample was not drawn from all pediatric patients in the health system, but rather from a randomly selected subset of pediatric patients with a documented mental health condition or exposure code.

In Phase 2, a subset of the original 10,000-patient cohort was identified by retaining only those patients with at least one documented trauma- and stressor-related disorder (ICD-10-CM F43 codes) or interpersonal trauma-related exposure code at any point during the available EHR timeframe, resulting in a final subset of 1,205 youth. For this subset, additional encounter-level data were extracted to support encounter-level analyses incorporating provider characteristics, including provider gender, professional role, department, and documentation of mental health referrals associated with each encounter. Diagnostic data were linked to specific clinical encounters, allowing clinical documentation to be examined at the encounter level. Providers associate diagnoses with encounters for clinical documentation and billing purposes, and multiple diagnoses may be recorded within a single encounter. Thus, an encounter-level diagnosis may reflect either a newly assigned diagnosis or a previously established condition that remained clinically relevant and was addressed or treated during the encounter. Accordingly, diagnostic documentation was interpreted as indicating that a clinical concern was documented

in association with a given encounter rather than that the encounter provider newly identified the condition for the first time.

Final Analytic Dataset

The final analytic dataset was structured at the encounter level, with each row representing a unique patient-encounter combination. Data from six source files were merged to create the analytic dataset (see Table 2). The encounter diagnoses file served as the primary dataset which contained, multiple rows per encounter reflecting the documentation of multiple diagnosis codes within a single visit, that were restructured at the encounter-level, reflecting unique encounters across 10,000 unique patients.

Patient demographic information was merged using the patient identifier (IP_PATIENT_ID) and included age, sex, race/ethnicity, neighborhood income, and Area Deprivation Index (ADI). Mental health screening data were obtained from the Flowsheet Vitals file, which contained screener-response records documented within the electronic medical record. A binary encounter-level indicator was created to identify whether any Patient Health Questionnaire-related screening instrument was administered during a given encounter. This indicator was based on string matching across 29 distinct vital sign labels corresponding to PHQ variants used in the health system (e.g., PHQ-2, PHQ-9, and related forms). When multiple screening entries were documented within the same encounter, they were collapsed into a single indicator to avoid duplicate counting. Screening data were then aggregated to the encounter level and merged with the primary analytic dataset using both IP_PATIENT_ID and IP_ENC_ID to ensure accurate alignment with the corresponding clinical encounter.

Provider data were integrated through a three-stage sequential merge. The provider encounter dataset, which contained encounter-level provider identifiers and department specialty

information, was first merged with the provider demographics dataset for 11,280 unique providers, using the provider identifier IP_ENCOUNTER_PROV_ID as the linking key. The resulting file was then merged with the Appointments dataset, which contained encounter-level records of appointments including department specialty name, provider name, and referring provider name associated with encounters in the primary dataset. The combined provider file was subsequently merged onto the main analytic dataset using both patient and encounter identifiers. Provider data were available for 143,373 encounters (i.e., about 15.42% of the full encounter-level dataset), reflecting the targeted scope of the original provider data extraction, which was designed to capture provider information for encounters with documented trauma-related diagnoses and interpersonal trauma exposure codes consistent with the original data pull criteria. The concentration of provider data among trauma-documented encounters reflects this targeted extraction strategy rather than random data missingness.

Prior to all merge operations, patient and encounter identifiers were converted to character format to prevent type-related mismatches, and all character variables were trimmed of leading and trailing whitespace to ensure consistent label matching across source files. All merge operations were validated through identifier consistency checks, duplicate record checks, encounter-level aggregation checks, and merge completeness checks to ensure data integrity across all source files.

Table 1

Illustrative Analytic Dataset Structure: Hypothetical Patient Records Across Merged Source Files (Extraction Window: 2001–2022)

Encounter Diagnoses (Primary Dataset)						Patient Demographics				Flowsheet Vitals	Provider Demographics		Appointments / Provider Encounter		Inclusion
Pat. ID	**Enc. ID**	**Enc. Date**	**Department**	**ICD Code**	**Diagnosis**	**Age**	**Sex**	**Ethnicity**	**ADI**	**PHQ Admin.**	**Provider Type**	**Prov. Gender**	**Prov. Dept. Specialty**	**Referral**	**In 2019–2021 Window**
Patient A: 14-year-old Hispanic/Latiné female; high ADI neighborhood; identified via 2020 trauma exposure code (Z62.810)															
A001	E-0021	06/14/2012	Pediatrics	Z00.121	Routine child health exam	7	F	Hispanic	8	No	—	—	—	None	No
A001	E-0047	03/22/2016	Primary Care	F41.1	Generalized anxiety disorder	11	F	Hispanic	8	No	—	—	—	None	No
A001	E-0089	09/05/2018	Primary Care	F41.1	Generalized anxiety disorder	13	F	Hispanic	8	Yes	—	—	—	Mental Health	No
A001	**E-0112**	**05/07/2020**	**Psychiatry, Child/Adolescent**	**Z62.810**	**Personal history of physical abuse in childhood**	**14**	**F**	**Hispanic**	**8**	**Yes**	**Mental Health Provider**	**Female**	**Psychiatry, Child/Adolescent**	**Mental Health**	**YES**
A001	**E-0134**	**09/14/2020**	**Psychiatry, Child/Adolescent**	**F43.10**	**Post-traumatic stress disorder, unspecified**	**14**	**F**	**Hispanic**	**8**	**Yes**	**Physician**	**Female**	**Psychiatry, Child/Adolescent**	**None**	**YES**
A001	E-0156	04/18/2021	Psychiatry, Child/Adolescent	F43.12	Post-traumatic stress disorder, chronic	15	F	Hispanic	8	Yes	Mental Health Provider	Female	Psychiatry, Child/Adolescent	Other Specialty	No
A001	E-0178	01/09/2022	Psychiatry, Child/Adolescent	F43.12	Post-traumatic stress disorder, chronic	16	F	Hispanic	8	Yes	—	—	—	None	No
Patient B: 9-year-old Non-Hispanic/Latiné male; low ADI neighborhood; identified via 2019 trauma diagnosis (F43.20)															
B002	E-0312	08/11/2014	Pediatrics	Z00.121	Routine child health exam	3	M	Non-Hispanic	2	No	—	—	—	None	No

B002	E-0334	05/03/2017	Pediatrics, Developmental-Behavioral	F90.0	ADHD, predominantly inattentive type	6	M	Non-Hispanic	2	No	—	—	—	None	No
B002	E-0356	11/19/2018	Pediatrics, Developmental-Behavioral	F90.0	ADHD, predominantly inattentive type	7	M	Non-Hispanic	2	No	—	—	—	Other Specialty	No
B002	**E-0389**	**03/28/2019**	**Primary Care**	**F43.20**	**Adjustment disorder, unspecified**	**9**	**M**	**Non-Hispanic**	**2**	**No**	**Physician**	**Male**	**Primary Care**	**Mental Health**	**YES**
B002	**E-0401**	**09/15/2019**	**Psychiatry, Child/Adolescent**	**Z62.820**	**Parent-child conflict**	**9**	**M**	**Non-Hispanic**	**2**	**Yes**	**Mental Health Provider**	**Female**	**Psychiatry, Child/Adolescent**	**None**	**YES**
B002	E-0423	02/14/2021	Psychiatry, Child/Adolescent	F43.23	Adjustment disorder with mixed anxiety and depressed mood	11	M	Non-Hispanic	2	Yes	—	—	—	None	No

Note. This table presents hypothetical records for illustrative purposes only. Each row represents one encounter-level observation in the final analytic dataset. Column groups reflect the six source files merged to construct the analytic dataset: Encounter Diagnoses (primary dataset; blue header), Patient Demographics (green), Flowsheet Vitals/PHQ screening (yellow), Provider Demographics (red), and Appointments/Provider Encounter data (purple). Bolded rows = falls within the 2019–2021 identification window required for study inclusion/data extraction. All remaining encounter records, both pre- and post-window, were retained from the full extraction period (February 5, 2001 – May 9, 2022). Provider data (Provider Type, Provider Gender, Provider Dept. Specialty, Referral) are available only for encounters linked to provider identifiers from phase 2 (approximately 15.42% of all encounters). Dashes (—) indicate encounters without linked provider data. ADI = Area Deprivation Index state rank (1 = least disadvantaged, 10 = most disadvantaged). PHQ Admin. = whether a PHQ screening instrument was administered at the encounter. Referral = type of follow-up referral documented, if any. Enc. = Encounter; Pat. = Patient; Prov. = Provider; F = Female; M = Male.

Table 2

Summary of Source Datasets Used to Construct the Final Analytic File

Dataset	Unit of Observation	Number of Records	Primary Variables Used
Encounter Diagnoses	Diagnosis-level (multiple rows per encounter; one row per diagnosis code)	929,894 diagnosis records	ICD-9/ICD-10 codes used to derive PTSD, Any Trauma Documentation, and mental health profiles
Patient Demographics	Patient-level (one row per patient)	10,000 patients	Age, sex, race/ethnicity, language, income, Area Deprivation Index
Flowsheet Vitals	Screener-response level (multiple rows per encounter; one row per vital sign or screener entry)	645,227 records 8,085 matched screening encounters	Mental health screening indicators (e.g., PHQ administration)
Provider Encounters	Encounter-level (one row per encounter)	407,449 encounters	Encounter date, encounter provider ID, department specialty
Provider Demographics	Provider-level (one row per provider)	11,280 providers	Provider gender, provider type
Appointments	Appointment-level (Multiple rows per patient; scheduled appointments)	34,871 scheduled appointments; Merged to eligible encounters	Referred department specialty, referred provider name, referring provider ID

Variable Operationalization

Patient Demographic Variables

Age, sex, ethnicity, and duration in care were included as covariates in the analytic plan. The remaining patient-level demographic variables were used only to descriptively characterize the sample.

Age. Age was a continuous variable measured in years with no missing values.

Sex. Sex was coded as male (1; reference category), female (2), and other/unknown (3). The other category included four patients (0.04%) and was retained as a distinct category rather than treated as missing. There were no missing values for this variable.

Ethnicity. Ethnicity was coded as non-Hispanic/Latiné (1; reference category), Hispanic/Latiné (2), and unknown/declined (3). The unknown/declined category included 2,272 patients (22.7%) and was retained to preserve sample size and to allow examination of potential systematic differences associated with undocumented ethnicity. There were no missing values for this variable.

Language. Preferred Language was coded as English (1), Spanish (2), other language (3), and unknown (4). The unknown category included 60 patients (0.6%) and was retained as a separate category. There were no missing values for this variable.

Household Income. Income was derived from administrative socioeconomic indicators originally recorded as text-based categorical ranges and re-coded into five categories: less than $50,000; $50,000–$100,000; $100,000–$200,000; $200,000 or more; and Unknown. Income data were unknown/missing for 3,427 participants.

ADI. ADI was a continuous measure of neighborhood-level socioeconomic disadvantage scored from 1 to 10, with higher values reflecting greater deprivation (1–3 = low disadvantage; 4–7 = moderate disadvantage; 8–10 = high disadvantage). ADI was missing for 4,880 participants due to incomplete address documentation within the medical records.

Duration in Care. Duration in care was operationalized as the time elapsed between a patient's first and last recorded encounter with diagnosis date. Due to positive skew characteristic of healthcare utilization distributions, variable duration in care in years was created, was log-transformed prior with a constant of 1 added before transformation to accommodate patients with zero elapsed time between first and last encounter. There were no missing values on this variable.

Provider Factors

The primary predictors were provider characteristics which included gender, type, caseload composition, and department context.

Gender. Provider Gender was coded as female (1; reference category), male (2), and unknown (3). Female was selected as the reference category because most providers in the analytic sample were female.

Type. Provider type represented the provider's clinical role and was collapsed into six categories: physician (reference category), mental health provider, nursing and advanced practice, allied and other clinical staff, administrative and support staff, and other/unspecified. For regression models in which sparse cells produced estimation difficulties, the other/unspecified category was expanded to include other low-frequency provider types to create a model-ready version.

Hispanic/Latiné Caseload. Hispanic/Latiné Caseload Composition was a continuous provider variable representing the proportion of unique patients in each provider's panel who were identified as Hispanic/Latiné among patients with known ethnicity data. A categorical tertile variable was also created to classify providers into low (reference category), moderate, and high Hispanic/Latiné caseload groups.

Department. Provider Department Specialty reflected the clinical setting in which care was delivered for the given encounter by a given provider. Departments were collapsed into 11 categories: primary care (reference category), mental health, pediatrics, emergency and anesthesiology, medicine subspecialties, obstetrics and gynecology, radiology, pathology and laboratory, surgery, rehabilitation and allied health, neurology, and other. When sparse categories

resulted in model convergence issues, low-frequency specialties were combined into an expanded other category to create a model-ready version.

Trauma-Related Outcomes – Aim 1

Trauma-related documentation was operationalized at the encounter level using two binary outcomes derived from ICD-9 and ICD-10 diagnostic and exposure-related codes (see Appendix A).

Documenting a Trauma-Related Mental Health Diagnosis. The primary outcome reflected documentation of a trauma- and stressor-related mental health diagnosis, including acute stress disorder, posttraumatic stress disorder, adjustment disorders, and reactive attachment disorder. A binary variable indicated whether the patient had received that diagnosis at the encounter level (0 = no, 1 = yes). Aim 1 leveraged the full analytic dataset and expanded trauma-related diagnosis coding to include reactive attachment disorder in order to better capture trauma-related attachment disturbances documented in pediatric clinical settings. In contrast, Aims 2 and 3 were based on the original provider-linked data extraction, and provider-linked encounters containing reactive attachment disorder diagnoses were not available within that subset. Accordingly, analyses should be interpreted within the context of the original provider-linked subsample.

Documenting Trauma Exposure or Trauma-Related Mental Health Diagnosis. A broader secondary outcome captured whether either a) a trauma- and stressor-related diagnosis or b) documentation of trauma exposure, abuse, psychosocial adversity, or related social determinant factors was present in the medical record (0 = absent, 1 = present). This broader operationalization was designed to reflect the multiple ways trauma-related concerns may be recognized and documented within healthcare settings, particularly in non-mental health contexts

where providers may document adversity or exposure without assigning a formal trauma diagnosis. Similarly, Aim 1 leveraged the full analytic dataset and expanded trauma exposure-related coding to include broader psychosocial adversity and contextual stressor codes. In contrast, Aims 2 and 3 were limited to the original provider-linked extraction, which primarily captured interpersonal trauma exposure indicators consistent with the original EHR data pull criteria.

Aim-Differentiated Outcome Structure

In Aim 1, trauma documentation was the *dependent variable*: its presence or absence varied naturally across the full sample (N = 10,000; 407,449 encounters) and represented the phenomenon to be explained, operationalized as two binary encounter-level outcomes described above (see Trauma-Related Outcomes – Aim 1). In Aims 2 and 3, however, trauma documentation functioned as an *inclusion criterion*, such that the provider-linked subsample was defined precisely by the presence of a trauma- or stressor-related diagnosis or exposure code, as described in the Sample Selection and Data Extraction section (Phase 2; N = 1,205). Once sample membership is conditioned on a variable, that variable has zero within-sample variance and cannot serve as a dependent variable: it carries no information to be explained and including it as an outcome would be both statistically meaningless and logically circular. The exclusion of trauma- and stressor-related disorders from the mental health clinical outcome profiles in Aim 2 is therefore intentional and methodologically necessary. Table 3 documents these structural differences across aims, including sample composition, level of analysis, and the role of trauma documentation as either a dependent variable or inclusion criterion.

Table 3

Summary of Analytic Models by Aim

Aims	Patient Sample	Level of Analysis	Role of Trauma Dx/ Exposure	Outcome Variable(s)	Outcome Coding	Primary Predictor(s)	Patient Covariates	Model Type
Aim 1	10,000	Encounter (N = 407,449)	DV (primary outcome). Trauma documentation varies naturally across the random sample and is the outcome being explained.	Trauma and stress-related diagnosis *(primary)*; Any trauma documentation *(secondary)*	0 = Absent; 1 = Present	PHQ screening at encounter	Age, sex, ethnicity, log(duration in care)	Logistic regression with cluster-robust standard errors
Aim 2	1,205	Encounter, provider-linked subset (N = 143,046)	Inclusion criterion (not an outcome). All patients have a documented trauma- or stressor-related diagnosis or exposure code; zero within-sample variance precludes its use as a dependent variable.	PHQ screening at encounter; Mental Health Clinical Profiles (internalizing, externalizing, somatic, acute risk, neurodevelopmental, severe mental illness, identity-related)	0 = Absent; 1 = Present	Provider gender, Provider type, Hispanic/ Latiné caseload, Department specialty	Age, sex, ethnicity, log(duration in care)	Logistic regression with cluster-robust standard errors
Aim 3	1,205	Encounter, provider-linked subset (N = 143,373)	Inclusion criterion (not an outcome). Same trauma-identified subsample as Aim 2; trauma documentation defines who is in the sample, not what is being predicted.	Referral outcome	0 = No referral; 1 = Mental health referral; 2 = Other specialty referral	Provider gender, Provider type, Hispanic/ Latiné caseload, Department specialty	Age, sex, ethnicity, log(duration in care)	Multinomial logistic regression with standard maximum likelihood standard errors

Note. PHQ = Patient Health Questionnaire; DV = dependent variable. Trauma- and stressor-related diagnosis/exposure documentation was the DV in Aim 1, and in Aims 2 and 3, it serves as an inclusion criterion.

Other Mental Health-Related Outcomes – Aim 2

Clinical Profiles. Patients were characterized using binary clinical presentation profiles derived from ICD-9 and ICD-10 diagnostic codes documented across all encounters. Each profile was coded 0 = absent and 1 = present, indicating whether at least one diagnosis within the corresponding category was documented in association with a given encounter. Diagnostic codes were grouped using a predefined codebook developed for this study to capture clinically meaningful domains of mental health need that commonly co-occur with trauma exposure and trauma-related distress. The complete diagnostic codebook, including all ICD-9 and ICD-10 codes used to define each category, is provided in Appendix A.

The clinical presentation profiles were designed to capture the broad range of ways mental health-related need may be reflected in healthcare settings among trauma-exposed populations. Rather than relying solely on formal psychiatric diagnoses, the profiles incorporated mental health, developmental, somatic, and safety-related documentation. This approach leverages structured medical record data to identify trauma-related clinical signals that may be documented by providers outside of specialty mental health settings, such as pediatricians, emergency clinicians, and other medical providers, who may record behavioral symptoms, functional complaints, acute safety concerns, or social determinants of health rather than assign a trauma-specific diagnosis (Chen et al., 2020; Hong et al., 2018; Zafari et al., 2021). The mental health clinical profiles included:

- Internalizing distress (e.g., depressive, anxiety, obsessive-compulsive, bipolar, eating, and elimination disorders).

- Behavioral dysregulation and externalizing (e.g., attention-deficit/hyperactivity disorder, oppositional and conduct disorders, impulse-control disorders, substance use disorders, and tic disorders).
- Somatic expression (e.g., somatic symptom disorders, chronic pain, fatigue, sleep disturbance, and other functional bodily complaints).
- Acute risk and safety concerns (e.g., suicidal ideation, suicide attempts, and self-harm).
- Neurodevelopmental and developmental complexity (e.g., autism spectrum disorder, intellectual disability, and communication and learning disorders).
- Severe mental illness and complex psychopathology (e.g., psychotic, personality, dissociative, and neurocognitive disorders).
- Identity-related clinical context (e.g., gender dysphoria diagnoses).

Screening – Aim 1 Predictor and Aim 2 Outcome

This screening variable serves different analytic roles across aims. In Aim 1, it functions as the *primary predictor variable* and in Aim 2, it is examined as a *dependent variable*. The variable is operationalized identically in both contexts; only its analytic role differs (see Table 3).

Administering Mental Health Screening at Encounter. Mental health screening was operationalized using documentation of the PHQ (Gilbody et al., 2007), a widely used depression screening tool that is increasingly embedded within pediatric and primary care workflows to identify emotional symptoms warranting further assessment and possible referral (California Department of Health Care Services, 2023). Although the PHQ does not directly assess trauma exposure or posttraumatic stress symptoms, depressive symptoms are highly prevalent among trauma-exposed youth, and the administration of a mental health screener may increase opportunities for providers to identify broader psychosocial concerns, including trauma-related

distress. In the current healthcare setting where routine trauma screening has not yet been implemented, the PHQ administration was used as a proxy indicator of mental health screening and attention to emotional functioning. Mental health screening documentation in the medical records began predominantly around 2017–2018, reflecting the period during which PHQ administration appears to have been implemented within the healthcare system.

Screened at encounter was a binary encounter-level variable indicating whether a PHQ screening instrument was documented during a specific clinical encounter (0 = no screening documented, 1 = screening documented). This variable captured whether mental health screening was assigned during the visit being analyzed.

Mental Health Referral Outcome – Aim 3

Referrals. Referral documentation was operationalized as a three-category encounter-level outcome constructed from two source variables derived from the appointments dataset. First, a binary indicator reflecting whether a referring provider was listed for the encounter (0 = no referral documented, 1 = referral documented) was used to identify whether any referral occurred. For encounters with a documented referral, a variable was created that captured the department specialty of the follow-up appointment associated with the referral, distinguishing between mental health referrals and referrals to other specialty departments. Specifically, referrals were classified as mental health referrals when the follow-up appointment was scheduled within a psychiatry or behavioral health department, and as other specialty referrals when the follow-up appointment was scheduled in any non-mental health department, including pediatrics, primary care, medicine subspecialties, and surgical specialties.

These two variables were combined to construct the final three-category referral outcome: no referral documented (reference category), a mental health referral documented, and

a referral to another department specialty documented. This operationalization captures both whether a referral was initiated and the type of service to which the patient was directed, reflecting clinically distinct follow-up care pathways. Encounters with no documented referral were assigned to the reference category regardless of whether a future appointment existed, as the absence of a listed referring provider was interpreted as indicating no active referral was initiated at that encounter. Referral data were available only within the provider-linked subsample, as the appointments dataset from which referral information was derived was linked to provider encounter records.

Analytic Plan

All data management, variable construction, and statistical analyses were conducted in R (Version 4.3.1; R Core Team, 2023), accessed through a secure institutional cloud-based data warehouse environment. Due to data governance and software restrictions imposed by the data warehouse, installation of external R packages was limited. Primary analyses relied on base R functions available in the default R installation (e.g., glm for binary logistic regression). Multinomial logistic regression models were estimated using the nnet package (Venables & Ripley, 2002), which was available within the data warehouse environment. Cluster-robust standard errors were computed using a custom sandwich variance estimator implemented entirely in base R, without reliance on the sandwich or lmtest packages, which could not be installed in the secure computing environment. This implementation follows the standard sandwich estimator formulation and produces results equivalent to those from established implementations (Cameron & Miller, 2015).

Analyses were organized by study aim and conducted at the encounter level, with one record per patient-encounter combination (see Table 3). The total number of encounters varied

across aims depending on the analytic subsample: the full encounter-level dataset (N = 929,894 encounters; 10,000 unique patients) was used for Aim 1, and the provider-linked subsample (N = 143,373 encounters; 1,205 unique patients) was used for Aims 2 and 3, reflecting the targeted scope of the original provider data extraction.

Across all models, categorical predictors were dummy coded with reference categories specified as described in the Variable Operationalization section. Results from logistic regression models are reported as odds ratios (ORs) with 95% confidence intervals. ORs were computed by exponentiating the model's log-odds coefficient estimates (i.e., OR = exp(β)), where β represents the raw regression coefficient on the log-odds scale produced by the logistic regression model. Confidence intervals were similarly computed on the log-odds scale and then exponentiated (i.e., 95% CI = exp(β – 1.96 x SE), exp (B + 1.96 x SE)]), where SE denotes the standard error of the log-odds coefficient estimate, or the cluster-robust standard error where applicable. This transformation converts the model's native log-odds scale to the odds ratio scale to facilitate interpretation, where OR > 1.0 indicates greater odds of the outcome and OR < 1.0 indicates lower odds, net of all other model predictors. Results from multinomial logistic regression models are reported as relative risk ratios (RRRs) with 95% confidence intervals, computed equivalently by exponentiating the log-odds coefficient from each referral contrast (i.e., RRR = exp (β ^c))), where RRR > 1.0 indicates greater relative likelihood of the outcome category compared to the reference and RRR < 1.0 indicates lower relative likelihood. Model fit was evaluated using AIC, BIC, log-likelihood, and Nagelkerke pseudo-R^2 where appropriate. Given the large analytic sample, interpretation emphasized effect sizes and confidence intervals alongside p-values as the primary basis for substantive conclusions.

Accounting for Clustering

Encounter-level analyses involved repeated observations per patient, violating the independence assumption of standard regression. Prior to model estimation, intraclass correlation coefficients (ICCs) were computed at both the patient and provider levels for each outcome to empirically quantify the degree of non-independence. Patient-level ICCs ranged from 0.002 to 0.025, and provider-level ICCs ranged from 0.001 to 0.018 across the eight outcomes. This indicated minimal but non-negligible clustering at both levels, with somewhat stronger dependance among encounters within the same patient than within the same provider.

Three-level multilevel models with random intercepts for patients and providers were attempted to formally decompose variance across encounters, patients, and providers simultaneously. Given the scale of the encounter-level dataset (i.e., 929,894 encounter-level observations among 10,000 unique patients), these models did not complete within a computationally feasible timeframe using the available hardware. Given that a fully specified multilevel model could not be estimated, a single clustering variable was used instead: encounters were clustered by patient identifier, both because patient-level ICCs were higher and because patients were nested within provider, thus patient-level clustering also subsumed most provider-driven non-independence, producing more conservative estimates.

As an alternative, cluster-robust standard errors were estimated using a sandwich variance estimator, which corrects standard errors, confidence intervals, and significance tests for within-cluster correlation without requiring the full specification of a random effects structure. This approach is well-established as a statistically valid alternative to multilevel modeling in large administrative datasets, particularly when ICCs are low (Cameron & Miller, 2015; Zorn, 2006). For Aim 3, the multinomial logistic regression procedure does not natively support

cluster-robust standard errors; preliminary ICC analyses confirmed low levels of patient-level clustering (ICCs < .05) across both referral contrasts, suggesting minimal impact on inference from standard maximum likelihood standard errors.

It is important to note that cluster-robust standard errors represent a population-averaged correction rather than a full decomposition of variance across levels of the data hierarchy. The theoretically ideal approach remains a three-level multilevel model with random intercepts for patients and providers, which future analyses with access to high-performance computing resources should consider.

Model Building Strategy

A hierarchical model building strategy was used across aims rather than simultaneous entry of all predictors. This was done for two reasons. First, hierarchical entry is theoretically motivated: patient demographic and service utilization characteristics represent factors known to be associated with both screening exposure and clinical documentation outcomes and were entered first to establish their baseline contribution, after which the primary predictors of interest were entered in subsequent blocks. This sequential structure directly operationalizes the research questions, specifically, whether screening predicts trauma documentation and whether provider characteristics predict clinical documentation *above and beyond* what patient characteristics already explain. Second, hierarchical entry produces model comparison statistics, ΔAIC, ΔBIC, and likelihood ratio tests, that formally test the incremental contribution of each predictor block, which simultaneous entry does not provide. It is noted that the final-model coefficients, standard errors, and significance tests for any given predictor are mathematically identical regardless of whether hierarchical or simultaneous entry is used. Hierarchical entry adds interpretive value by making the incremental contribution of each block explicit and formally testable (Cohen, 2003).

Missing Data

Missing data were handled using listwise deletion. The practical impact of listwise deletion varied across analyses. ADI had the largest proportion of missing values (48.8% at the patient level) and was therefore excluded from primary analyses to preserve analytic power and avoid selection bias, as missingness was not random because patients with missing ADI were more likely to have incomplete address documentation. Provider gender was missing for 28,368 provider-linked encounters (19.8%). Rather than excluding these encounters via listwise deletion, missing provider gender was recoded as a third Unknown category and retained as a distinct factor level, preserving analytic power while allowing examination of whether encounters with undocumented provider gender differed systematically from those with documented gender. All analytic sample sizes and the number of observations excluded due to listwise deletion are reported in the relevant results sections.

Aim 1: PHQ Screening and Trauma Documentation

Binary logistic regression was used to examine whether PHQ screening administration at a given clinical encounter was associated with the likelihood of trauma-related documentation at that same encounter, after accounting for patient-level demographic and service utilization characteristics. Analyses were conducted at the encounter level across 929,894 encounter-level observations among 10,000 unique patients. Two binary outcomes were examined separately: 1) trauma and stress-related diagnosis and 2) any trauma documentation. Two sequential models were estimated for each outcome, a baseline patient demographics model followed by a full model adding the PHQ screening indicator. The baseline Model 1 includes all terms except β_7; the incremental contribution of PHQ screening is evaluated by comparing model fit between Model 1 and Model 2 using ΔAIC, ΔBIC, and likelihood ratio tests. The full model is:

$$\log\left(\frac{P(Y_{ij}=1)}{1-P(Y_{ij}=1)}\right)$$

$$= \beta_0 + \beta_1(\text{Age}_{ij}) + \beta_2(\text{Female}_{ij}) + \beta_3(\text{Unknown Sex}_{ij}) + \beta_4(\text{Hispanic}_{ij})$$

$$+ \beta_5(\text{Unknown Ethnicity}_{ij}) + \beta_6(\log \text{Duration}_{ij}) + \beta_7(\text{Screened}_{ij})$$

where:

- Y_{ij} = binary trauma documentation outcome for encounter j belonging to patient i
- β_0 = model intercept
- β_1 = coefficient for patient age in years (continuous)
- β_2 = coefficient for patient female sex relative to male (reference)
- β_3 = coefficient for patient unknown sex relative to male (reference)
- β_4 = coefficient for patient Hispanic/Latiné ethnicity relative to Non-Hispanic/Latiné (reference)
- β_5 = coefficient for patient unknown ethnicity relative to Non-Hispanic/Latiné (reference)
- β_6 = coefficient for log-transformed duration in care in years (continuous)
- β_7 = coefficient for the binary encounter-level PHQ screening indicator (0 = not screened, 1 = screened at this encounter)

Aim 2: Provider Characteristics and Clinical Documentation

Binary logistic regression was used to examine whether provider characteristics were associated with eight encounter-level clinical documentation outcomes within the provider-linked subsample (*N* = 143,373 encounters; 1,205 unique patients). Outcomes included: PHQ screening administration and documentation of internalizing distress, externalizing and behavioral dysregulation, somatic presentations, acute risk and safety concerns,

neurodevelopmental complexity, severe mental illness and complex psychopathology, and identity-related clinical context at the encounter level. Two sequential models were estimated for each of the eight outcomes, a baseline patient demographics model followed by a full model adding provider characteristics. The baseline Model 1 includes all terms from β_0 through β_6 only; the incremental contribution of provider characteristics is evaluated by comparing model fit between Model 1 and Model 2 using ΔAIC, ΔBIC, and likelihood ratio tests. Sparse provider categories that produced perfect or near-perfect separation were identified prior to model estimation and collapsed into broader reference groups to ensure model stability.

Given that the logistic regression models were estimated across eight clinical documentation outcomes, a Bonferroni correction was applied to control the familywise error rate across simultaneous tests. The corrected significant threshold was set at $p < 0.00625$ ($a = 0.05/8 = 0.00625$). All primary findings were evaluated against the corrected threshold. Findings that achieved nominal significance ($p < 0.05$) but did not survive Bonferroni correction were reported as trend-level associations and are interpreted with appropriate cation. Findings were cross-checked against the corrected threshold post hoc. Additionally, given that the outcomes represent co-occurring clinical presentation domains, the Bonferroni correction may be considered conservative. The full model is:

$$\log\left(\frac{P(Y_{ij}=1)}{1-P(Y_{ij}=1)}\right)$$

$$= \beta_0 + \beta_1(\text{Age}_{ij}) + \beta_2(\text{Female}_{ij}) + \beta_3(\text{Unknown Sex}_{ij}) + \beta_4(\text{Hispanic}_{ij})$$

$$+ \beta_5(\text{Unknown Ethnicity}_{ij}) + \beta_6(\log \text{Duration}_{ij}) + \beta_7(\%\ \text{Hispanic Caseload}_{ij})$$

$$+ \beta_8(\text{Provider Type}_{ij}) + \beta_9(\text{Provider Gender}_{ij}) + \beta_{10}(\text{Dept. Specialty}_{ij})$$

where:

- Y_{ij} = binary clinical documentation outcome (i.e., screening; mental health clinical profiles) for encounter j belonging to patient i
- β_0 = model intercept
- β_1 = coefficient for patient age in years (continuous)
- β_2 = coefficient for patient female sex relative to male (reference)
- β_3 = coefficient for patient unknown sex relative to male (reference)
- β_4 = coefficient for patient Hispanic/Latiné ethnicity relative to Non-Hispanic/Latiné (reference)
- β_5 = coefficient for patient unknown ethnicity relative to Non-Hispanic/Latiné (reference)
- β_6 = coefficient for log-transformed duration in care in years (continuous)
- β_7 = coefficient for the continuous percentage of Hispanic/Latiné patients in the provider's caseload
- β_8 = vector of coefficients for provider type (reference: Physician)
- β_9 = vector of coefficients for provider gender (reference: Female)
- β_{10} = vector of coefficients for department specialty (reference: Primary Care)

Provider type, provider gender, and department specialty are each multicategory factor variables that expand to multiple binary indicator terms in estimation; β_8, β_9, and β_{10} therefore represent vectors of coefficients corresponding to each non-reference level of those variables.

Aim 3: Provider Characteristics and Referral Type

Multinomial logistic regression was used to examine whether provider characteristics were associated with the type of referral documented at encounters involving trauma-exposed youth within the provider-linked subsample (N = 143,373 encounters; 1,205 unique patients),

after accounting for patient demographic and service utilization characteristics. The outcome was a three-category variable reflecting clinically distinct referral decisions: no referral documented (reference category), a mental health referral documented, and a referral to another specialty documented. Two sequential models were estimated consistent with the hierarchical strategy applied in Aims 1 and 2, a baseline patient demographics model followed by a full model adding provider characteristics. The baseline Model 1 includes all terms from $\beta_0^{(c)}$ through $\beta_6^{(c)}$ only; the incremental contribution of provider characteristics is evaluated by comparing model fit between Model 1 and Model 2 using ΔAIC, ΔBIC, and likelihood ratio tests. The full model is:

$$\log\left(\frac{P(Y_{ij}=c)}{P(Y_{ij}=\text{No Referral})}\right)$$

$$= \beta_0^{(c)} + \beta_1^{(c)}(\text{Age}_{ij}) + \beta_2^{(c)}(\text{Female}_{ij}) + \beta_3^{(c)}(\text{Unknown Sex}_{ij})$$

$$+ \beta_4^{(c)}(\text{Hispanic}_{ij}) + \beta_5^{(c)}(\text{Unknown Ethnicity}_{ij}) + \beta_6^{(c)}(\log \text{Duration}_{ij})$$

$$+ \beta_7^{(c)}(\%\ \text{Hispanic Caseload}_{ij}) + \beta_8^{(c)}(\text{Provider Type}_{ij})$$

$$+ \beta_9^{(c)}(\text{Provider Gender}_{ij}) + \beta_{10}^{(c)}(\text{Dept. Specialty}_{ij})$$

where:

- Y_{ij} = three-category referral outcome for encounter j belonging to patient i
- $c \in$ {MH Referral, Other Dept Referral} = each non-reference referral category, with No Referral as the reference
- $\beta_0^{(c)}$ = outcome-specific intercept for contrast c
- $\beta_1^{(c)}$ = outcome-specific coefficient for patient age in years (continuous)
- $\beta_2^{(c)}$ = outcome-specific coefficient for patient female sex relative to male (reference)
- $\beta_3^{(c)}$ = outcome-specific coefficient for patient unknown sex relative to male (reference)

- $\beta_4^{(c)}$ = outcome-specific coefficient for patient Hispanic/Latiné ethnicity relative to Non-Hispanic/Latiné (reference)
- $\beta_5^{(c)}$ = outcome-specific coefficient for patient unknown ethnicity relative to Non-Hispanic/Latiné (reference)
- $\beta_6^{(c)}$ = outcome-specific coefficient for log-transformed duration in care in years (continuous)
- $\beta_7^{(c)}$ = outcome-specific coefficient for the continuous percentage of Hispanic/Latiné patients in the provider's caseload
- $\beta_8^{(c)}$ = outcome-specific vector of coefficients for provider type (reference: Physician)
- $\beta_9^{(c)}$ = outcome-specific vector of coefficients for provider gender (reference: Female)
- $\beta_{10}^{(c)}$ = outcome-specific vector of coefficients for department specialty (reference: Primary Care)

The superscript (c) denotes that all coefficients are estimated separately for each referral contrast, allowing the association between each predictor and referral likelihood to differ across the two non-reference outcomes. Standard maximum likelihood standard errors are reported given that the multinomial procedure does not natively support cluster-robust standard errors; preliminary ICC analyses confirmed low levels of patient-level clustering (ICCs < .05) across both referral contrasts, suggesting minimal impact on inference.

Results

Patient Characteristics: Clinically Identified Sample with Qualifying Mental Health or Trauma Related Concerns

Patients in the analytic sample (N = 10,000; i.e., youth with at least one documented mental, behavioral, or neurodevelopmental disorder or interpersonal trauma-related exposure code) were on average 11 years old (M = 11.34, SD = 5.60; Range: 0 - 21) and were predominantly male (55.14%; n = 5514). Approximately 19.23% (n = 1923) identified as Hispanic/Latiné, 58.05% (n = 5805) as non-Hispanic/Latiné, and 22.72% (n = 2272) of patients' ethnicity was unknown. The majority of patients were English-speaking (95.36%; n = 95.36). Socioeconomic indicators suggested that the sample was skewed toward middle-to higher-income households (50,000- $100,000: n = 1,436; $100,000-$200,000: n = 3,742; $200,000 or higher: n = 1,253), with relatively fewer participants represented in lower-income brackets ($50,000 or less; n = 142). Consistent with these patterns, the mean ADI score was 2.79 (SD = 2.06), indicating low average neighborhood-level disadvantage. Due to the lack of variability in language and missing data in the socioeconomic indicators, these variables were excluded in the primary models. Full sample demographics are presented in Table 4.

Table 4

Sample Demographic and Clinical Characteristics of Full Sample (N = 10,000)

Characteristics	***n***	**%**
Sex		
Male	5,514	55.14
Female	4,482	44.82
Other/Unknown	4	0.04
Ethnicity		
Non-Hispanic/Latiné	5,805	58.05

Hispanic/Latiné	1,923	19.23
Unknown/Not Reported	2,272	22.72
Primary Language		
English	9,536	95.36
Spanish	339	3.39
Other Language	65	0.65
Unknown	60	0.60
Neighborhood Income Level		
Less than $50,000	142	1.42
$50,000–$100,000	1,436	14.36
$100,000–$200,000	3,742	37.42
$200,000 or more	1,253	12.53
Unknown	3,427	34.27
	M (SD)	***Range***
Age in years	11.34 (5.60)	0–21
ADI State Rank	2.79 (2.06)	1–10
Encounters and Diagnoses		
Encounters per patient	40.74 (55.58)	1–1,125
Diagnoses per encounter	2.28 (2.69)	1–164
Diagnoses per patient	92.99 (185.27)	1–5,031

Among the randomly selected clinical sample, each patient contributed multiple clinical encounters over approximately 5.5 years in care (M = 2,001 days in care, SD = 1,758.59). Patients had a median duration in care of approximately 3.9 years (1,421.5 days) and a range from 1 to 6,716 days (approximately 18.4 years). This distribution was positively skewed, indicating substantial variability in duration of engagement, with some patients receiving care over extended periods spanning more than a decade. These values reflect the duration of observed clinical activity within the dataset rather than definitive entry or exit from the

healthcare system. On average, patients had approximately 41 encounters (*M* = 40.74, *SD* = 55.58, Median = 24, range = 1–1125). Across encounters, there were on average 2 diagnoses recorded per visit (M = 2.28, SD = 2.69, Median = 1, range = 1–164). At the patient level, total diagnoses were calculated by summing all diagnosis records across encounters for each patient, reflecting overall diagnostic burden. Patients had an average of 93 diagnoses documented across all encounters (*M* = 92.99, *SD* = 185.26, Median = 48, range = 1–5031). This distribution was positively skewed, indicating substantial heterogeneity in diagnostic burden across patients. On average, patients had approximately 30 unique diagnoses (*M* = 30.55, *SD* = 34.72, Median = 20, range = 1–606), representing the breadth of distinct clinical conditions documented regardless of repetition across visits.

Descriptive Overview of Trauma Documentation and Mental Health Clinical Profiles

At the patient level, a substantial proportion of the analytic sample had documented trauma-related concerns within the observation period. Within this qualifying sample, 17.60% (n = 1,760) had any trauma documentation, operationalized using an expanded coding scheme capturing either a trauma- and stressor-related diagnosis including reactive attachment disorder, or documented interpersonal trauma exposure, psychosocial adversity, or related social determinant codes (see Trauma-Related Outcomes – Aim 1 and Appendix A). Of these, 10.30% (n = 1,030) had a documented trauma- and stressor-related diagnosis and 9.21% (n = 921) had documented trauma exposure or psychosocial adversity. This expanded operationalization, inclusive of reactive attachment disorder and broader adversity codes, was applied to the full 10,000-patient sample for Aim 1 only. The provider-linked subsample used in Aims 2 and 3 (n = 1,205) reflects a more restricted coding scheme consistent with the original data extraction criteria (see Aim-Differentiated Outcome Structure).

Demographic comparisons across trauma documentation subgroups are presented in Table 5, with comparisons made across the full sample (N = 10,000), youth with any trauma documentation (n = 1,760), and youth with a trauma- and stressor-related diagnosis (n = 1,030). Youth with any form of trauma documentation were significantly older than the full sample on average (any trauma: $M = 13.08$, $SD = 4.94$; trauma diagnosis: $M = 14.19$, $SD = 4.18$; trauma exposure: $M = 12.18$, $SD = 5.36$; full sample: $M = 11.34$, $SD = 5.60$; all ps $< .001$) and had longer durations of care (all ps $< .001$). With regards to sex, female youth were overrepresented in the any trauma and trauma diagnosis subgroups relative to the full sample, while male youth were underrepresented (all ps $\leq .014$). Regarding ethnicity, Non-Hispanic/Latiné youth were overrepresented across all three trauma documentation subgroups relative to their proportion in the full sample, while youth with unknown ethnicity documentation were notably underrepresented (all ps $< .001$).

The sample exhibited substantial heterogeneity in mental health clinical presentation. The most commonly documented profiles were neurodevelopmental and developmental complexity (46.3%; $n = 4,630$), internalizing distress (41.10%; $n = 4,110$), and externalizing and behavioral dysregulation (33.5%; $n = 3,350$). In contrast, acute risk and safety concerns (4.25%; $n = 425$), identity-related clinical contexts (2.07%; $n = 207$), and severe mental illness and complex psychopathology (2.06%; $n = 206$) were among the least frequently documented profiles in the sample.

On average, patients presented with approximately two clinical profiles ($M = 1.79$, $SD = 1.08$; median = 2; range = 0–8), reflecting meaningful variation in overall clinical complexity across the sample. Specifically, 44.22% ($n = 4,422$) of patients had one clinical profile, 32.34% ($n = 3,234$) had two profiles, 14.02% ($n = 1,402$) had three profiles, and 7.06% ($n = 706$) had four

or more profiles, indicating that while most youth presented with a relatively circumscribed clinical profile, a notable subset presented with broad and complex clinical needs.

Table 5

Demographic and Mental Health Clinical Profile Comparisons Across the Full Sample and Trauma Documentation Subgroups

Variable	Full Sample (N = 10,000)	Any Trauma (n = 1,764)	Trauma Dx (n = 1,034)	Trauma Exposure (n = 921)	p Any Trauma	p Trauma Dx	p Trauma Exposure
Age, M (SD)	11.34 (5.60)	13.08 (4.94)	14.19 (4.18)	12.18 (5.36)	< .001	< .001	< .001
Duration in Care (days), M (SD)	2001.25 (1758.59)	2548.09 (1908.04)	2564.72 (1959.77)	2660.13 (1872.48)	< .001	< .001	< .001
Sex, n (%)							
Male	5,514 (55.1%)	870 (49.3%)	491 (47.5%)	467 (50.7%)	< .001	< .001	.014
Female	4,482 (44.8%)	894 (50.7%)	543 (52.5%)	454 (49.3%)			
Ethnicity, n (%)							
Non-Hispanic/Latiné	5,805 (58.1%)	1,126 (63.8%)	673 (65.1%)	577 (62.6%)	< .001	< .001	< .001
Hispanic/Latiné	1,923 (19.2%)	362 (20.5%)	209 (20.2%)	199 (21.6%)			
Unknown	2,272 (22.7%)	276 (15.6%)	152 (14.7%)	145 (15.7%)			
Mental Health Clinical Profiles, n (%)							

Internalizing Distress	4,106 (41.06%)	999 (56.63%)	645 (62.38%)	495 (53.75%)	< .001	< .001	< .001
Behavioral Dysregulation & Externalizing	3,354 (33.54%)	799 (45.29%)	480 (46.42%)	425 (46.15%)	< .001	< .001	< .001
Somatic Expression	4,044 (40.44%)	961 (54.48%)	542 (52.42%)	547 (59.39%)	< .001	< .001	< .001
Acute Risk & Safety Concerns	425 (4.25%)	237 (13.44%)	161 (15.57%)	133 (14.44%)	< .001	< .001	< .001
Neurodevelopmental & Developmental Complexity	4,629 (46.29%)	559 (31.69%)	242 (23.40%)	372 (40.39%)	< .001	< .001	< .001
Severe Mental Illness & Complex Psychopathology	206 (2.06%)	94 (5.33%)	66 (6.38%)	48 (5.21%)	< .001	< .001	< .001
Identity-Related Clinical Context	207 (2.07%)	48 (2.72%)	29 (2.80%)	29 (3.15%)	< .05	.102	< .05

Note. M = mean; SD = standard deviation; ADI = Area Deprivation Index state rank; Dx = diagnosis. Any Trauma = presence of either a trauma and stress-related diagnosis or documented interpersonal trauma exposure or psychosocial adversity. Trauma Dx = formal trauma and stress-related diagnostic code documented in the medical record. Trauma Exposure = documented interpersonal trauma exposure or psychosocial adversity. *p*-values reflect group comparisons between the full sample and each trauma documentation subgroup. Continuous variables compared using independent samples *t*-tests; categorical variables compared using chi-square tests.

Aim 1: Encounter-Level Mental Health Screening as Predictor of Trauma Documentation

PHQ Screening Prevalence and Distribution

The majority of youth in the sample had no documented mental health screening history (66.79%; n = 6,679). Among the remaining 33.21% with at least one documented screening, 11.43% (n = 1,143) had been screened once and 21.78% (n = 2,178) had been screened two or more times. Among screened patients (n = 3,321), the distribution of mental health screening administrations was positively skewed, with screening frequency declining sharply after the initial administration, with 8.74% receiving two screenings, 6.12% receiving three, and 3.65% received four. A small subset accumulated substantially more, with a maximum of 17 PHQ administrations documented across the observation period. Among patients with any screening history, the mean age at PHQ administration was 15.45 years (SD = 4.45; median = 17; range = 0–21).

PHQ Screening Associated with Trauma Documentation

Two sequential logistic regression models with cluster-robust standard errors were estimated at the encounter level (N = 929,894 encounters; 10,000 patients), examining whether PHQ screening administration at a given encounter was associated with trauma documentation at that same encounter, after accounting for patient-level demographic and service utilization characteristics. Full model results are presented in Table 6.

Primary Outcome: Trauma and Stress-Related Diagnosis. PHQ screening at the encounter was not significantly associated with the likelihood of a formal trauma and stress-related diagnosis documented at that visit (OR = 1.05, 95% CI [0.81, 1.36], p = .717). This suggests that point-of-care PHQ administration does not independently predict whether a formal trauma diagnosis is documented within the same encounter.

Secondary Outcome: Any Trauma. A different pattern emerged for the broader any trauma outcome. PHQ screening at the encounter was significantly associated with greater odds of any trauma documentation at that visit (OR = 1.53, 95% CI [1.27, 1.86], $p < .001$). This suggests that encounters at which a PHQ was administered had 53% greater odds of having any form of trauma documented, including trauma exposure and adversity, relative to unscreened encounters, after accounting for patient demographics.

Table 6

Logistic Regression Predicting Trauma Documentation by Mental Health Screening (N = 929,894 Encounters; 10,000 Patients)

	Trauma and Stress-Related Diagnosis						Any Trauma Documentation					
	Model 1			Model 2			Model 1			Model 2		
Predictor	**OR**	**95% CI**	***p***	**OR**	**95% CI**	***p***	**OR**	**95% CI**	***p***	**OR**	**95% CI**	***p***
Patient Demographics												
Age	1.12	[1.09, 1.14]	< .001	1.12	[1.09, 1.14]	< .001	1.09	[1.07, 1.11]	< .001	1.08	[1.06, 1.11]	< .001
Sex (ref: Male)												
Female	1.17	[0.87, 1.57]	.301	1.17	[0.87, 1.57]	.303	1.09	[0.88, 1.35]	.426	1.08	[0.88, 1.34]	.464
Unknown[a]	—	—	—	—	—	—	—	—	—	—	—	—
Ethnicity (ref: Non-Hispanic/Latiné)												
Hispanic/Latiné	0.79	[0.56, 1.11]	.173	0.79	[0.56, 1.11]	.174	0.79	[0.62, 1.01]	.061	0.80	[0.62, 1.01]	.065
Unknown	0.65	[0.45, 0.93]	.019	0.64	[0.45, 0.93]	.018	0.76	[0.59, 0.99]	.039	0.75	[0.58, 0.97]	.029
Duration in Care	0.64	[0.60, 0.68]	< .001	0.64	[0.60, 0.68]	< .001	0.68	[0.64, 0.72]	< .001	0.67	[0.64, 0.72]	< .001
Encounter-Level Screening												
Screened at Encounter	—	—	—	1.05	[0.81, 1.36]	.717	—	—	—	1.53	[1.27, 1.86]	< .001

Model Fit				
AIC	136,798.40	136,799.00	206,867.80	206,670.90
BIC	136,880.60	136,892.90	206,950.00	206,764.80
Nagelkerke R^2	.054	.054	.038	.039

Note. OR = odds ratio; CI = cluster-robust 95% confidence interval. Standard errors are clustered by patient identifier to account for the non-independence of encounters nested within patients. Model 1 includes patient demographic covariates only. Model 2 adds a binary indicator of PHQ screening administration at the encounter. Trauma and Stress-Related Diagnosis = formal trauma diagnostic code documented at the encounter. Any Trauma Documentation = presence of either a trauma diagnosis or documented trauma exposure or adversity at the encounter. Reference categories: Sex = Male; Ethnicity = Non-Hispanic/Latiné. [a]Unknown sex (n = 4 patients) produced unstable estimates and is omitted from the table.

Provider-Linked Subsample Composition for Aims 2 and 3

Aims 2 and 3 were conducted within the provider-linked subsample of 1,205 youth drawn from the original 10,000-patient cohort who had at least one documented trauma- or stressor-related concern, with any trauma documentation functioning as an inclusion criterion rather than an outcome. See Table 7 for trauma documentation prevalence subsample.

Table 7

Trauma Documentation Prevalence: Full Sample and Provider-Linked Subsample

Trauma Documentation Type	**Full Sample** (N = 10,000)		**Provider-Linked Subsample** (N = 1,205)		**Coding Scope: Aim 1 vs. Aims 2 & 3**
	n	*% of Full Sample*	*n*	*% of Subsample*	
Trauma- and stressor-related diagnosis	1,034	10.3%	814	67.5%	Aim 1 (expanded): Acute stress disorder, PTSD, adjustment disorders *and* reactive attachment disorder. Aims 2 & 3 (restricted): F43 codes only; reactive attachment disorder excluded.
Trauma exposure	921	9.2%	453	37.6%	Aim 1 (expanded): Interpersonal trauma exposure codes *and* broader psychosocial adversity and social determinant codes. Aims 2 & 3 (restricted): Interpersonal trauma exposure codes only; broader psychosocial adversity and social determinant codes excluded.
Any trauma	1,764	17.6%	1,205	100%	Reflects presence of at least one of the above indicators. Aim 1 any trauma captures a broader range of documentation than the Aims 2 & 3 subsample.

Note. Trauma- and stressor-related diagnosis and trauma exposure are non-mutually exclusive binary indicators. Percentages of these two variables do not sum to 100% because a subset of patients have both formal trauma- and stressor-related diagnosis and a documented trauma exposure code. Any trauma documentation reflects the total count of patients with at least one of either indicator.

Aim 2: Provider Characteristics Associated with Documented Mental Health Clinical Profiles and Assigned Screening at Encounter among the Trauma-exposed Subsample

Provider Characteristics Among Youth with Documented Trauma

Among the 143,373 provider-linked encounters, a total of 2,979 unique treating providers were represented. The provider sample was predominantly female (39.6%; *n* = 1,179), though a substantial proportion had unknown or undocumented gender (33.7%; *n* = 1,005). Physicians comprised the majority of treating providers (57.8%; *n* = 1,723), with the remaining providers distributed across Administrative and Support staff (20.8%; *n* = 620), Nursing and Advanced Practice (9.5%; *n* = 282), Allied and Other Clinical Staff (6.0%; *n* = 179), Mental Health Providers (4.3%; *n* = 127), and Other/Unspecified roles (1.6%; *n* = 48). It is notable that while Mental Health Providers represented a relatively small proportion of unique providers (4.3%; *n* = 127), they accounted for a higher share of encounters (7.5%; *n* = 10,734).

Care was delivered primarily across Pediatrics (23.5%; *n* = 700) and Primary Care (20.1%; *n* = 598) departments, which together accounted for nearly half of all unique treating providers. The remaining providers were distributed across Radiology, Pathology and Laboratory (10.1%; *n* = 300), Medicine Subspecialties (9.0%; *n* = 268), Mental Health departments encompassing psychiatry and behavioral health settings (8.4%; *n* = 251), Surgery (7.5%; *n* = 222), and smaller proportions across Rehabilitation and Allied Health, Emergency and Anesthesiology, Obstetrics and Gynecology, and Neurology. At the encounter level, however, Pediatrics accounted for the largest share of provider-linked encounters (36.7%; *n* = 52,668), followed by Mental Health departments (14.8%; *n* = 21,189).

Regarding caseload composition, the mean proportion of Hispanic/Latiné patients in a provider's caseload was 32.38% (*SD* = 35.13; median = 25.00; range = 0–100), reflecting

substantial variability in the demographic composition of caseloads. When categorized into tertiles, the largest proportion of treating providers carried a Low Hispanic/Latiné Caseload (38.4%; *n* = 1,145;), followed by High Hispanic/Latiné Caseload providers (31.8%; *n* = 947) and Moderate Hispanic/Latiné Caseload providers (27.3%; *n* = 812), with 75 providers (2.5%) missing caseload data due to undocumented patient ethnicity. Full provider demographic characteristics are presented in Table 8.

Table 8

Unique Providers and Encounter-Level Demographic Distribution in Subsample (N = 1,205)

Characteristic	**Unique Providers (N = 2,979)** n (%)	**Encounters (N = 143,373)** n (%)
Provider Gender		
Female	1,179 (39.6%)	70,266 (49.0%)
Male	795 (26.7%)	44,739 (31.2%)
Unknown/Missing	1,005 (33.7%)	28,368 (19.8%)
Provider Type		
Physician	1,723 (57.8%)	103,033 (71.8%)
Administrative and Support	620 (20.8%)	15,157 (10.6%)
Nursing and Advanced Practice	282 (9.5%)	10,189 (7.1%)
Allied and Other Clinical Staff	179 (6.0%)	3,856 (2.7%)
Mental Health Provider	127 (4.3%)	10,734 (7.5%)
Other/Unspecified	48 (1.6%)	404 (0.3%)
Department Specialty		
Pediatrics	700 (23.5%)	52,668 (36.7%)
Primary Care	598 (20.1%)	13,562 (9.5%)
Other/Unspecified	341 (11.4%)	18,527 (12.9%)
Radiology, Pathology & Laboratory	300 (10.1%)	11,827 (8.2%)
Medicine Subspecialties	268 (9.0%)	7,539 (5.3%)
Mental Health	251 (8.4%)	21,189 (14.8%)
Surgery	222 (7.5%)	7,468 (5.2%)

Rehabilitation and Allied Health	111 (3.7%)	3,075 (2.1%)
Emergency and Anesthesiology	90 (3.0%)	6,535 (4.6%)
Obstetrics and Gynecology	62 (2.1%)	597 (0.4%)
Neurology	36 (1.2%)	386 (0.3%)
Hispanic/Latiné Caseload		
% Hispanic/Latiné patients, M (SD)	32.38% (35.13)	29.40% (18.23)
Caseload Tertile		
Low	1,145 (38.4%)	12,671 (8.8%)
Moderate	812 (27.3%)	102,245 (71.3%)
High	947 (31.8%)	28,130 (19.6%)

Note. Provider characteristics are reported at two levels: unique providers (N = 2,979 distinct treating providers represented in the provider-linked subsample) and encounters (N = 143,373 provider-linked encounters). Percentages for unique providers reflect the proportion of providers in each category; percentages for encounters reflect the proportion of encounters attributed to providers in each category. These distributions may differ because some high-volume providers (e.g., physicians in high-encounter departments) contribute disproportionately to encounter counts relative to their representation among unique providers.

Provider Characteristics Associated with Documented Clinical Profiles and Screening

Provider characteristics were examined as predictors of encounter-level clinical documentation outcomes within the provider-linked subsample of youth with documented trauma (N = 143,046 encounters; 1,205 unique patients), after controlling for patient-level demographic and service utilization characteristics. These outcomes comprised PHQ screening administration and co-occurring mental health clinical profiles (i.e., internalizing distress, behavioral dysregulation and externalizing, somatic expression, acute risk and safety concerns, neurodevelopmental and developmental complexity, severe mental illness and complex psychopathology, and identity-related clinical context). The results below focus on highlighting patterns associated with provider characteristics across outcomes. See Table 9 for full model results.

Pattern 1: Mental Health Departments Show Consistently Higher Odds for Behavioral Health Outcomes and Lower Odds for Screening and Contextual Documentation

The most consistent finding across outcomes was that encounters in Mental Health departments, encompassing psychiatry and behavioral health settings, showed markedly greater odds of internalizing (OR = 15.26), externalizing (OR = 10.07), acute risk and safety (OR = 11.21), neurodevelopmental complexity (OR = 6.88), and severe mental illness documentation (OR = 15.14) relative to Primary Care, all *p*s < .001. Conversely, Mental Health departments showed lower odds of PHQ screening (OR = 0.12, $p < .001$) and somatic documentation (OR = 0.29, $p < .001$) relative to Primary Care, and lower odds of identity context documentation (OR = 0.32, $p = .002$).

Pattern 2: Provider Type Shows Outcome-Specific Associations with Clinical Documentation

Relative to Physicians, a consistent pattern of lower behavioral health documentation odds emerged across non-physician provider types. Nursing and Advanced Practice providers, and Administrative and Support staff showed significantly lower odds of PHQ screening, internalizing, and externalizing documentation (ORs range: 0.05–0.16, all *p*s < .001), with this pattern extending across most behavioral health outcomes, although some associations were only trend-level after Bonferroni correction. This suggests that non-physician provider roles are associated with substantially reduced likelihood of behavioral health clinical documentation, independent of department specialty.

Mental Health Providers showed a more nuanced pattern. Relative to Physicians, Mental Health Providers had significantly lower odds of externalizing documentation (OR = 0.36, $p < .001$), internalizing documentation (OR = 0.49, $p < .001$), and severe mental illness documentation (OR = 0.12, $p = .003$). Notably, Mental Health Providers did not differ significantly from Physicians in PHQ screening, somatic, neurodevelopmental complexity, or

identity context documentation, suggesting their documentation practices diverge from Physicians primarily for diagnosable behavioral health presentations rather than for screening or contextual documentation more broadly.

Pattern 3: Male and Unknown Provider Gender Show a Mixed Pattern Depending on Outcome

Male providers showed lower odds of PHQ screening relative to female providers (OR = 0.54, $p < .001$), yet greater odds of acute risk and safety (OR = 2.96, $p < .001$) and severe mental illness documentation (OR = 3.66, $p < .001$). Providers with unknown gender showed a distinct pattern of greater odds for internalizing (OR = 2.72, $p = .004$) and acute risk and safety (OR = 7.20, $p < .001$) but markedly lower odds of identity context documentation (OR = 0.12, $p < .001$) and PHQ screening (OR = 0.15, $p < .001$).

Pattern 4: Treating Provider's Hispanic/Latiné Caseload Composition Shows Selective Associations with Clinical Documentation

The percentage of Hispanic/Latiné patients in the treating provider's caseload was significantly associated with three of the eight outcomes. Higher caseload proportions were associated with greater odds of severe mental illness and complex psychopathology documentation (OR = 1.02, $p = .002$), suggesting that providers serving larger Hispanic/Latiné patient panels were more likely to document severe mental health presentations. Conversely, higher caseload proportions were associated with lower odds of externalizing documentation (OR = 0.99, $p = .006$), suggesting modest but significant reductions in these documentation practices among providers with higher Hispanic/Latiné caseloads. PHQ screening, internalizing, somatic, acute risk, neurodevelopmental complexity, and identity context documentation were not significantly associated with caseload composition after Bonferroni correction.

Table 9

Logistic Regression: Patient and Provider Characteristics Predicting Screening and Mental Health Clinical Profile Documentation at Visit (N = 143,046 Encounters; 1,205 Patients; Patient + Provider Model)

	PHQ Screened		Internalizing		Externalizing		Somatic		Acute Risk		Neurodevelopmental		Severe MI		Identity	
Predictor	**OR**	***p***	**OR**	***p***	**OR**	***p***	**OR**	***p***	**OR**	***p***	**OR**	***p***	**OR**	***p***	**OR**	***p***
Patient Demographics																
Age	**1.27**	**< .001**	**1.22**	**< .001**	**1.07**	**< .001**	**1.08**	**< .001**	**1.18**	**< .001**	0.95	.133	**1.13**	**< .001**	1.11	.024+
Sex (ref: Male)																
Female	0.89	.510	**1.79**	**.003**	**0.53**	**.002**	0.98	.905	**3.25**	**< .001**	0.54	.032+	2.49	.034+	2.43	.110
Ethnicity (ref: Non-Hispanic/Latiné)																
Hispanic/Latiné	1.08	.632	0.66	.031+	**0.40**	**< .001**	1.02	.878	0.72	.303	1.30	.520	0.35	.022+	1.47	.353
Unknown	1.50	.049+	**0.37**	**< .001**	0.57	.083	0.90	.591	**0.03**	**< .001**	0.82	.266	0.79	.907	**0.04**	**< .001**
Log Duration in Care	**0.82**	**< .001**	**0.65**	**< .001**	**0.64**	**< .001**	0.93	.190	**0.57**	**< .001**	0.91	.514	**0.70**	**< .001**	0.67	.011+
Provider Characteristics																
% Hispanic/Latiné Caseload	1.00	.971	1.00	.731	**0.99**	**.006**	1.00	.441	1.01	.297	0.99	.043+	**1.02**	**.002**	0.99	.216
Provider Type (ref: Physician)																
Mental Health Provider	0.81	.501	**0.49**	**< .001**	**0.36**	**< .001**	0.60	.107	**0.20**	**< .001**	0.81	.368	**0.12**	**.003**	1.25	.621
Nursing and Advanced Practice	**0.06**	**< .001**	**0.15**	**< .001**	**0.05**	**< .001**	0.36	.019+	**0.07**	**< .001**	0.65	.538	0.27	.080	—	—
Allied and Other Clinical Staff	0.16	.032+	**0.11**	**< .001**	**0.05**	**< .001**	0.25	.007+	—	—	**3.84**	**.003**	—	—	—	—
Administrative and Support	**0.13**	**.001**	**0.16**	**.001**	**0.10**	**< .001**	0.74	.412	**0.09**	**< .001**	**0.18**	**< .001**	0.90	.871	—	—

Provider Gender (ref: Female)															
Male	**0.54**	**< .001**	0.90	.214	1.08	.483	0.87	.245	**2.96**	**< .001**	1.06	.693	**3.66**	**< .001**	0.81	.359
Unknown	**0.15**	**< .001**	**2.72**	**.004**	3.06	.020[+]	1.24	.398	**7.20**	**< .001**	**2.73**	**.029**	0.46	.214	**0.12**	**< .001**
Department Specialty (ref: Primary Care)																
Mental Health	**0.12**	**< .001**	**15.26**	**< .001**	**10.07**	**< .001**	**0.29**	**< .001**	**11.21**	**< .001**	**6.88**	**< .001**	**15.14**	**< .001**	**0.32**	**.002**
Pediatrics	**0.33**	**< .001**	1.17	.409	0.84	.393	**1.93**	**< .001**	0.96	.930	**2.54**	**.002**	4.37	.038[+]	**0.12**	**< .001**
Medicine Subspecialties	**0.46**	**< .001**	0.92	.752	**0.34**	**.001**	**1.73**	**.005**	1.12	.891	0.53	.192	2.42	.293	0.43	.191
Obstetrics and Gynecology	**0.12**	**< .001**	—	—	—	—	1.95	.390	—	—	—	—	13.997	.035[+]	**0.13**	**.003**
Radiology, Pathology and Lab	0.21	.027[+]	0.46	.124	0.61	.270	**3.15**	**< .001**	0.69	.684	1.11	.808	6.12	.013[+]	**0.06**	**.003**
Surgery	**0.02**	**< .001**	1.01	.971	**0.28**	**< .001**	**1.92**	**.007**	—	—	1.11	.817	3.15	.286	**0.10**	**< .001**
Other	—	—	0.90	.465	0.89	.646	1.33	.046[+]	**9.21**	**< .001**	1.80	.032[+]	**2.83**	**< .001**	**0.18**	**.001**
Model Fit																
Patient-only AIC	38,850		123,368		89,387		96,828		32,011		81,092		21,065		13,145	
Patient + Provider AIC	31,140		99,006		72,072		91,597		25,491		72,815		18,343		11,950	
ΔAIC	7,710		24,362		17,315		5,231		6,520		8,277		2,722		1,195	
Nagelkerke R^2 (Patient-only)	.102		.195		.078		.021		.155		.032		.087		.084	
Nagelkerke R^2 (Patient + Provider)	.301		.409		.345		.093		.344		.159		.214		.173	

Note. OR = odds ratio. Results reflect the Patient + Provider full model estimated using logistic regression with cluster-robust standard errors clustered by patient identifier (N = 1,205 unique patients). [+] Trend-level association: nominally significant ORs ($p < .05$) but did not survive Bonferroni correction (corrected at $a = 0.006$). All other bolded findings survived Bonferroni correction. Dashes (—) indicate categories that produced unstable estimates due to perfect or near-perfect separation and are not reported. Reference categories: Sex = Male; Ethnicity = Non-Hispanic/Latiné; Provider Type = Physician; Provider Gender = Female; Department Specialty = Primary Care. ΔAIC = difference between patient-only and patient + provider AIC; larger values indicate greater improvement in fit with the addition of provider characteristics.

Aim 3: Provider Characteristics Associated with Documented Mental Health Referrals at Encounter Among the Trauma-exposed Subsample

Mental Health and Other Specialty Referral Prevalence

Among the 143,373 provider-linked encounters for this subsample of youth with documented trauma (N = 1,205), 34,871 (24.3%) had a referral documented. Of referred encounters, 4,725 (13.6% of referred; 3.3% of all encounters) were mental health referrals and 30,146 (86.4% of referred; 21.0% of all encounters) were referrals to other departments. At the patient level, 910 of 1,205 patients (75.5%) had at least one referral documented, including 236 patients (19.6%) with a mental health referral and 856 patients (71.0%) with another department referral.

Mental Health Referral vs. No Referral: Provider-Level Patterns

To examine whether provider characteristics predicted mental health referral documentation above and beyond patient-level factors, multinomial logistic regression was used to estimate the relative likelihood of a mental health referral compared to no referral at a given encounter. Full model results, including patient-level demographic predictors and the other specialty referral vs. no referral contrast, are presented in Table 10. The findings below focus on predictors reflecting provider characteristics in mental health referral documentation, as patient-level findings and the other specialty referral contrast are not a primary focus of this aim.

Structural Separation in Mental Health Referrals. The mental health referral contrast showed perfect separation across multiple provider department and type categories, reflecting the near-exclusive concentration of mental health referrals within specific provider contexts. This structural pattern prevents stable estimation of most provider department effects for the mental health referral contrast. Only provider type and provider gender estimates, which remained

stable, are interpreted for this contrast. The concentration of mental health referrals within Mental Health Provider types and Mental Health departments is itself a substantive finding, indicating that mental health referral behavior was largely siloed within behavioral health provider contexts rather than distributed across the care continuum.

Provider Type. Mental Health Providers were the dominant provider type associated with mental health referral documentation, showing more than two and a half times greater relative likelihood of referring to mental health compared to Physicians (RRR = 2.66, 95% CI [2.28, 3.09], $p < .001$), while Administrative and Support staff showed markedly lower relative likelihood (RRR = 0.018, 95% CI [0.004, 0.079], $p < .001$).

Provider Gender. Male providers had significantly lower relative likelihood of documenting a mental health referral relative to female providers (RRR = 0.58, 95% CI [0.49, 0.69], $p < .001$), indicating that male providers were approximately 42% less likely than female providers to document a mental health referral at the encounter. Unknown provider gender estimates were unstable and are not interpreted.

Caseload Composition. A higher percentage of Hispanic/Latiné patients in the treating provider's caseload was associated with lower relative likelihood of mental health referral documentation (RRR = 0.99, 95% CI [0.98, 0.99], $p < .001$). While the per-unit effect is small, the directionality suggests that providers serving larger Hispanic/Latiné caseloads were modestly less likely to document mental health referrals, a pattern worth examining further in relation to differential access to or documentation of mental health services across patient populations.

Table 10

Multinomial Logistic Regression Predicting Referral Type at Encounter Among Youth with Documented Trauma (N = 143,046 Encounters; 1,205 Patients; Patient + Provider Model)

	Mental Health Referral vs. No Referral			Other Dept Referral vs. No Referral		
Predictor	**RRR**	**95% CI**	***p***	**RRR**	**95% CI**	***p***
Patient Demographics						
Age	**0.95**	**[0.94, 0.97]**	**< .001**	**1.02**	**[1.01, 1.02]**	**< .001**
Sex (ref: Male)						
Female	**0.86**	**[0.76, 0.97]**	**.016**	**0.82**	**[0.80, 0.85]**	**< .001**
Unknown	Sep[a]	Sep[a]	Sep[a]	Sep[a]	Sep[a]	Sep[a]
Ethnicity (ref: Non-Hispanic/Latiné)						
Hispanic/Latiné	**1.46**	**[1.25, 1.70]**	**< .001**	**1.40**	**[1.35, 1.45]**	**< .001**
Unknown	0.78	[0.59, 1.02]	.066	**1.27**	**[1.20, 1.34]**	**< .001**
Log Duration in Care	**1.30**	**[1.22, 1.38]**	**< .001**	**0.94**	**[0.92, 0.96]**	**< .001**
Provider Characteristics						
% Hispanic/Latiné Caseload	**0.99**	**[0.98, 0.99]**	**< .001**	**1.003**	**[1.002, 1.004]**	**< .001**
Provider Type (ref: Physician)						
Mental Health Provider	**2.66**	**[2.28, 3.09]**	**< .001**	0.82	[0.67, 1.00]	.052
Nursing and Advanced Practice	Sep[a]	Sep[a]	Sep[a]	**0.54**	**[0.49, 0.59]**	**< .001**
Allied and Other Clinical Staff	Sep[a]	Sep[a]	Sep[a]	**28.89**	**[25.92, 32.21]**	**< .001**
Administrative and Support	**0.018**	**[0.004, 0.079]**	**< .001**	**1.66**	**[1.47, 1.87]**	**< .001**
Provider Gender (ref: Female)						

Male	**0.58**	**[0.49, 0.69]**	**< .001**	**1.04**	**[1.00, 1.08]**	**.028**
Unknown	Sep[a]	Sep[a]	Sep[a]	**1.78**	**[1.63, 1.95]**	**< .001**
Department Specialty (ref: Primary Care)						
Mental Health	Sep[a]	Sep[a]	Sep[a]	—	—	—
Pediatrics	**0.26**	**[0.26, 0.26]**	**< .001**	**5.18**	**[4.79, 5.61]**	**< .001**
Medicine Subspecialties	**0.002**	**[0.002, 0.002]**	**< .001**	**2.10**	**[1.89, 2.33]**	**< .001**
Obstetrics and Gynecology	Sep[a]	Sep[a]	Sep[a]	**3.04**	**[2.36, 3.92]**	**< .001**
Radiology, Pathology and Lab	Sep[a]	Sep[a]	Sep[a]	**19.28**	**[17.26, 21.53]**	**< .001**
Surgery	**0.022**	**[0.022, 0.022]**	**< .001**	**10.38**	**[9.48, 11.36]**	**< .001**
Other	Sep[a]	Sep[a]	Sep[a]	**1.68**	**[1.54, 1.83]**	**< .001**
Model Fit						
Patient-only AIC		182,400.27			182,400.27	
Patient + Provider AIC		115,825.22			115,825.22	
ΔAIC		66,575.05			66,575.05	

Note. RRR = relative risk ratio; CI = 95% confidence interval. Results are from the Patient + Provider multinomial logistic regression model with No Referral as the reference category. Significant RRRs ($p < .05$) are bolded. Model fit indices reflect the full multinomial model jointly estimating both contrasts simultaneously. Reference categories: Sex = Male; Ethnicity = Non-Hispanic/Latiné; Provider Type = Physician; Provider Gender = Female; Department Specialty = Primary Care. Sep[a] = perfect or near-perfect separation; estimate is unstable and not interpreted. Dashes (—) indicate near-zero RRR with extreme separation (Mental Health department vs. Other Dept Referral reflects the clinical reality that Mental Health providers do not refer to other departments). AIC values are identical across both contrasts as the model is estimated jointly. [a]Unknown sex ($n = 4$ patients) produced unstable estimates due to near-perfect separation in both contrasts.

Discussion

This study examined patterns of mental health documentation, mental health screening, and referrals among trauma-exposed youth in a large healthcare system, with a particular focus on provider characteristics as sources of variability across these processes. Across all three aims, findings suggest that clinical response to trauma-exposed youth were not addressed uniformly across providers or clinical settings. Instead, documentation and referral practices varied systematically according to provider role, gender, departmental context, and the demographic composition of providers' caseloads. These findings underscore the importance of moving beyond patient-level explanations of disparities (Elhai et al., 2005; Scott et al., 2004) to examine how provider- and system-level factors shape the documentation of clinical concerns and whether trauma-exposed youth are linked to care (Aarons et al., 2011; Derose et al., 2011; Stiffman et al., 2004). This knowledge is crucial for designing interventions that target overlooked mechanisms of disparity and for ensuring that implementation efforts, such as trauma-informed initiatives and routine screening protocols, are supported by a provider workforce prepared to carry them out (Aarons et al., 2011; Lui et al., 2022; Perez Jolles et al., 2021).

Mental Health Screening as an Indirect Indicator of Trauma Recognition

A main finding was that documentation of the Patient Health Questionnaire during a clinical encounter was associated with significantly greater odds of documenting trauma exposure and psychosocial adversity but was not associated with the assignment of a formal trauma- and stressor-related diagnosis. This pattern suggests that mental health screening may function as an indirect indicator of heightened clinical attention to psychosocial concerns rather than as a direct assessment of trauma-related mental health symptoms. Because the PHQ was

designed to assess depressive symptoms rather than traumatic stress, its administration may prompt broader conversations about emotional functioning and adversity without necessarily leading providers to assign a trauma-related diagnosis (California Department of Health Care Services, 2023). Consistently, longitudinal research found that assessing baseline depressive symptoms predicted increased subsequent recall and disclosure of adverse childhood experiences, suggesting that the assessment of depression may contribute to the later disclosure or documentation of trauma history (Zhang et al., 2026).

However, these indirect pathways are insufficient for systematic trauma assessment and may leave a substantial proportion of trauma-affected youth without documentation of trauma-related concerns when providers rely on depression screening alone. In a validity study developing a five-item traumatic stress screener for adolescents in pediatric primary care, over half of patients who screened positive for trauma-related symptoms would not have been identified as having a mental health concern using the PHQ alone (Ng et al., 2022). Similarly, research in primary care found that approximately 15% of adolescents reporting symptoms likely to meet PTSD criteria did not report elevated depressive symptoms and would have been overlooked by depression screening alone (Selwyn et al., 2019). These gaps arise partly because traumatic stress and depression, though frequently co-occurring, are phenomenologically distinct, and general instruments used to evaluate mental disorders are not sufficiently sensitive to assess posttraumatic symptoms and can misclassify them as other conditions (Center for Substance Abuse Treatment US, 2014). For instance, intrusive posttraumatic symptoms may appear on general measures as indicative of hallucinations or obsessions, while dissociative symptoms can be interpreted as signs of schizophrenia.

A parallel limitation applies to trauma screening approaches that focus only on exposure documentation. Assessing whether a youth has experienced a potentially traumatic event, without also evaluating the symptom burden and functional impact of that exposure, is insufficient to guide clinical decision-making (Austin et al., 2024). Because fewer than 20% of trauma-exposed youth will develop PTSD (Ng et al., 2022), screening for adverse childhood experiences alone has limited utility for identifying the subset of youth most in need of trauma-focused care. Exposure identification is therefore a necessary but not sufficient step (Austin et al., 2024). What is needed is an integrated approach that assesses trauma history alongside traumatic stress symptoms and functional impairment, and that generates clinically actionable information (Keeshin et al., 2020; Ng et al., 2022; Selwyn et al., 2019). Trauma-related diagnoses also require a more specific process of diagnostic formulation than does general documentation of adversity, and providers may identify psychosocial risk factors without concluding that symptoms meet criteria for a trauma- and stressor-related disorder (Finkelhor, 2018; McLennan et al., 2019).

Taken together, these considerations suggest that neither depression screening nor exposure-only screeners are sufficient for comprehensive assessment of trauma-related clinical concerns, as both fall short of the specificity needed to translate clinical observation into formal documentation and diagnostic formulation of traumatic stress. Importantly, whatever screening approach is adopted must also be brief enough for routine implementation. Providers in busy primary care settings have noted the intense time constraints of clinical encounters, particularly for patients living in poverty and amid ongoing adversity, and any screening tool that cannot be feasibly administered within the pace of routine care is unlikely to be consistently used (Keeshin et al., 2020; National Institute for Children's Health Quality, 2023). These findings reinforce the

need for brief, trauma-specific screening approaches that assess both exposure and symptom impact and are directly linked to documentation and treatment pathways (National Institute for Children's Health Quality, 2023; Ng et al., 2022).

Another important consideration is the directionality of the observed association between PHQ documentation and trauma documentation. The retrospective, chart-based design of the present study cannot establish whether depression screening prompted the documentation of trauma-related concerns, or whether awareness of trauma prompted providers to administer the PHQ. Both pathways are plausible. Providers may have administered the PHQ as a structured follow-up to concerns about emotional functioning that were themselves triggered by prior knowledge of a patient's adversity. Trauma-informed care frameworks support this possibility, recommending that screening for symptoms associated with trauma, including depression, follow from and complement a prior assessment of trauma history rather than precede it (Center for Substance Abuse Treatment US, 2014). In this model, the PHQ may function less as a gateway to trauma documentation and more as a tool for characterizing the emotional impact of adversity that has already been identified. The current study cannot differentiate between these possibilities. Future research using prospective designs or encounter-level data that captures the sequence of clinical decisions within a visit would be needed to clarify the direction of this relationship.

Behavioral Health Documentation Remains Concentrated Within Specialty Mental Health Settings

This study also identified patterns between departmental context and documentation. Relative to primary care, encounters occurring in mental health departments were substantially more likely to include documentation of internalizing distress, externalizing and behavioral

dysregulation, acute risk and safety concerns, neurodevelopmental complexity, and severe mental illness. At the same time, mental health departments were less likely to document PHQ screening, somatic presentations, and identity-related clinical context. These patterns may reflect an expected and appropriate feature of how healthcare systems distribute clinical responsibility across settings rather than a systemic gap in care. For instance, stepped care models in integrated behavioral health are explicitly designed to match clinical complexity to provider expertise, reserving specialty mental health services for patients with more severe or diagnostically complex presentations while managing lower-acuity concerns within primary care (Raney, 2015; Reiter et al., 2018). Under this framework, it is expected and appropriate that formal psychiatric diagnoses, acute safety concerns, and complex behavioral presentations are more likely to be documented in specialty mental health settings, where providers have the training, time, and clinical infrastructure to conduct the level of diagnostic formulation such documentation requires (Finkelhor, 2018; McLennan et al., 2019). From this perspective, the observed departmental differences may reflect the healthcare system functioning as intended rather than evidence of fragmentation.

A related consideration is the lower likelihood of documented PHQ screening in mental health departments relative to primary care. This difference may reflect the organizational context in which screening occurs rather than lower level of mental health assessment among mental health providers. UCLA Health implemented an HER-integrated PHQ program within primary care beginning in 2018, supported by operational workflows and staff training. Thus, PHQ administration may have been more strongly embedded within primary care workflows, whereas youth entering mental health services may have already undergone identification or referral for amental health concerns. Consequently, differences in PHQ documentation across

departments may reflect differences in screening workflows and the clinical purpose of screening rather than differences in provider's attention to mental health concerns. Within primary care, the PHQ may serve as standardized mechanism for identifying or documenting emotional concerns that warrant further assessment or referral, whereas mental health providers may rely on more comprehensive clinical assessment than routine administration of a brief depression screener. The lower likelihood of PHQ documentation in mental health settings should therefore not be interpreted as evidence that mental health providers conduct less mental health assessment.

However, even when these differences reflect appropriate specialization and workflow, such specialization in documentation may come at a cost, particularly for trauma-exposed youth whose presentations do not map neatly onto a single clinical domain. Mental health departments were less likely to document somatic presentations despite the well-established association between trauma exposure and physical health symptoms, including chronic pain, gastrointestinal distress, fatigue, and medically unexplained conditions (Danese & Baldwin, 2017; Glynn et al., 2021; Obenauf et al., 2024). This pattern raises the possibility that mental health providers, while highly attuned to psychological symptomatology, may underrecognize or underdocument the somatic manifestations of trauma, thereby missing opportunities to conceptualize physical complaints within a trauma-informed framework. Conversely, primary care providers may document somatic symptoms without fully considering their psychological or trauma-related origins, effectively treating the physical presentation while the underlying adversity remains unrecognized (MacLellan et al., 2024). Taken together, these findings may reflect a broader disciplinary "blind spot" described in the trauma-informed care implementation literature, in which providers across settings tend to conceptualize trauma through the lens of their own

professional training and workflow demands rather than through an integrated biopsychosocial understanding of trauma-related presentations (Huo et al., 2023).

For trauma-exposed youth, whose symptoms often span physical, emotional, developmental, and contextual domains, fragmented documentation across settings may limit any single provider's ability to form a comprehensive understanding of clinical need (Kisiel et al., 2018). Similar challenges have been described in integrated care settings, where differences in workflows and documentation practices can impede communication and coordination across disciplines (Roehrs et al., 2017; Singer et al., 2022; Zafari et al., 2021). The solution is unlikely to be requiring all providers to document all conditions, which would be neither feasible nor consistent with appropriate scope of practice. Rather, these findings point to the need for shared documentation standards and care coordination structures that ensure clinically relevant information, including trauma history, somatic symptoms, and identity context, is visible across disciplines and informs care regardless of the setting in which a youth is seen (Cifuentes et al., 2015; Duffee et al., 2021)

One framework that may help explain this cross-departmental fragmentation is Developmental Trauma Disorder (DTD; Van Der Kolk, 2005). Unlike PTSD, DTD was developed to capture the broad emotional, somatic, cognitive, relational, and self-regulatory difficulties commonly observed among youth exposed to chronic interpersonal trauma and adversity (Cook et al., 2005; Van Der Kolk, 2005). Proponents argue that trauma-exposed youth are often assigned multiple comorbid diagnoses that each capture isolated aspects of a broader trauma-related presentation rather than recognizing a unified clinical picture (D'Andrea et al., 2012; Spinazzola et al., 2018). This mirrors the documentation fragmentation observed in the present study, where trauma-related needs appeared distributed across departments and symptom

domains. Although DTD was not adopted into DSM-5, subsequent research suggests it identifies a clinically distinct population not fully captured by existing diagnoses (Ford & Courtois, 2021; Spinazzola et al., 2021). The absence of a shared diagnostic framework for complex developmental trauma may therefore contribute to fragmented recognition and documentation across healthcare settings (Ford & Courtois, 2021).

Provider Type and the Differences in Documenting Behavioral Health Screening and Concerns

Provider role was also strongly associated with documentation practices. Compared with physicians, non-physician staff (e.g., nursing and advanced practice providers), showed consistently lower odds of documenting PHQ screening and behavioral health concerns. These findings likely reflect differences in scope of practice, training, and documentation responsibilities rather than lower clinical involvement. Nonetheless, they indicate that behavioral health documentation remains concentrated among specific provider groups, which may affect continuity of care and limit the visibility of mental health needs within the broader care team (Flanagan et al., 2009; Rosen et al., 2018).

Mental health providers demonstrated a more nuanced pattern. Although they were central to referral processes, they did not consistently document higher rates of behavioral health diagnoses than physicians after accounting for department and patient characteristics. This may reflect differences in documentation conventions, as non-physician mental health clinicians may conduct extensive psychosocial assessment and treatment without assigning formal diagnostic codes to the same extent as physicians. These findings highlight the importance of standardized workflows and training to ensure that clinically meaningful information is documented consistently across provider roles (Purtle, 2020).

Provider Gender and Clinical Decision-Making

Provider gender was associated with notable differences in screening, documentation of mental health needs, and referral behavior. Male providers were less likely than female providers to document PHQ screening and mental health referrals, but more likely to document acute risk and severe mental illness. This pattern suggests that male providers may be less likely to engage in proactive screening and referral, while being more likely to document mental health concerns when presentations are more acute or severe, aligning with prior research demonstrating that provider characteristics, including gender, can influence screening frequency and confidence in addressing psychosocial concerns (McGuire et al., 2022; Meredith et al., 2017). Notably, male providers were approximately 42% less likely than female providers to document a mental health referral during trauma-related encounters.

Several hypotheses may help explain this pattern. First, experiential factors may play a role, as female providers report higher rates of personal ACE histories, which have been associated with greater comfort and confidence in discussing trauma and psychosocial concerns with patients (Candib et al., 2012; Tink et al., 2017; Weinreb et al., 2010). Providers with lived experience of adversity may be more attuned to trauma-related presentations and more likely to initiate proactive screening and referral across a broader range of clinical acuity. The observed differences may also reflect differences in clinical thresholds for action. The finding that male providers were more likely to document acute risk and severe mental illness, while being less likely to document screening and referral, is consistent with a pattern in which male providers respond to mental health need more reactively, acting primarily when presentations are severe, while female providers engage more proactively across a wider range of presentations (Candib et al., 2012; Tink et al., 2017; Weinreb et al., 2010).

It is also possible that observed gender differences reflect the intersection of provider gender and professional role. Female providers are disproportionately represented in nursing and social work, positions in which trauma-related assessment and psychosocial care are more routinely integrated into clinical workflows (Data USA, 2022a, 2022b), and within pediatric settings, nurses and social workers identify trauma exposure and initiate referrals more frequently than physicians (Ridings et al., 2022). To the extent that gender and professional role are correlated, gender differences in documentation may partly reflect role-related differences in clinical workflow rather than provider gender alone. This study did not test this interaction directly, and future research examining whether gender differences in documentation interact with provider specialty and professional role would help test this hypothesis. Although the mechanisms underlying the observed differences remain unclear, their consistency across screening and referral outcomes suggests that provider gender may shape how mental health needs are recognized and acted upon in ways that warrant further investigation, particularly because even modest differences in provider decision-making may accumulate over time to influence disparities in access to care.

Hispanic/Latiné Caseload Composition and Implications for Equity

The proportion of Hispanic/Latiné youth in a provider's caseload was modestly associated with documentation of clinical profiles. Providers serving larger Hispanic/Latiné caseloads were somewhat less likely to document externalizing and neurodevelopmental concerns, while being more likely to document severe mental illness among trauma-exposed youth. Although these effects were small, they are meaningful given longstanding disparities in mental health service use among Latiné youth (Bridges et al., 2010; Pumariega et al., 2022).

The increased likelihood of documenting severe mental illness is particularly noteworthy and aligns with broader evidence of racialized disparities in psychiatric diagnosis, in which Black and Latiné patients are more likely to receive severe psychiatric labels relative to White patients with similar presentations (R. C. Schwartz & Blankenship, 2014). Research on schizophrenia overdiagnosis among racial and ethnic minoritized groups suggests that cultural and linguistic differences in symptom expression, combined with implicit provider bias, may contribute to trauma-related or affective symptoms being interpreted as indicators of psychotic illness (Olbert et al., 2018; Schwartz et al., 2019). The clinical consequences of such patterns are significant, as trauma-exposed youth whose symptoms are framed primarily through a severe mental illness lens may receive more restrictive or symptom-focused interventions before receiving trauma-informed assessment and care (Bryson et al., 2017). At the same time, lower documentation of externalizing and neurodevelopmental concerns may reduce opportunities for behavioral health assessment, school-based supports, and specialty referrals, as these documentation pathways often drive access to services (Danielson et al., 2018; Kisiel et al., 2018).

Providers serving larger Hispanic/Latiné caseloads were also somewhat less likely to document mental health referrals. These patterns may reflect structural barriers embedded within the healthcare system, including differences in insurance coverage and service availability, rather than individual provider bias. Providers caring for larger proportions of Hispanic/Latiné youth may encounter greater challenges related to language access, insurance instability, transportation barriers, immigration-related concerns, and shortages of bilingual and culturally responsive mental health services (Barnett et al., 2018). In resource-constrained environments, providers may adapt referral practices based on whether services are realistically accessible to families,

particularly when prior referral attempts have been unsuccessful or specialty resources are limited (Derose et al., 2011; Stiffman et al., 2004). Although this may represent a pragmatic response to structural constraints, a possible consequence is that trauma-exposed Hispanic/Latiné youth may become less likely to be connected to specialty mental health care, further compounding disparities in service access and utilization (Bridges et al., 2010; Pumariega et al., 2022). Collectively, these findings suggest that disparities in trauma-focused care may emerge not only through patient-level barriers, but also through provider decision-making processes shaped by the structural realities of the healthcare environments in which providers practice (Aarons et al., 2011; Damschroder et al., 2009).

Mental Health Referrals Remain Highly Siloed

Mental health referrals were highly concentrated within behavioral health provider types and departments. Mental health providers were more than twice as likely as physicians to document mental health referrals, and structural separation in the referral models indicated that referrals were generated almost exclusively within behavioral health contexts. This pattern suggests that referral to mental health services remained largely siloed rather than integrated across the healthcare system. In a genuinely integrated system, referrals would flow bidirectionally across departments, with primary care providers routinely identifying mental health need and connecting patients to specialty services, and mental health providers communicating back about treatment progress and emerging concerns (Raney, 2015; Reiter et al., 2018). The near-absence of cross-departmental referral documented here might suggest that perhaps this coordination was largely not occurring.

It is also important to note that the medical record data for this study were extracted up until 2021, a period that predates the implementation of several expanded mental health

strategies subsequently outlined in the UCLA Health Implementation Strategy for FY2023–FY2025. The siloing documented in the study could also represent a snapshot of a healthcare system that had already identified mental health access as a significant community need but had not yet fully operationalized the structural changes needed to address it. Indeed, the Resnick Neuropsychiatric Hospital's 2019 Community Health Needs Assessment, which covered the period most proximate to the data examined in this study, identified mental health as one of its highest-priority community health needs, with community stakeholders noting inadequate access to mental health services, insufficient integration of mental health into primary care, and significant unmet need among youth and underserved populations in the service area (UCLA Health, 2019). The referral patterns observed in the study may therefore reflect a combination of provider and department practices and the structural limitations that the 2019 community needs assessment was documenting, and that the subsequent 2022–2025 Implementation Strategy was designed to address through expanded strategies, including the placement of Behavioral Health Associates across 12 primary care offices through a Medicaid waiver and increasing awareness of dedicated trauma-informed programs available for youth (UCLA Health, 2022).

These implications are particularly significant for trauma-exposed youth in the context of insurance coverage and access. Although UCLA Health accepts a broad range of insurance plans, coverage and referral requirements vary across plans and services, and behavioral health benefits may be administered through separate organizations. Consequently, observed patterns of mental health referral may reflect not only provider- or department-level practices but also differences in insurance eligibility, authorization requirements, and access to available behavioral health services. Primary care and pediatric providers are often the first professionals to encounter trauma-exposed youth and are therefore critical gateways to treatment (Stiffman et al., 2004),

and many Medicaid managed care plans require a referral from a primary care provider as a condition of coverage for specialty mental health services (Cummings et al., 2013; Zima et al., 2016). This concern is especially salient given that the UCLA Health service area includes approximately 10.6% of residents at or below the federal poverty level and 16.1% identifying as Hispanic/Latiné, populations for whom insurance-related access barriers are most consequential, and the 2019 community needs assessment identified inadequate mental health access and insufficient integration of mental health into primary care as significant unmet community needs (UCLA Health, 2019).

At the same time, the concentration of referrals within mental health departments in the study may also partly reflect the characteristics of the population served. Youth already engaged in specialty mental health care at a large academic medical center may be receiving referrals for differentiated components of care, such as higher levels of psychiatric services, specialty diagnostic evaluation, or stepped-up treatment, rather than initial entry into the mental health system. This pattern would be expected in a setting with dedicated specialty clinics and a patient population that may have already navigated initial access. Nevertheless, integrated care models that embed mental health consultation and referral pathways systematically across pediatric settings represent a promising path forward (Ng et al., 2023; Pérez Jolles et al., 2022), and are directly consistent with the expanded strategies UCLA Health has since committed to in its FY2023–2025 Implementation Strategy, including placement of Behavioral Health Associates across 12 primary care offices (UCLA Health, 2022).

Limitations and Future Directions

Several limitations should be considered when interpreting these findings. First, this study relied on retrospective EHR data, which capture what providers documented rather than

the full range of information assessed, discussed, or considered during clinical encounters. Documentation practices are influenced by provider workflow, billing requirements, time constraints, training, and EHR usability, meaning that the absence of documentation should not necessarily be interpreted as the absence of clinical concern (Cifuentes et al., 2015). Trauma-related concerns, psychosocial adversity, and referral discussions may therefore be substantially underrepresented within the medical record. In addition, many variables were operationalized using diagnostic and documentation codes that may not fully capture the complexity of trauma-related presentations, particularly in integrated or non-mental health settings where providers may document symptoms differently across disciplines (Roehrs et al., 2017; Singer et al., 2022). At the same time, the use of EHR data from a large academic medical center allowed for the examination of a substantial and clinically diverse sample of trauma-exposed youth encountered across multiple departments and provider types in real-world care settings, providing a naturalistic window into provider behavior. The size of the sample also allowed examination of variation associated with provider characteristics across a wide range of clinical settings and encounter types that would be difficult to capture through other methodological approaches.

Second, patient demographic variables within EHR systems are often incomplete or inconsistently recorded. In the present study, missingness in patient and provider race and ethnicity data limited the ability to fully examine how racialized and ethnic minoritized identities shaped pathways of screening, documentation, and referral. This limitation is consistent with prior EHR research demonstrating substantial inaccuracies and missingness in race and ethnicity documentation (Polubriaginof et al., 2019). For example, a previous study found that race and ethnicity fields were missing for a large proportion of patients and that many individuals reported identities inconsistent with those documented in the medical record. As a result, findings related

to providers' Hispanic/Latiné youth caseload and provider gender should be interpreted cautiously.

Third, provider-linked analyses were restricted to encounters included in the targeted provider data extraction and therefore may not generalize to all encounters within the healthcare system. Similarly, the proportion of Hispanic/Latiné youth within a provider's caseload should not be interpreted as a direct measure of cultural responsiveness, bilingual capacity, or language concordance. These findings instead reflect broader structural and organizational patterns that may shape provider behavior. Nonetheless, the inclusion of provider caseload composition as a predictor variable represents a novel contribution, shifting the analytic lens from individual patient characteristics toward the structural contexts in which providers practice, an approach rarely applied in studies of trauma-related documentation and referral in healthcare settings.

Fourth, because the study used cross-sectional EHR data, causal or directional inferences cannot be established. The temporal ordering between screening, documentation, and referral processes may not fully reflect how clinical decision-making unfolded in practice. For example, providers may have already recognized trauma-related concerns prior to documenting a PHQ, or referrals may have occurred through informal pathways not captured in the medical record. As such, findings should be interpreted as associations within documented clinical workflows rather than evidence of causal mechanisms. This limitation is particularly important given evidence suggesting that provider decision-making around trauma identification and referral is highly dynamic, context-dependent, and shaped by organizational processes not visible within structured EHR fields (Huo et al., 2023; Perez Jolles et al., 2021). Finally, the study was conducted within a single large healthcare system, which may limit generalizability to other

systems with different patient populations, staffing models, documentation workflows, or trauma-informed care initiatives.

Future research should move beyond documentation patterns to examine consequences of these differences associated with provider characteristics , including treatment initiation, treatment retention, symptom improvement, and long-term engagement in trauma-focused care. Integrating EHR data with qualitative interviews, observational methods, or provider decision-making paradigms could help clarify how providers conceptualize trauma-related need and make referral decisions in real time. Studies should also directly assess provider language capacity, cultural responsiveness, trauma-informed competencies, and implicit bias, as these factors were not measurable within the current dataset but likely contribute to observed disparities (Barnett et al., 2018; FitzGerald & Hurst, 2017). In addition, future implementation research should evaluate whether integrated care models, trauma-specific screening protocols, and standardized documentation pathways reduce the fragmentation in trauma recognition and referral observed across departments in the present study (Keeshin et al., 2020).

Conclusions

This study demonstrates that the documentation, screening, and referral of trauma-related mental health concerns among youth are shaped not only by patient characteristics but also by the structural and demographic characteristics of the providers who serve them. Department specialty, provider type, provider gender, and caseload composition each contributed to meaningful variation in screening, documentation of mental health needs, and referral practices. These findings highlight the need for trauma-informed training across provider types, the implementation of trauma-specific screening protocols, and integrated care systems that distribute mental health assessment, documentation, and referral responsibilities across the full

healthcare continuum (Koury & Green, 2017). Such efforts may be particularly important for reducing disparities in access to trauma-focused mental health services among Latiné youth and other historically underserved populations.

Study 2 - Provider-Described Pathways to Trauma-Focused Mental Health Care for Latiné Youth: A Process Mapping Study

Trauma Exposure and Gaps in Service Use

In the United States, exposure to potentially traumatic events during childhood and adolescence is highly prevalent and represents a major public health concern. National estimates indicate that over 60% of youth experience at least one traumatic event before age 18 (Pumariega et al., 2022; Sacks & Murphey, 2018). Among trauma-exposed youth, approximately 50% develop at least one symptom of posttraumatic stress disorder (PTSD), and nearly 20% meet full diagnostic criteria (Alisic et al., 2014). Childhood trauma is associated with a wide range of adverse outcomes across development, including PTSD, depression, anxiety, behavioral problems, chronic physical health conditions, and increased risk of early mortality (Kalmakis & Chandler, 2015).

Despite the burden of trauma-related need and availability of evidence-based trauma-focused treatments, a substantial proportion of trauma-exposed youth do not receive appropriate mental health services. National estimates suggest that fewer than 20% of traumatized children receive trauma-focused care, and even fewer successfully engage in and complete treatment (Rancher et al., 2025; Wamser-Nanney & Walker, 2023). These gaps are particularly pronounced for Latiné youth, who often present with complex psychosocial needs yet remain less likely than their White peers to access mental health services and evidence-based trauma treatments (Bernal et al., 2009; Bifulco et al., 2023).

Disparities and Barriers to Mental Health Care Among Latiné Families

Latiné youth represent one of the fastest-growing populations in the United States and experience disproportionate exposure to trauma, including community violence, immigration-

related stress, family separation, and socioeconomic hardship (Grafft et al., 2022; Perreira et al., 2015). Within this population, Spanish-speaking youth and caregivers represent a rapidly growing subgroup, with more than 20% of youth aged 5–17 speaking a language other than English at home and Spanish comprising the majority of non-English languages (approximately 62–73%) (Batalova & Zong, 2016).

Disparities in access to mental health services among Latiné families are driven by intersecting linguistic, structural, and cultural barriers (Bifulco et al., 2023). Linguistic barriers, including language discordance with providers and limited availability of bilingual clinicians, may hinder accurate assessment and communication. Structural constraints such as transportation challenges, insurance instability, and competing work demands further limit access to care. In addition, cultural values such as familismo, respeto, and personalismo, as well as stigma surrounding mental health, shape how families perceive services and influence engagement in treatment (González-Prendes et al., 2011). Together, these factors contribute to persistent disparities in both access to and engagement in trauma-focused care. Importantly, these barriers rarely operate in isolation. Recent qualitative research centering provider perspectives working with trauma-exposed Latiné families found that the aforementioned barriers frequently co-occurred, collectively constraining families' ability to fully engage in trauma treatment in ways that addressing any single barrier in isolation could not resolve (Aguilar Silvan et al., under review).

Gaps in Understanding Pathways to Trauma-Focused Care

While prior research has documented disparities in mental health service utilization and barriers to engagement among Latiné youth and Spanish-speaking families (Aguilar Silvan et al., under review; Bridges et al., 2010; Galvan & La Barrie, 2024; Kapke & Gerdes, 2016; Lu et al.,

2021; Pumariega et al., 2022; Stafford & Draucker, 2020), less is known about how these barriers operate across the sequence of steps required to engage in trauma-focused care. In particular, there is limited understanding of the pathways through which trauma-exposed youth are identified, referred, and ultimately engaged in treatment within healthcare settings (Gervasio et al., 2025). Existing models often conceptualize this pathway as a linear process (e.g., identification → referral → treatment). However, emerging evidence suggests that pathways to mental health care are more complex, iterative, and shaped by multiple decision points involving providers, caregivers, and system-level constraints (Frank et al., 2023). These decision points include whether a diagnosis is given, how mental health needs are assessed and communicated to families, and whether referrals to the appropriate services (e.g., exposure and response prevention therapy for OCD) are initiated, accepted, and followed through. Each step represents a potential point of discontinuity, particularly for Spanish-speaking families navigating linguistic, structural, and cultural barriers. Indeed, recent provider-centered research found that even when providers were aware of families' barriers and actively attempted to bridge them, systemic constraints consistently emerged as points where families disengaged from treatment (Aguilar Silvan et al., under review), suggesting that these discontinuities may not be random but concentrate at predictable junctures shaped by structural inequity.

To date, only one study has explicitly mapped pathways to trauma-focused care for youth, demonstrating that connection to trauma-specific services involves a multi-step, complex, and dynamic process rather than a linear referral pathway (Gervasio et al., 2025). Specifically, this process map outlined nine sequential steps for school-based services, beginning with distress recognition by school staff or caregiver disclosure and progressing through assessment within the school system, and ultimately referral to trauma-focused treatment, while also identifying

multiple decision points, alternative pathways, and points of drop-off where youth may not ultimately connect to care. These findings highlight that pathways to trauma-focused services are not straightforward, but instead involve branching processes shaped by both clinical decisions and contextual barriers. However, this work is situated within school-based systems, which tend to operate within more structured and coordinated organizational frameworks, including defined staff roles and referral pathways (Richter et al., 2022), and therefore may not capture the complexity of pathways within healthcare settings, where referral processes, provider roles, and service coordination are more variable. In addition, this prior study drew on perspectives from school-based mental health personnel, for whom it was not always clear whether providers were specifically trained in or delivering trauma-focused treatment, which may influence how care pathways and decision points are conceptualized. Moreover, this work primarily focuses on early stages of identification and referral and does not examine what occurs after referral to mental health treatment, including how trauma-focused providers determine treatment appropriateness, assess readiness for trauma work, and navigate competing clinical and contextual needs. As a result, little is known about how youth progress or disengage along the pathway to completing trauma-focused care within healthcare settings. Importantly, no studies to date have examined these processes specifically among Latiné youth or considered how language-related factors, such as limited availability of Spanish-speaking providers and reliance on interpreter services, shape care pathways for Spanish-speaking families.

Understanding Care Pathways with Process Mapping

To address the limited understanding of pathways to trauma-focused care for Latiné youth and Spanish-speaking families, approaches are needed that can capture how well-established barriers unfold and accumulate across the broader sequence of care. Process mapping

offers a useful framework for examining this complexity. Originally developed in business and operations management and later adapted for healthcare and social services settings, process mapping is a descriptive visualization method used to examine workflows, decision points, and system inefficiencies(Antonacci et al., 2021; Kim et al., 2019). Rather than treating clinical decisions or barriers to care as discrete events, this approach situates them within the broader sequence of care, making visible the actors, transitions, and system processes that shape movement through services (Frank et al., 2023; Gervasio et al., 2025; Kim et al., 2019; Yu et al., 2023). This perspective is particularly relevant for Latiné youth, whose pathways to trauma-focused treatment are often shaped by interacting barriers across multiple stages (Aguilar Silvan et al., under review).

A particular strength of process mapping is its ability to identify bottlenecks, or points within a system where progress slows or stalls because demands exceed available resources or capacity (Al Moteri et al., 2024). In healthcare settings, these bottlenecks often emerge during system transitions, such as referral handoffs, scheduling processes, or movement between providers and service sectors. By visualizing the full sequence of care, process mapping can identify where and under what conditions breakdowns emerge, including missed opportunities for service connection, barrier clusters to engaging in evidence-based treatments, and disruptions during provider or system transitions (Antonacci et al., 2021; Frank et al., 2023; Kim et al., 2019). Despite its promise, process mapping has rarely been applied to mental health service pathways among trauma-exposed youth, and no studies to date have used this approach to examine pathways to trauma-focused care among Latiné youth and Spanish-speaking families.

Multilevel Context Shaping Pathways to Care

Understanding pathways to trauma-focused care requires situating these processes within the broader contextual factors that shape how services are delivered and accessed (Aarons et al., 2011; Moullin et al., 2019). In addition to the family- and youth-level barriers described above (e.g., linguistic, cultural, and structural factors influencing engagement; Bifulco et al., 2023; González-Prendes et al., 2011), provider- and system-level factors play a critical role in shaping how youth move through care pathways. At the provider level, clinicians make key decisions that influence whether trauma is identified, how mental health needs are interpreted and communicated, whether referrals to trauma-focused services are initiated, and whether families are perceived as appropriate candidates for treatment (Halpern-Felsher et al., 2000; Marshall et al., 2020; Weinreb et al., 2010). Importantly, these decisions occur within broader organizational and structural contexts that influence how services are coordinated and delivered (Cabassa & Hansen, 2006; Cabassa et al., 2018; Garrow & Wimsatt, 2021; Hefner et al., 2021; McClendon et al., 2020). These dynamics were evident in recent research in which providers serving Latiné youth reported that systemic barriers shaped their clinical approaches and often exceeded the capacity of individual provider efforts to resolve, pointing to the need for organizational and structural investment alongside clinical training (Aguilar Silvan et al., under review). Together, family-, provider-, and system-level factors constrain how screening, documentation, and referral processes are carried out, contributing to variability across providers and ultimately structuring the sequence of steps, decision points, and potential points of discontinuity that characterize pathways to trauma-focused care in routine care (Bifulco et al., 2023; González-Prendes et al., 2011; Garrow & Wimsatt, 2021; Halpern-Felsher et al., 2000; Marshall et al., 2020; Weinreb et al., 2010).

Current Study: Research Questions and Hypotheses

The current study addresses a critical gap in understanding how youth move from trauma recognition to engagement in trauma-focused treatment, particularly the processes and decision points that shape identification, referral, and connection to care, by examining the perspectives of providers who deliver trauma-focused services to Latiné youth. Drawing on provider interviews, this study uses process mapping to characterize care pathways and identify key decision points, delays, drop-off points, and bottlenecks that influence whether youth successfully engage in trauma-focused treatment or disengage. This study is guided by the following research questions and hypotheses:

How do providers describe the pathways through which Latiné youth move from trauma recognition to engagement in trauma-focused mental health treatment? It is hypothesized that these pathways are non-linear and involve multiple decision points, delays, and alternative routes that may divert youth from engaging in care. Spanish-speaking youth and families may encounter steps, such as reliance on interpretation services or limited availability of linguistically concordant referrals, resulting in more complex and prolonged pathways to care.

How do the barriers and facilitators providers identify map onto specific bottlenecks in the trauma care pathway for Latiné youth and their families? It is hypothesized that bottlenecks will concentrate at points of language-related discontinuity, where linguistic barriers intersect with provider- and system-level constraints to impede access to trauma-focused care for Spanish-speaking families.

Methods

Study Site

This study was conducted in Los Angeles County, California, a region with one of the largest Hispanic/Latiné populations in the United States. California has the highest number of individuals identifying as Hispanic/Latiné, and Spanish is the second most widely spoken language in the state (U.S. Census Bureau, 2024). Los Angeles County includes more than 10 million residents, of whom approximately 49% identify as Hispanic/Latiné and 39% report speaking Spanish at home (U.S. Census Bureau, 2024). Within this population, individuals of Mexican heritage comprise the majority (79%), alongside diverse communities identifying Puerto Rican, Cuban, Dominican, Salvadoran, Guatemalan, Honduran, and other Central and South American backgrounds (U.S. Census Bureau, 2024).

Participants

Participants were mental health providers who deliver trauma-focused services to Latiné adolescents experiencing traumatic stress. Recruitment occurred between March and August 2023 through multiple channels, including social media platforms, professional organization listservs, word of mouth, and professional networks. Interested individuals completed an eligibility screening survey administered via Qualtrics (Qualtrics, 2020).

A total of 91 individuals initiated the screening survey, of whom 47 completed it. Sixteen participants met eligibility criteria, which included either: a) at least five years of experience working with Latiné youth who have experienced trauma or b) current provision of trauma-focused mental health services to Latiné adolescents ages 12–22. Of these eligible providers, 14 completed the interview; two did not participate due to scheduling conflicts or loss of contact.

Procedures

All recruitment and study procedures were approved by the University of California, Los Angeles Institutional Review Board (IRB#22-001744). Prior to participation, a member of the research team reviewed study procedures with participants and obtained informed consent.

Participants completed a brief demographic questionnaire designed to characterize the sample. Variables included race, ethnicity, sex, gender, sexual orientation, age, education, training background, professional role, years of clinical experience, client age range, language used in therapy, use of interpretation services, and trauma caseload. Additional descriptive information, such as types of evidence-based trauma interventions delivered and bilingual or monolingual status, was extracted from interview data (see Qualitative Data Analysis section).

Participants then completed a 60-minute semi-structured interview conducted via HIPAA-compliant Zoom in a private setting. Participants received a $20 gift card as compensation for their time. Interviews were conducted primarily in English; however, several bilingual providers intermittently responded in Spanish. All interviews were audio-recorded and transcribed verbatim by four bilingual (English/Spanish) undergraduate research assistants in the original language of response. Spanish excerpts were translated into English and independently reviewed for accuracy. All transcripts were subsequently reviewed and verified by two research assistants to ensure transcription fidelity.

Interview Guide Development

The primary aim of the interviews was to elicit provider perspectives on delivering trauma-focused treatment to Latiné youth and families, with particular attention to factors influencing treatment engagement. The semi-structured interview guide was developed by a master's-level laboratory manager and a doctoral-level clinical psychology researcher using a

combination of deductive and iterative approaches (Srivastava & Hopwood, 2009; Wishkoski, 2020). The guide was informed by prior literature on barriers to trauma-focused care among Latiné populations and organized into three primary parts. First, providers were asked about the types of trauma-focused treatments they deliver, their experiences engaging Latiné youth and families, and the availability of Spanish-language services. These questions were designed to capture provider perspectives on treatment delivery and access, which have been identified as key challenges in prior research (Bernal et al., 2009). Then, providers were asked about the integration of cultural factors into trauma treatment. Questions focused on how clinicians incorporate Latiné cultural values (e.g., familismo, religion and prayer, respeto, and personalismo) into their clinical practice (González-Prendes et al., 2011). Additional interview prompts explored how broader contextual factors, such as acculturation, discrimination, and immigration experiences, shape treatment engagement and how providers respond to these influences. Lastly, following a brief overview of a translated and culturally adapted brief evidence-based trauma intervention (Ng et al., 2023), providers were asked to reflect on potential cultural adaptations needed to enhance the relevance and accessibility of the trauma intervention for Latiné youth and families. These questions were informed by frameworks for cultural adaptation of evidence-based practices (Lau, 2006). Consistent with an iterative interviewing approach (Srivastava & Hopwood, 2009), probing questions were refined throughout the data collection process in response to participant input. For the purposes of the present study, interview questions were later organized into analytic domains aligned with the study's research questions and process-mapping framework (see Appendix B).

Quantitative Analysis

Descriptive statistics were computed using Jamovi (Version 2.6; The Jamovi Project, 2024) to summarize sample characteristics, including demographic and professional variables. Comparative analyses were also conducted to examine differences between individuals who initiated the screening survey and those who met eligibility criteria and participated in the study. These analyses were intended to assess potential selection differences between the broader group of interested respondents and the final sample included in qualitative interviews.

Qualitative Analysis

Interview data were analyzed using an integrated approach combining rapid qualitative analysis and process mapping. Rapid qualitative analysis is a pragmatic analytic method designed to generate timely, actionable insights from qualitative data while maintaining methodological rigor (Hamilton & Finley, 2019; Kowalski et al., 2024). Process mapping is a systems-oriented approach used to visually represent sequences of actions, decision points, and interactions within service delivery processes (Antonacci et al., 2021; Trebble et al., 2010). These approaches are complementary and can be integrated to examine complex care pathways by systematically summarizing qualitative interview data to construct process maps that model routine service delivery and identify system-level barriers, decision points, and breakdowns across contexts (Antonacci et al., 2021; Kim et al., 2019; Frank et al., 2023). Accordingly, a two-phase analytic process was used to examine provider perspectives on pathways from trauma recognition to engagement in trauma-focused care for Latiné youth, with the goal of identifying sequences of care, decision points, and multilevel factors shaping these pathways.

In the first phase, a structured summary template was developed to guide data extraction. The principal investigator (PI) reviewed an initial subset of randomly selected transcripts (n = 4)

to create a template aligned with key domains from the interview guide, including provider role, treatment pathways, family engagement, language access, cultural responsiveness, barriers to care, and treatment engagement (see Appendix B). All transcripts were then summarized using this template in a concise, bullet-point format, with references to transcript line numbers to maintain linkage to the original data. Two undergraduate psychology research assistants with approximately two years of trauma-focused research experience independently summarized all transcripts and met weekly with the PI, a doctoral-level psychology student with expertise in trauma-focused treatment and implementation science, to review summaries, calibrate the analytic approach, and refine the template. The research team brought relevant positionality to this process: both assistants were first-generation immigrants (one Latiné, one Chinese), as was the PI (Latiné), informing the team's sensitivity to the linguistic, cultural, and structural dimensions of the data. The team engaged in reflexive discussion during weekly meetings to make explicit how their backgrounds shaped interpretation, leveraging cultural knowledge as an analytic resource while remaining accountable to the data. All summary templates were reviewed for accuracy, consistency, and completeness.

Summaries were then organized into a matrix to facilitate cross-case analysis (Kowalski et al., 2024) with rows representing providers and columns representing analytic domains. The research team systematically reviewed matrix entries to identify recurring sequences of care, key decision points, and factors influencing progression through treatment. Analysis focused on both convergence and divergence across cases.

In the second phase, findings from the matrix were translated into a visual representation of care pathways using process mapping. A structured workflow diagram was developed in Canva, a visual and graphic design platform, applying standard process mapping conventions,

including rectangles to represent process steps, diamonds to represent decision points, and arrows to indicate direction and flow (Antonacci et al., 2021b; Trebble et al., 2010). The pathway was bounded by defining the starting point as trauma recognition (e.g., provider or caregiver concern, behavioral or emotional symptoms, or trauma disclosure/screening prior to referral) and the end point as completion of trauma-focused treatment, while also incorporating alternative endpoints such as disengagement or referral out. Given the focus on post initial referral, the map captured additional steps required by trauma-focused providers to assess treatment appropriateness, evaluate youth and caregiver readiness, and address competing needs prior to initiating trauma-focused care.

Core process steps (e.g., evaluation phase and treatment selection and plan) were represented as rectangles and arranged sequentially to form the pathway backbone. Decision points were incorporated at stages where providers described clinical judgments that altered care trajectories (e.g., whether trauma was the primary concern or whether caregiver involvement was appropriate), and were represented as diamond-shaped nodes with branching pathways to reflect alternative outcomes. Arrows were used to represent flow and transitions, including both linear progression and branching pathways across the system. Iterative and non-linear processes were represented using loops, depicted as dashed curved arrows returning to earlier stages of care, based on recurring patterns in which providers described reassessing readiness, re-engaging families, or revisiting prior steps. Barriers and facilitators identified in the matrix were systematically examined to determine where they most strongly influenced treatment engagement. Analyses prioritized identifying bottlenecks, or points where progress consistently slowed or stalled due to the convergence of multiple barriers, particularly at steps or decision points where facilitating strategies were insufficient to restore forward progress or where

families were most likely to disengage from care entirely (Al Moteri et al., 2024). These bottlenecks were mapped onto the process map using distinct visual markers to identify where and why pathways to trauma-focused care most consistently broke down for Latiné youth and Spanish-speaking families.

The process map was refined iteratively through team discussions, with ongoing comparison to matrix summaries to ensure accuracy, internal consistency, and alignment between analytic findings and visual representation. The final product was a meta-process map synthesizing predominant patterns across all provider interviews, representing common pathways, decision points, loops, and bottlenecks shaping engagement in trauma-focused treatment.

Results

Sample Characteristics

Out of the providers who completed the screening survey, providers who completed the interview ($N = 14$) were more likely to hold a master's degree, whereas those who did not complete the interview were more likely to hold a bachelor's degree, $\chi^2(2, N = 45) = 12.6$, $p = 0.002$. Providers who completed the interview compared to those who did not were more likely to work with youth aged 12–17, $\chi^2(1, N = 47) = 5.30$, $p = 0.02$. There were no other differences in demographics between providers who completed the interview and those that did not (see Table 11).

Table 11

Provider Characteristics from Screening Survey by Interview Completion Status

Screening Variables	Total Completed Surveys (N = 47)		Did Not Complete Interview (N = 33)		Completed Interview (N = 14)		Statistical Test
	n	*%*	*n*	*%*	*n*	*%*	
Degree							$\chi^2(2, N = 45) = 12.6, p = 0.002$
Bachelors	17	37.8	17	37.8	0	0.00	
Masters	23	51.1	12	26.7	11	24.4	
Doctorate	5	11.1	2	4.4	3	6.7	
Currently Licensed (Yes)	36	76.6	27	57.4	9	19.1	$\chi^2(1, N = 47) = 1.69, p = 0.19$
Provided psychological services to Latine youth in Spanish (Yes)	47	100	33	70.2	14	29.8	--
Provided trauma focused psychological treatment for Latine youth diagnosed with PTSD or trauma related symptoms (Yes)	47	100	33	70.2	14	29.8	--
Provide services to 12–17-year-olds (Yes)	37	78.7	23	48.9	14	29.8	$\chi^2(1, N = 47) = 5.3, p = 0.02$
	M	*SD*	*M*	*SD*	*M*	*SD*	
Years of experience providing psychotherapy	6.10	4.61	5.91	3.48	7.14	6.96	$t(45) = 0.81, p = 0.42$

Note. -- All participants that completed the screening survey reported providing services in Spanish and delivering trauma-focused treatment to Latine youth (100% endorsement). Due to the absence of variability, statistical comparisons by interview completion could not be conducted for these variables.

Participants that completed the interview ($N = 14$) were on average 34 years old ($M = 33.79$, $SD = 7.73$, Range: 26-55). Most participants identified as female ($n = 12$; 85.71%) and

Hispanic or Latino (*n* = 9; 64.29%). Participants had on average 9 years (*M* = 9, *SD* = 7.15, Range: 1 - 22 years) of experience providing psychotherapy, and most had a master's-level degree (*n* = 11; 78.57%), and currently were licensed (e.g., LCSW/LMSW, clinical psychology: *n* = 9, 64.29%). Most participants (*n* = 8, 57.14%) had a current caseload of 26-75% trauma clients. Most providers used TF-CBT (*n* = 12, 85.71.%) to treat trauma.

All participants had previous experience working with Latiné youth, and about one third of the participants (*n* = 4, 33.33%) had a current caseload of 26-50% Spanish-speaking clients. Nine providers were Hispanic/Latine Spanish/English bilingual, three were non-Hispanic/non-Latine Spanish/English bilingual, and two were non-Hispanic/non-Latine English monolingual English speakers. There were no providers who were monolingual English speakers who identified as Hispanic/Latine. Six participants (42.86%) reported having used interpretation/translation services in the past. Reference Table 12 for sample characteristics.

Table 12

Sample Characteristics of Providers Interviewed

Characteristics	**Total Sample (N = 14)**	
	Frequency	Percentage
Gender		
Female	12	85.71%
Male	2	14.29%
Race		
White/European	7	50.00%
Mixed Race	2	14.29%
Other	5	35.71%
Ethnicity		
Hispanic/ Latino	9	64.29%

Non-Hispanic/ Latino	5	35.71%
Education		
Masters-level degree (e.g., MSW)	11	78.57%
Doctoral-level degree (e.g., Ph.D.)	3	21.43%
Licensed		
Yes	9	64.29%
No	5	35.71%
Trauma Caseload		
1-25%	1	7.14%
26-50%	7	50.00%
51-75%	3	21.43%
76-100%	3	21.43%
Spanish Speaking Caseload		
0%	2	14.29%
1-25%	4	28.57%
26-50%	6	42.86%
76-100%	2	14.29%
History with Interpretation Services		
Yes	6	42.86%
No	8	57.14%

	Mean	Standard Deviation
Age	33.79	7.73
Years of Experience Providing Psychotherapy	7.29	6.91

How do providers describe the pathways through which Latiné youth move from trauma recognition to engagement in trauma-focused mental health treatment?

Analysis of semi-structured interviews with providers that deliver trauma-focused care (N = 14) identified a multi-stage, non-linear pathway through which Latiné youth move from trauma exposure recognition to engagement in trauma-focused mental health treatment. Four core stages were identified: trauma recognition and referral routing, evaluation of trauma and contextual factors, treatment selection and planning, and treatment delivery and closure. Although these stages reflect a general sequence, movement across them was frequently iterative, with Latiné youth and families cycling between phases, encountering delays, or exiting and re-entering treatment at various points. Within each stage, embedded decision nodes shaped routing, determining whether youth progressed toward trauma-focused treatment, were redirected to alternative pathways, or returned to earlier stages before advancing.

Of note, provider counts reported throughout reflect the number of providers who described or endorsed each stage, decision node, or pathway feature, either in direct response to interview questions or through spontaneous elaboration during the interview. Furthermore, providers worked across three organizational contexts: child advocacy centers (n = 5), hospital and academic medical center settings (n = 5), and community mental health settings (n = 4). These settings reflect the composition of the sample rather than an exhaustive map of the child mental health system, and the pathways described below are anchored in the perspectives of providers practicing within these specific contexts.

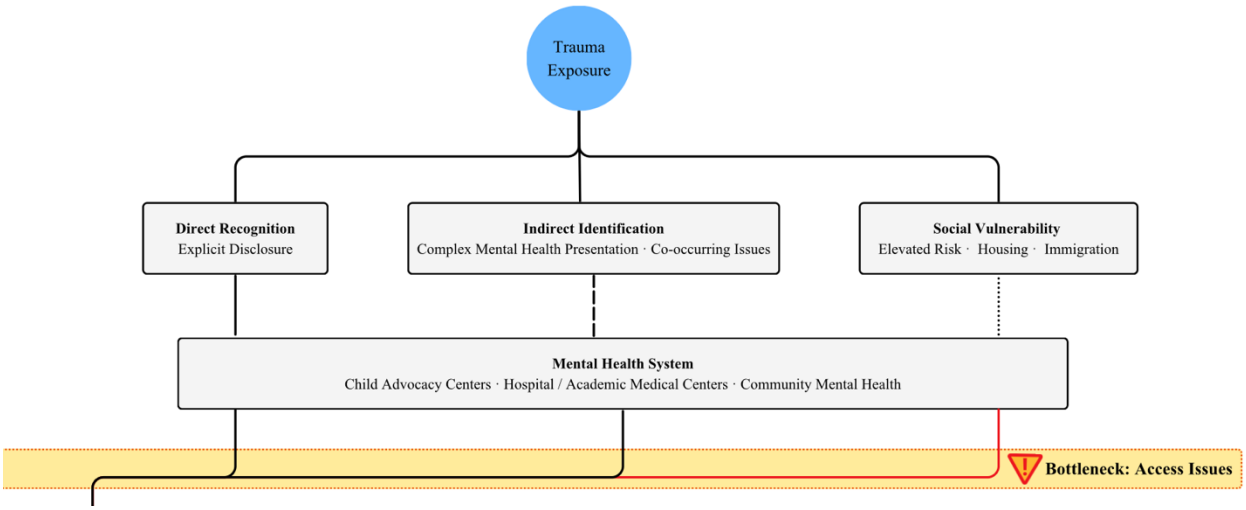
Stage 1: Trauma Recognition and Referral Routing

Providers described three pathways through which trauma was recognized and youth were connected to mental health services (see Figure 1), each varying in the degree to which

trauma was explicitly identified before service entry, the source and mechanism of referral initiation, and the urgency with which youth entered care. These pathways reflect descriptions provided predominantly by providers within three organizational contexts, child advocacy centers, hospital and academic medical center settings, and community mental health settings, and should be understood as anchored in the sample's composition rather than as exhaustive or mutually exclusive features of those settings. Cross-pathway referrals were common and are described below.

Figure 1

Process Map of Stage 1: Trauma Recognition and Referral Routing Pathways



Note. Solid lines indicate the Direct Recognition pathway. Dashed lines indicate the Indirect Identification pathway. Dotted lines indicate the Social Vulnerability pathway.

Direct Recognition Pathway. Providers working in child advocacy center settings (n = 5) most commonly described a direct recognition pathway, in which trauma was explicitly identified prior to referral, most commonly through a child's disclosure of abuse to a trusted adult, a mandated report filed by a teacher, physician, or social worker, or documented exposure to violence through law enforcement or child protective services involvement.

Child advocacy centers, such as the Children's Assessment Center in San Bernardino County and the Child Abuse Services Team in Orange County, provide coordinated, multidisciplinary responses to child abuse, bringing together forensic interviewers, medical professionals, mental health providers, victim advocates, law enforcement, and legal professionals within a single setting. Providers (n = 5) in these settings described populations in which the vast majority of youth had experienced sexual abuse, often perpetrated by a family member, and one provider noted that abuse frequently went undisclosed until adolescence, when acute concerns such as self-harm triggered investigation. Referral in these cases was often preceded by mandated reporting or forensic evaluation, meaning trauma was formally documented before the first clinical contact. Although child advocacy centers represented the predominant destination for this pathway, providers also described cases in which youth with documented trauma histories were referred to hospital or academic medical center settings when complex psychiatric comorbidities or crisis-level presentations warranted a higher level of clinical care.

Indirect Identification Pathway. Providers working in hospital and academic medical center settings (n = 5) most commonly described an indirect identification pathway, in which trauma was a dominant but often unnamed feature of the referral concern among the more clinically complex youth they served. Rather than entering care with a documented trauma history, youth were typically referred for comorbid mental health symptoms, substance use, or behavioral dysregulation (e.g., referred using functional terms such as youth "not behaving," "not paying attention," or "not listening") and in some cases did not present until symptoms had escalated to crisis, including acute hospitalization. As one provider noted, "probably 70 or 80% of youth that I have worked with have had trauma exposure," yet this history was frequently

unknown to the referral source and required active identification during assessment at a later stage. Youth identified through this pathway showed the broadest routing pattern across setting types, spanning from acute hospital presentations to functionally impairing behavioral and emotional difficulties identified through school-based contacts or outreach programs, where trauma remained unnamed but clinically suspected.

Social Vulnerability Pathway. Providers working in community mental health settings (n = 4) most commonly described a social vulnerability pathway, in which trauma was neither disclosed nor inferred from a clinical presentation, but was considered highly probable given broader life circumstances. These providers (n = 4) described serving youth experiencing homelessness, immigration-related stress, and unaccompanied legal status. Community mental health settings serving these youth frequently operated through school-based contracts or referral agreements, with teachers and social workers identifying concerning presentations and initiating contact. Across these settings, providers described approaching care with the working assumption that trauma was likely present even without formal disclosure. Unlike the direct and indirect identification pathways, youth described through this route were predominantly served within community mental health settings, as the outreach-oriented and school-linked structures through which they were identified tended to both recognize need and provide services within the same organizational context.

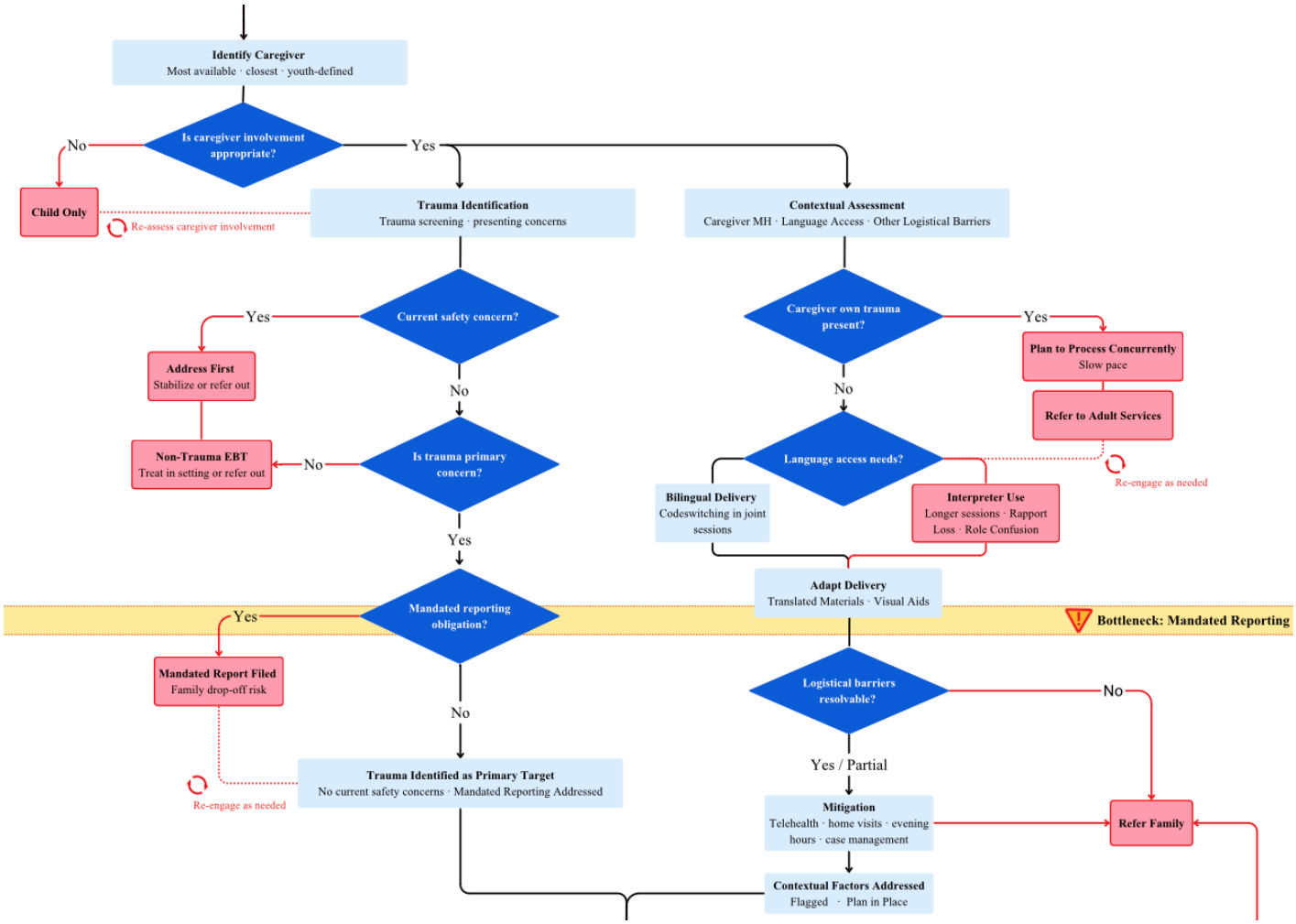
Stage 2: Evaluation of Trauma and Contextual Factors

Following initial mental health system entry, providers described an evaluation phase organized around two parallel assessment processes: trauma identification and contextual assessment (see Figure 2). Together, these processes constituted the primary decision-making

stage through which youth were assessed, safety concerns were managed, and a treatment plan was initially established.

Figure 2

Process Map of Stage 2: Evaluation of Trauma and Contextual Factors



Caregiver Involvement Decision. The evaluation phase began with an initial determination about whether caregiver involvement was appropriate and who that caregiver would be. Providers described identifying the family member who was most available, emotionally closest to the youth, or whom the youth themselves identified as family (n = 11). This determination functioned as a branching point: when caregiver involvement was deemed appropriate, assessment occurred with both youth and family. When it was not, providers

proceeded with a child-only approach while leaving open the possibility of re-assessing caregiver involvement at a later point in treatment (n = 2).

Trauma Identification. The first parallel assessment process involved a sequential series of clinical decisions beginning with safety screening, progressing through a determination of whether trauma was the primary clinical concern, and culminating in a mandated reporting check when abuse or neglect had been disclosed. Each decision node produced a distinct routing outcome, with the pathway either continuing toward trauma-focused treatment selection, branching into an alternative intervention route, or encountering an interruption that placed family re-engagement at risk.

Safety Screening. Safety screening represented the first formal decision node within the evaluation phase. Across providers, acute safety concerns, including self-harm, suicidality, and severe psychiatric presentations such as hallucinations, were consistently described as requiring immediate attention before trauma-focused work could begin, functioning as a gate between initial contact and the remainder of the assessment process (n = 11). When safety concerns were identified, the pathway branched: providers either stabilized the youth within the current setting before continuing, or referred to higher levels of care or psychiatric services, effectively pausing the trauma-focused pathway until safety was established. When no safety concerns were present, providers proceeded to the next decision node.

Trauma as Primary Concern. Following safety screening, the pathway reached its second sequential decision node: whether trauma was the primary clinical concern driving the referral (n = 10). This determination was consequential for routing. When trauma was not identified as the primary concern, the pathway branched away from trauma-focused treatment, such that providers offered other evidence-based treatments within the same setting or referred

the youth elsewhere (n = 5). When trauma was confirmed as the primary clinical target, the pathway continued to the next decision node. Regardless of the approach used to reach this determination, the output of this decision node was the same: a clinical confirmation that trauma was the organizing concern, which then led into the subsequent mandated reporting check and ultimately into trauma-focused treatment selection.

Mandated Reporting. When trauma identification revealed abuse or neglect, providers were required to file a mandated report. This obligation functioned as a discrete decision node embedded within the trauma identification process, positioned between the confirmation of trauma as the primary concern and the transition to treatment selection. When a report was filed, the pathway encountered its most acute risk of interruption, with providers consistently identifying mandated reporting as a significant family drop-off point (n = 5). When families remained engaged following the report, the pathway continued toward treatment selection. When families disengaged, they either exited the pathway entirely or re-entered at a later point, most commonly following a subsequent crisis or re-referral.

Contextual Assessment. Concurrent with trauma identification, providers conducted a contextual assessment addressing three domains: caregiver trauma, language access needs, and logistical barriers to care. Each domain functioned as its own decision node, producing a routing outcome that either resolved and allowed the pathway to continue, or triggered an adapted response before treatment selection could proceed.

Caregiver Trauma. Assessment of caregiver's own trauma represented the first contextual decision node, with the majority of providers describing this as a standard component of evaluation (n = 9). This assessment centered on whether the caregiver's own trauma history needs would affect their capacity to participate in and support the child's trauma-focused

treatment. When caregiver trauma was not present, the pathway continued toward treatment selection. When caregiver trauma was identified, the pathway branched: providers either determined they would process it concurrently within the child's treatment at a modified pace, or initiated a referral to adult trauma services. When a plan to address caregiver trauma had been established, this node was considered resolved and the pathway towards trauma treatment selection continued.

Language Access Needs. The second and third contextual decision nodes concerned factors that, rather than determining whether trauma-focused treatment would proceed, shaped the conditions under which it would be delivered. Language access was assessed by all providers from the outset of contact, with the outcome determining the delivery route for all subsequent clinical interaction (n = 14). When a bilingual provider was available and matched to the family's preferred language, services were delivered directly in Spanish or through flexible code-switching. When a bilingual provider was not available, the pathway routed through interpreter-mediated delivery. Interpreter-mediated delivery introduced a structurally slower and more complex route through the pathway: providers described communication delays, potential loss of clinical nuance, variability in interpreter quality, and cultural mismatches between interpreters and clients that were not present in the bilingual delivery route. One provider noted that interpreters sometimes needed to be scheduled 24 hours in advance, limiting real-time clinical responsiveness, while another described the cognitive burden of working through an intermediary as sometimes blurring the boundary between clinical and translation roles. Regardless of which route was taken, both required adaptation (e.g., translated clinical materials) meaning that language access needs did not branch the pathway away from trauma-focused

treatment but instead shaped how that treatment would be structured and delivered from entry onward.

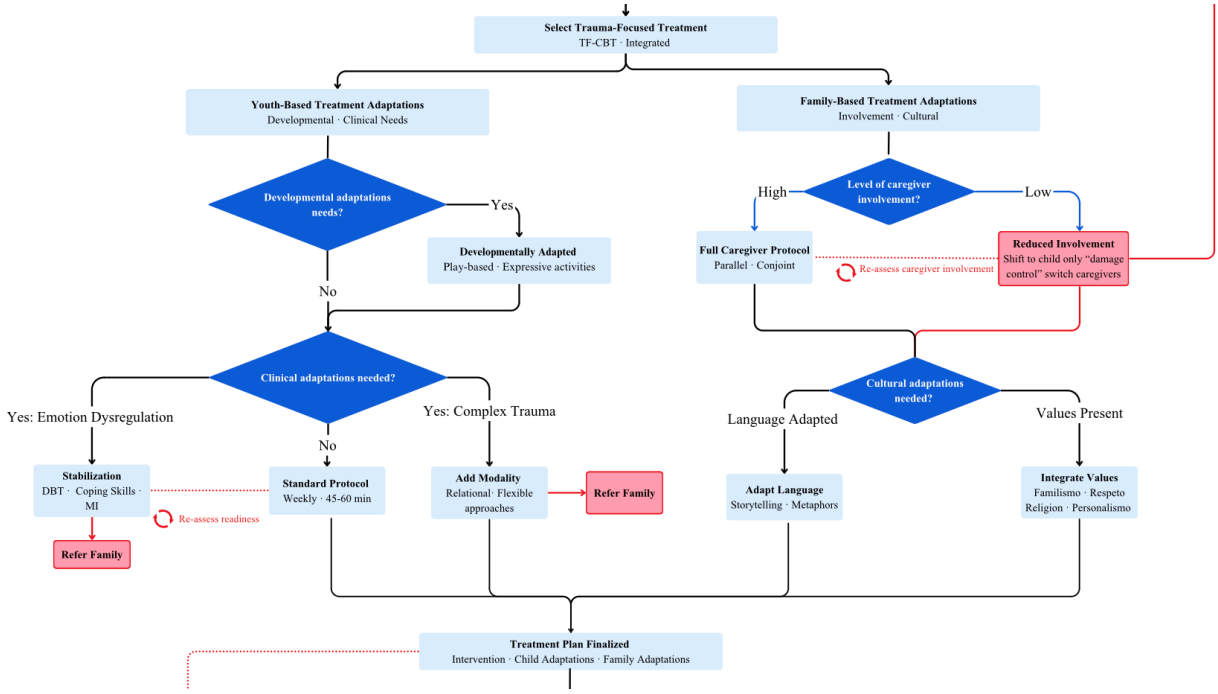
Logistical Barriers. Logistical barriers were assessed in a similar fashion, with providers evaluating whether factors such as transportation difficulties, work schedule conflicts, housing instability, financial strain, and limited technological access would prevent families from initiating or sustaining engagement (n = 10). When barriers were identified and at least partially resolvable, providers implemented mitigation strategies, including telehealth, home-based and school-based delivery, flexible scheduling, and case management, and the pathway continued toward treatment selection with those accommodations in place. Unlike language access, however, other structural barriers (e.g., documentation status and lack of insurance) could produce a more definitive routing outcome when they could not be resolved. In these cases, providers described referring families to lower-barrier services or connecting them to case management outside the agency rather than proceeding without a viable engagement plan, effectively redirecting the pathway to an alternative entry point (n = 3).

Stage 3: Treatment Selection and Planning

Following the evaluation phase, providers entered a treatment planning stage organized around two parallel processes: child-based adaptations and family-based adaptations (see Figure 3). These two levels of adaptations were assessed simultaneously rather than sequentially, with findings from each informing the structure and content of the finalized treatment plan. The output of Stage 3 was not simply a modality selection but a more nuanced treatment plan specifying the intervention, the nature and extent of adaptations, the caregiver's role in treatment, and the cultural and linguistic considerations that would shape the treatment delivery.

Figure 3

Process Map of Stage 3: Treatment Selection and Planning



Primary Intervention Selection. Providers described treatment selection as the stage at which a primary trauma-focused intervention was identified for Latiné youth presenting with PTSD or trauma as the primary clinical concern. Across interviews, Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) was the most consistently identified primary treatment approach (n = 12), with several providers describing it as their exclusive modality regardless of presentation complexity or family context. A subset of providers who primarily used TF-CBT also described Cognitive Processing Therapy (CPT) as a secondary or alternative option (n = 2). A smaller number of providers described using alternative frameworks as their primary approach to address trauma and PTSD from the outset (n = 2), including the Attachment, Regulation, and Competency (ARC) framework or integrated strategies (e.g., CBT, DBT-informed techniques, Motivational Interviewing).

Youth-based Adaptations. Following modality selection, providers assessed whether the selected intervention required adaptation based on two youth-level considerations: developmental needs and clinical complexity.

Developmental Adaptation. Providers first assessed whether the youth's age or cognitive level warranted modification of the standard protocol. For younger children or adolescents with developmental needs, the most common accommodation was the addition of play therapy or expressive activities alongside TF-CBT (n = 2). This reflected a clinical recognition that the standard TF-CBT protocol assumes a level of verbal and abstract reasoning that may not be developmentally appropriate for all youth, and that trauma processing may be more accessible through play-based or expressive modalities for younger children. For adolescents without identified developmental needs, providers described proceeding with the standard weekly session format of 45 to 60 minutes without modifications.

Clinical Adaptation. Providers then assessed whether clinical adaptations were required based on the youth's presenting symptoms or complexity. Three pathways emerged from this determination. When emotion dysregulation was identified as a primary concern, providers described a need to engage in a stabilization phase before initiating full trauma processing, delivering coping skills, affect regulation strategies, and in some cases DBT-informed techniques or motivational interviewing as preparatory components (n = 4). This stabilization work was understood as occurring within the TF-CBT framework rather than as a separate treatment modality, with readiness for trauma processing reassessed iteratively across sessions rather than established at a single point. When complex or multi-trauma presentations were identified, providers described shifting toward more relational and flexible approaches, adding modalities such as ACT, ARC, or integrative frameworks to address the breadth of clinical concerns (n = 3).

When neither condition was present, providers proceeded with the standard TF-CBT protocol. A refer-out pathway was available when clinical presentations exceeded the scope of the selected treatment, with a provider describing the importance of linking youth to more intensive levels of care when standard interventions were insufficient. For example, one provider described a case in which a youth required psychiatric referral before trauma-focused treatment could begin, as stabilization of acute symptoms was a prerequisite for engaging in trauma processing. Another provider referred a youth to more intensive levels of care (e.g. inpatient) when the complexity or severity of the presentation surpassed what outpatient treatment could safely address.

Family-based Adaptations. Simultaneously with the child-level adaptation decisions, providers assessed two family-level considerations that shaped how the selected intervention would be structured and delivered: the extent of caregiver involvement that was feasible and appropriate, and the cultural and language adaptations required to align treatment with the family's values and communication preferences.

Caregiver Involvement. The first family-level decision concerned the extent to which caregivers would be incorporated into the treatment. This determination produced one of two structural pathways. When caregivers were available, appropriate, and willing to participate, providers described planning a full caregiver protocol running in parallel to the child's individual sessions, including separate caregiver sessions, psychoeducation, homework supervision, and conjoint sessions at later stages of treatment (n = 9). When caregiver involvement was limited or not feasible, providers adapted the treatment plan through one of several pathways depending on the nature of the limitation. When a caregiver was present but had limited capacity, providers described shifting to a child-only delivery format, maintaining forward momentum through what one provider termed "damage control", such as managing youth symptoms without relying on

parental participation. When the primary caregiver was unavailable or inappropriate for involvement, providers described identifying and engaging an alternative caregiver, such as a grandparent or other trusted adult, to fulfill the caregiver role within the protocol. When caregiver involvement was not feasible in any form, providers described shifting to CPT as a less caregiver-dependent modality. Caregiver involvement was described as a dynamic rather than fixed determination, with providers reassessing feasibility as relationships developed, barriers shifted, and family circumstances changed across the course of treatment.

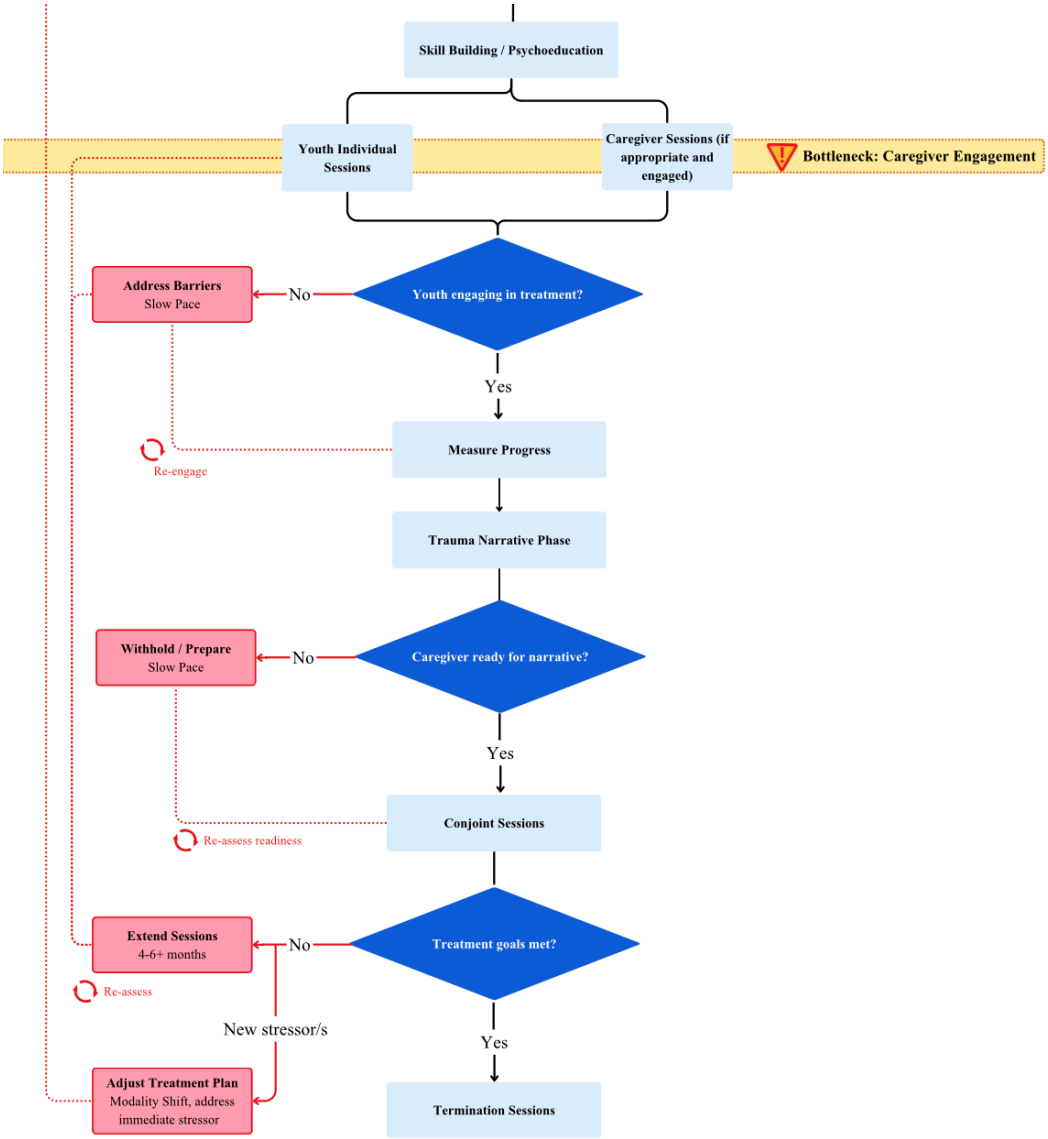
Cultural and Language Adaptation. The second family-level decision concerned cultural and language adaptation, which all providers described as necessary in the early stages of treatment rather than an improvised response during delivery. Two adaptation pathways were identified. The first extended the language access determination made during the evaluation phase into a more developed plan for how trauma-related concepts would be communicated throughout treatment. Rather than relying on direct clinical translations, providers described using descriptive, experience-based language and culturally grounded metaphors. The second pathway concerned the integration of Latiné cultural values into the treatment plan. All providers described incorporating cultural values to some degree (n = 14), though the formality of this assessment varied from structured tools such as the Cultural Formulation Interview to informal and conversational assessment through rapport-building. Commonly identified values included familismo, incorporated by framing treatment participation as an act of family care; respeto, which shaped communication goals and the balance between emotional expression and parental authority; religious and spiritual beliefs, integrated as sources of coping and meaning; and personalismo, which influenced the relational warmth providers brought to family contact.

Stages 4: Treatment Delivery and Closure

Following the finalization of the treatment plan, providers initiated treatment delivery (see Figure 4) organized around a concurrent skill-building and psychoeducation phase, followed by a sequential series of clinical decision points that determined whether and how the pathway advanced toward trauma processing and eventual completion of trauma-focused treatment.

Figure 4

Process Map of Stage 4: Treatment Delivery and Closure



Skill-building and Psychoeducation Phase. Trauma-focused treatment delivery began with a skill-building and psychoeducation phase that ran concurrently across two parallel tracks: youth individual sessions and, when appropriate and feasible, caregiver sessions. Youth individual sessions typically occurred on a weekly basis in 45 to 60-minute sessions and focused on psychoeducation about trauma responses, affect regulation, coping skills, and cognitive coping (n = 11). Caregiver sessions ran in parallel when caregivers were engaged and appropriate, focusing on psychoeducation, parenting skills, homework supervision, and strategies for reinforcing skills outside of sessions (n = 9). When caregiver trauma had been identified during the evaluation phase but adult services referral had not been established, this clinical need was addressed within the parallel caregiver sessions rather than deferred, with providers adjusting session pacing, delivering affect regulation and self-management skills, and in some cases offering bi-weekly individual caregiver sessions when the clinical demand exceeded what the standard parallel session format could accommodate (n = 5).

Engagement Decision. During the skill-building phase, providers assessed whether the youth was engaging meaningfully in treatment (n = 11). This determination functioned as a branching point: when youth were not engaging or only partially engaging, the pathway branched to an address barriers node focused on slowing the pace, using motivational interviewing, adjusting session content, or addressing logistical obstacles (n = 8). This was described as a re-entrant loop rather than a terminal exit, with providers returning to the concurrent delivery phase as engagement was re-established rather than proceeding to the trauma narrative prematurely. When youth were engaging, the pathway continued to a progress monitoring step before advancing to trauma narrative work.

Progress Monitoring. Prior to entering the trauma narrative phase, providers assessed whether progress in skill acquisition and symptom stabilization was sufficient to support trauma processing. Providers varied in how formally they conducted this assessment, with a subset using standardized measures administered at regular intervals (n = 6) and others relying primarily on clinical observation, caregiver report, and qualitative indicators of the youth's readiness (n = 5). This step served as both a clinical checkpoint and a re-entry point following periods of addressing barriers, ensuring that the pathway into narrative work was supported by observable readiness rather than simply by time elapsed.

Trauma Narrative Phase. Following progress monitoring, providers initiated the trauma narrative phase, during which youth developed and processed their trauma narrative through gradual exposure (n = 9).

Caregiver Readiness. Within this phase, a second decision node assessed whether the caregiver was ready to hear the trauma narrative (n = 7). When caregivers were not ready, the pathway branched to a withhold and prepare node in which the narrative was withheld, and additional psychoeducation and preparation were provided to the caregiver before re-assessing readiness (n = 3). This was described as a re-assessable loop that could cycle multiple times before the caregiver was sufficiently prepared to participate. When caregivers were ready, the pathway advanced to conjoint sessions.

Conjoint Sessions. Conjoint sessions brought youth and caregiver together to share the trauma narrative, facilitate relationship repair, and support the caregiver’s validation of the youth’s experience (n = 7). This was described as a critical integrative stage in which the parallel youth and caregiver work converged before the pathway moved toward closure.

Treatment Goals Decision. Following or during conjoint sessions, providers assessed whether treatment goals were being met (n = 11). This determination produced three distinct routing outcomes. When goals were met, the pathway advanced to termination sessions, during which providers conducted final outcome assessments, developed safety and relapse prevention plans, and engaged in a culturally meaningful farewell process before discharging the youth (n = 9). When goals were not yet met, the pathway branched to an extend sessions node, with treatment duration extended by four to six months or longer depending on the complexity of the clinical presentation, and a re-assessment loop returning the pathway to the active delivery phase (n = 3). When new stressors had emerged during treatment, the pathway branched to an adjust treatment plan node, which encompassed two sub-pathways: addressing the immediate stressor through stabilization or resource linkage (n = 4) or returning to address engagement barriers that the new stressor had reactivated (n = 5). Both sub-pathways looped back into the delivery phase rather than progressing toward closure, reflecting the non-linear trajectory that characterized engagement in trauma-focused treatment for many families seen by the providers in this sample.

How do the barriers and facilitators providers identify map onto specific bottlenecks in the trauma care pathway for Latine youth and their families?

Analysis of the multilevel barriers and facilitators shaping the trauma care pathway (summarized in Table 13) revealed three discrete bottlenecks at which disruption to treatment engagement was most concentrated: access issues at Stage 1 (Figure 1), the mandated reporting node at Stage 2 (Figure 2), and caregiver engagement across the treatment delivery in Stage 4 (Figure 4).

Table 13

Summary of Barriers and Facilitators Affecting Pathway Stages

Level	Factors	Type	Pathway Stages Affected	Providers Endorsed (n)
Family-level factors	Mental health stigma and delayed help-seeking	Barrier	S1: delays recognition; families seek care at crisis S2: minimization during assessment S4: resistance to engagement; religious alternatives	8
	Youth concealment and avoidance	Barrier Bottleneck – Mandated Reporting	S1: delays recognition; hides symptoms from referral source S2: underreports on standardized measures S4: resists trauma narrative engagement	5
	Fear of system involvement (DCFS)	Barrier Bottleneck – Mandated Reporting	S1: underreporting of abuse and neglect S2: acute drop-off after mandated report filed S2: withholds information during assessment	6
	Caregiver trauma and limited capacity	Barrier Bottleneck – Caregiver Engagement	S2: dysregulation slows contextual assessment S3: shapes caregiver involvement decision S4: slows treatment pace; triggers modality shift	9
	Caregiver resistance to mental health treatment	Barrier Bottleneck - Caregiver Engagement	S3: drives modality shift from family to child only S4: triggers address-barriers loop S4: premature termination at goals-met node	4
	Competing survival demands and family stress	Barrier Bottleneck - Caregiver Engagement	S4: recurring disruptions to attendance and engagement S4: triggers new stressor loop; defers narrative phase S4: premature termination when improvement perceived	6
	Family support and familismo	Facilitator	S1: motivates proactive help-seeking S2: caregiver belief validates trauma assessment	10

			S4: reinforces skills; improves treatment generalization	
Provider-level factors	Trauma-informed assessment approach (structured)	Facilitator	S1: active screening for embedded presentations S2: standardized measures (UCLA PTSD, CPSS, RCADS) establish diagnostic basis S4: clearer goals-met determination	5
	Observation-based assessment approach	Barrier	S2: less formal documentation; variable accuracy S2: extends evaluation timeline for avoidant youth S4: harder to demonstrate progress to caregivers	5
	Delayed trauma inquiry (rapport first)	Facilitator	S2: improves assessment accuracy for immigrant; distrustful youth S4: improves engagement durability Trade-off: extends evaluation timeline	4
	Provider bilingualism	Facilitator Bottleneck - Access	S1: enables entry without interpreter delays S2: more thorough contextual and cultural assessment S4: real-time adaptation; code-switching; narrative	9
	Cultural humility and values integration	Facilitator	S1: reduces initial resistance to care S2: frames psychoeducation in resonant terms S4: improves engagement and skill generalization	10
	Systemic burnout and caseload demands	Barrier Bottleneck – Caregiver Engagement	S4: limits relational flexibility for re-engagement S4: reduces capacity to sustain address-barriers loops	2
	Training level and supervision constraints	Barrier	S3: adaptation decisions more constrained S4: translation burden falls on individual provider S4: turnover disrupts therapeutic relationship	5

System-level Factors	Absence of Spanish-speaking providers	Barrier Bottleneck - Access	S1: limits referral options; no referral if none available S2: interpreter-mediated pathways longer and less accurate S4: adaptation burden falls on individual provider	5
System-level Factors	Documentation status and insurance ineligibility	Barrier Bottleneck - Access	S1: funnels families into narrow low-barrier options S2: caution about disclosure; limits assessment completeness S4: blocks caregiver referral to adult services	6
	Interpreter use (structural complications)	Barrier Bottleneck - Access	S2: longer sessions; rapport loss; dialect mismatch S4: role confusion; loss of clinical nuance S2: provider resistance to interpreter use	5
	Flexible delivery models (telehealth, outreach, school)	Facilitator	S1: enables contact with social vulnerability pathway S2: reduces logistical burden for assessment attendance S4: critical retention mechanism; reduces loop frequency	8
	Translated and culturally adapted materials	Facilitator	S2: reduces per-case assessment adaptation burden S3: enables more consistent cultural adaptation planning S4: facilitates psychoeducation delivery	3
	Therapist turnover	Barrier Bottleneck – Caregiver Engagement	S4: disrupts narrative and conjoint session phases S4: inserts unplanned rapport-building loops S4: weakens continuity at closure	2
	Sociopolitical stressors and structural racism	Barrier	S1: suppresses help-seeking during enforcement periods S2: increases guardedness during assessment S4: disrupts sessions; addressed as clinical content	6

Bottleneck in Stage 1: Access Barriers at Point of Referral

The most consistently identified bottleneck occurred at the point of referral to services, embedded within Stage 1, where providers described a clustering of barriers that arose before families reached formal intake and assessment. Providers described Latiné youth for whom trauma had been recognized but who could not be matched to a service setting because one or more of these barriers could not be resolved, resulting in families being redirected toward lower-barrier options such as community mental health outreach programs or exiting the pathway entirely before any formal clinical contact had been established.

Two primary clusters of access barriers converged at this node. The first cluster of access barriers was related to language and provider availability at the provider (n = 9) and system level (n =10). The absence of bilingual or Spanish-speaking providers was identified as the most consequential access barrier for Latiné families, limiting which settings families could be realistically referred to and, in some cases, resulting in families not following through on referrals at all when no linguistically concordant provider was locally available. When Spanish-speaking providers were unavailable, providers noted that some families had been required to bring their own family members to serve as interpreters at the very first point of contact, a practice that compromised confidentiality and complicated trauma disclosure. Together, language access gaps and limited provider availability often determined whether families could enter the pathway at all.

The second cluster of access barriers was related to documented status and insurance eligibility, which were the most structurally resistant to mitigation (n = 6). Unlike other logistical barriers that providers could address through flexible scheduling or telehealth, documentation-related barriers were structural in nature and redirected families toward a narrower set of low-

barrier healthcare options, such as grant-funded outreach programs or federally qualified health centers, regardless of clinical need or trauma severity.

The severity of access barriers varied by recognition pathway in ways that shaped not only whether families entered the pathway but how they entered it. Youth entering through the direct recognition pathway (n = 5) arrived with trauma already formally documented through forensic or investigative processes, meaning access in the traditional sense was less frequently the primary challenge. Instead, providers noted that extensive prior forensic involvement sometimes produced resistance to further engagement, with families who had already navigated law enforcement, child protective services, and forensic interviews sometimes viewing structured evidence-based treatment as redundant or burdensome, making treatment readiness rather than access the primary obstacle at this node.

Youth entering through the indirect identification pathway (n = 5) encountered a distinct set of access challenges. These families often presented in hospital or academic medical center settings with complex, co-occurring clinical needs, including comorbid mental health symptoms, substance use, and behavioral dysregulation, alongside logistical and linguistic barriers. Because trauma was not typically named as the primary reason for referral in this pathway, families were not always routed to trauma-specialized services from the outset, meaning the access barrier for this group was not simply getting into a service setting but getting into the right service setting.

Youth entering through the social vulnerability pathway presented with the lowest treatment readiness at entry and the highest concentration of access barriers (n = 4). Low treatment readiness in this group reflected not a lack of clinical need but a fundamental mismatch between the immediate priorities of families and the structure of formal mental health services: youth experiencing homelessness, undocumented immigration status, or recent arrival were more

immediately focused on safety, housing, legal status, and basic survival than on initiating structured trauma-focused care. As a result, relationship-building and basic needs coordination, including connections to housing support, legal resources, and case management, functioned as necessary preconditions before any structured trauma-focused work could begin. Access barriers for this group included not only language access and documentation status but also the absence of a stable contact point, lack of insurance or identification documents required by many service settings, and the practical difficulty of maintaining consistent contact with a population whose living circumstances were frequently unstable. When these barriers could not be resolved, youth in this pathway were most likely to be redirected toward outreach-based services, settings with no formal intake requirements and flexible attendance expectations, or to exit the pathway entirely, making the Stage 1 to Stage 2 transition the most prolonged and uncertain of the three recognition routes.

Bottleneck in Stage 2: Mandated Reporting

The second bottleneck interrupted progression at a specific decision node within Stage 2 that could not be bypassed once triggered. When trauma identification revealed abuse or neglect, providers were legally obligated to file a mandated report, and this obligation produced the most acute family drop-off risk in the entire pathway.

Two dynamics amplified the drop-off risk at this node in ways that also affected the decision nodes preceding it. First, fear of DCFS contact shaped family behavior before the mandated reporting node was reached: youth (n = 5) and families (n = 6) who anticipated a reporting obligation sometimes withheld or minimized trauma disclosures during assessment, which compromised the completeness of trauma identification and delayed arrival at this decision point altogether. For instance, one provider described abuse and neglect as

systematically underreported for this reason, while another described families seeking services only at crisis points such as self-harm or suicide attempts in part because earlier disclosure carried the risk of system involvement (n = 8). Second, the drop-off risk was compounded among undocumented families, for whom system contact carried consequences related to immigration status that extended well beyond the clinical encounter, effectively making this node more dangerous for the families already most constrained by the Stage 1 access bottleneck (n = 6).

Providers described transparency about reporting obligations, early psychoeducation about confidentiality limits, and active relationship maintenance following a filed report as the primary strategies for reducing drop-off risk (n = 10). However, providers acknowledged that some family disengagement was difficult to prevent regardless of clinical effort, positioning this as the clearest example of a bottleneck produced by the structure of the pathway itself rather than by modifiable clinical or family-level factors.

Bottleneck in Stage 4: Caregiver Engagement during Treatment Delivery

The third bottleneck was the most temporally extended, operating not at a discrete decision node but as a recurring source of disruption across the entire treatment delivery stage. Consistent caregiver engagement emerged as the most persistent challenge during this phase, repeatedly requiring providers to cycle back to barrier-addressing before treatment could advance, delaying progression to the trauma narrative phase and, in some cases, resulting in premature termination before treatment goals had been achieved. What distinguished this bottleneck from the two that preceded it was its cumulative and dynamic character: rather than concentrating at a single structurally fixed decision point as with mandated reporting or the initial referral, it reflected the compounding interaction of family, provider, and system-level

factors that accumulated and shifted across the course of treatment, making it both harder to anticipate at any given session and more resistant to resolution through any single clinical or structural strategy.

Three dynamics within the process map were most directly shaped by this bottleneck. First, caregiver logistical demands, including competing work schedules, multiple jobs, and caregiving-related responsibilities, were the most consistent drivers of re-entry into the address-barriers loop at Stage 4 (n = 6). As one provider explained, “A lot of our families… the parents or caregivers are working very long hours, so they don’t have time to have a session within our clinic’s hours.” Providers framed these not as exceptional circumstances but as predictable features of the treatment trajectory for many Latiné immigrant families.

Second, unresolved caregiver trauma directly shaped two sequential decision nodes within Stage 4 (n = 9): when caregivers had not received their own clinical support, providers described needing to modify session structure and in some cases shift modality before meaningful trauma-focused work could proceed, and the caregiver readiness check for the trauma narrative was more likely to produce a withhold-and-prepare loop, sometimes cycling multiple times before conjoint sessions could be reached. Providers who had actively worked with caregivers on their own trauma history during the skill-building phase described more caregiver involvement, suggesting that earlier investment in caregiver support functioned as a facilitator of narrative phase progression.

Third, caregiver resistance (n = 4) and disbelief in mental health treatment (n = 8) were additional barriers, with one provider describing it as a direct driver of the decision to move to a child-only treatment approach. This was seen as a pragmatic response to family dynamics that made full caregiver involvement unfeasible rather than a clinically preferred option. At the

closure stage, premature termination was driven by caregiver perception that sufficient improvement had occurred, resulting in families exiting the pathway before treatment goals had been formally met. This pattern positioned the closure decision not as a clean endpoint but as a continuation of the same caregiver engagement challenge that had recurred throughout delivery, with providers describing reiterating remaining progress as the primary strategy for preventing early exit at this stage.

At the provider and system levels, two interconnected factors shaped providers' ability to support consistent caregiver engagement across the treatment delivery stage. Systemic burnout driven by high productivity demands and structural constraints (n = 2), particularly in community mental health settings, reduced providers' capacity to invest the relational time and flexibility needed to re-engage caregivers following attendance disruptions, making it harder to maintain the continuity of caregiver participation that trauma-focused treatment requires. Furthermore, therapist turnover (n = 2) and training/supervision constraints (n = 5) compounded this problem in a distinct way: when providers transitioned out of cases, particularly for trauma-focused treatment during the trauma narrative or conjoint session phases, caregivers who had developed trust with one provider were required to rebuild that relationship with a new provider before caregiver-involved treatment components could resume.

Discussion

This study examined provider perspectives on the pathways through which Latiné youth move from trauma recognition to engagement in trauma-focused mental health treatment, and the bottlenecks that disrupt these pathways across different types of healthcare settings. Analysis of semi-structured interviews with providers that deliver trauma-focused treatment identified a multi-stage, non-linear pathway organized around four core stages and a series of embedded

clinical decision points. Rather than functioning as a linear sequence from identification to treatment, the pathway was characterized by iterative movement, recurring interruptions, and branching routes that determined whether youth progressed toward care, experienced delays, or disengaged from services entirely. Consistent with this study's hypotheses, multilevel factors operating at the family, provider, and system levels shaped engagement across all stages, with three structurally embedded bottlenecks (i.e., at the point of initial access, at the mandated reporting node, and across the treatment delivery stage) emerging as the most consistent sources of disruption in care.

Reconceptualizing Engagement as a Multi-Stage, Decision-Driven Process

A central contribution of this study is the demonstration that engagement in trauma-focused care is not a discrete outcome determined at a single point, such as referral or attendance at the first intake appointment, but a dynamic clinical and organizational process that unfolds across multiple stages, each presenting opportunities for progression or disengagement. This finding aligns with emerging conceptualizations of engagement that extend beyond attendance metrics to encompass the relational, expectancy, and clarity-related processes that develop across the course of care (Chorpita & Becker, 2022; Lakind et al., 2022). Prior research has largely examined engagement through attendance patterns, which is a narrow operationalization that overlooks the complex, multifaceted nature of how youth and families sustain participation in mental health services (Lakind et al., 2022). The present findings advance this literature by situating engagement within a process framework that clarifies not only what barriers exist but where and how breakdowns occur when delivering trauma-focused treatment.

Providers in this study demonstrated that delivering trauma-focused treatment included continuously triaging care within complex, resource-constrained environments, making real-time

decisions about trauma identification, language access, caregiver participation, and treatment readiness that collectively shaped whether youth reached and sustained engagement in care. Given that these findings are based on providers' own accounts of their decision-making, the resulting process map should be interpreted as a description of current practice rather than validating it. Several of the decision points, particularly those involving caregiver participation, are considered further in terms of what they may reveal about unmet provider needs rather than clinical decisions based on evidence-based practices. This pattern is consistent with prior research documenting that provider decision-making in trauma-related care is shaped by training, role expectations, and perceived capacity to respond to trauma disclosures (Ridings et al., 2022; Weinreb et al., 2010), and extends that literature by mapping how these provider-level decisions interact with family and system-level factors to produce specific pathway trajectories. Importantly, providers described engaging in extensive "pre-treatment" work, including stabilization, psychoeducation, caregiver engagement, system navigation, and coordination of basic needs resources, before evidence-based trauma interventions could begin. This work is not ancillary to treatment; rather, caregiver engagement and ongoing efforts to address practical and relational barriers are core components of successful trauma-focused interventions and strongly influence treatment participation and outcomes (Yasinski et al., 2016). The present findings demonstrate that these activities are central to the care pathway and often determine whether trauma-focused treatment occurs at all. This also highlights a critical mismatch between the structure of manualized trauma treatments (Cohen & Mannarino, 2015) and the realities of clinical practice (Braathu et al., 2026), where providers must address multiple competing demands before the conditions for trauma processing can be established (Meléndez Guevara et al., 2021). Observational research on community therapist delivery of TF-CBT corroborates this,

finding that therapists made augmenting adaptations (e.g., integrating supplemental strategies and modifying presentation of content) in the majority of sessions (Yu, 2024), suggesting that structured trauma treatment routinely requires providers to draw on practice-based knowledge beyond what the manual prescribes.

Bottlenecks as a Key Mechanism Driving Disengagement and Disparities

A distinctive contribution of this study is the identification and characterization of bottlenecks, structurally embedded points in the care pathway where multiple barriers converge and consistently disrupt progression toward treatment regardless of individual family or provider characteristics. This process-oriented perspective reframes disparities in engagement not as the product of isolated barriers but as the cumulative effect of their accumulation at critical decision points. Prior research, including our own, has identified linguistic, structural, and cultural barriers to mental health engagement among Latiné youth as discrete factors (Aguilar Silvan et al., under review; Stafford & Draucker, 2020). The current study extends this work by demonstrating that these factors function as process disruptions, operating within and across pathway stages, clustering at specific nodes, and compounding in ways that a variable-centered approach cannot fully capture.

The first bottleneck, located at the referral decision within Stage 1, operated upstream of formal intake and determined whether families entered the pathway at all. This bottleneck was produced by the simultaneous convergence of multiple access factors, including language availability, provider availability, documentation status, and insurance eligibility, that functioned as gatekeeping mechanisms before any clinical contact had been established. Among Latiné families, language access emerged as the most consequential factor, with the absence of bilingual providers limiting referral options and, in some cases, resulting in no referral at all, underscoring

how language functions not merely as a communication variable but as a structural determinant of care access (Aguilar Silvan et al., under review; Bifulco et al., 2023). Documentation status and insurance ineligibility constituted a second, equally resistant cluster of structural barriers that typically fall outside the scope of individual provider or clinic-level intervention; representing systemic inequities in healthcare access that providers are neither positioned nor equipped to resolve through treatment adaptations alone (Handtke et al., 2019).

A key finding across all three recognition pathways was that even after trauma had been identified, access barriers at the point of referral frequently shaped *where* youth were sent rather than simply whether they received care. Families who could not be matched to specialty or linguistically concordant settings were often redirected toward lower-barrier community options that, while more accessible, frequently lacked the trauma-specialized resources, bilingual providers, and institutional infrastructure needed to deliver evidence-based care. The absence of facilitators at this bottleneck was as consequential as the presence of barriers. When low-barrier access models, including outreach programs, school-based services, telehealth, and grant-funded sliding-scale options, were not available, families had no viable route into the pathway regardless of clinical need. These findings are grounded in the experiences of providers across three organizational contexts (i.e., child advocacy centers, hospital and academic medical center settings, and community mental health settings) and should be interpreted with the understanding that pathways through school, juvenile justice, and other settings not represented in this sample remain limited. Within the sample's represented contexts, findings are consistent with broader evidence that youth facing disproportionately high structural barriers are systematically funneled away from specialty care (Hefner et al., 2021) and suggest that access failures at this bottleneck

contribute meaningfully to the persistent gap between trauma identification and service engagement documented in prior literature (Bower & Gilbody, 2005; Rancher et al. 2025).

The second bottleneck occurred at the mandated reporting node within Stage 2. Here, the bottleneck refers not to the reporting requirement itself, which is a fixed legal obligation that this study neither questions nor proposes to change, but to the concentration of family drop-off risk that occurs at this node regardless of the strength of the therapeutic relationship established beforehand. This node was structurally distinct from the others in that, once triggered, it could not be bypassed or avoided through clinical effort alone; rather, the bottleneck lies in the disruption surrounded the requirement, which can possibly be mitigated through preparation and follow-up even though the requirement itself cannot. The acute family drop-off risk associated with mandated reporting was compounded by two dynamics: fear of child welfare contact leading families to withhold trauma disclosures during assessment, and the amplified consequences of system contact for undocumented families. As documented in prior literature, involvement with child protective services may carry immigration-related concerns and fears of family separation for these families (Douglas &Walsh, 2015). Providers in this study described this second dynamic as a concern for undocumented families in their caseloads, though this study sample did not include a comparison group for non-immigrant or non-Latiné families, and the current data cannot establish whether the risk is elevated relative to other youth populations. These findings reveal a structural tension embedded within the trauma care pathway, in which the legal obligation to report suspected abuse and the therapeutic obligation to preserve trust and maintain family engagement can operate at cross purposes. This tension represents a well-documented ethical dilemma for clinicians, who must balance statutory reporting requirements with the potential impact of reporting on the therapeutic alliance and treatment retention (Harrell

& Wahab, 2022; Tufford et al., 2019). The present findings suggest that supporting family retention following mandated reporting requires explicit clinical protocols and proactive psychoeducation strategies that extend beyond standard practice, including preparing families for the reporting process, clarifying what to expect, and providing structured follow-up after child protective services involvement (Tufford et al., 2019).

The third bottleneck, caregiver engagement across the treatment delivery phase, was the most temporally extended and the most consequential for treatment completion. Consistent with prior research documenting the central role of caregiver involvement in youth trauma treatment outcomes (Stafford & Draucker, 2020; Yasinski et al., 2016), the present findings demonstrate that caregiver participation is not a stable condition established at treatment outset but a dynamic and repeatedly renegotiated process shaped by logistical demands, unresolved caregiver trauma, resistance to mental health treatment, and structural instability. Providers described responses ranging from intensified outreach and caregiver skill-building to scaling back caregiver-focused components when caregivers seemed unable or resistant. Given that caregiver involvement is a core, evidence-supported component to trauma treatments for youth (Stafford & Draucker, 2020; Yasinski et al., 2016), diverting away from this component likely reflects unmet provider training and consultation needs for engaging reluctant or overwhelmed caregivers rather than a clinically indicated judgement that such involvement was unnecessary for a given child. This might suggest that part of the attrition attributed here to caregiver-level barriers may be understood as a target for provider-facing and system-level intervention (Lau et al., 2020). The compounding nature of this bottleneck, driven by family, provider, and system-level factors interacting across the course of treatment, suggests that interventions targeting caregiver engagement at a single point are unlikely to be sufficient. Rather, sustained and flexible

caregiver support must be built into the structure of treatment delivery itself. This finding also extends prior literature on premature dropout (Youn et al., 2019) by locating premature termination not as a discrete outcome but as the final manifestation of a protracted engagement bottleneck that had been accumulating across multiple delivery phase decision points.

Implications for Delivering Trauma-Focused Care to Latiné Youth and Families

These findings carry particular salience for providers and healthcare settings delivering trauma-focused care to Latiné youth. Latiné youth experience disproportionately high rates of trauma exposure and trauma-related symptoms, with estimates suggesting that 30 to 50 percent of adolescents in safety-net and federally qualified healthcare settings exhibit symptoms consistent with PTSD (Ng et al., 2022; Selwyn et al., 2019) yet simultaneously face the greatest concentration of structural barriers identified in this study. Across the academic medical center, community mental health, and child advocacy center settings represented in this sample, trauma identification was insufficient on its own to ensure service connection. Without structured pathways guiding providers from identification through referral to sustained treatment engagement, screening efforts may risk identifying trauma without meaningfully improving access to care; a pattern documented in prior research showing that many clinical sites lack the referral infrastructure and follow-up systems necessary to connect identified youth to services (Cabassa et al., 2006; Garrow & Wimsatt, 2021; Hefner et al., 2021; Perez Jolles et al., 2021; Pérez Jolles et al., 2022; McClendon et al., 2020).

For Spanish-speaking Latiné families, the present findings point to language access as a system-level clinical need that extends well beyond interpreter availability. Language barriers emerged not only at intake but across every stage of the pathway, from the initial referral routing decision through trauma narrative processing. Addressing language as a core structural

determinant of pathway progression requires investment in a bilingual workforce, training for mental health interpreters in trauma-specific clinical terminology, and development of translated and culturally grounded clinical materials; none of which can be substituted by on-demand interpreter services alone (Acharya et al., 2017; Bancroft, 2022; De Marchis et al., 2019; Estrada et al., 2018; Kohrt et al., 2025; Valencia-Garcia & Montoya, 2018; Woodward et al., 2020; Woll et al., 2020). The finding that some families brought their own family members as interpreters at first contact, a practice that compromised confidentiality and complicated early trauma disclosure, illustrates the clinical consequences of treating language access as a logistical accommodation rather than a fundamental component of care infrastructure across all service settings. These challenges are compounded by the fact that Spanish-speaking families comprise a substantial proportion of patients served across the settings represented in this study (Bifulco et al., 2023). Consistent with this interpretation, observational research on TF-CBT delivery found that sessions conducted in Spanish or Mandarin compared to English were associated with a 95% decrease in the odds of therapist-reported client disengagement during sessions (Yu, 2024), underscoring that language concordance is not merely a logistical consideration but a clinically meaningful determinant of engagement in trauma-focused treatment.

The recognition pathway through which youth entered care also shaped subsequent engagement challenges in ways that have direct implications for how different service settings structure their approach to Latiné families. Providers in community mental health settings most commonly described youth entering through the social vulnerability pathway as presenting with the greatest distance between first contact and formal treatment engagement, with relationship-building and stabilization functioning as necessary preconditions before structured trauma-focused work could begin. This finding aligns with research showing that immigrant and socially

marginalized youth often require extended engagement efforts to address immediate needs related to housing instability, legal concerns, and basic resources before specialty mental health treatment becomes feasible (Bounds et al., 2020). This suggests that providers and systems serving homeless, undocumented, and recently immigrated Latiné youth may need to adopt fundamentally different models of care entry (Filges et al., 2022). For instance, outreach and initial contact may need to be conceptualized as the beginning of the therapeutic relationship rather than merely a precursor to treatment, and stabilization and case management may need to be integrated into trauma-focused services rather than treated as separate concerns (Willis et al., 2023).

Limitations

Several limitations should be considered in interpreting these findings. First, the study relied exclusively on provider perspectives, which may not fully reflect the experiences of youth and families navigating these pathways. Future research should examine pathway trajectories from the perspectives of youth and caregivers directly, which may reveal additional decision points, barriers, and sources of resilience not captured in provider accounts (Frank et al., 2023). Second, the sample was limited to 14 trauma-focused providers predominantly working with Spanish-speaking Latine families across three organizational contexts, including child advocacy centers, hospital and academic medical center settings, and community mental health settings. The pathways described in this study are anchored in the perspectives of clinicians practicing within these specific contexts and should not be interpreted as an exhaustive map of the child mental health system. For instance, this study did not include providers from forensic settings, juvenile justice, or predominantly school-based mental health systems, which may represent distinct entry points and pathway structures for subsets of trauma-exposed Latiné youth. As such,

the degree to which findings generalize beyond the organizational contexts sampled here remains unknown. Third, the process map generated in this study is based on provider descriptions of their approach to care rather than direct observation or clinical record review of their work. The actual sequencing and branching of care decisions may differ from how providers describe them retrospectively. Relatedly, given that these pathways are derived from provider self-report, this study is not positioned to independently verify whether individual decisions, including decisions to scale back caregiver involvement or lower intensity trauma treatments, reflect optimal care for a given child (i.e., mapping a decision pattern documents its frequency and context but does not establish its clinical merit). Fourth, while the bottleneck framework provides a useful analytic lens for identifying where disruption concentrates, it should be understood as a conceptual tool for organizing findings rather than a formally validated construct. Future research should examine whether the bottlenecks identified here replicate across provider samples and settings, and whether targeting these bottlenecks with specific interventions produces measurable improvements in pathway progression and treatment engagement.

Conclusion

These findings highlight a critical gap between trauma identification and sustained engagement in trauma-focused care for Latiné youth and provide a more precise and actionable understanding of where and why that gap emerges. By demonstrating that barriers do not operate in isolation but cluster at structurally predictable bottlenecks within the care pathway, this study moves beyond cataloguing what impedes engagement to clarifying how breakdowns unfold within clinical practice. The identification of three bottlenecks, at the referral point, at the mandated reporting node, and across the treatment delivery phase, provides a framework for

targeting intervention efforts at the points of greatest clinical and organizational leverage rather than addressing barriers one at a time.

At the access filter bottleneck, the most impactful targets are language infrastructure and documentation-related access barriers at the system level, investments that cannot be substituted by individual provider accommodation and that must precede rather than follow trauma identification if screening efforts are to translate into service connection. At the mandated reporting bottleneck, clinical protocols that prepare families for reporting obligations before disclosure occurs, and that maintain therapeutic contact following a filed report, represent the most viable strategies for reducing what is otherwise an unavoidable structural drop-off risk. Across the treatment delivery phase, caregiver engagement must be treated not as an optional enhancement but as a core component of treatment design, with flexible scheduling, concurrent caregiver support, and modality adaptation built into service structures from the outset rather than deployed reactively when engagement deteriorates. This points to a parallel need for provider-facing support (e.g., training and consultation) in engaging reluctant or overwhelmed caregivers, so that reduced caregiver involvement is the last resort rather than a default response when a family becomes difficult to engage. More broadly, these findings argue for moving beyond a model in which trauma identification initiates a linear referral process toward one in which identification triggers a coordinated, pathway-informed response that anticipates the specific engagement challenges associated with different routes to care and the decision nodes where disruption is most likely to concentrate.

Disengagement from trauma-focused care carries significant consequences not only for individual youth outcomes (Thompson et al., 2007) but for the equity and efficiency of the systems designed to serve them (Gier, 2017; Stafford & Draucker, 2020). For Latiné youth who

are disproportionately exposed to trauma, disproportionately served in resource-constrained healthcare settings, and disproportionately affected by the structural barriers documented here, addressing these bottlenecks is not simply a quality improvement priority, it is an equity imperative. Interventions that target these specific points of breakdown, rather than individual barriers in isolation, represent the most promising strategy for improving access, engagement, and outcomes in trauma-focused care for this population.

General Conclusion

Together, these studies conceptualize engagement in trauma-focused care as a dynamic, multi-stage process shaped by provider characteristics and decision-making within organizational and family contexts. Study 1 identified variation in provider factors that influence whether trauma-exposed youth's mental health needs are documented and referred for mental health care, while Study 2 examined how families navigate the pathway after referral and where breakdowns occur along the continuum of trauma-focused treatment engagement. By integrating quantitative and qualitative approaches, this dissertation advances a process-oriented understanding of how disparities in trauma-focused care emerge within healthcare systems, demonstrating that they are shaped not only by patient-level factors but also by provider decision-making and system-level processes that influence movement through care pathways at every stage.

Across both studies, provider decision-making emerged as complex and consequential. The quantitative findings demonstrated that mental health-related documentation and referral practices varied systematically across provider characteristics (e.g., gender and type), departments, and caseload composition, while the qualitative findings illustrated how those same provider characteristics shaped clinical decisions during treatment, including how providers navigated language barriers, caregiver engagement, mandated reporting, and cultural adaptation. Consistent with the EPIS framework, these findings underscore that provider characteristics are not merely background variables but active determinants of how trauma-informed care is operationalized in routine practice (Aarons et al., 2011; Moullin et al., 2019). Together, they suggest that the provider factors shaping early identification and referral are the same factors that shape whether families remain engaged once treatment begins.

These findings also highlight that improving access to trauma-focused care requires moving beyond universal screening alone. Screening may increase opportunities to recognize trauma-related concerns, but it does not ensure that youth receive a trauma diagnosis, are referred to mental health services, or remain engaged long enough to complete evidence-based treatment. Effective trauma-informed systems must therefore strengthen each step in the pathway: embedding structured screening processes, supporting providers in documenting and addressing co-occurring mental health needs, streamlining referral processes, addressing language and immigration-related barriers, preparing families for mandated reporting, and investing in strategies that sustain caregiver engagement over time (California Surgeon General's Network of Care Subcommittee, 2021; Pérez Jolles et al., 2022; Powell et al., 2012; Proctor et al., 2013; Purtle, 2020).

Taken together, the findings suggest that disparities in trauma-focused care arise through cumulative barriers across multiple stages of the care continuum rather than through a single point of failure (Cheung & Bal, 1998; Joosten et al., 2009). Each stage, from trauma recognition and documentation to referral initiation, to treatment engagement, represents a potential site of dropout, delay, or inequity. By centering Latiné youth and Spanish-speaking families, this dissertation advances understanding of how language, culture, and structural inequity interact with provider and system factors to shape these cumulative barriers. In doing so, it offers a roadmap for healthcare systems seeking to build more equitable, culturally responsive, and trauma-informed pathways to care, with particular attention to identifying leverage points across the care continuum where targeted interventions may improve outcomes for historically underserved youth and families.

Appendices

Appendix A: ICD-9 and ICD-10 Diagnostic Codes for Mental Health Clinical Profiles and Trauma Outcomes

Clinical Profile	ICD-10 Codes	ICD-9 Codes	Description
Outcome: Trauma and Stress Disorders	F43.0; F43.10; F43.11; F43.12; F43.20; F43.21; F43.22; F43.23; F43.24; F43.25; F43.28; F43.29; F94.1	308.0; 308.1; 308.2; 308.3; 308.4; 308.9; 309.0; 309.1; 309.21; 309.24; 309.28; 309.29; 309.3; 309.4; 309.81; 309.9; 313.89	Acute stress, PTSD, adjustment disorders, and reactive attachment disorder
Trauma Exposure and Psychosocial Adversity	T74.11; T74.12; T74.21; T74.22; T74.31; T74.32; T74.4; T74.91; T76.11; T76.12; T76.21; T76.22; T76.31; T76.32; T76.4; T76.91; X92; X93; X94; X95; X96; X97; X98; X99; Y00; Y01; Y02; Y03; Y04; Y05; Y06; Y07; Y08; Y09; Z04.41; Z04.42; Z04.71; Z04.72; Z69.010; Z69.011; Z69.020; Z69.021; Z69.810; Z69.811; Z62.0; Z62.1; Z62.21; Z62.22; Z62.29; Z62.820; Z62.821; Z62.898; Z62.9; P04.14; P04.16; P04.17; P04.49; P04.81; Z55.0; Z55.1; Z55.2; Z55.3; Z55.4; Z55.8; Z55.9; Z56.0; Z56.1; Z56.2; Z56.3; Z56.4; Z56.5; Z56.6; Z56.7; Z56.8; Z56.9; Z57.0; Z57.1; Z57.2; Z57.3; Z57.4; Z57.5; Z57.6; Z57.7; Z57.8; Z57.9; Z59.0; Z59.1; Z59.2; Z59.3; Z59.4; Z59.5; Z59.6; Z59.7; Z59.8; Z59.9; Z60.0; Z60.2; Z60.3; Z60.4; Z60.5; Z60.8; Z60.9; Z63.0; Z63.1; Z63.2; Z63.3; Z63.4; Z63.5; Z63.6; Z63.7; Z63.8; Z63.9; Z65.0; Z65.1; Z65.2; Z65.3; Z65.4; Z65.5; Z65.8; Z65.9	995.50; 995.51; 995.52; 995.53; 995.54; 995.55; 995.59; E960.0; E960.1; E960.2; E960.3; E960.4; E960.5; E960.6; E960.7; E960.8; E960.9; E961; E962; E963; E964; E965.0; E965.1; E965.2; E965.3; E965.4; E965.5; E965.6; E965.7; E965.8; E965.9; E966; E967; E968; E969; V71.5; V61.10; V61.11; V61.12; V61.19; V61.20; V61.21; V61.29; V61.41; V61.42; V61.49; 760.70; 760.71; 760.72; 760.73; 760.75; 760.76; 760.77; 760.78; 760.79; V60.0; V60.1; V60.2; V60.3; V60.4; V60.5; V60.6; V60.7; V60.8; V60.9; V62.0; V62.1; V62.2; V62.3; V62.4; V62.5; V62.6; V62.8; V62.9; V63.0; V63.1; V63.2; V63.3; V63.4; V63.5; V63.6; V63.7; V63.8; V63.9	Abuse, neglect, violence exposure, adversity, perinatal substance exposure, and social determinants

Internalizing Distress	F32.0; F32.1; F32.2; F32.3; F32.4; F32.5; F32.8; F32.9; F33.0; F33.1; F33.2; F33.3; F33.4; F33.8; F33.9; F40.00; F40.01; F40.10; F40.11; F40.218; F41.0; F41.1; F41.3; F41.8; F41.9; F42.2; F42.3; F42.4; F42.8; F42.9; F30.0; F30.1; F30.2; F30.3; F30.4; F30.8; F30.9; F31.0; F31.1; F31.2; F31.3; F31.4; F31.5; F31.6; F31.7; F31.8; F31.9; F50.0; F50.01; F50.02; F50.2; F50.3; F50.8; F50.9; F98.0; F98.1	296.20; 296.21; 296.22; 296.23; 296.24; 296.25; 296.26; 296.30; 296.31; 296.32; 296.33; 296.34; 296.35; 296.36; 311; 300.00; 300.01; 300.02; 300.09; 300.21; 300.22; 300.3; 296.00–296.89; 307.1; 307.50; 307.51; 307.52; 307.54; 307.59; 307.6; 307.7	Mood, anxiety, OCD, bipolar, eating, and elimination disorders
Behavioral Dysregulation / Externalizing	F90.0; F90.1; F90.2; F90.8; F90.9; F91.0; F91.1; F91.2; F91.3; F91.8; F91.9; F63.0; F63.1; F63.2; F63.3; F63.81; F63.89; F63.9; F10.10–F10.99; F11.10–F11.99; F12.10–F12.99; F13.10–F13.99; F14.10–F14.99; F15.10–F15.99; F16.10–F16.99; F17.200–F17.299; F18.10–F18.99; F19.10–F19.99; F95.0; F95.1; F95.2; F95.8; F95.9	314.00; 314.01; 314.1; 314.2; 314.8; 314.9; 312.00–312.99; 313.81; 312.30–312.39; 303.00–305.99; 307.20–307.23	ADHD, conduct, ODD, impulse-control, substance use, and tic disorders
Somatic Expression	F45.0; F45.1; F45.8; F45.9; R52; R52.1; R52.2; R51; R10.0; R10.1; R10.2; R10.3; R10.4; R10.9; R53.0; R53.1; R53.2; R53.81; R53.83; F51.0; F51.1; F51.2; F51.3; F51.4; F51.5; F51.8; F51.9; R07.0; R07.1; R07.2; R07.81; R07.82; R07.89; R07.9; R06.0; R06.1; R06.2; R06.3; R06.4; R06.5; R06.6; R06.7; R06.8; R06.9; R11.0; R11.1; R11.2; R19.0; R19.1; R19.2; R19.3; R19.4; R19.5; R19.6; R19.7; R19.8; R19.9; R42; R68.0; R68.1; R68.2; R68.3; R68.8; R68.9	300.81; 300.82; 338.0–338.4; 784.0; 789.00–789.09; 780.79; 307.40–307.49; 786.50–786.59; 786.00–786.09; 787.00–787.09; 787.90–787.99; 780.4	Somatic symptoms, pain, fatigue, sleep, and functional bodily complaints
Acute Risk and Safety	R45.851; T14.91; X71; X72; X73; X74; X75; X76; X77; X78; X79; X80; X81; X82; X83	V62.84; E950.0–E959	Suicidal ideation and self-harm

Neurodevelopmental and Developmental Complexity	F84.0; F84.1; F84.2; F84.3; F84.4; F84.5; F84.8; F84.9; F70; F71; F72; F73; F78; F79; F80.0; F80.1; F80.2; F80.3; F80.8; F80.9; F81.0; F81.1; F81.2; F81.3; F81.8; F81.9; F82; F83	299.00; 299.01; 299.10; 299.11; 299.80; 299.81; 317; 318.0; 318.1; 318.2; 319; 315.00–315.9	Autism, intellectual disability, and developmental disorders
Severe Mental Illness and Complex Psychopathology	F20.0; F20.1; F20.2; F20.3; F20.5; F20.8; F20.9; F21; F22; F23; F24; F25; F28; F29; F60.0–F60.9; F61; F62; F44.0–F44.9; F01; F02; F03; F04; F05; F06; F07; F09	295.00–295.99; 297.0–297.9; 298.0–298.9; 301.00–301.9; 300.10–300.19; 290.00–290.99; 294.00–294.9	Psychotic, personality, dissociative, and neurocognitive disorders
Identity Context	F64.0; F64.1; F64.2; F64.8; F64.9	302.6; 302.85	Gender dysphoria

Appendix B: Provider Interview Questions Mapped to Process Domains and Transcript Summary Sheet

Part 1 – Interview Questions Mapped to Process Domains

Domains	Questions	Purpose for Process Mapping
Provider Role and Position in the Trauma Care Pathway	Tell me about your work treating Latine youth with PTSD.	Identifies the provider's clinical role, service setting, and point of interaction within the trauma care system.
Treatment Selection and Intervention Delivery	What treatment do you typically use when treating Latine youth with PTSD? What do you think about this (i.e., PCIP: an evidence-based 3 session trauma treatment)?	Identifies clinical decision points related to the types of trauma-focused treatments providers use and their perspectives on delivering brief trauma interventions.
Family Engagement and Caregiver Participation in Treatment	What do you think of including family members in treatment with this population? Do you find it useful or not? If so, which family member(s)? How do you work with these family members of Latine youth with PTSD? What barriers come up to working with these family members? How is working with other family members different than with parents? If the family members mentioned are not parents: What considerations do you take when working with parents?	Identifies decision points and pathways related to caregiver involvement in youth trauma treatment, including which family members participate, how providers engage families, and barriers to family participation.
Language Access and Communication in Trauma Treatment	Do you offer services in Spanish? If yes, how do you provide services in Spanish? Do you use interpretation services? How do you feel that goes (using interpretation services)? Can you give examples of how you use the interpreter? Are there particular words in Spanish that frequently come up in trauma-specific treatment?	Identifies language-related structural factors influencing access to and delivery of trauma treatment, including Spanish-language services, interpreter use, and communication strategies used to explain trauma concepts. These responses inform language access decisions within the treatment pathway.

	We had some specific questions on translations. How would you say the following: Arousal? Coping skills? Flashbacks? Re-experience? Triggers? Do you use story telling or other specific examples during treatment? Are there any sayings or metaphors that you use in the treatment of PTSD with Latine youth that are helpful?	
Cultural Adaptation and Cultural Responsiveness in Treatment Delivery	Do you involve Latine cultural values in treatment? Which values? How do you assess and incorporate(values)? Provide examples of when you include cultural values. What considerations should be made in delivering this (i.e., PCIP: an evidence-based 3 session trauma treatment) for Latine youth? Do you perceive there to be a difference in therapeutic rapport/alliance if you and the client are culturally/racially matched/similar? Are there any matched or unmatched characteristics (other than ethnicity/race) that make a difference in therapeutic alliance or treatment overall?	Identifies how trauma treatments are adapted to align with the cultural values, experiences, and relational needs of Latine youth and families, including incorporation of cultural values, adaptation of interventions, and the role of therapeutic alliance and cultural concordance. These responses inform how treatment delivery is tailored after engagement within the care pathway.
Access Pathways and Structural Barriers to Treatment Initiation	What barriers have you witnessed for Latine youth to access treatment? What do you typically see as the client's and/or family's views of seeking treatment?	Identifies barriers and facilitators influencing whether Latine youth access mental health services, including structural barriers and family attitudes toward treatment. These responses inform barriers in entry points to trauma care.
Treatment Engagement, Participation, and Retention	What barriers have you witnessed for Latine youth to completing treatment? What barriers have you witnessed for Latine youth to engage in treatment? How do you address any or all of these barriers? Is there anything you struggle with when working with this population, specifically?	Identifies factors influencing whether youth remain engaged in trauma treatment after services begin, including barriers to participation and provider strategies used to support retention. These responses inform mid-stage engagement pathways.

Contextual Risk, Protective Factors, and Treatment Outcomes	Do you address discrimination, acculturation, immigration experiences in treatment? Do you address other risk factors? How do you address them? What cultural/community factors compound or maintain PTSD symptoms in Latine youth? What cultural/community factors protect Latine youth against PTSD symptoms? How do you measure progress when treating Latine youth with PTSD?	Identifies social, cultural, and contextual factors that influence trauma symptoms and treatment response, as well as how providers monitor treatment progress. These responses inform factors affecting recovery and treatment effectiveness.

Part 2 – Summary Transcript Sheet

Coder:

Interview [copy and paste title label]:

Provider Role and Position in the Trauma Care Pathway

Treatment Selection and Intervention Delivery

Family Engagement and Caregiver Participation in Treatment

Language Access and Communication in Trauma Treatment

Cultural Adaptation and Cultural Responsiveness in Treatment Delivery

Access Pathways and Structural Barriers to Treatment Initiation

Treatment Engagement, Participation, and Retention

Contextual Risk, Protective Factors, and Treatment Outcomes

Other Miscellaneous Notes/Quotes:

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